UNIVERSITY OF
ILLINOIS LIBRARY
AT URBANA-CHAMPAIGN
BOOKSTACKS

THE HECKMAN BINDERY, INC.
North Manchester, Indiana

KH

H or V	JUST	FONT	SLOT	TITLE
H	CC	1		BRITISH
				MEDICAL
				JOURNAL
			~~19~~	~~(11 3/4 SLOT 11)~~
H	CC	1	8	1
			7	1917
H	CC	1		Q.
				610.5
				BR
				1917:1
				<IMPRINT>
H	CC	7		U. of ILL.
				LIBRARY
				URBANA

BINDING COPY

PERIODICAL: ☐ CUSTOM ☐ STANDARD ☐ ECONOMY ☐ THESIS
BOOK: ☐ CUSTOM ☐ MUSIC ☐ ECONOMY AUTH. 1ST ☐
NO. VOLS. THIS TITLE
LEAF ATTACH.

ACCOUNT	LIBRARY	NEW	RUB OR SAMPLE	TITLE I.D.	FOIL	COLOR MATERIAL
66672	001			8654	WHI	860

ACCOUNT NAME
UNIV OF ILLINOIS

ACCOUNT INTERNAL I.D.
B10530000

ISSN.
STX

I.D. #2 | NOTES | BINDING FREQUENCY: 0 | WHEEL: 1 | SYS. I.D.: 3

COLLATING
TSA PLEASE REBIND

ADDITIONAL INSTRUCTIONS
~~HNM=[YPT]~~
(11 3/4 - SLOT 11)

SEP. SHEETS	PTS. BD. PAPER	TAPE STUBS	CLOTH EXT.	FILLER GUM	FILLER STUB

POCKETS: PAPER | BUCK | CLOTH
SPECIAL PREP.
LEAF ATTACH.

INSERT MAT.

ACCOUNT LOT NO.: #43

JOB NO.: 186-2

PRODUCT TYPE: 11

ACCOUNT PIECE NO.: 3

PIECE NO.: 31

PC

HEIGHT: 11 5/8

GROUP CARD: 1

VOL. THIS TITLE: 1

COVER SIZE: X

1115

LIBRARY U. OF I. URBANA-CHAMPAIGN

THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

EDITED BY

DAWSON WILLIAMS, M.D., D.Sc.(Hon.).

VOLUME I, 1917.

JANUARY TO JUNE.

London:

PRINTED AND PUBLISHED AT THE OFFICE OF THE BRITISH MEDICAL ASSOCIATION,
429, STRAND, W.C.

LIBRARY U. OF I. URBANA-CHAMPAIGN

610.5
BR
1917
1

INDEX TO VOLUME I FOR 1917.

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma, Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria and Sugar; Light, Roentgen, Radium, *X* Rays; Status Lymphaticus and Thymus; Eye, Ophthalmia and Vision; Bicycle and Cycle; Motor and Automobile; Association, Institution, and Society; Paris, France; Berlin, Prussia, Germany; Vienna, Austria, etc. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, "Correspondence," "Leading Articles," "Reviews," etc. Original Articles are indicated by the letter (O).

A.

ABADIE, J.: *Les Blessures de l'Abdomen*, rev., 226
ABBOTT, H. W.: Needle for intravenous injection of arseno-benzol preparations, 812
Abdomen, treatment of gunshot wounds of (Captain A. L. Lockwood, Captain C. M. Kennedy, Captain R. Bute Macfie, and Lieut. S. F. A. Charles), 317. (O).—Correspondence on, 377
Abdomen, three hundred perforating wounds of (Captain J. Fraser and Captain Hamilton Drummond), 321. (O)
Abdomen, wounds of (Major C. H. Barber), 27—(Hans Burckhardt and F. Landois), 343
Abdominal injuries in a casualty clearing station (Major A. Don), 330. (O)
Abdominal injuries on the lines of communication in France, 802
Abdominal kneading in the treatment of intestinal stasis (Joseph S. Bolton), 422. (O)—Correspondence on, 500
Abdominal protector, 367
Abdominal symptoms produced by medicinal doses of opium, 72
Abdominal wounds at the British front, 715
Aberdeen, treatment of venereal disease in, 172
ABRAMS, A.: *New Concepts in Diagnosis and Treatment*, rev., 266
Abscess, cerebral, of otic origin (H. Bodkin), 510. (O)
Abscess, mammary, prophylaxis of (Reginald Larkin), 765
Académie Française, candidates for vacant chairs, 412

ACADEMY, ROYAL, OF MEDICINE IN IRELAND: Dinner to the Lord Lieutenant, 134
Section of Anatomy and Physiology.—Professor Thompson: Food consumption of working-class families, 563
Section of Medicine.—A. R. Parsons: Sudden death in tabes dorsalis, 513
Section of Obstetrics.—Sir William Smyly: Continuous sponges for laparotomy, 298—Alfred Smith: Operative treatment of fixed backward displacement of the uterus, 457—Hastings Tweedy: Vaginal plugging for haemorrhage, 618
Section of State Medicine.—Walter Smith: Toxic action of T.N.T. 618

Acid, *p*-sulphondichloramino-benzoic, in disinfection of drinking water (Dakin and Dunham), 482
Acidosis (R. J. Minnitt), 155
Acne, 604
Acriflavine. *See* Flavine
Act, Midwives, additional women doctors appointed by L.C.C., 310
Actinomycosis successfully treated by vaccine (C. W. Dean), 82. (O)
ADAM, Major Hugh Neville, called to the Bar, 895
ADAMI, Lieut.-Col. J. G.: Croonian lectures on adaptation and disease, 837, 872. (O
ADAMS, John: Intravenous injections of galyl, etc., 161—Salvarsan treatment of syphilis, 244—School reform, 568
ADAMS, W. Coode: Co-ordination of British medical policy, 856
Adaptation and disease (Lieut.-Col. J. G. Adami), 837, 872. (O)
Adenitis, suppurative (non-tuberculous) treated by aspiration (H. E. C. Keith Murray), 513
Adipocere, early formation of (A. Powell), 842
Adrenalin in angioneurotic oedema (J. Alfred Codd), 808
Africa, South, report on miner's phthisis in, 131—Health of native labourers in (leading article), 165
After-care of paralysis cases in New York, report, 810
After-war professions for women, 859
Agricultural work, curative, 692
Agriculture, Army Council instruction on calling up of men employed in, 635
AHERN, Major David, D.S.O. conferred upon, 780
AINSLIE, Lieut. Archibald, killed in action, 662
AINSLIE, Captain William, Military Cross conferred upon, 30
Air raid, dermatitis from explosives used in, 894
Air raid, the Folkestone, 745
Alcoholism, effect of liquor control on, 651—Leading article on, 654
ALDERSON, Reginald: Abdominal kneading in treatment of intestinal stasis, 500
ALDRIDGE, Lieut.-Col. Arthur Russell, C.M.G. conferred upon, 29
ALEXANDER, David A.: Recurrence or redeposit of cancer, 618
ALEXANDER, George: Mobilization of the profession, 441
ALEXANDER, Lieut.-Col. John Donald, D.S.O. conferred upon, 780
ALGES, W. F., lost in *California*, 240
Alien enemy practitioners, 470
Alkaloids in colloidal form, 585, 648. *See also* Colloids
Alkaptonuria, case of (F. K. Hayman), 364
ALLARDICE, W. C.: The wounded as we see them at home, 501. (O)
ALLARDYCE, Surgeon Probationer William Swirles, drowned on service, 28, 58
ALLBUTT, Sir Clifford: *Science in the School*, 203—War Emergency Fund, 858
ALLEN, F. J.: The fallacy of selling bread by weight, 497
ALLEN, Robert Hugh: Alien enemy practitioners, 470
ALLEY, Captain G. O. F., Military Cross conferred upon, 780
Alliance Year Book and Temperance Reformers' Handbook, 500
Allowances for officers. *See* Officers
Altrincham, inquest at (coroner and doctor), 277
ALVAREZ, José M., obituary notice of, 787
AMBARD, L. (and others): *Les Fièvres Paratyphöides B à la Hôpital Mixte de Zuydcoote*, rev., 83
Ambulance dogs, 96
Ambulance light railway trolleys, 522
Ambulance workers' awards (Ireland), 135
America. *See* United States
American base hospital units, organization of, 742
American doctors for France, 591, 623, 779
American hospital units, 779
American orthopaedic unit, 779
American Pediatric Society, next meeting, 619—*Transactions*, 767
American Review of Tuberculosis, 223
American unit and military orthopaedics (leading article), 772
American Yearbook of Anaesthesia and Analgesia, by various authors, rev., 485
AMESBURY, Brigade-Surgeon Samuel Cornwallis, obituary notice of, 143
Ameobic dysentery. *See* Dysentery
Amputation retractor, 515
Amputations and amputation stumps (Fritz König), 492
Amputations, primary, on the British front, 709
Amputations, review of books on, 299
Anaërobes in plates, simple device for the growth of (Herbert Henry), 762 (O)
Anaërobes found in wounds, and their mode of action in the tissues (Herbert Henry), 806. (O)
Anaërobic flora of wounds, influence of the dressing on, 371
Anaesthesia, practical methods of (James T. Gwathmey), 393. (O)
Anaesthesia, pudic nerve, 352
Anaesthesia, review of books on, 485
Anaesthesia, safe, 65
Anaesthesia by warmed ether, 748, 826
Anaesthetics at the front, administration of (Captain Geoffrey Marshall), 722. (O)—Correspondence on, 784
Anaesthetizing soldiers, method of (Captain W. J. McCardie), 508. (O)—Correspondence on, 748
ANCONA (and others): Epidemic jaundice in camps, 404
Ancre, Army Medical Service at, 854
ANDERSON, Captain Archibald Stirling Kennedy, bar to Military Cross, 439
ANDERSON, Lt.-Col. John, C.I.E. conferred upon, 770
ANDERSON, Louisa Garrett: Bismuth and iodoform paste in gunshot wounds, 264
ANDERSON, Major R. G., Order of the Nile conferred upon, 562
ANDERSON, Lieut. William, dies of wounds, 597
ANDREWES, F. W.: The work of British pathology in relation to the war, 829. (O)
Aneurysm of the carotid, traumatic, ligation of the innominate artery for (Colonel Thomas Sinclair), 288. (O)
Aneurysm, intracranial, 739
Aneurysm, traumatic and arterio-venous, treatment of (Colonel Charters J. Symonds 483

405626

LIBRARY U. OF I. URBANA-CHAMPAIGN

Aneurysm, traumatic, treatment of (K. Riedel), 594
ANGEL, Andrea, obituary notice of, 142
Angina, Vincent's, relation of peridental gingivitis to (Frank E. Taylor and Captain W. H. McKinstry), 421. (O)
Angioneurotic oedema, adrenalin in (J. Alfred Codd), 808
ANGUS, Captain J., Croix de Guerre conferred upon, 697
Aniline products to be manufactured in Italy, 503
Animals, census of in Germany, 649
Ankle-jerk (Surgeon Hildred B. Carlill), 556
ANNESLEY, Captain James Ferguson St. John, dies on service, 697
Anthrax and shaving brushes, 882
Anthrax in Uganda (B. Spearman), 809—Correspondence on, 894
Antimony in malaria, intravenous injections of, 6, 24—(George C. Low and H. B. Newham), 295. (O). *See also* Malaria *and* Tartar emetic
Antiseptic, brilliant green as. *See* Green
Antiseptics: Flavine and brilliant green in the treatment of infected wounds (C. H. Browning, R. Gulbransen, E. L. Kennaway, and L. H. D. Thornton), 73. (O)—(D. Ligat) 78. (O)—Leading article, 91. *See also* Flavine *and* Green
Antiseptics and glycerin (Helen Pixell Goodrich), 647. (O)
Antiseptics, influence of on the activities of leucocytes and on healing of wounds (C. J. Bond), 145. (O)—Leading article on, 164
Antiseptics, measure of the potency of, 136, 177, 210
Antiseptics, nasal, chloramines as (E. K. Dunham and H. D. Dakin), 865. (O)
Antiseptics, new, 91
"Antitension spring" for strapping, 828
Antitetanic serum in "trench foot," importance of the early prophylactic injection of (Sir David Bruce), 48. (O)
Antitoxin laboratory of the University of Toronto, 62
Antitoxin treatment of tetanus, successful case of (Noel C. Forsyth), 548
Antityphoid inoculation, in the Canadian Expeditionary Force, 440
Antrim, tuberculosis in, 822
Anxiety, morbid, review of books on, 475
Apoplexy, sudden death from (Henry Waldo), 155
Apothecaries' Society of London, pass lists and degrees, 567, 750, 894
Apparatus for re-education, 697. *See also* Soldiers, crippled
Appeal to men up to fifty, 658
Appendicitis and enamelled ware, 36, 108, 180
Appendicitis consequent on acute pharyngitis (Charles Bennett), 360. (O)
ARAUJO, H. C. de Souza: *Granuloma Venéreo*, rev., 425
ARCHIBALD, Captain Robert George, D.S.O. conferred upon, 29
ARCHIBALD, Private William Nicol, killed in action, 132
Archives Médicales Belges, 36, 316
Archives Suisses de Neurologie et de Psychiatrie, 248
ARDAGH, Captain Arthur Holford, killed in action, 744
Argaud's method in heart massage, 497. *See also* Heart
ARGENTO, Giovanni, obituary notice of, 443
ARKWRIGHT, Captain Joseph Arthur, Serbian Order of the White Eagle conferred upon, 276
ARMANGUÉ, Dr.: His praise of England, 590
Armless soldiers, table for, 583—Page-turner for, 769
Arm stumps and artificial hands (A. Stadler), 275
ARMITAGE, Captain Frank Rhodes, D.S.O. conferred upon, 29
ARMSTRONG, Captain A. C., Croix de Guerre conferred upon, 596
ARMSTRONG-JONES, Robert: Psycho-analysis, 64—Knighthood conferred upon, 235

ARMY, BRITISH:
And the medical profession (leading article), 337
Army Medical Department (parliamentary question), 343
Army Medical Report (1913), 882
Army Medical Service and the Army Council, 197—Need for adding the Director-General, Army Medical Service, 197—New address of head quarters, 309—Mr. Forster's tribute to (parliamentary statement), 340—and national service, 399—At the Ancre, 854
Auxiliary R.A.M.C. funds. *See* Funds
Civil profession and, 488
Classification of men, contemplated changes (parliamentary question), 402
Criticism of the Army Medical Service (*The World*), 464
Exchanges, 35, 70, 107, 143, 178, 212, 315, 444, 531, 603, 634, 702, 750, 894
Medicine in, 270
Officers of the Territorial Force *à la suite* of a Territorial general hospital (leading article), 771

ARMY, BRITISH *(continued)*:
Promotion of medical officers (parliamentary question), 851
Promotion of temporary R.A.M.C. officers, 604
R.A.M.C. officers' acting rank (parliamentary question), 886
R.A.M.C. officers waiting for work (parliamentary question), 658
Recruits for (Ireland), 440, 468
Removal of the dépot from Aldershot, 212
Temporary Captains R.A.M.C., 248
Territorial Decoration, 827
Territorial medical officers, grievances of, 750, 857, 894
Territorial and special reserve officers, 657
Venereal disease in (parliamentary question), 306

Army and civil medical co-operation. *See* next entry
Army and civil medical economies: The need for co-operation (leading articles), 621, 652, 687, 771, 813—Correspondence on, 701, 786—Note on, 488
Army Council, instruction *re* admission of discharged soldiers to military hospitals, 284—To take possession of all stocks of quinine, phenacetin, and formaldehyde, 603—*Re* calling up of men employed in agriculture, 635
Army French, work of the medical service of, 627, 657, 774—The Medical Museum, 819
Army, German, venereal disease in, 143—Twenty months' surgical field service with (Coenen), 237—Changes in the medical service of, 437—Health of, 660
Army, Indian, accelerated promotions, 352—Applications, 315, 603—Honours, 212—Medical Services, report of Royal Commission, 161—Leading articles on, 163, 198—Correspondence on, 208—New regulations as to pay, 567—Slow promotion, 567
Army Medical Board decisions (parliamentary question), 593
Army Medical Service. *See* Army, British
Army Order *re* food and drink in billets, 657
Army, United States, health of, 248—Tuberculosis in, 740
Arras advance, medical work in, 558, 662
Arseno-benzol preparations, needle for intravenous injection of, 812
Arterial and venous trunks in war surgery, simultaneous ligature of (Captain E. M. Cowell), 577. (O)
Arterial wounds, treatment of (Enderlen and Gebele), 403
Artery, innominate, ligation of for traumatic aneurysm of carotid (Colonel Thomas Sinclair), 288. (O)
Arthritis, rheumatoid, "auto" counter irritation in (John Haddon), 108
Artificial legs and arms, review of books on, 619
Artificial limbs and surgical appliances for invalided soldiers, Army Council instruction *re*, 206—Arm stumps and artificial hands (A. Stadler), 275—Parliamentary questions, 557, 626, 693, 818
ASH, E. L.: *Stammering and Successful Control in Speech and Action*, rev., 768
Ashby-de-la-Zouch guardians advocate legislation that doctors are not liable to libel action for warnings *re* venereal disease, 179
ASPINALL, Captain William Robert, Military Cross conferred upon, 852
Aspiration in treatment of suppurative (non-tuberculous) adenitis (H. E. C. Keith Murray), 513
Assizes, waste of medical time at, 352
Association, Asylum Workers', annual meeting, 751
Association, British Medical, rare book presented to the library, 658
Association, British Medical, and the War Loan, 248

ASSOCIATION, BRITISH MEDICAL:
Dorset and West Hants Branch: Annual meeting, 766—Diagnosis of scarlet fever (T. Howard), 766 — Sea-water plasma (Dr. Mahomed), 766
Gloucestershire Branch—Exhibition of cases and specimens, 456
Victorian Branch.—Annual meeting, 312

Association, Canadian Medical, general meeting, 62
Association, Irish Medical: Need for medical men in Parliament, 135
Association, Irish Medical Schools' and Graduates', annual meeting, 400
Association, John O'Groats Benevolent, 100
Association, Medico-Psychological, of Great Britain and Ireland: Hallucinations in the sane (Robert Hunter Steen), 766
Association, Mental After care, annual meeting, 340
Associations of Municipal Corporations and a Ministry of Health, 751
Association, Poor Law Medical Officers', of England and Wales, annual meeting, 704
Association, Poor Law Medical Officers' (Scottish), report, 207
Association of Public Vaccinators, and M.O.H.s vaccinating small-pox contacts, 668
Association of Registered Medical Women—Agnes Savill: X-ray appearances in gas gangrene, 15—Louisa Garrett Anderson: Gunshot wounds, more especially of the head, 264—Mary Bell: Modern methods of re-education of attentive control used in treatment of the functional neuroses, 425—Medical women and a Ministry of Health, 663
Association of Trained Midwives, annual meeting, 439
Asthma, bronchial, new treatment of [peptone] (A. G. Auld), 583. (O)—Correspondence on, 702, 749
Asthma treated by bronchoscopy (W. S. Syme), 868. (O)
ASTIER, A.: Tetanus after "trench foot," 234
Asylum dietary scale (parliamentary question), 305
Asylum fire in Quebec, 243
Asylum, Glasgow Royal, report, 277—Insanity and the war, 277
Asylum inmates for farm labour, 311
Asylum, Mayo, and farm labour, 311
Asylum, Royal Edinburgh, Morningside, report (leading article), 301
Asylum Workers' Association, 751
Asylums for the insane, the *Daily Graphic* and, 860
ATHANASSIO-BENISTY, Mme.: *Formes cliniques des lésions des nerfs*, rev., 843
ATKIN, E. E.: Hatching of the yellow fever mosquito, 167
ATKINSON, Captain George Lewis, lost at sea, 466
ATKINSON, John Mitford, obituary notice of, 827
ATKINSON, Lieut. Noël Mitford Henson, killed on service, 28
Atmospheric pollution, committee for investigation of now constituted an advisory committee, 895
Atropine in eye work (Horatio Matthews), 581
Attested men, re-examination of (parliamentary question), 373. *See also* Re-examination
AUBIN, Duret, obituary notice of, 498
AULD, A. G.: New treatment of bronchial asthma (peptone), 580 (O), 749
AUSTIN, Colonel John Henry Edward, dies on service, 596
Australia, South, special correspondence, 699—The medical school, 700—The profession, 700—The Branch, 700
Australia, Western: Notification of venereal disease, 63
Austria: Number of students in the universities, 107—Recognition of work of medical prisoners, 132
"Auto" counter irritation in rheumatoid arthritis, 108
Auto-disinfection of wounds by the use of ether solution (A. Distaso and Captain T. R. Bowen), 259. (O)
Auxiliary R.A.M.C. funds. *See* Funds
AWUNOR-RENNER, W., elected mayor of Freetown, Sierra Leone, 71
AXFORD, Deputy Surgeon-General W. G. (and Surgeon-General G. Lenthal CHEATLE): Naval surgery, 535. (O)

B.

BABINGTON, Lieut.-Col. Marcus Hill, D.S.O. conferred upon, 29
BABINSKI, J. (and J. FROMENT): *Hystérie-pithiatisme et troubles nerveux d'ordre réflexe*, rev., 843
Baby Week Council, National, 668—For Ireland, 783—Preparations for in London, 822, 859
Bacillary dysentery. *See* Dysentery
Bacillary enteritis. *See* Enteritis
Bacilli, algoid stage of, as a hypothesis, 137
BACOT, A.: Hatching of the yellow fever mosquito, 167
BACOT, A. W.: The louse problem, 296
Bacteria, filterable phase of certain pathogenic (leading article), 588
Bacteria, life-history of (Edward C. Hort), 571 (O), 664—Leading article on, 588—Correspondence on, 664, 784
Bacteriology at the front (Colonel Sir W. P. Herringham), 832. (O)
Bacteriology, review of books on, 299
Bacteriology and the war (Ernest Glynn), 520
BADCOCK, Captain Vincent Edgar, Military Cross conferred upon, 852
BADDELEY, Florence: *Practice and Teaching of Domestic Economy*, rev., 458
BAERTHLEIN: Disinfection by a current of dry hot air, 171
BAHR, Captain Philip Henry, D.S.O. conferred upon, 780
BAINBRIDGE, F. A. (and J. W. TREVAN): Surgical shock, 382—(and J. Ackworth MENZIES): *Essentials of Physiology*, rev., 582
BAIRD, Captain Leonard Barron, killed in action, 596—Military Cross conferred upon, 780

BAKER, Captain Basil Rupert, dies on service, 781
BAKER, T. Thorne: *X*-ray intensifying screens, 491
BAKSH, Surgeon Maula, medal of St. George (Russia) conferred upon, 276
Bale's Dental Surgeon's Daily Diary and Appointment Book, 1917, rev., 84
BALFOUR, Right Hon. Arthur, elected a member of the American Philosophical Society, 776
Balkans, tropical disease in (Aldo Castellani), 809
BALLANTYNE, Alexander, estate of, 79
BAMFIELD, Lieut.-Col. Harold John Kinahan, D.S.O. conferred upon, 780
BANA, F. D.: Intravenous injections of tartar emetic in malaria, 858
BANATVALA, Colonel Hormasjee Eduljee, C.S.I. conferred upon, 770
BANDLER, S. W.: *The Expectant Mother*, rev., 812
BARBER, Major C. H.: Wounds of abdomen, 27—Surgery at the siege of Kut, 237
BARBER, Lieut.-Col. George Walter, D.S.O. conferred upon, 30
Barcoo rot, pathology of, with suggestions as to treatment (Lieut.-Col. C. J. Martin), 761. (O)—(J. R. Hickinbotham), 842
BARDSWELL, Noel Dean: Sanatorium roll of honour, 759. (O)
BAREFOOT, Colonel George Henry, C.B. conferred upon, 29
BARKER, H. A., 303. *See also* Bonesetters
Barley flour, 339—Recipes for using (J. W. Hayes), 788
BARLING, Lieut.-Col. Gilbert, C.B. conferred upon, 129
BARLOW, Private Patrick Basil, dies on service, 170
BARNES, Henry: Refreshment house experiment in Carlisle, 785
BARNES, J. A P.: Toxic jaundice, 158
BARNES Stanley: Tetanus relapse after a trivial operation, 371
BARNETT, H. N.: *The Students' Textbook of Surgery*, rev., 83
BARR, Captain Hugh, dies of wounds, 375
BARRETT, Captain Keith J., dies of wounds, 597
BARROW, Lieut-Col. H. P. W., C.M.G. conferred upon, 129
BARRY, Captain James Harding, Military Cross conferred upon, 852
BARTLET, J. H., obituary notice of, 786
BARTLETT, G. B.: Dysentery in the Mediterranean Expeditionary Force, 738
BARTON, Captain Bertram Henry, Military Cross conferred upon, 852
BARTON, G. A. H.: Administration of anaesthetics—a preliminary narcotic, 784
BARWELL, Richard, obituary notice of, 35
BASKETT, B. G. M.: Economics of insurance, 177
BASSETT-SMITH, Fleet Surgeon P. W. (and Surgeon-General H. D. ROLLESTON): Naval medicine and clinical pathology, 533. (O)
BASU, B. D.: *Dietetic Treatment of Diabetes*, rev., 84
BATTELLI, Angelo, obituary notice of, 411
Bavaria, birth-rate of, 343
BAYLEY, Captain J. H., Military Cross conferred upon, 780
BAYLISS, W. M.: Origin of electric currents led off from the human body, especially in relation to "nerve-leaks," 387. (O)—Use of gum solutions for intravenous injections, 564
BAZALGETTE, Sidney, obituary notice of, 142
BEADLES, Harold S.: Future medical policy, 748
BEADNELL, Fleet Surgeon C. Marsh: Psychopathology of mediumism and spiritualism, 104
BEAMAN, Captain Winfred Kelsey, D.S.O. conferred upon, 29
BEARD, J.: Two pictures of malaria, 72
BEARN, Captain Frederick Arnot, D.S.O. conferred upon, 29
BEATH, Frederick Stewart, dies in hospital, 99
BEATSON, Sir George Thomas: Auxiliary hospitals in Scotland, 856—*The Story of the Red Cross and its Use in War as a Distinctive Emblem*, 895—How the wounded soldier is treated at orthopaedic centres in Scotland, 895
BEATTIE, J. M. (and others): Hypochlorous solution electrically produced from hypertonic saline as a disinfectant for septic wounds, 256. (O)
BEATTY, Surgeon-General Thomas Barkly, obituary notice of, 70
Beds, warm, in open air, 433, 528
BEHRING, Emil von, obituary notice of, 498
BEILBY, Captain Julius Henry, estate of, 212
BELCHER, Clement: Bullet wound in pregnant uterus, recovery, 896
Belfast: Care of maternity and child life (Sir John Byers), 494—Venereal diseases campaign, 134, 173
Belgian colleagues at home and abroad, 300, 410, 429, 666
Belgian Doctors' and Pharmacists' Relief Fund, 702
Belgian mothers, leaflet for, on infant management, 107
BELL, Corporal Cecil William James, "missing, believed drowned," 697
BELL, Captain Delvine, Military Cross conferred upon, 30
BELL, Captain Francis Gordon, Military Cross conferred upon, 30
BELL, John, and CROYDEN: Paraffin for burns, 549
BELL, Mary: Modern methods of re-education of attentive control used in treatment of functional neuroses, 425
BELOT: Apparatus for re-education, 697
BENIANS, T. H. C.: Test tube containers and racks, 266
BENNETT, Charles: Appendicitis consequent on acute pharyngitis, 360. (O)
BENNETT, Major William, D.S.O. conferred upon, 29
BENSON, Major Wallace, D.S.O. conferred upon, 206
BENSON, Lieut.-Col. William Arthur, D.S.O. conferred upon, 29
BENTHAM, Inspector-General Robert, obituary notice of, 859
BENTLEY, Captain James, Military Cross conferred upon, 30
Bequests to hospitals and medical charities, 35, 61, 71, 380, 567, 667
BERGONIÉ: Curative agricultural work, 692
BERGONZOLI, Gaspare: *Stati Ansiosi nelle Malattie Mentali*, rev., 122
Beri-beri (Captain E. G. S. Cane), 27
Berlin, health and feeding of school children in, 248—Small-pox in, 788
BERRY, Mrs. J. A.: French Medal of Honour for Epidemics conferred upon, 890
BERTHELOT, statue of unveiled, 603
BETTS, William Andrew, C.M.G. conferred upon, 236
BEWLEY, Colonel Alfred William, C.M.G. conferred upon, 780
BIANCHINI, Teresa: Placenta as a galactagogue, 203
BICKERTON, Captain Reginald Ernest, D.S.O. conferred upon, 29
BICKERTON, Thomas H., appointed to lectureship of ophthalmology in Liverpool, 854
BIDDER, Marion G.: *Theory of Domestic Economy*, rev., 458
BIDDLE, Captain Eric, Military Cross conferred upon, 852
Biebrich scarlet as a plasma stain, 828
BIGGER, E. Coey, appointed Crown member of the General Medical Council for Ireland, 173
Bile, infection of in typhoid fever, 95
Bills, parliamentary. *See under* Title
Biochemistry of muscular contraction (leading article), 552
Biochemistry and war problems (H. D. Dakin), 833. (O)
B.I.P., use of after bone-grafting (Captain H. S. Brander), 360. (O)
BIRCH, Colonel de Burgh, title of Emeritus Professor conferred upon by the University of Leeds, 895
BIRCH, John: Pathology of cancer, 66
BIRCH, Captain John Bright, Military Cross conferred upon, 30
BIRD, Major Elliot Beverly, D.S.O. conferred upon, 29
BIRKETT, Colonel Herbert Stanley, C.B. conferred upon, 29
Birmingham milk supply, 31
BIRRELL, Lieut.-Col. Edwin Thomas Fairweather, C.B. conferred upon, 29—Serbian Order of the White Eagle conferred upon, 562
Birth-control, bill to legalize dissemination of knowledge of introduced into New York State Legislature, 309
Birthday honours. *See* Honours
Birth-rate, the falling, in Edinburgh, 206; in Bavaria, 343
Births, notification of in Salford, 745
BISHOP, Fleet Surgeon George Thompson, C.M.G. conferred upon, 780
BISHOP, Sidney Olive, obituary notice of, 411
Bismuth and iodoform paste in gunshot wounds (Louisa Garrett Anderson), 264
BLACK, Harold: Detection of gas in the tissues by *x* rays, 9. (O)
BLACK, Captain James Elliot, killed in action, 596
BLACK, Major Robert Barclay, D.S.O. conferred upon, 29
BLACKHAM, Lieut.-Col. Robert James, D.S.O. conferred upon, 29
BLAIR, Captain Edward James, Military Cross conferred upon, 99—Killed in action, 559
BLAKER, Assistant Surgeon G. H., Russian Order of Cross of St. George conferred upon, 662
BLANCHARD: Malaria in France, 848
BLANDFORD, J. Whitfield, obituary notice of, 69
BLANDY, Captain Gurth Swinnerton, dies of wounds, 661
BLASCHKO: On the British campaign against venereal disease, 624
"Blastomycosis" (leading article), 460—Correspondence on, 565
BLATCH, Margaret: *One Hundred and One Practical Non-Flesh Recipes*, rev., 486
BLAYLOCK, Major H. W., Légion d'honneur conferred upon, 596
Blind sailors and soldiers: Conference at Edinburgh (*re* Newington House), 597
Blind, type-reading for, 234
BLISS, Lieut.-Col. Ernest William, D.S.O. conferred upon, 29
BLOMFIELD, J.: *Anaesthetics: A Practical Handbook*, rev., 812
Blood, disappearance of malignant tertian crescents from, following the intravenous injection of tartar emetic (Sir Leonard Rogers), 6. (O). *See also* Malaria
Blood transfusion, simple method of (James Buchanan), 512
Blood transfusion, principles of (A. E. Stansfeld), 297
Blood vessels, wounds of at the British front, 718
Board of Agriculture and milk distribution, 603—Report on animal diseases in 1916, 704
Board, Central Midwives, 144, 277, 405, 598, 891—Letter from town clerk of Middlesbrough *re* stillborn infants, 144
Board of Control: Report, 406—Advisory committee, 658
Board of Education issues new medical grant regulations, 268 — Medical inspection and treatment from 14 to 18, 461—Removes to Victoria and Albert Museum, 828
Board, Local Government: War saving of clerical labour *re* grants for pauper lunatics, 30—Note on the annual report of the medical officer, 55—Deputation to *re* quack treatment of venereal diseases, 133—Letter to guardians *re* food control in Poor Law institutions, 347—Statement to Parliament on the working of venereal schemes, 432—Report on child mortality, 490—Leading article on child mortality, 518—Circular to local authorities *re* "economy in waste," 630—And vaccination of small-pox contacts by medical officers of health, 668—Housing and health reorganization, 816—Report on maternity and child welfare, 822—Report on midwifery service in London, 822—Report on infectious disease in 1916, 849—Report on anthrax and shaving brushes, 882
Board, Local Government (Ireland): Annual report, 62—Food control in Irish public institutions, 311 — And Poor Law medical officers, 348—And medical men of military age, 207, 278, 377, 408, 526—Order *re* local authorities and food control, 663
Board, Local Government (Scotland): *Re* meat from tuberculous cattle, 746—Circular *re* control of venereal diseases, 782
Board of guardians and locumtenents of military age (Ireland), 526
BODKIN, H.: Case of cerebral abscess of otic origin, 510. (O)
BOFINGER: The causal agent in typhus fever, 167
BOLAM, Lieut.-Col. R. A., presentation to, 751
BOLSTER, Major Richard, killed in action, 854
BOLTON, Charles: Pathology of cardiac dropsy (Oliver-Sharpey lecture), 642, 678. (O)
BOLTON, Joseph S.: Abdominal kneading in the treatment of intestinal stasis, 422. (O)
Bomb explosion, multiple severe injuries from, operation, recovery (Captain Norman Davidson), 509. (O)
BOND, C. J.: Influence of antiseptics on the activities of leucocytes and on the healing of wounds, 145. (O)
BONE, Muirhead: *The Western Front*, rev., 122, 300, 514, 620, 768
Bone-grafting, use of B.I.P. after (Captain H. S. Brander), 360. (O)
Bone injuries not presenting obvious signs of sepsis, delayed tetanus in connexion with (Captain M. Foster), 189. (O)
Bonesetters (parliamentary question), 236, 274, 306, 343, 402, 626—Annotation on, 303—Rathdown guardians and, 598
BONNAIRE, E.: Pregnancy and munition work, 271
BOOTH, William, obituary notice of, 751
Bootle, treatment of venereal disease in, 598
BORDEN, Sir Frederick William, obituary notice of, 70
Boric acid in cream, 242
Boric acid, glycerin of (*B.P.*), 752
BOTT, Captain Robert Henry, Kaisar-i-Hind gold medal conferred upon, 770
BOULT, Brigade-Surgeon Edward Farrington, obituary notice of, 499
BOURKE, Surgeon-General G. D., C.M.G. conferred upon, 129
BOURKE, Captain John Francis, Military Cross conferred upon, 30
BOURNE, Kimsey: Administration of male fern, 624
BOWEN, Lieut.-Col. Arthur Winnieth Nunn, D.S.O. conferred upon, 780
BOWEN, Captain T. R. (and A. DISTASO): Autodisinfection of wounds by the use of ether solution, 259. (O)
BOWLBY, Sir Anthony (and Colonel Cuthbert WALLACE): Development of British surgery at the front, 704. (O)
BOWLEY, A. L.: *Nature and Purpose of the Measurement of Social Phenomena*, rev., 582
BOX, Captain J. H., Military Cross conferred upon, 780
BOYD, W.: *With a Field Ambulance at Ypres: being Letters written March 7th to August 15th, 1915*, rev., 366
BOYERS, Captain Hedley, Military Cross conferred upon, 30

LIBRARY U. OF I. URBANA-CHAMPAIGN

Boyle medal awarded, 173
BRACKENBURY, H. B., appointed member of Departmental Committee *re* salaries for elementary school teachers, 788—Education authorities and public health reorganization, 850
BRADDOCK. Charles S., obituary notice of, 603
BRADLEY (and others): Transmission of dengue, 359
BRADLEY, Major Richard James, Serbian Order of the White Eagle conferred upon, 276
BRADY, Charles Matthew, obituary notice of, 179
BRADY, W.: *Personal Health; a Doctor Book for Discriminating People*, rev., 228
BRAHAM, Captain George Noel, Military Cross conferred upon, 346
Brain, annual rate of growth of, 312
Brain, punctiform haemorrhages of in gas poisoning (Major F. W. Mott), 637. (O)
BRAMWELL, William: Compulsory Latin, 66—Rhubarb leaves, 752
BRAND, A. T.: Mucous colitis, 316
BRANDER, Captain H. S.: Use of B.I.P. after bone-grafting, 360. (O)
BRANNIGAN, Lieut. E. E., killed in action, 205
BRAUN, A. (and I. FRIESNER): *Cerebellar Abscess: Its Etiology, Pathology, etc.*, rev., 844
BRAUN, O: Open treatment of wounds, 169
BRAZIER-CREAGH, Lieut.-Col George Washington, C.B. conferred upon, 780
Bread, 497—Fallacy of selling bread by weight, 497—Sanitary danger of twelve-hours-old bread, 497—(Sir Francis Fox), 591
Bread substitutes, home-made, for diabetic patients (Frank Nicholson), 82. (O)
BREW, Richard Hugh, obituary notice of, 786
BRIDGES, Major Roland Harley, D.S.O. conferred upon, 780
BRIERLEY, Thomas Booth, obituary notice of, 379
BRIGGS, H. Fielden, elected direct dental representative on Transvaal Medical Council, 71—University of the Cape of Good Hope confers the degree of Doctor of Medicine upon, 567
Brighton, and its war work, 704—Commemoration of Indians who have fallen in the war, 704—Scheme for venereal treatment in, 746
Brilliant green. *See* Green
BRISCOE, Major John Edward, D.S.O. conferred upon, 240
Bristol, military orthopaedic centre in, 631
BRISTOW, W. Rowley: *Treatment of Joint and Muscle Injuries*, rev., 767
BRISTOWE, Vivian Ernest John, dies on service, 561
British army. *See* Army
British Dominions Year Book, 1917, rev., 650
British Electrical and Allied Manufacturers' Association, 704
British Hospitals Association, report, 568
British Journal of Ophthalmology, first number, 25
British Journal Photographic Almanac and Photographer's Daily Companion, 1917, rev., 396
British Medical Association. *See* Association
British Science Guild and food for prisoners, 272—Annual report of the Guild, 860
British spas, the future of, 201, 316
British surgery. *See* Surgery
British Universities and the War: A Record and its Meaning, 635
BROADBENT, Reginald: Danger of small-pox, 497
BROCA, A.: *Ligations and Amputations*, rev., 299
BROCKBANK, E. M.: *Diagnosis and Treatment of Heart Disease*, rev., 227
BRODERICK, Captain R. A., Military Cross conferred upon, 780
BROGDEN, Lieut. Ingram Richard Rhodes, lost at sea (H.M.H.S. *Lanfranc*), 596—Corrected to H.M.S. *Arcadian*, 630
Bronchial asthma. *See* Asthma
Bronchitis and catarrhs, winter, 58
Bronchoscopy in treatment of asthma (W. S. Syme), 868. (O)
BRONSON, E.: Fragilitas ossium, blue sclerotics and otosclerosis, 739
BROOKE, Lieut. Cecil Rupert, killed in action, 630
BROWN, Staff Sergeant D., Russian Cross of St. George conferred upon, 662
BROWN, Frank, killed in action, 493
BROWN, Harman: Case of uterus bicornis under the care of, 192
BROWN, Herbert H.: Value of feeding during operation as a preventive of surgical shock, 510. (O)
BROWN, Lieut. James Turner, lost at sea, 697
BROWN, Captain J. V., Military Cross conferred upon, 780
BROWN, Captain L. G.: Military Cross conferred upon, 780
BROWNE, Lieut. Albert Edward, killed in action, 561
BROWNE, Captain Hawtrey William, Military Cross conferred upon, 99
BROWNING, C. H. (and others): Flavine and brilliant green, powerful antiseptics with low toxicity to the tissues: their use in the treatment of infected wounds, 73. (O)—Measure of the potency of antiseptics, their therapeutic value in wounds, 177—Germicidal action of ultra-violet radiation, 656—Research on the antiseptic properties of "flavine" compounds, 824
BROWNLEE, John: Periodicity of measles, 202—Infant mortality in the slums, 369
BRUCE, Sir David: Importance of the early prophylactic injection of antitetanic serum in "trench foot," 48. (O)—Incidence of tetanus among wounded soldiers, 118. (O)
BRUCE, Robert, obituary notice of, 351
BRUNS, von: Notes from German field hospitals, 168
BRUNSKILL, Major John Handfield, D.S.O. conferred upon, 29
BRUNTON, Lieut. Edwin Benjamin Durnford, killed in action, 697
BRYDEN, Major Robert Anderson, D.S.O. conferred upon, 29
Budget (leading article) 622
BUCHANAN, James: Simple method of blood transfusion, 512
BUCKELL, Lieut. C. J. A., killed in action, 661
BUCKINGHAM. Edward Marshall, obituary notice of, 411
BUCKLE, Fleet Surgeon Fleetwood, obituary notice of, 750
BUCKLEY, Captain E. J., Légion d'Honneur conferred upon, 596
BUIST, H. Massac: Motor notes for medical men, 85, 123, 228, 877
Bullet wound in pregnant uterus, recovery (Clement Belcher), 896
BULLOCK, Captain A. E., Military Cross conferred upon, 780
BUMPSTED, Thomas Brooks, obituary notice of, 635
BURCKHARDT, Hans: Abdominal wounds, 343—Infected skull wounds, 492
BURDEN, Captain Clive Britton, accidentally killed, 661
BURDETT, Sir Henry: *The Uniform System of Accounts for Hospitals and Public Institutions, Orphanages, Missionary Societies, Homes, Co-operations, and all Classes of Institutions*, rev., 123
BURGESS, Duncan, obituary notice of, 141
BURGESS, Lieut James Alexander Stuart, dies of wounds, 596
BURGESS, Captain Robert, Military Cross conferred upon, 30
Burial Reform and Cremation Society, Scottish, annual report, 206
BURKE, Captain Edmund Tytler, Serbian Order of the White Eagle conferred upon, 276
Burn, *x*-ray, 636
BURNET, Sir Robert William, K.C.V.O. conferred upon, 236
BURNHAM, Captain Howard Hampton, Italian Silver Medal for Military Valour conferred upon, 781
Burns, horse serum in treatment of, 636
Burns treated by paraffin (Lieut.-Colonel A. J. Hull), 37. (O)—Note on, 549—Spray for, 549
BURNS, D. (and others): Tetany and the functions of the parathyroids, 575. (O)
Burroughs, Wellcome, and Co., composition of "lubafax," 212
BURROWS, Arthur: Radium emanation tubes, 486
Bursae, fibroid disease of (Captain Manfred Morris), 867. (O)
BURTCHAELL, Colonel Charles Henry, C.B. conferred upon, 780
BURTON, Captain Percy Herbert, dies of wounds, 697
BURWELL, Captain George Beatty, Military Cross conferred upon, 30
BUSWELL, Lieut.-Col. Ferberd Richard, C.M.G. conferred upon, 29
BUTLER, Lieut.-Col. Harry Nairn, D.S.O. conferred upon, 780
BUXTON, Lieut St. J. D., Croix de Guerre conferred upon, 596
BYAM, Major William, Order of the Nile conferred upon, 562
BYERS, Sir John: Care of maternity and child life, 494
BYRNE, Major George Cumming, D.S.O. conferred upon, 780

C.

CABADÉ, Dr., obituary notice of, 471
CAESAR, Captain Richard Thompson, Military Cross conferred upon, 852
Caesarean section, technique of (Ernest F. Neve), 615. (O)
Caithness and Sutherland Local Medical War Committee and the medical needs of the army, 821
Calcutta School of Tropical Medicine. *See* Tropical
CALDER, Captain Hector Mackay, D.S.O. conferred upon, 29
CALEB, Lieut C. D. N., killed in action, 561
CALEY, W. B., case of, 316—His conviction quashed, 568
Calling up notice: Resolution of joint meeting of Central Medical War Committee and Committee of Reference, 551—Parliamentary questions, 556, 626—Correspondence on, 599, 665—Leading article, 687. *See also* War emergency
CALVERT, Alexander: Proposed Ministry of Health, 782
CALVERT, William Hall, obituary notice of, 859
CAMERON, H. C.: Status lymphaticus from the clinical standpoint, 753. (O)
CAMMIDGE, P. J.: New dietetic treatment of diabetes mellitus, 503. (O)
Camp trench and hospital infections, lectures on, 828
CAMPBELL, A.: Mucous colitis, 316
CAMPBELL, Andrew (and others): Intravenous injection of eusol in treatment of general sepsis, 357. (O)
CAMPBELL, Harry: Psycho analysis, 103
CAMPBELL, Henry, obituary notice of, 895
CAMPBELL, Janet M.: Report on physical welfare of mothers and children, 635
CAMPBELL, John: An abdominal protector, 367
CAMPBELL, John: Treatment of puerperal sepsis by the Carrel-Dakin method, 363
CAMPBELL, Colonel Robert Neil, K.C.M.G. conferred upon, 780

CANADA:
Advisory Council on Research, 208
Anterior poliomyelitis in Montreal, 208
Antitoxin laboratory of the University of Toronto, 62
Antityphoid inoculation, 440
Appointment of Director of Medical Services to Invalids, 495
Asylum fire in Quebec, 243
Canadian Medical Association, 62
Case of returned invalid soldiers, 495
Colonel Marlow's report, 495
Functional training and re-education of soldiers, 441
Health statistics and notes, 699
Hospital accommodation in the prairies, 242
Lepers at Canton, care of, 699
Medical inspection of schools, 243
Medical services in Canada and returned soldiers, 495
Parliamentary Committee of Inquiry, 496
Payment of pensions to disabled soldiers, 440
Proposed six year course in medicine, 747
Trinitrotoluene poisoning, 699

Canadian Army Medical Service, report of the Board of Inquiry, 16—Note on, 23—New appointments, 309—Change of address of the Assistant Director, 828
Canadian medical laboratory work in England, 851
Cancer of the common bile duct without jaundice: rapid death from metastasis (Lieut.-Col. F. J. Poynton), 483
Cancer of cervix, undiagnosed (Herbert Spencer), 456
Cancer Control, report of American Society for, 472
Cancer, cuprase treatment of (P. R. Cooper), 48—Correspondence on, 104, 137, 568
Cancer of the ovary, scirrhous, at the age of 15 (James Oliver), 363
Cancer, pathology of 33, 66
Cancer, recurrence or redeposit of, which? (Herbert Tilley), 424—(Sir William Osler), 455—(David A. Alexander), 618
Cancer of stomach, gastrectomy for: sequel (C. Mansell Moullin), 395
Cancer of stomach, primary, in a boy (C. Fletcher and Captain W. B. Cosens), 649
CANE, Captain E. G. S.: Beri-beri, 27
Canton, care of lepers in, 699
Carbolic acid, pure, value of in treatment of wounds (A. Ernest Maylard), 808
Carbon monoxide poisoning amongst garment workers in the United States, 422
Carcinoma. *See* Cancer
CARDEW, Lieut. John St. Erme, dies on service, 308
Cardiac disease in soldiers and recruits (Captain W. Scarisbrick), 254. (O)
Cardiac dropsy. *See* Dropsy
CARLESS, Lieut. Hugh Dobbie, dies of wounds, 781
CARLILL, Surgeon Hildred: Ankle-jerk, 556
CARLINE, Lieut.-Col. W. A.: Drainage of septic knee-joints, 294. (O)
Carlisle, refreshment house experiment at, 309, 663—Correspondence on, 749, 785
CARLSTRÖM, Claes: Experiences in Persia, 270
CARLYLE, Captain Robert Carlyle, Serbian Order of the White Eagle conferred upon, 276
CARMICHAEL, Lieut. Andrew W., killed in action, 597
Carnegie Trust: Annual meeting, 310
Carpathians, war surgery in (B. F. Morowitz), 594
CARREL, A. (and G. DEHELLY): *Le traitement des plaies infectées*, rev., 264; English translation, *Treatment of Infected Wounds*, rev., 844—(and J. DUMAS) *Pratique de l'irrigation des plaies dans la méthode du Dr. Carrel*, rev., 426
Carrel-Dakin fluid, automatic nurse for, 769
Carrel-Dakin method in treatment of puerperal sepsis (John Campbell), 363

CARROL, Captain John Donal, Military Cross conferred upon, 852
CARROLL, Lieut.-Col. Frederick Fitzgerald, D.S O. conferred upon, 29
CARSON, Captain Francis Samuel, Military Cross conferred upon, 30
CARTER, Major Herbert St. Maur, Serbian Order of Saint Sava conferred upon, 376
Cartilage grafts for closing cranial defects (Thomas Young Simpson), 512
Casanova, 57
CASEMENT, Captain Francis, D S.O. conferred upon, 780
CASSIDY, Captain Colin, Military Cross conferred upon, 30
CASTELLANI, Major Aldo: Tropical disease in the Balkans, 809
Casualties among medical officers (parliamentary question), 886
Casualties in the medical services of the navy and army, 28, 58, 98, 132 170, 205, 239, 276, 308, 345 375, 405, 437, 466, 493, 523, 559, 628, 661, 696, 743, 820, 853, 889
Cataract, Indian operation of couching for (Lieut.-Col. Robert Henry Elliot), 334
Catarrhs and bronchitis, winter, 58
Catgut, method of preparing and using (G. S. Thompson), 873
CATHCART, Charles W.: Prophylaxis of veneral diseases, 280
Cattle, tuberculous, meat from, 746
Cavendish lecture. *See* Lecture
Central Control Board. *See* Board
Central Medical War Committee, 269. *See also* War emergency
Cereals *v.* meat (leading article), 587
Cerebral abscess. *See* Abscess
Cerebral diplegia. *See* Diplegia
Certifying surgeons and compensation for loss of income, 462
CHALMERS, A. J.: Paracholera due to a vibrio, 236
CHAPPLE, Major W. A: Chlorinated water and trench nephritis, 858
Charaka Club, Proceedings of, vol. iv, rev., 396
CHARLES, Lieut. S. F. A. (and others): Treatment of gunshot wounds of abdomen, 317. (O)
CHAUVEAU, A., obituary notice of, 142
CHAYTOR-WHITE, Lieut.-Col. Joshua, C.M.G. conferred upon, 780
CHEATLE, Surgeon-General G. Lenthal: Grooved rubber drainage staff, 120—(and Deputy Surgeon General W. G. AXFORD): Naval surgery, 535. (O)
Chemiotherapeutic products, shock following intravenous injection of, 565, 604
Chemist, pharmaceutical, with colonial diplomas (parliamentary question), 305
Chemistry, review of books on, 485
Chemistry and the war, 303
CHEPMELL, Lieutenant William Dobree, killed in action, 597
Chest wounds, penetrating, at casualty clearing stations (Colonel Sir Wilmot Herringham), 721. (O)
CHETWYND, Viscount: Toxic jaundice, 155
CHEVES, Captain Alexander Bruce, Military Cross conferred upon, 30
CHEYNE, Sir W. Watson: War Emergency Fund, 858
Chicago, psychopathic laboratory at, 740
Chilblains, 212
Childbirth. *See* Labour
Child mortality, 490. *See also* Mortality, infant
Child welfare. *See* Maternity and Child welfare
CHILDE, Lieut.-Col. C. P.: *Surgical Nursing and Technique; a Book for Nurses, Dressers, and House-Surgeons*, rev., 227
Children's Act, 405
Children, delinquent, and the war (leading article), 231
Children, destitute, neglected, defective, etc., bills for protection of, in Missouri State Legislature, 316
Children, review of books on, 194
CHILES-EVANS, Lieut.-Col. David Brynmor, killed in action, 596
Chirurgia degli organi di Movimento, 828
Chloramines as nasal antiseptics (E. K. Dunham and H. D. Dakin), 865. (O)
Chlorinated water and trench nephritis, 858
Chloroform poisoning, delayed, intravenous injection of sodium bicarbonate in (George G. Farquhar), 548
Cholera in Persia, 248
Cigarettes, nicotine from, 144
Cinematograph displays, effects of, upon the eyes of children (N. Bishop Harman), 219. (O)—Correspondence on, 313, 350
Cinnamon as a prophylactic in measles and German measles (W. B. Drummond), 764
Civil Liabilities Committee, work of (parliamentary question), 593—Grants to officers by, 633
Civil medical economies. *See* Medical
Civil profession and the army, 488
Civil reserve for army needs, 442. *See also* Home reserve
Civil surgeons in our war hospitals, 63; in Ulster, 241
CLAPHAM, Lieut. Graham Windyer, dies of wounds, 661
CLAPPERTON, Major James Hugh, dies of wounds, 661
CLARK, Captain Alfred Joseph, Military Cross conferred upon, 30
CLARK, Captain William Brown, killed in action, 437
CLARK, Captain William G., killed in action, 276
CLARKE, J.: Mobilization of the profession, 176
CLARKE, Captain Thomas Courtenay, Military Cross conferred upon, 30
CLARKSON, Lieut. John Osborne Price, killed in action, 438
Classification of men in the army, contemplated change of the (parliamentary question), 402
CLAY, Richard C. C.: Cerebro-spinal fever, 262
CLAYTON-GREENE, W. H. (editor): *Pye's Surgical Handicraft*, rev., 84
CLELLAND (and others): Transmission of dengue, 339
CLEMENTS, Lieut.-Col. Robert William, D.S.O. conferred upon, 29
CLIFFORD, Captain: Scurvy, 27
CLIPPINGDALE, S. D.: Compulsory Latin, 66
Club, temporary, for temporary R.A.M.C. officers in London, 178
COALBANK, Isaac, obituary notice of, 667
COBB, I. G.: *The Organs of Internal Secretion, their Diseases and Therapeutic Action*, rev., 515
Cocaine, economical use of (J. T. Hall), 765
Cocaine prescriptions and penalties, 896
Cocaine for unregistered dentists, extension of time limit, 107, 603—Parliamentary questions on, 305—Note on, 367
Coccus in cerebro-spinal fever. *See* Fever
COCHRANE, Lieut. James Lang, Military Cross conferred upon, 240
CODD, Arthur Frederick Gamble, obituary notice of, 787
CODD, J. Alfred: Adrenalin in angioneurotic oedema, 808
CODNER, Captain Christopher Cardew, killed in action, 744
COENEN, H.: Twenty months' surgical field service with the German army, 237
COGAN, Lee F., appointed J.P. for county borough of Northampton, 472
COKE, Frank: Co-ordination of British medical policy, 823
COLE, Major George Edwards, D.S.O. conferred upon, 780
COLE, Percy W.: Return to work, legal and other impediments, 101
COLE, Sydney J.: Psycho-analysis, 138
COLEMAN, Lieut. Fred. Creighton, killed in action, 630
COLERIDGE, Stephen, and William Watson, 32
Colitis, mucous, 316
College of Ambulance, display of ambulance work, 531, 607
College, Epsom: Scholarships, 212—Donation to in memory of Sir James Fred. Goodhart, 531
College of Nursing. *See* Nursing *and* Royal British College
College of Physicians, American, foundation of, 154

COLLEGE, ROYAL, OF PHYSICIANS OF LONDON:
Admission of Fellows, 666
Admission of Members, 178
Committee of Reference, 666
Diplomas in public health, 178
Election of councillors, 178
Election of Fellows, 602
Lectures, 178
Licences, 178, 602, 666
Presidential address, 471
Proposed Inter-Allies Conference on Spas, 602
Proposed suspension of systematic lectures, 602
Quack treatment of venereal diseases, 178
Recognition of schools, 602
Reports, 178
Streatfield Research Fund, 666
Suspension of systematic lectures, 666
University of Bristol, 178

College, Royal, of Surgeons of Edinburgh: Admission of Fellows, 703—Bathgate Memorial Prize, 703

COLLEGE, ROYAL, OF SURGEONS OF ENGLAND:
Assistant pathological curator to museum, 531
Attendance on systematic courses of lectures, 666
Bradshaw lecture, 246
Central Midwives Board, 378, 531
College finance, 246
Council elections, 634, 703, 750, 826
Diplomas, 245, 666, 858
Donation to museum, 105
Examiners, 858
Exhibition of war specimens at, 54, 97
General Medical Council, 378
Jacksonian Prize, 531
Licence in dental surgery, 378, 858
Sir Arthur Sloggett, K.C.B., 531
Treatment and prevention of venereal disease, 246
Treatment of venereal diseases by unqualified persons, 106

COLLEGE, ROYAL, OF SURGEONS OF ENGLAND (*continued*)
Tribunal concerning pensions, 858
Triennial prize, 603
University of London, 531
University of Wales, 666
Vacancies, 858
Votes by non-resident Fellows for election of members of Council, 105
Voting papers, 703
War collection of pathological specimens, 887

College, University, London:—Lectures, 140—*Calendar*, 178
COLLINS, Colonel Charles Bury, dies on service, 405
COLLINS, Lieut.-Col. Denis Joseph, Serbian Order of the White Eagle conferred upon, 276
COLLINS, Sir William, elected M.P. for Derby, 25
COLLINS, Colonel the Hon. W. E., C.M.G. conferred upon, 129
COLLINSON, Lieut.-Col. Harold, D.S.O. conferred upon, 29
Colloid silver in inveterate prostatic gleet (James MacMunn), 685
Colloidal gold reaction, diagnostic value of, 139
Colloidal preparations of alkaloids, 585, 648
Colloidal preparations, therapeutic effects of (Sir Malcolm Morris), 617. (O)
Colloids in syphilis (J. E. R. McDonagh), 648. (O)
COLLYNS, John Barrett, obituary notice of, 246
Columbia Republic, foundation of a medical life assurance association, 484
Colostomy openings, making and closing of (P. Lockhart-Mummery), 685—Discussion, 686
COLVIN, Captain Arthur Edmund, Military Cross conferred upon, 30
Commended for services, 493. *See also* Honours
Concurrent infectious diseases. *See* Infectious
Conference on infant mortality, 242. *See also* Mortality
Conference on national service. *See* National
Conference with Lord Rhondda, 468, 496
Congress of Medicine, Cuban National, next meeting, 412
Congress of Medicine at Ecuador, August, 1917, 769
Congress, Oxford Ophthalmological, 883
Congress, Pan-American Medical, Buenos Aires, 855
Congress to promote expansion of thermo-mineral and climatic stations of allied nations to be held at Monaco, 516
Conjoint Board in England, pass lists, 246, 666
Conjoint Board in Ireland, pass lists, 71, 634
Conjoint Board in Scotland, pass lists, 140, 499 602, 703
Conjoint Board of Scientific Societies, report, 895
CONNOR, James Henthorn Todd, obituary notice of, 634
CONNOR, Lieut.-Col John Colpoys, C.M.G. conferred upon, 780
Conscientious objector (parliamentary question), 851
Consumption. *See* Tuberculosis
Consumptive, incomplete cure of the (leading article), 22, 51—Correspondence on, 102, 138, 177. *See also* Tuberculosis
Consumptives, care committees for in Lancashire, 494
Contractures and allied conditions, their cause and treatment (George Cooper), 109. (O)
CONWAY, Captain James Alphonsus, Military Cross conferred upon, 852
CONWAY, Major John Marcus Hobson, D.S.O. conferred upon, 29
COOKE, Captain E. R. C., Military Cross conferred upon, 780
Coolidge tube list, a new, 704
COOPER, A: *Sexual Disabilities of Man and their Treatment and Prevention*, rev., 84
COOPER, Arthur: Prophylaxis of venereal diseases, 350
COOPER, D. N.: Electrolysis in open suppurating wounds, 874
COOPER, George: Contractures and allied conditions, their cause and treatment, 109. (O)
COOPER, Lieut. Henry Weatherly Frank, dies of wounds, 661
COOPER, P. K.: Treatment of cancer by cuprase, 48
Co-ordination of medical policy. *See* Medical
Auxiliary Hospitals in Scotland, 856
COPLANS, Captain Myer, D.S.O. conferred upon, 29
CORBETT, Captain C. H. (and Captain R. I. DOUGLAS): Notes on three cases of tetanus, 119. (O)
CORNS, James, obituary notice of, 443
Coroner and doctor (Altrincham), 277
Coroners' obiter dicta, 347
Corrections, 171, 206, 346, 376, 500, 853

LIBRARY U. OF I. URBANA-CHAMPAIGN

Correspondence:
Administration of anaesthetics: a preliminary narcotic, 784
Algoid stage of bacilli as a hypothesis, 137
Alien enemy practitioners, 470
Anaesthesia by warmed ether, 748, 826
Anthrax in Uganda, 894
Antiseptics, measure of the potency of, 136, 177, 210
Army and civil co-operation for medical economy, 701 786
Asthma treated by peptone injections, 749
Auxiliary R.A.M.C. funds, 210
Auxiliary hospitals in Scotland, 856
Belgian Doctors' and Pharmacists' Relief Fund, 702
Bread, 497—Fallacy of selling bread by weight, 497—Sanitary danger of twelve-hours-old bread, 497
Bronchial asthma, treatment of, 702
Calling up notice, 599, 665
Cancer, cuprase treatment of, 102, 137
Cancer, pathology of, 33, 66
Cerebro-spinal fever, application of surgical methods to, 281, 409
Child mortality, 601, 632, 701
Cinematograph displays, effect of on the eyes of children, 313, 350
Civil reserve for army needs, 442
Civil surgeons in our war hospitals, 63
Colloidal gold reaction, diagnostic value of the, 139
Compulsory Latin, 33, 66
Compulsory mobilization, 498
Conference with Lord Rhondda, 468, 496, 526
Co-ordination of medical policy. *See* Medical
Death from high explosives without wounds, 599, 665
Dermatitis from explosives used in the air raid, 894
Dublin University parliamentary representative, 32
Economies of insurance, 177
Fees of surgeons and physicians, 103
"Food at school ages," 785
"Flavine" compounds, research on antiseptic properties of, 824
Food requirements of children, 408
Fractures treated by splints, 564
Fractures, treatment of, 599
Fragilitas ossium, blue sclerotics and otosclerosis, 826
Future of the medical profession, 102, 139, 174, 210, 244. *See also* Medical policy
German Act and the freedom of the medical profession, 527
Glycerin in dispensing, 601
Grievances of Territorial medical officers, 750, 857, 894
Gum solutions for intravenous injection, use of, 564
Gunshot wounds of abdomen, 377
Heart, loose bullets and foreign bodies in, 278
Heart massage, Argaud's method, 497
Horsley, Sir Victor, 750
Incomplete cure of consumption, 102, 138, 177
Indian Medical Service, 208
Infectious diseases, prevention of, 631
Jaundice, infective, at Gallipoli, 527
Latin, compulsory, 33, 66
Life-histories of the lower bacteria, 664, 784
Liver, rotation of on its vertical axis, 378
Loose bullets and foreign bodies in the heart, 278
Medical boards, 665, 701, 749, 786
Medical certificates and the War Office, 176, 209
Medical examination of recruits, 530, 565
Medical policy after the war, part-time State service, 700, 747, 783, 823, 856, 892. *See also* Future of the profession
Ministry of Health, 893
Mobilization of the profession, 32, 63, 101, 140, 176, 210, 245, 281, 313, 441
Nature of surgical shock, 470
Panel doctors and the War Loan, 245
Parturition, oldest age of, 349, 378, 409, 442, 601
Phthisis, diagnosis of, 497
Psycho-analysis, 32, 64, 102, 138
Psycho-pathology of mediumism and spiritualism, 104, 139
Public Health Service, reconstruction of, 783
Quo Vadis? 856, 893
Refreshment house experiment in Carlisle, 749, 785
Return to work, legal and other impediments, 101
Safe anaesthesia, 65
Salvarsan treatment of syphilis, 244
Sanatorium treatment, uses and abuses of, 633
Sand baths for joint affections, hot, 313
Shock following intravenous injection of chemiotherapeutic products, 565
Shortage of medical officers, possibility of relief from India, 893
Small-pox, danger of, 409, 469, 497, 528, 600, 632, 664
Soldier's foot, 66
Soldier's heart, 496, 665
Surgeons and physicians, 103. *See also* Fees
Tartar emetic and malaria, 136, 858

Correspondence *(continued)*
Temporary club for temporary R.A.M.C. officers in London, 178
Tetany and the functions of the parathyroids, 632
Trench feet treated by subcutaneous injection of oxygen, 702
Typhus fever and the so-called Felix reaction, 825
Venereal diseases, efficacy of applications for the prevention of, 600
Venereal diseases, prophylaxis of, 135, 174, 209, 243, 278, 312, 349, 378, 408, 441, 496
War Emergency Fund, 824, 858
Warm beds in open air, 528
Way to help absent doctors, 750
White City case, 410
William Watson and Stephen Coleridge, 32
X-ray diagnosis of gas in the tissues, 65

COSENS, Captain W. B.: Primary carcinoma of stomach in a boy, 649
COSTELLO, Captain J. M. A., Military Cross conferred upon, 780
COTTERILL, Lieut. John Henry, dies of wounds, 438
COTTON, Assistant Surgeon E. A.: Russian Cross of St. George conferred upon, 662
Couching for cataract. *See* Cataract
Council, General Medical, original foundation stone discovered and presented to, 567—*Minutes*, rev., 650

COUNCIL, LONDON COUNTY:
Children's Act (Infant Life Protection) to be transferred to the Public Health Department, 405
Education Committee's report, 499
Lunatics, number of, 347
Massage establishments, applications for registration, 310
Maternity and child welfare, 855
Medical inspectors under the Midwives Act, two additional women doctors appointed, 310
Medical treatment of London school children, 377
Mental Deficiency Act, number of cases dealt with, 171
Messages for urgent medical aid to be transmitted by police, 171
Residential treatment for tuberculosis, number of patients undergoing, 310
School treatment centres, increase in cases to be treated, 171
Tuberculosis treatment in London, 631
Venereal diseases, treatment scheme, 171—Publicity arrangements, 406

COURTAULD, Miss E., French Medal of Honour for Epidemics conferred upon, 890
COURTIN, J., obituary notice of, 143
COURTOIS-SUFFIT, M. (and R. GIROUX): *Les formes anormales du tétanos: Etude clinique, pathogénique, prophylactique et thérapeutique*, rev., 15
COUTTS, Francis: Anthrax and shaving brushes, 882
Cow, Douglas: Compulsory Latin, 33
COWELL, Captain E. M.: Simultaneous ligature of arterial and venous trunks in war surgery 577. (O)
CRACE-CALVERT, G. A., appointed J.P. for Denbighshire, 284
CRAIG, James: Dublin University, parliamentary representative, 32
CRAIG, Lieut. William Colston, dies of wounds, 170
Craigleith Hospital Chronicle, 31
CRAIK, Robert: Blastomycosis, 565
CRAMB, Lieut. Wilfrid B., reported missing, 782
Cranial defects, closure of (R. Pflugradt), 307—(Thomas Young Simpson), 512
Craniometer, Flower's, 108
CRAWFORD, Captain Hugh Gregan, Military Cross conferred upon, 30
CRAWFORD, Captain John, Military Cross conferred upon, 346
Cream, boric acid in, 242
CREE, Colonel Gerald, C.B. conferred upon, 29—Order of St. Anne (Russia) conferred upon, 276
CREGAN, G. T.: Title of "doctor" and the "personality," 180
Crichton Royal Institution, annual report, 310
Criminal Law Amendment Bill, debate on, 272, 305—In Grand Committee, 342, 372, 402, 434, 464, 592
Criticisms, some friendly (D. W. Samways), 841
CROMIE, Major M. J., Serbian Order of the White Eagle conferred upon, 562
CROPPER, Captain John, dies on service (H.M.H.S. *Britannic*), 98
CROOKE-LAWLESS, Surgeon Lieut.-Col. Sir Warren R., C.B. conferred upon, 780
Croonian lectures. *See* Lectures
CROSBIE, Captain Douglas Edward, Military Cross conferred upon, 30
CROSLAND, G. W. Kilner: Acute haemorrhagic pancreatitis, laparotomy, recovery, 359. (O)
CRUIKSHANK, Sister T., lost at sea, 524
CRUISE, Richard Robert, C.V.O. conferred upon, 770
Crutch seat, the Swarren, 617
CRUZ, Oswaldo, obituary notice of, 787
Cuba, fourth National Congress of Medicine, 412
CUMMING, H. S.: *Investigation of the Pollution of Tidal Waters of Maryland and Virginia, with Special Reference to Shellfish-bearing Areas*, 775
CUMMINGS, Bruce F.: *The Bed-bug*, rev., 768
CUMMINGS, Captain William Gordon, killed in action, 743, 781
CUMMINS, Captain Arthur Gordon, Military Cross conferred upon, 30
CUNNINGHAM, Surgeon Frederick Hugh Lester, Military Cross conferred upon, 561
Cuore, Le Malattie del, 179
Cuprase in treatment of cancer (P. R. Cooper), 48—Correspondence on, 104, 137, 568
Curative agricultural work, 692
Curative workshops, 348, 585, 597, 855. *See also* Soldiers, crippled
CURLING, Lieut. and Quartermaster E. C. J., dies on service, 661
CURSCHMANN, H.: Shell shock, gas poisoning, and war neuroses, 657
CURSETJEE, Captain Heerajee Jehangir Manockjee, Serbian Order of the White Eagle conferred upon, 276
CUTLER, E. C. (and J. L. STODDART): *Torula Infection in Man*, 460
CUTTER, Ephraim, obituary notice of, 827
Cyst, ovarian, communicating by a valvular canal with the Fallopian tube (James Oliver), 48

D.

DAAE, Colonel Hans: Changes in the German army medical service, 437
D'ABERNON, Lord: Public health and the control of the liquor traffic, 651
DABHOLKAR, Lieut. A. Yeshwant, Military Cross conferred upon, 405, 852
DABOO, Lieut. Erach Ruttonji, Military Cross conferred upon, 596, 852
Daily Graphic and asylums for the insane, 860
DAKIN, H. D., elected a Fellow of the Royal Society, 305—(and Major E. K. DUNHAM): Disinfection of drinking water, 682. (O)—Biochemistry and war problems, 833. (O)—(and Major E. K. DUNHAM): Chloramines as nasal antiseptics, 865. (O)
D'ALBE, Fournier: Type-reading for the blind; 234
DALE, H. H. (and P. P. LAIDLAW): Surgical shock 381
DALY, Colonel Thomas, C.M.G. conferred upon, 29
DALYELL, E. J.: Case of gas gangrene associated with *B. oedematiens*, 361. (O)
DALZIEL, Lieut. Charles Sutherland, killed in action, 132
DALZIEL, Captain G.: Military Cross conferred upon, 780
DALZIEL, Thomas Kennedy, knighthood conferred upon, 770
DANZIG, Lieut. Morris William, lost at sea (H.M.S. *Arcadian*), 629
Dark-ground illumination, pitfalls of, 203
DAVID, Captain William Edgsworth, Military Cross conferred upon, 30
DAVIDSON, Captain Duncan, Military Cross conferred upon, 30
DAVIDSON, Lieut. Herbert John, Military Cross conferred upon, 439
DAVIDSON, Major Hugh Allan, D.S.O conferred upon, 29
DAVIDSON, Captain Norman: Multiple severe injuries from a bomb explosion, operation, recovery, 509 (O)
DAVIE, Alfred T.: *Student Captives*, 668
DAVIES, D. S.: "Food at school age," 785
DAVIES, Mary Birrell, obituary notice of, 106
DAVIS, G. G.: *Applied Anatomy: The Construction of the Human Body considered in Relation to its Functions, Diseases, and Injuries*, rev., 227
DAVY, Lieut.-Col. Henry, C.B. conferred upon, 129
DAWSON, Captain Henry King, D.S.O. conferred upon, 780
DAY, Captain Oswald John, Military Cross conferred upon, 852
Deaf soldiers, Edinburgh scheme for, 821
DAWSON, Matron E. M., lost at sea, 524
Day's work (Captain Andrew Macphail), 887
Deafness, gun, prevention of, 404
DEAN, C. W.: Case of actinomycosis successfully treated by vaccine. 82. (O)
Death from high explosives without wounds, 599, 665
Death from shock, an unusual cause of (George Prentice), 108
DE CRESPIGNY, Lieut.-Col. Constantine T. C., D.S.O. conferred upon, 780
DE GIOVANNI. *See* Giovanni
DEHELLY, G. (and A. CARREL): *Le Traitement des plaies infectées*, rev., 264; English translation of *Treatment of Infected Wounds*, rev., 844
DEJERINE, Jules Joseph, obituary notice of, 498, 531

DELÉPINE, Professor: Delayed tuberculous infection, 304
Delineation of internal organs, 401
Delinquent children. *See* Children
Dengue, transmission of (Clelland, Bradley, and McDonald), 339
Dentists, conscription of, 370
Dentists, unregistered, and cocaine. *See* Cocaine
Dermatitis from explosives used in the air raid, 894
DESPARD, L. L.: *Handbook of Massage for Beginners*, rev., 875
DES VŒUX, H. A., Belgian Doctors' and Pharmacists' Relief Fund, 702
Deutsche medizinische Wochenschrift affected by the war, 618
DEVAUX, Dr. (and Dr. LOGRE), *Les Anxieux*, rev., 457
DEWAR, Staff Nurse M. S., killed on service, 405
DHINGRA, Behari Lal, Kaisar-i-Hind Gold Medal conferred upon, 770
Diabetes mellitus, new dietetic treatment of (P. J. Cammidge), 503. (O)
Diabetes mellitus, modern treatment of (O. Leyton), 252. (O)
Diabetes mellitus, simple dietetic treatment in (R. T. Williamson), 154. (O)
Diabetic patients, home-made bread substitutes for (Frank Nicholson), 82. (O)
DICKIE, Captain David, D.S.O. conferred upon, 29
DICKSON, E. D. D. (and others): Intravenous injection of eusol in treatment of general sepsis, 357. (O)
DICKSON, W. E. Carnegie: Cerebro-spinal meningitis, 454. (O)
Dictionaries, rev., 160
Dictionary, New English, medical terms in, 235
Diet, voluntary restriction of, 229, 270—Milk, 270. *See also* Food
Differential Diagnosis of Main Symptoms, an Index of, rev., 549
DIGHTON, Sergeant Leslie Probyn, killed in action, 854
Diplegia, infantile cerebral, treatment of (E. W. Scripture), 363
Diseases of occupation, review of books on, 50
Disinfection by a current of dry hot air, 171
Disinfection, steam, 228
Dispatches from Sir Douglas Haig (France), 26, 58, 99, 744, 780—Names mentioned, 58, 99, 206, 744, 780
Dispatches from East Africa, 241—Names mentioned, 241
Dispatches from the Mediterranean, names mentioned, 206
Dispatches from Mesopotamia, names mentioned, 206
Dispatches from Shaiba, names mentioned, 853
Dispensary doctor of military age, 278
Dispensing, glycerin in, 568, 601
DISSELHORST: Lead poisoning from bullets, 132
DISTASO, A. (and Captain T. R. BOWEN): Auto-disinfection of wounds by the use of ether solution, 259. (O)
DIVE, Captain Gilbert Henry, D.S.O. conferred upon, 29
DIXON, A. Francis: Dublin University, parliamentary representative, 32—Future of the medical profession, 174
DIXON, Henry H., Boyle medal presented to, 173
DOBELL, Clifford: Carriers of amoebic dysentery, 127—(and Margaret W. JEPPS): Three common intestinal entamoebae of man and their differential diagnosis, 607. (O)
DOBELL, Horace Benge, obituary notice of, 351
DOBSON, Lieut. James Robinson, dies of wounds, 345
DOCKRELL, Lance-Corporal Herbert Morgan, killed in action, 820
Doctor and coroner (Altrincham), 277
"Doctor," title of, and the "personality," 180
Doctor as whipping boy, 166
Doctors, absent, a way to help, 750
Doctors, fighting, 657
Doctors, shortage of, (parliamentary question), 626
Doctors, unfit, of military age, local employment of (parliamentary question), 402. *See also* Medical men
DODD, Walter James, obituary notice of, 247
DODS, Major Joseph Espie, D.S.O. conferred upon, 30
Dogs, ambulance, 96
DOLBEY, Captain R. V.: *Regimental Surgeon in War and Prison*, rev., 811
Domestic refuse, gas apparatus for destruction of, 568
DON, Major A.: Abdominal injuries in a casualty clearing station, 330. (O)
DONAHOO, Captain Malcolmson Gardiner, killed in action, 240
DONALDSON, R.: Characters of the enterococcus, 188. (O)
DONKIN, Sir Bryan: Prophylaxis of syphilis, 54, 135, 278 408
DONOVAN, Captain Charles Owen, D.S.O. conferred upon, 346
DONOVAN, Surgeon-General William, K.C.B. conferred upon, 129
DOUGAL, Captain Daniel, Military Cross conferred upon, 30
DOUGLAS, Private Archibald Stirling, missing, presumed killed, 561
DOUGLAS, Captain R. I. (and Captain C. H. CORBETT): Notes on three cases of tetanus, 119. (O)
DOUGLAS, Captain S. R.: Migration of woodcock breeding, 380
DOUGLAS, Captain Stewart Ranken, Belgian Ordre de la Couronne conferred upon, 562
DOVE, J. H., reports case of uterus bicornis, 192
DOW, A. R., case of, 316
DOWNES, Lieut. Howard Grey, killed in action, 405
DOWSER, Captain Thomas, Military Cross conferred upon, 744
DOYNE, R. W., estate of, 40
Drainage staff, grooved rubber (G. Lenthal Cheatle), 120
Dressings, the changing of (Vulpius), 132
DREW, H. V.: Application of surgical methods to the treatment of cerebro-spinal meningitis, 223—Cause of death in acute pneumonia, 581
DRINKWATER, H.: Hereditary deformity of the fingers, 271
DRINNAN, Captain Angus Alexander, Military Cross conferred upon, 30
Dropsy, cardiac, pathology of (Charles Bolton), 642, 678. (O)—Leading article on, 689
Drug addiction in New York, number of victims, 107
Drug supply and the war, 339, 412
DRUMMOND, Captain Hamilton (and Captain J. FRASER): Three hundred perforating wounds of the abdomen, 321 (O)—(and Lieut.-Col. C. H. S. FRANKAU and Captain G. E. NELIGAN): Successful conservative treatment of early gas gangrene in limbs by the resection of infected muscles, 729. (O)
DRUMMOND, John: Poker spine, 860
DRUMMOND, W. B.: Cinnamon as a prophylactic in measles and German measles, 764
Drunkenness, diminution of (leading article), 654

DUBLIN:
Baby week, 783
Domiciliary treatment of tuberculous patients, 698
Hospital for abroad, 598, 631
Hospital ship arrives, 100
Hospital Sunday, 563
Measles in, 408
Mortality among nurse children, 408
Open-air treatment in the hospitals, success of, 241
Rainfall in 1916, 207
Slum children in, 311

DUDGEON, Herbert William, receives permission to wear the Order of the Nile, 36
DUDLEY, Captain Bernard John Charlton, killed in action, 240
DUDLEY, Surgeon S. F.: Infection of the bile in typhoid fever, 95
DUMAS, J. (and A. CARREL): *Pratique de l'irrigation des plaies dans la méthode du Dr. Carrel*, rev., 426
DUN, Captain Thomas Ingram, Military Cross conferred upon, 30
DUNBAR, Major Benjamin Howard Vella, D.S.O. conferred upon, 780
Duncan, Flockhart, and Co.: Vaccines and tuberculosis, 367
DUNDAS, Grace H. Giffen, appointed child welfare superintendent for Leith, 31
Dundee, mother and child welfare and the housing question in, 440
DUNHAM, Major E. K. (and H. D. DAKIN): The disinfection of drinking water, 682. (O)—(and H. D. DAKIN): Chloramines as nasal antiseptics, 865. (O)
DUNLOP, Binnie: Prophylaxis of venereal diseases 313—Child mortality, 632
DUNLOP, Captain John Leeper, Military Cross conferred upon, 30
DUNN, Lieut.-Col. Henry Mason, D.S.O. conferred upon, 29
DUNN, Captain J. Shaw and Captain J. W. MCNEE): Method of spread of gas gangrene into living muscle, 727. (O)
DUNWOODY, Lieut. John Myles, missing, believed drowned, 744, 781
DUTCH, Dr., 316, 410
DWYER, Captain James Jamesen, D.S.O. conferred upon, 780
Dysentery, acute bacillary, clinical aspect and treatment of (Captain J. B. Fisher), 43. (O)
Dysentery, amoebic, carriers of (leading article), 127
Dysentery, amoebic, house flies and (Lieut.-Col. C. M. Wenyon and Captain F. W. O'Connor), 848
Dysentery, bacillary, bacteriology of (report to Medical Research Committee), 400
Dysentery, clinical observations on (Captain T. J. Carey Evans), 418. (O)
Dysentery, etiology of (Lieut.-Col. C. J. Martin and Sister F. E. Williams), 479. (O)
Dysentery at Gallipoli (leading article), 738
Dysentery, note on some recent cases of (Major F. H. Edgeworth), 362. (O)
Dysentery, treatment of (G. A. Finlayson), 46. (O)
Dyspepsia, diagnosis in (Robert Hutchison), 364

E.

EAGLES, Captain Victor Thomas William, Military Cross conferred upon, 561
Ear, effects of high explosives on (Captain J. Gordon Wilson), 353, 578. (O)—Note on, 589
EASON, Lieut.-Col. Herbert Lightfoot, C.M.G. conferred upon, 29
EATON, James, obituary notice of, 107
ECCLES, W. McAdam: Pathology of cancer, 33
Economics of insurance. *See* Insurance, National
Economics, London School of, work of, 60
"Economy in waste," 630
Ecuador, report on the health of, 444—Medical Congress at, 769
EDAL-BEHRAM, A. D. J.: Garlic in leprosy, 36
EDELMANN, R.: *Textbook of Meat Hygiene, with Special Consideration of Ante-mortem and Post-mortem Inspection of Food-producing Animals*, rev., 486
EDGEWORTH, Major F. H.: Notes on some recent cases of dysentery, 362. (O)
EDEN, Thomas Watts (and Cuthbert LOCKYER): *New System of Gynaecology*, rev., 733

EDINBURGH:
Birth-rate, the falling, 206
Calling up notice and insured persons, 663
Child welfare in, 31, 348
Deaf soldiers, scheme for, 821
John O'Groats Benevolent Association, 100
Maternity and Child Welfare Exhibition, 821
Medical bureaux in, 855
Nurses' registration, 782
Society for relief of destitute sick, 31
Sphagnum moss dressings, 277
Treatment and training of the disabled sailors and soldiers, 525
Venereal diseases, control of, 821
Edinburgh Medical Journal, 865

Education authorities and public health reorganization, 850
Educative convalescence for wounded soldiers, 854. *See also* Soldiers
Edwards, Captain Charles Derwent, Military Cross conferred upon, 30
EDWARDS, F. W.: *Mosquitos and their Relation to Disease*, rev., 768
EDWARDS, Captain Georgie Bennick, D.S.O. conferred upon, 29
EDWARDS, Surgeon-General W. R., appointed Honorary Physician to the King, 858
"Effort syndrome" and "Soldier's heart" (leading article), 459. *See also* Heart
Elastic pressure in delayed healing (Liek), 660
EL BURGI, El Yuzbashi Nasralla, Military Cross conferred upon, 30
ELDER, Staff Surgeon A. Vavasour (and Surgeon General Sir James PORTER): Account of land medical transport arrangements of the navy(545. (O)
Election scene (Omagh guardians), 598
Electric currents led off from the human body, especially in relation to "nerve-leaks," origin of (W. M. Bayliss), 387. (O)—Discussion, 395
Electrically produced hypochlorous solution. *See* Hypochlorous
Electrolysis in open suppurating wounds (D. N. Cooper), 874
Electrolysis in treatment of gonorrhoea: a new electrolyte (Charles Russ), 616. (O)
Electro-magnets, more general use of advocated (Sultan), 143
ELLIS, E. S.: Nitro-glycerine in trench feet 513
ELLIS, Captain Francis Heygate, Military Cross conferred upon, 744
ELLIS, Lieut. R., Military Cross conferred upon, 780
ELLIOT, Hugh: Prophylaxis of venereal diseases, 209, 279—*Herbert Spencer*, 368
ELLIOT, Lieut.-Col. Robert Henry: Indian Medical Service, 208—Some eccentricities of Indian ophthalmic practice, 234—Hunterian lectures on the Indian operation of couching for cataract, 334. (O)—*Glaucoma: a Handbook for the General Practitioner*, rev., 686
ELLIOT, Captain Walter Eliot, Military Cross conferred upon, 852
ELLIOT-BLAKE, H.: "Antitension spring" for strapping, 828
ELLIOTT, Fleet Surgeon Horace, obituary notice of, 411
ELLIOTT, Lieut.-Col. T. R. (and Captain Herbert HENRY): Infection of a haemothorax by anaërobic gas-producing bacilli, 413, 448. (O)
ELSBERG, C. A.: *Diagnosis and Treatment of Surgical Diseases of the Spinal Cord and its Membranes*, rev., 843

ELSNER, Lieut.-Col. Otto William Alexander, D.S.O. conferred upon, 29
ELVERY, Captain Philip Gordon Moss, D.S.O. conferred upon, 780
Emergency surgical aid. *Ses* Surgical
EMERSON, Major Henry Horace Andrews, D.S.O. conferred upon, 29
EMERY, W. d'Este: *Clinical Bacteriology and Haematology for Practitioners*, rev., 299
Emigration statistics. Ireland, 134
Emphysema, "surgical," during parturition (John Murray), 14—Correspondence on, 108, 380—(George Milne) 262
Enamelled ware and appendicitis, 36, 108
Encyclopaedia Medica, vol. iv, rev., 160
ENDERLEN: Treatment of arterial wounds, 403
ENGLISH, Colonel Thomas Crisp, C.M.G. conferred upon, 29
Entamoebae of man, three common intestinal, and their differential diagnosis (Clifford Dobell and Margaret W. Jepps), 607. (O)
Enteric fever. *See* Fever
Enteritis, bacillary, flies and (William Nicoll), 870. (O)
Enterococcus, the characters of (R. Donaldson), 188. (O)
Enterospasm, case of, in which the portion of intestine involved was of unusual extent (C. Hamilton Whiteford), 392. (O)—(A. Clifford Morson), 873
Epididymitis, gonorrhoeal, suppuration in (R. L. Spittel), 842
Epileptic boy, home for, 604
Epithelial stimulant, brilliant green as (R. W. Hodgson-Jones), 455
Epsom College. *See* College
ERSKINE, William Robert, killed in action, 597
ESHER, Lord: Medical service and the Army Council, 197
Ether solution in auto-disinfection of wounds (A. Distaso and Captain T. R. Bowen), 259. (O)
Ether, warmed, anaesthesia by, 748. *See also* Anaesthesia
EURICH, F. W.: Anthrax in Uganda, 894
Eusol, in infectious fevers, suggested use of, 636
Eusol, intravenous injections of in treatment of general sepsis (J. S. Fraser, Andrew Campbell, and E. D. D. Dickson), 357. (O)
EVANS, Lieut. Daniel Davies, Military Cross conferred upon, 171
EVANS, Lieut. Edward, killed in action, 560
EVANS, Erie: Prophylaxis of venereal diseases, 441
EVANS, Captain Evan, Military Cross conferred upon, 30
EVANS, H. L.: The calling up notice, 665
EVANS, Captain Henry William, Military Cross conferred upon, 852
EVANS, Captain T. J. Carey: Clinical observations on dysentery, 418. (O)
EVATT, Surgeon-General George J. H.: A temporary club for temporary R.A.M.C. officers in London, 178
EVE, Sir Frederic, estate of, 284
Evolution, review of books on, 875
EWART, William: Rotation of the liver on its vertical axis, 378
EWENS, John, obituary notice of, 35
EWING, Lieut. James, dies of wounds, 629
Eye, effect of contrasted illuminations on (James Kerr), 271
Eye, removal of foreign bodies from (Henry T. Kelsall), 81. (O)
Eye, removal of foreign bodies from by magnets (leading article), 128
Eye, review of books on, 122
Eye. *See also* Ophthalmology
Eyesight of munition workers, 278
Eye work, atropine in (Horatio Matthews), 581
Eyes, artificial human, Ministry of Munitions order *re* sale of, 788
Eyes and no eyes, 817
EYRES, H. M.: Army and civil co-operation for medical economy, 701
EZARD, Lieut. Herbert Henry, killed whilst flying, 782

F.

Factories, annual report of Chief Inspector of, 788—Welfare work in, 816
FAGGE, C. H.: Treatment of fractures by splints, 564
FAIRWEATHER, Deputy Surgeon-General John, obituary notice of, 751
FALK, Captain Herman, Serbian Order of the White Eagle conferred upon, 276
FALLON, Colonel James, Order of the Nile (Egypt) conferred upon, 376
Farm labour, asylum inmates for, 311
FARQUHAR, George G.: Intravenous injection of sodium bicarbonate in delayed chloroform poisoning, 548
FARQUHARSON, Major Alexander, called to the Bar, 895
FARRANT, Captain Rupert, Military Cross conferred upon, 171
Fat necrosis, 96
FAWCETT, Captain Bertram James Acton, dies of wounds, 630
FAWCUS, Lieut.-Col. Harold Benn, D.S.O. conferred upon, 780—Croix de Guerre conferred upon, 781
FAYLE, Captain Harry, Military Cross conferred upon, 206
FEARNSIDES, E. G.: Intracranial aneurysm, 739
Feeble-minded, registration of recommended by New York State Board of Charities, 500
Feeding during operation as a preventive of surgical shock (Herbert H. Brown), 510 (O)
Feeding through nasal tube, prolonged (E. E. Moore), 618
Fees for attendance on patients in a cottage hospital, 316
Fees, medical, to be increased in the Seine Department, 223—To be doubled at Boston, Mass., 256
Fees of physicians and surgeons, 105—Note on, 130. *See also* Surgeons *and* Physicians
FELDMAN, I.: Toxic jaundice, 157
FELL, Lieut.-Col. M. H. G., Russian Order of St. Stanislas conferred upon, 662
Femur, fractures of, apparatus for treatment of (V. Soubbotitch), 646. (O)
FENNELL, Linton Albert Ramsey, dies on service, 561
FENWICK, Lieut.-Col. Hurry: Automatic nurse for Carrel-Dakin fluid, 769
FENWICK, Captain Wilmot, Military Cross conferred upon, 171
FERGUSON, Captain George Douglas, killed in action, 596
FERGUSON, Jeremiah S. (and Harvey Ernest JORDAN): *Textbook of Physiology*, rev., 582
FERGUSON, Captain John, Military Cross conferred upon, 346
FERGUSON, Lieut.-Col. John David, C.M.G. conferred upon, 29
FERGUSON, Margaret J. H.: Poorer labouring classes and the voluntary ration, 266
Fern, male. *See* Male
FERNANDO, H. M., appointed unofficial member of the Legislative Council of Ceylon, 352
Fever, cerebro-spinal (Richard C. C. Clay), 262—(W. E. Carnegie Dickson), 454. (O)—Correspondence on, 636
Fever, cerebro-spinal, flavine in, 636
Fever, cerebro-spinal, application of surgical methods to the treatment of (H. V. Drew), 223—Correspondence on, 281, 409
Fever, cerebro-spinal, prevention of (Colonel W. H. Parkes), 262
Fever, cerebro-spinal, relation of the type of coccus to the type of disease in (Captain Alex. Mills Kennedy and Captain C. C. Worster-Drought), 261. (O)
Fever, cerebro-spinal, report by Medical Research Committee, 555
Fever, cerebro-spinal, serum treatment of, recent results of (A. Gardner Robb), 478. (O)
Fever, enteric, infection of the bile in, 95
Fever, enteric, inoculation against in the civil population, 412
Fever, paratyphoid A, geographical distribution of (Lehmann), 170
Fever paratyphoid A, in a German regiment (Koehler), 169
Fever, paratyphoid B, an unusual carrier of (Gildemeister), 170
Fever, paratyphoid, review of books on, 83
Fever, paratyphoid, discussion on, at Amara Clinical Society, 660
Fever, puerperal, treated by vaccine (Richard Kay), 221. (O)
Fever, scarlet, diagnosis of (T. Howard), 766
Fever, trench, and its allies (Colonel Sir W. P. Herringham), 833. (O)
Fever, trench, as seen in England (Jeffrey Ramsay), 222. (O)
Fever, trench, case of contracted in England (R. D. MacGregor), 221. (O)
Fever, typhus, the causal agent in, 167
Fever, typhus, etiology of (Muriel Robertson), 733
Fever, typhus, systematic blood testing for, in Germany, 649
Fever, typhus, and the so-called Weil-Felix reaction, 825
Fevers, infectious, suggested use of eusol in, 636
Fibroid disease of bursae (Captain Manfred Morris), 876. (O)
Fighting doctors, 657
FINDLAY, Leonard (and others): Tetany and the functions of the parathyroids, 575. (O)
FINDLAY, W.: *Instructions to Members in Regard to Income Tax Returns*, rev., 16
FINDLAY, William, obituary notice of, 703
Fingers, hereditary deformity of (H. Drinkwater), 271
FINLAYSON, G. A.: Treatment of dysentery, 46. (O)
FISCHER, Gustav: Treatment of paralysis and stiff joints, 204
FISCHER, Hermann: Surgery in a German base hospital, 522
FISET, Surgeon-General Eugène, knighthood conferred upon, 770 — French Croix de Chevalier conferred upon, 781
FISHBOURNE, Lieut. Derick Haughton Gardiner, killed in action, 697
FISHER, Captain Alfred George, Military Cross conferred upon, 852
FISHER, Captain Arthur George, Military Cross conferred upon, 240
FISHER, Captain Eric Mortley, Military Cross conferred upon, 30
FISHER, Captain J. B.: Clinical aspect and treatment of acute bacillary dysentery, 43. (O)
FITZGERALD, Major and Brevet Lieut.-Col. FitzGerald Gabbett, D.S.O. conferred upon, 29
FLAGG, P. J.: *The Art of Anaesthesia*, rev., 485
FLANNERY, Surgeon Arthur Herbert, dies on service, 98
FLASHMAN, Lieut.-Col. Froude, dies on service, 276
Flavine: Official report on, 769—Parliamentary question, 818—Correspondence on, 824
Flavine and brilliant green, powerful antiseptics with low toxicity to the tissues, their use in infected wounds (C. H. Browning, R. Gulbransen, E. L. Kennaway, and L. H. D. Thornton), 73. (O)—(D. Ligat), 78. (O)—Leading article on, 91
Flavine in cerebro-spinal fever, 636
Flea bane, tobacco as, 412
FLEMING, Private David, killed in action, 820
FLEMING, Captain Thomas Gordon, Military Cross conferred upon, 30
FLETCHER, C.: Primary carcinoma of stomach in a boy, 649
FLETCHER, Morley: Toxic jaundice, 158
FLETCHER, N. C.: *Hints for Hospital Orderlies*, rev., 458
FLETCHER, W. M.: Croonian lecture on biochemistry of muscular contraction, 552
FLEXNER, Simon, elected Foreign Associate of the Paris Académie de Médecine, 107
Flies and bacillary enteritis (William Nicoll), 870. (O)
Flies, house, and amoebic dysentery, 848
FLOOD, Captain Frederick George, Military Cross conferred upon, 852
Flour, barley, 339
Flour, retention of the wheat germ in, 591
Flower's craniometer, 108
Folkestone air raid, 745
Food adulteration in Germany (Schwalbe), 623
Food consumption of working-class families (Professor Thompson), 563
Food control: In Irish public institutions, 311—In Poor Law institutions, 347—Local authorities and, 663
Food and drink in billets (Army Order), 656
Food economy, 490, 553—Leading article, 553
Food orders, the new, 94—Asylum dietary scale (parliamentary question), 305
Food poisoning with special reference to canned goods, investigations on at Harvard, 757
Food for prisoners, 272
Food problem (W. Russell), 597
Food problem in Germany, 589
Food requirements for children, 408
Food, restricted supply of, its relation to health and efficiency (M. S. Pembrey), 605. (O)
Food, review of books on, 193
"Food at school ages," 785
Food supply of the United Kingdom, report of Royal Society Committee (leading article), 198
Food, voluntary restriction of diet, 229—Milk, 270—The poorer labouring classes and, 266. *See also* Diet
Foot, soldier's, 66
Foot, trench. *See* Trench
Forceps, 248
FORD, Captain Carleton Yates, Military Cross conferred upon, 30
FORD, Captain John Ballard Berkeley, dies of wounds, 308
FORD, Surgeon-General Richard William, K.C.M.G. conferred upon, 29
Foreign bodies removed from the eye (Henry T. Kelsall), 81. (O)
Foreign bodies removed from the eye by magnets (leading article), 128
Formaldehyde commandeered by Army Council, 603
FORSTER, Laura E., dies on service, 345
FORSYTH, David: Tetany and the functions of the paratyphoids, 632
FORSYTH, Noel C.: Case of tetanus successfully treated with antitoxin, 548
FOSTER, Captain M.: Delayed tetanus in connexion with injuries to bone not presenting obvious signs of sepsis, 189. (O)
FOWLER, Sir James Kingston: *The Medical and Nursing Services of the Imperial Army*, 692, 775
FOWLIE, Lieut. James Lawrence, killed in action, 630
Fox, Lieut.-Col. Arthur Claude, lost at sea (H.M.S. *Arcadian*), 629
Fox, Sir Francis: Retention of the wheat germ in flour, 591
Fox, R. Fortescue: Treatment and training of disabled soldiers, 129 — Future of British spas, 201—Mensuration instruments, 380
Fracture of the long bones of the extremities, compound, early treatment of (Basil Hughes), 289. (O)
Fractures at the British front, 720, 795; on the lines of communication, 795

Fractures of femur and leg, apparatus for treatment of (V. Soubbotitch), 646. (O)
Fractures of forearm: some friendly criticisms (D. W. Samways), 841
Fractures about the hip, combined suspension and extension, apparatus for (G. M. Hodges), 423 (O)
Fractures, review of books on, 651, 811
Fractures treated by splints (Charles A. Morton), 475. (O)—Correspondence on, 564, 599
Fractures of the thigh, appliance for the ambulatory treatment of (C. Max Page), 292. (O)
Fractures of thigh, gunshot, German splints and methods for transport of 777
Fractures treatment of (Thöle), 436
Fragilitas ossium, blue sclerotics and otosclerosis, 739—Correspondence on, 826

FRANCE:
American Red Cross Hospital for, 439
Army Medical Museum, 819
Army Medical Service, the work of, 627, 657
Civil mobilization in, 233
Committee appointed to investigate questions relating to prostitution and prophylaxis of venereal disease, 179
Huts in hospital gardens for tuberculous soldiers in Paris, 305
Infective jaundice in (R. Murray Leslie), 649
Malaria in, 848
Medical examination of recruits in, 194
Medical fees to be increased in the Seine department, 223
Sanitary Conference, 309
Sanitary League founded 316
Social Providence, chair of at the Collège de France, 248
Treatment and training of disabled soldiers, 129

FRANKAU, Lieut.-Col. C. H. S. (and Captain Hamilton DRUMMOND and Captain G. E. NELIGAN): Successful conservative treatment of early gas gangrene in limbs by the resection of infected muscles, 729. (O)
FRANKLIN, Surgeon-General Sir Benjamin, obituary notice of, 281—Estate of, 484
FRASER, Captain Alexander Donald, D.S.O. conferred upon, 780
FRASER, Captain Donald Thomas, Military Cross conferred upon, 30
FRASER, Lieut. James Lovat, dies of wounds, 308
FRASER, Captain J. (and Captain Hamilton DRUMMOND): Three hundred perforating wounds of abdomen, 321. (O)
FRASER, Captain John, Military Cross conferred upon, 30
FRASER, J. S (and others): Intravenous injections of eusol in treatment of general sepsis. 357. (O)
FRASER, Captain K. G., Croix de Guerre conferred upon, 596
FRASER, Major William Angus, D.S.O. conferred upon, 780
Frederick the Great, last illness of, 860
FREEMAN, William Henry, obituary notice of, 179
FRENCH, Herbert: Hot sand baths for joint affections. 313—(Editor): *An Index of Differential Diagnosis of Main Symptoms*, rev., 549
French Army Medical Museum, 819
French Army Medical Service, work of, 627, 657, 774
French honours for medical women, 890
French troops in Salonica, health of, 403
Frenchwoman, a prolific. 180
FREND, Lieut. John Arthur, killed in action, 170
FRENKEL, H. S.: *Treatment of Tabetic Ataxia by means of Systematic Exercise*, rev., 844
FRERE, Captain Frederick John, killed in action, 853
FRETZ, William Henry, appointed official member of Legislative Council of the Presidency of St. Christopher and Nevis, 667
FREYER, Lieut.-Col. P. J., C.B. conferred upon, 129—K.C.B. conferred upon 780
Friendly Societies, National Conference and a Ministry of Health, 788
FRIESNER, L. (and A. BRAUN): *Cerebellar Abscess*, rev., 844
FROMENT, J. (and J. BABINSKI): *Hystérie-pithiatisme et troubles nerveux d'order réflexe*, rev., 843
FRUGONI (and others): Epidemic jaundice in camps, 404
FRY, Major Henry Kenneth, D.S.O. conferred upon, 30
FRYSTER, Sister E. L., lost at sea, 524
FUHR, Lieut.-Col. R. S. H., C.M.G. conferred upon, 129
FULLERTON, Captain Archibald, Military Cross conferred upon, 30
Fund, Children's Country Holidays, appeal, 751
Fund, Hospital Sunday, in Dublin, 563
Fund, King Edward's Hospital, 60—Annual meeting, 598
Fund, National Dental Aid. *See* Ivory cross
Fund, Royal Medical Benevolent, 90, 300, 400, 428, 586 770, 824, 858—Annual meeting, 400—War Emergency Fund, 824. 858
Fund Guild, Royal Medical Benevolent, 284
Funds, Auxiliary R.A.M.C., 210, 584

FÜRTH, Otto von: *The Problems of Physiological and Pathological Chemistry of Metabolism, for Students, Physicians, Biologists, and Chemists*, rev., 299
Future of the medical profession. *See* Medical

G.

Gallant act rewarded (Mrs. Alfred Tubby), 305
GALLIFET, General de, his "silver belly," 444
Gallipoli, dysentery at (leading article), 738
Gallipoli, infective jaundice at, 445, 527
Gallipoli operations, list of casualties (officers), 405
GALLOWAY, Major A. R.: Sight-testing obturator, 194
GALLOWAY, Colonel James, C.B. conferred upon, 780
GALWEY, Captain William Rickards, Military Cross conferred upon, 30
Galyl, 108—Intravenous injections of, 161
Gangrene, gas. *See* Gas
Gangrene of small intestine, laparotomy, recovery (W. Airlie Ogilvy), 223
GARDENGHI (and others): Epidemic jaundice in camps, 404
GARDNER, George, obituary notice of, 787
GARDNER, Captain W. T., Military Cross conferred upon, 780
Garlic in leprosy, 36; in whooping-cough, 72, 284
GARMAN, J. B.: Oldest age of parturition, 410
GARRISON, Fielding H.: History of prosthesis, 96
Gas, 591
Gas apparatus for destruction of domestic refuse, 568
Gas gangrene, 380—(L. Zindel), 466
Gas gangrene on the lines of communication in France. 792
Gas gangrene, artificial hyperaemia in (A. Thies), 594
Gas gangrene associated with *B. oedematiens* (E. J. Dalyell), 361. (O)
Gas gangrene on the British front, 711
Gas gangrene in civil practice (F. K. Hayman), 14
Gas gangrene, colour changes seen in skin and muscle in (Colonel Cuthbert Wallace), 725. (O)
Gas gangrene in limbs, early, successful conservative treatment of, by the resection of infected muscles (Lieut.-Col. C. H. S. Frankau, Captain Hamilton Drummond, and Captain G. E. Neligan), 729. (O)
Gas gangrene, metastatic (Captain J. N. J. Hartley), 481. (O)
Gas gangrene, method of spread of into living muscle (Captain J. W. McNee and Captain J. Shaw Dunn), 727. (O)
Gas gangrene, pathology of (leading article), 53
Gas gangrene, *x*-ray appearances of (Agnes Savill), 15
Gas poisoning (H. Curschmann), 656
Gas poisoning, punctiform haemorrhages of the brain in (Major F. W. Mott), 637. (O)
Gas in the tissues, *x*-ray diagnosis of (J. D. Morgan and G. Vilvandré), 8. (O)—(Harold Black), 9. (O)—Correspondence on, 65
GASK, Major George Ernest, D.S.O. conferred upon, 780
Gastrectomy for carcinoma of the stomach, sequel (C. Mansell Moullin), 395
GAUVAIN, H. J.: Warm beds in open air, 528
Gauze plugging, 860
GAVIN, Captain N. J. H., Military Cross conferred upon, 780
GAY, John: Survival in spina bifida, 604
GEBELE: Treatment of arterial wounds, 403
GEDDES Lieut.-Col. Auckland Campbell, C.B. conferred upon, 780
GEE, G. W. (and others): Hypochlorous solution electrically produced from hypertonic saline as a disinfectant for septic wounds, 256 (O)
GEIKIE, Walter Bayne, obituary notice of, 246
Geneva, chair of oto-rhino-laryngology founded at the university, 223
GEOGHEGAN, Joseph: Case of traumatic pneumonia, 455. (O)
Geology and medicine, 340
GEORGE, Captain W., Military Cross conferred upon, 780
German Act and the freedom of the medical profession, 527
German army: Venereal disease in, 143—Twenty months' surgical field service with (Coenen), 237—Changes in the medical service, 437—Health of, 660. *See also* Army
German base hospital, surgery in a (Hermann Fischer), 522
German criticism of the British campaign against venereal disease. 624
German field hospitals, notes from, 168
German ideas of humanity, 774
German measles and measles, cinnamon as a prophylactic in (W. B. Drummond), 764
German Medical Association proposes that students prematurely qualified should be given an opportunity to finish their studies after the war, 262
German Red Cross to make a collection of pictures, etc., 179
German regiment, epidemic of paratyphoid A in (Koehler), 169
German splints and methods for transport of gunshot fractures of the thigh, 777
German views on war-worn soldiers, 97

GERMANY:
Animal census, 649
Babies' comforters, restricted sale of owing to rubber shortage, 191
Curative workshops in, 597
Deaths from mushroom poisoning, 241
Food adulterations in (Schwalbe), 623
Food problem in, 589
Health and feeding of school children in Berlin, 248
Licences granted to men and women to practise medicine in, 1914–15, 577
Medical students not to be granted furlough to finish their studies, 702
Morphine abuse, warning against, 782
Rationing of invalids in, 36
Russian prisoners in, 816
Small-pox in Berlin, 788
Typhus fever, systematic testing of the blood of suspects, 649

GERRARD, Colonel John Joseph, C.B. conferred upon, 780
GHAFUR, Subassistant Surgeon Abdul, awarded Indian Distinguished Service Medal, 206
"Ghosts," 776
GIBBINS, Kenneth Mayoh, obituary notice of, 635
GIBBON, Captain Edward, Order of the Nile conferred upon, 562
GIBSON, Captain A. J. (and Major Lloyd JONES): Salvarsan treatment of syphilis, 152. (O)
GIBSON, Alexander, elected Fellow of the Royal Society of Edinburgh 377
GIBSON, Captain Benjamin Digby, dies on service, 170
GIBSON, Captain John, accidentally drowned, 820
GILBERTSON, James H.: The oldest age of parturition, 378
GILCHRIST, Captain Kenneth Alexander, Military Cross conferred upon, 241
GILDEMEISTER: Unusual paratyphoid B carrier, 170
GILL, Lieut.-Col. James Geoffrey, D.S.O. conferred upon, 780
GILL, Captain John Galbraith, Military Cross conferred upon, 30
GILLESPIE, John R.: Prophylaxis of venereal disease, 380
Gingivitis, peridental, relation of to Vincent's angina (Frank E. Taylor and Captain W. H. McKinstry), 421. (O)
GIOVANNI, Achille de, obituary notice of, 247
GIRDWOOD, Lieut.-Col. Robert L., D.S.O. conferred upon, 780
GIROUX, R. (and M. COURTOIS-SUFFIT): *Les formes anormales du tétanos: Etude clinique, pathogénique, prophylactique et thérapeutique*, rev., 15
Glands of internal secretion, relation of to gynaecology and obstetrics, 783
Glands, lymphatic, situated on the anterior surface of the atlas, significance of (A. Ernest Maylard), 13. (O)

GLASGOW:
Health of, 242
Infant mortality conference, 242
Maternity and child welfare, 407
Ministry of Health, the proposed, 782
Mobilization of the profession, 407, 467, 500
Royal Infirmary, 242
Venereal diseases, 407

GLASGOW, Maude: *Life and Law: the Development and Exercise of the Sex Function, together with a Study of the Effect of Certain Natural and Human Laws, and a Consideration of the Hygiene of Sex*, rev., 366
Glaucoma, review of books on, 686
Gleet, inveterate, prostatic, colloid silver in (James MacMunn), 685
GLENDINING, Bryden: Splint for wrist-drop, 123
Glioma, hereditary retinal, 850
GLOVER, Edward G.: Uses and abuses of sanatorium treatment, 633
GLOVER, James: Psycho-analysis 102
Glucose, clinical test for the estimation of the percentage of (G. C. Parnell), 842
Glycerin and antiseptics (Helen Pixell Goodrich), 647. (O)
Glycerin of boric acid, *B.P.*, 752
Glycerin in dispensing. 568, 601
Glycerin wanted for munitions, 248
GLYNN, Ernest: Bacteriology and the war, 520
GLYNN, Thomas R.: His jubilee of membership of the Liverpool Medical Institution, 890
GODDARD, Lieut.-Col. Gerald Hamilton, D.S.O. conferred upon, 780
Golden syrup, 352

GOLDENSTEIN: The causal agent in typhus fever, 167
GOLDING, Captain John, D.S.O. conferred upon, 780
GOLDSBROUGH, G. F.: *First Principles in Therapeutics*, rev., 365
GOMMÈS, M.: *L'Alimentation rationnelle à très bon marché*, rev., 486
Gonococcus, new culture medium for (Captain D. Thomson), 869. (O)
Gonorrhoea treated by electrolysis, a new electrolyte (Charles Russ), 616. (O)
Gonorrhoeal epididymitis, suppuration in (R. L. Spittel), 842
GOODALL-COPESTAKE, W., obituary notice of, 379
GOODMAN, Lieut. E. G., killed in action, 597
GOODRICH, Helen Pixell: Mouth-washes in health and disease, 473. (O)—Glycerin and antiseptics, 647. (O)
GOODWIN, Major William Richard Power, D.S.O. conferred upon, 29
GORDON, A. Knyvett: Advantages of Biebrich scarlet as a plasma stain, 828
GORDON, Lieut.-Col. Andrew Robertson, obituary notice of, 247
GORDON, Captain G. S.: Three cases of ureteral obstruction, 758. (O)
GORDON, Lieut.-Col. Mervyn Henry, C.M.G. conferred upon, 780
GORDON, W.: Sodium salicylate in treatment of "trench feet," 121—Hot sand as a preparation for massage and manipulation, 191—German Act and the freedom of the medical profession, 527—A medical policy after the war: Part-time State service, 700—Co-ordination of British medical policy, 783, 892
GORRELL, Lieut.-Col. C. W. F., inquest on the death of, 179
GORSSLINE, Major Raymond Meyers, D.S.O. conferred upon, 780
Goss, Captain Edward Slade, Serbian Order of the White Eagle conferred upon, 276
GOSSE, Lieut. Robert Buchanan Wilkes, dies of wounds, 493
GOULDEN, Private Allan Edmund, killed in action, 345
GOWANS, James, obituary notice of, 179
GOWLLAND, Major Edward Lake, D.S.O. conferred upon, 780
GRACE, Lieut. Mervyn Bruce, killed in action, 890
Graded medical salaries, 207. *See also* Salaries
GRAHAM, Lieut. Henry Balfour, killed in action, 854
GRAHAM, Captain Thomas, Military Cross conferred upon, 744
GRANDAGE, Lieut.-Col. William Briggs, killed in action, 696
Granuloma venereum, review of books on, 425
GRAVES, Lieut. Robert James, dies of wounds, 240
GRAY, Captain A. Charles E.: Application of surgical methods to the treatment of cerebro-spinal fever, 409—Flavine in cerebro-spinal fever, 636
GRAY, Lieut. George G., killed in action, 524
GRAY, John Sidney, obituary notice of, 827
GRAY, Col. William Lewis, C.M.G. conferred upon, 29
Greek doctors with Francophile sympathies, anxiety as to fate of, 71
Green, brilliant, value of as an antiseptic (Captain C. H. S. Webb), 870. (O)
Green, brilliant, as an epithelial stimulant (R. W. Hodgson-Jones) 455
Green, brilliant, and flavine, powerful antiseptics with low toxicity to the tissues, their use in infected wounds (C. H. Browning, R. Gulbransen, E. L. Kennaway, and L. H. D. Thornton), 73. (O)—(D. Ligat), 78. (O)—Leading article on, 91
Green, brilliant, ointment, a correction, 532
GREEN, Lieut. Charles Leyton, killed in action, 890
GREEN, Lieut. R. A., Military Cross conferred upon, 60
GREEN, Vincent: Tonsillectomy, 809
GREEN-ARMYTAGE, Captain Vivian Bartley, Serbian Order of the White Eagle conferred upon, 276—Légion d'Honneur conferred upon, 596
GREENFIELD, D. G.: Note on skin grafting, 482. (O)
GREENWOOD, Major, obituary notice of, 703
GREENWOOD, Major, jun.: Compulsory Latin, 65
GREENWOOD, W. Osborne: Results of scopolamine-morphine treatment during labour in 150 consecutive cases, 355 (O), 472
GREGORY, Captain H. L.: Another wandering shrapnel ball, 482. (O)
GREGORY, Lieut. James Alfred, dies of wounds, 596
GREIG, Lieut.-Col. Frederick James, C.M.G. conferred upon, 780
GREIG, W. C.: The soldier's foot, 66
GRIER, Lieut. William, lost at sea (H.M.S. *Arcadian*), 629
GRIERSON, R.: *Some Modern Methods of Ventilation*, rev., 486
Grievances of Territorial medical officers. *See* Army, British
GRIFFIN, Walter B. (and Lieut. RICHET): Treatment of malaria and malarial coma by intravenous injection of quinine urethane, 190. (O)
GRIFFITH, A. Hill: Hereditary retinal glioma, 850
GRIFFITH, J. P. Crozer: *The Care of the Baby*, rev., 194
Guild, Royal Medical Benevolent Fund. *See* Fund
GULBRANSEN, R. (and others): Flavine and brilliant green, powerful antiseptics with low toxicity to the tissues, their use in treatment of infected wounds, 73. (O)
GULLAND, Major G. Lovell, C.M.G. conferred upon, 129
Gum solutions for intravenous injection, use of, 564
Gun deafness, prevention of, 404
GUNN, Captain J. A.: Prevention of pediculosis, 579. (O)
Gunshot fractures of thigh, German splints and methods of transport, 777
Gunshot injuries of the limbs (Henes), 168
Gunshot wounds of abdomen, review of books on, 226
Gunshot wounds of abdomen, treatment of (Captain A. L. Lockwood, Captain C. M. Kennedy, Captain R. Bute Macfie, and Lieut. S. F. A. Charles), 317. (O)—Correspondence on, 377
Gunshot wounds, bismuth and iodoform paste in (Louisa Garrett Anderson), 264
Gunshot wounds, contaminated, use of salt and soda baths and silver nitrate in treatment of (M. A. Zasuilow), 107
Gunshot wound of head, early complications resulting from retained bone fragments in a case of (Captain W. E. Tyndall), 423. (O)
GUNTER, Lieut.-Col. Francis Ernest, D.S.O. conferred upon, 206
GURNEY, Staff Nurse E. S., drowned on service, 597
GWATHMEY, James T.: Practical methods of anaesthesia, 393. (O)
GYLLENCREUTZ, Captain James Randolph, lost at sea, 524, 561
Gynaecology, review of books on, 733

H.

HACKMAN, Leonard King Havelock, obituary notice of, 471, 603
HADDEN, Captain David Hamilton, Military Cross conferred upon, 30
HADDON, John: "Auto" counter irritation in rheumatoid arthritis, 108
Haematemesis neonatorum and melaena (Bethel Solomons), 763. (O)
Haematocolpos in bifid uterus and vagina (Captain R. Douglas Laurie), 764
Haematology, review of books on, 299
Haemorrhage, secondary, on the lines of communication in France, 791
Haemorrhage, vaginal, plugging for (Hastings Tweedy), 618
Haemothorax, infection of by anaërobic gas-producing bacilli (Lieut.-Col. T. R. Elliott and Captain Herbert Henry), 413, 448. (O)
HAIG, Lieut.-Col. Patrick Balfour, C.B. conferred upon, 212
HAIG, Major William, D.S.O. conferred upon, 29—Presentation to, 377
HAINES, Captain George Harris, Military Cross conferred upon, 30
HAIRSINE, Captain Owen, killed in action, 853
HALDANE, J. S.: The therapeutic administration of oxygen, 181. (O)
HALL, J. T.: Economical use of cocaine, 765
HALLARAN, Colonel William, dies on service, 345
HALLIBURTON, W. D.: *Essentials of Chemical Physiology, for the Use of Students*, rev., 298
HALLIDAY, Frederick William, obituary notice of, 419
Hallucinations in the sane (Robert Hunter Steen), 766
HALLWRIGHT, Lieut.-Commander William Wybrow, killed in action, 597, 630—D.S.O. conferred upon, 662
HAMILL, J. Wilson, obituary notice of, 142
HAMILTON, Captain Harold Parrish, Military Cross upon, 30
HAMILTON, Captain Henry Edmund, killed in action, 782
HAMILTON, Lieut. Ronald M., accidentally killed, 820
HAMILTON, Thomas Bogie, receives permission to wear the Order of the Nile, 36
HAMMARSTEN, O.: *Textbook of Physiological Chemistry*, rev., 298
HAMMERTON, Major George Herbert Leonard, D.S.O. conferred upon, 780
HAMMOND, Lieut. John Maximilian, dies of wounds, 438—D.S.O. conferred upon, 561
Hampstead Women's Co-operative Guild, maternity and a Ministry of Health, 698
HAMPTON, Captain Frank Anthony, Military Cross conferred upon, 171
HANBURY, Langton Fuller, killed in action, 308
HANCOCK, Captain Allen Coulter, awarded bar to Military Cross, 276
Hands, artificial, and arm stumps (A. Stadler), 275.
HANSCHELL, Surgeon Hother McCormack, Distinguished Service Cross conferred upon, 29
HANSON, W. C. (and G. M. KOBER, editors): *Diseases of Occupation and Vocational Hygiene*, rev., 50
HANUSA, K.: Open pneumothorax, 374
Happy though Wounded, 883
HARDIE, Captain D., Military Cross conferred upon, 780
HARDIE, Captain John, Military Cross conferred upon, 596
HARDING James J.: Inoculation against typhoid in the civil population, 412
HARDISTY, Captain R. H. M., Military Cross conferred upon, 780
HARDY, Lieut.-Col. Charles Henry William, D.S.O. conferred upon, 30
HARDY, Captain George Francis, Military Cross conferred upon, 30
HARE, H. A.: *Textbook of Practical Therapeutics, with Special Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis*, rev., 365
HARE, Captain William Theodore, Military Cross conferred upon, 30
HARGRAVE, John: *At Suvla Bay: Being the Notes and Sketches of Scenes, Characters, and Adventures of the Dardanelles Campaign*, rev., 16
HARMAN, N. Bishop: Effects of cinematograph displays upon the eyes of children, 219 (O), 350—*Staying the Plague*, rev., 735
HARPER, Captain John Alexander, killed in action, 308
HARRINGTON, Sergeant-Major G. S., Serbian Cross of Karageorge conferred upon, 562
HARRIS, Lieut. A. J., killed in action, 240
HARRIS, Major Edward Temple, D.S.O. conferred upon, 780
HARRIS Lieut.-Col. F. W. H. Davie: Auxiliary R.A.M.C. funds, 211—Obituary notice of, 895
HARRIS, Lieut. William Trengweath, lost at sea (H.M.S. *Arcadian*), 629
HARRISON, Captain Everard, killed in action, 596
HARRISON, G. A.: Strangulation following reduction *en masse* (left inguinal hernia), laparotomy, recovery, 763. (O)
HARRISON, Lieut.-Col. L. W. (and others): Intramuscular or subcutaneous injection of neo-salvarsan, 569. (O)
HARRISON, Captain Stanley Sextus Barrymore, Military Cross conferred upon, 662
HART, Lieut.-Col. Edward Charles, C.M.G. conferred upon, 29
HART, Captain William Malloch, Military Cross conferred upon, 99
HARTGILL, Captain William Clavering, Military Cross conferred upon, 30
HARTLEY, Captain J. N. J.: Metastatic gas gangrene, 481. (O)
HARTLEY, Captain P., Military Cross conferred upon, 780
HARTY, Lieut. James Johnson, dies on service, 376
HARTY, Major Thomas Ernest, D.S.O. conferred upon, 29
HARVEY, A. F.: Refreshment house experiment in Carlisle, 785
HARVEY, Lieut.-Col. David, C.M.G. conferred upon, 780
HARVEY, Major George Alfred Duncan, C.M.G. conferred upon, 780
HARVEY, Major William John Saundry, D.S.O. conferred upon, 29
HASLER, Lieut. and Quartermaster Arthur Thomas, lost at sea, 743
HASLIP, G. E.: Future medical policy, 747
HASTINGS, William, receives permission to wear the Order of the Nile, 36
Havana, campaign against venereal diseases in, 456
HAWES, Captain Godfrey Charles Browne, lost at sea, 524
HAWTHORN, Lieut.-Col. Frank, D.S.O. conferred upon, 29
HAYDON, Arthur, obituary notice of, 703
HAYES, Rev. J. W.: Recipes for using barley flour, maize, etc., 788
HAYMAN, F. K.: Case of gas gangrene in civil practice, 14—Case of alkaptonuria, 364
HAYWARD, F. H.: *Professionalism and Originality*, rev., 843
HAYWARD, Lieut.-Col. William Thornborough, C.M.G. conferred upon, 780
HAZLETON, E. B.: Chilblains, 212
Head, gunshot wound of, early complications resulting from a case of (Captain W. E. Tyndall), 423
Head injuries at the British front, 719
HEALE, Captain A. S., Military Cross conferred upon, 780
Healing, delayed, elastic pressure in (Liek), 660
Health, Ministry of, 461, 489, 850, 893—Leading article on, 517, 653—Housing problem and, 525—Society of Medical Officers of Health and, 584—London Insurance Committee and, 584—Infant welfare and, 630—Medical women and, 663—Maternity and (Women's Co-operative Guild, Hampstead), 698—Association of Municipal Corporations and, 751—Discussion in Glasgow, 782—National Conference of Friendly Societies and, 788. *See also* Ministry *and* Rhondda, Lord

HEARD, Lieut. Francis George, dies of wounds, 438
HEARNE, Lieut.-Col. William Weston, D.S.O. conferred upon, 780—Italian Order of St. Maurice and St. Lazarus conferred upon, 781
Heart, loose bullets and foreign bodies in, 278, 482 *See also* Wandering shrapnel
Heart failure in the operating theatre treated by heart massage, recovery (Echlin S. Molyneux), 420. (O)
Heart massage, 420, 497—Argaud's method, 497
Heart, soldier's, and the "effort syndrome" (leading article), 459—Correspondence on, 496, 665
Heart wounds at the British front, 718
HEATON, Captain Rainald: Serbian Distinguished Service Medal conferred upon, 376
HEBBLETHWAITE, Captain Arthur Stuart, Military Cross conferred upon, 852
HECHT, Victor: *Leitfaden der physikalisch-therapeutischen Nachbehandlung Kriegverwundeter* (*Massage, Heilgymnastik, Apparatbehandlung, Thermo- Hydro- und Elektro-therapie*), rev., 768
HEHIR, Colonel Patrick, C.M.G. conferred upon, 276
HEITZMANN, L.: *Urinary Analysis and Diagnosis by Microscopical and Chemical Examination*, rev., 549
HELLIER, John Benjamin: Two cases of pregnancy complicated by myoma uteri, 614. (O)
HELSHAM, Surgeon-Probationer Christopher Thomas (H.M.S. *Broke*), Distinguished Service Cross conferred upon, 662
HEMPHILL, Lieut. Richard Patrick, killed by accident, 561
HENDERSON: Surgical shock, 382
HENDERSON, John Alexander, obituary notice of, 211
HENDERSON, Captain Ronald Lennox, Military Cross conferred upon, 852
HENDERSON, Captain W. A. L. H., Croix de Guerre conferred upon, 596
HENDLEY, Colonel Thomas Holbein, obituary notice of, 211, 315
HENDRIX, Georges: *Les principes fondamentaux de la prothèse orthopédique du membre inférieur*, rev., 619
HENDRY, Lieut.-Col. William Belfry, D.S.O. conferred upon, 780
HENES: Gunshot injuries of the limbs, 168
HENNEY, Lieut. Herbert Norman, killed in action, 629
HENRY, Captain Herbert (and Lieut.-Col. T. R. ELLIOTT): Infection of a haemothorax by anaërobic gas-producing bacilli, 413, 448. (O)—Simple device for growth of anaërobic plates, 762. (O)—On some anaërobes found in wounds and their mode of action in the tissues, 806. (O)
HENSON, Private Gordon Reed, dies of wounds, 744
HEPPLE, Major John, drowned on service, 58
HEPPLEWHITE, Captain William George Thomas, Military Cross conferred upon, 99
Herbalist, successful prosecution of (Perkins Stretton), 472
Herb-growing in the British empire (J. C. Shenstone), 624
Herbert Fry's Royal Guide to the London Charities, rev., 426
Hernia, inguinal, strangulation following reduction *en masse*, laparotomy, recovery (G. A. Harrison), 763. (O)
Hernia, sciatic (Lewis W. Marshall), 191
HERRICK, Lieut.-Col. Henry, D.S.O. conferred upon, 780
HERRINGHAM, Colonel Sir Wilmot: Penetrating wounds of the chest at the casualty clearing stations, 721. (O)—Bacteriology at the Front, 832. (O)—Trench fever and its allies, 833. (O)
HERRON, Lieut. Reginald Maurice, dies of wounds, 890
HETLEY, Henry, obituary notice of, 602
HEWETSON, Lieut.-Col. Henry, D.S.O. conferred upon, 29
HEWLETT, Messrs. C. J.: Brilliant green ointment, 532
HEWITSON, Lieut.-Col. Samuel William, dies on service, 376, 405, 560
HEWITT, Fleet Surgeon Alfred James, noted for accelerated promotion, 29
HEWLETT, R. T.: Colloidal preparations of alkaloids, 648
HEYWOOD, Lieut. Marcus Beresford, D.S.O. conferred upon, 780
HICKINBOTHAM, J. R.: Treatment of "barcoo rot," 842
HIGGINSON, Frederick William, obituary notice of, 411
High explosives (Walter Smith), 618
High explosives, death from, without wounds, 599, 665
High explosives, effects of, on the ear (Captain J. Gordon Wilson), 353, 578. (O)—Note on, 589
Highlands and Islands Medical Service Board, 663
Highlands and Islands parish councils go far afield for a medical officer, 377
HILDRETH, Major Harold Crossley, D.S.O. conferred upon, 780
HILL, Captain H. W.: Small-pox vaccination by puncture, 189. (O)
HILL, Leonard: Death from high explosives without wounds, 665
HILL, Deputy Surgeon-General Robert (and Fleet Surgeon E. A. PENFOLD): The service afloat, 539. (O)
HIME, Lieut.-Col. Henry Charles Rupert, D.S.O. conferred upon, 29
HINCKS, Lieut. Bertram, killed in action, 28
HIND, Wheelton, Lyell medal of the Geological Society presented to, 340
Hip fractures. *See* Fractures
HIRST, Stanley: *Arachnida and Myriapoda*, rev., 768
HIRTZ, Edgard, obituary notice of, 247
HOBART, Private Frederick Audrey, killed in action, 28
HOCKING, F. A.: War and the supply of drugs, 339
HODDER, Major Andrew Edward, D.S.O. conferred upon, 29
HODGES, G. M.: Combined suspension and extension apparatus for compound fractures about the hip, 423. (O)
HODGETTS, Colonel Charles Alfred, C.M.G. conferred upon, 780
HODGSON, Lieut. John S. R., killed in action, 493
HODGSON-JONES, R. W.: Brilliant green as an epithelial stimulant, 455
HODSON, Captain Thomas George Smith, lost at sea, 524
HOGG, F. S. D.: Appendicitis and enamelled ware, 108
HOJEL, Lieut.-Col. James Graham, C.M.G. conferred upon, 29
HOLDEN, Major Charles Walter, D.S.O. conferred upon, 29
Holidays on home service, 380, 412
HOLLAND, Captain C. Thurstan: Radiology in clinical medicine and surgery, 285. (O)
HOLLIS, W. Ainslie: Co-ordination of British medical policy, part-time State medical service, 856
HOLMES, Assistant Surgeon F. K., dies on service, 205
HOLMES, Lieut.-Col. Gordon Morgan, C.M.G. conferred upon, 29
HOLT, Private John Heber Goulburn, dies on service, 854
HOLT, Colonel Morris Percy Cue, K.C.M.G. conferred upon, 29
Home reserve, 462. *See also* Civil reserve
Honorary degrees at Malta. *See* University of Malta
Honours, 29, 60, 99, 129, 132, 171, 206, 235, 240, 276, 346, 376, 405, 439, 493, 561, 595, 662, 697,, 780 852—New Year, 235—Birthday, 770, 773, 780—French, for medical women, 890
HOOD, Thomas, C.M.G. conferred upon, 770
HOPE, E. W.: Report on physical welfare of mothers and children, 635
HOPKINS, F. G.: Croonian lecture on biochemistry of muscular contraction, 552
HOPKINSON, Lieut. Eric Humphry, dies of wounds, 782
HORNE, Captain R., killed in action, 629
HORROCKS, Colonel W. H., C.B. conferred upon, 129
Horse serum in treatment of burns, 636
HORSLEY, Sir Victor, 750
HORT, Edward C.: Life-history of bacteria, 571 (O), 664
HOSIE, Lieut.-Col. Andrew, C.M.G. conferred upon, 780
HOSKEN, Captain James Gerald Fayrer, Serbian Order of the White Eagle conferred upon, 276
Hospital accommodation, in the Prairies, 242; at Sandhurst (parliamentary question), 464
Hospital, Batley and District: Gangrene of small intestine, laparotomy, recovery (W. Airlie Ogilvy), 223
Hospital, Brighton Grove Military, Newcastle-upon-Tyne: Lectures on venereal disease, 751
Hospital, Cancer, London, report, 407
Hospital for Cancer and Nervous Diseases to be built in Philadelphia, 248
Hospital, Coventry and Warwickshire: Case of uterus bicornis (under the care of Mr. Harman Brown, reported by J. H. Dove), 192
Hospital for Deformities and Joint Diseases, New York, 35
Hospital for disabled officers, 745
Hospital, Dublin Royal Victoria Eye and Ear, report, 440
Hospital economies, military (leading article), 813. *See also* Army and civil economies
Hospital, Edinburgh Children's, annual meeting, 597
Hospital, Edinburgh Royal Maternity, annual meeting, 468—Pregnancy clinics at, 698
Hospital, English urgency cases, organization of, 635
Hospital for Epilepsy and Paralysis, Maida Vale, and neurasthenic war pensioners, 662
Hospital, Erskine, 494, 821
Hospital, German base, surgery in (Hermann Fischer), 522
Hospital, Glasgow Royal, for Sick Children, annual report, 206
Hospital journals, *Craigleith Hospital Chronicle*, 31
Hospital for Limbless Soldiers, the Erskine, 494, 821
Hospital, Liverpool Royal Southern, annual meeting, 309
Hospital, the Maudsley (leading article), 51
Hospital, Middlesex Military General, 854
Hospital for officers with stiff joints at Sidmouth, 788
Hospital, Oldmill, Aberdeen, orthopaedic department, 855
Hospital, Orthopaedic, of Ireland, report, 311. *See also* Orthopaedic
Hospital, Queen Alexandra's, for Officers, opening of annexe, 820
Hospital, Queen Charlotte's Lying-in, annual meeting, 407
Hospital, Red Cross (American) for France 439
Hospital reports, 14, 192, 223, 364
Hospital, Royal Naval, Haslar, visit of the Queen, 635
Hospital ships (Fleet Surgeon E. C. Lomas), 542. (O)
Hospital ships for the Tigris, 819
Hospital ships, torpedoing of, by Germany: Declaration by British Admiralty, 558—Protest by International Red Cross Committee, 559
Hospital, St. Mark's, report, 242
Hospital, St. Thomas's, *Reports*, vol. xlii, rev., 396
Hospital, Sir John Ellerman (for disabled officers), 745
Hospital Sunday Fund. *See* Fund
Hospital Supply Dépôt, Blackrock War, 278
Hospital trains and motor ambulances on the lines of communication in France, 789
Hospital units, organization of American base, 742, 779
Hospital, Vienna Military Orthopaedic, appliances at (Stracker), 275
Hospitals, auxiliary, in Scotland, 856
Hospitals, Dublin, success of open-air treatment in, 241
Hospitals, home military, tetanus in, 888
Hospitals, military, in the future (Sir J. Kingston Fowler), 692, 775
Hospitals, military, visits to (parliamentary question), 306
Hospitals, orthopaedic. *See* Orthopaedic
Hospitals, small V.A.D. and private (leading article), 588
Hospitals, special, on the British front, 707
Hospitals, supply of spirits to (parliamentary question), 343
Hospitals, V.A.D., payment of medical officers in, 693, 849
Hospitals, voluntary, relief from duty for spirits used by, 704
HOSSACK, W. C.: Algoid stage of bacilli as a hypothesis, 137
Hot-bath treatment of wounded limbs while the patient is in bed, apparatus for (Basil Sampson), 295
Housing and health reorganization, 816
Housing problem and a Ministry of Health, 525 *See also* Health
Housing question in Scotland, 173; in Dundee, 440
HOUSTON, A. C.: *Rivers as Sources of Water Supply*, 688
HOVE, maternity and child welfare in, 406
HOWARD, T.: Diagnosis of scarlet fever, 766
HOWARTH, William J.: Treatment of venereal disease, 172
HOWE, Lieut. Ernest, dies of wounds, 28
HOWE, Private Frederick William Duncan, killed in action, 467
HOWELL, Captain Frederick Duke Gwynne, D.S.O. conferred upon, 29
HOWELL, John: Rotation of the liver on its vertical axis, 219. (O)
HOWKINS, Lieut.-Col. Cyril Henry, D.S.O. conferred upon, 780
HOWSE, Surgeon-General N. R., K.C.B. conferred upon, 129
HUDDART, Captain Cuthbert Edmund Arnold, dies on service, 240
HUDLESTONE, Lieut.-Col. Wilfrid Edward, D.S.O. conferred upon, 29
HUGHES, Basil: Early treatment of compound fractures of the long bones of the extremities, 289. (O)
HUGHES, Edmund: Psycho-analysis, 64
HUGHES Captain H. L. G., Croix de Guerre conferred upon, 596
HUGHES, Captain M. R., killed in action, 466, 523
HUGHES, Fleet Surgeon Robert, Order and Medalgia of Officer of the Crown of Italy conferred upon, 405
HUGHES, Captain Rogers Forrest, dies of wounds, 28
HUGILL, Lieut. Valentine Francis Hubert, missing, presumed killed, 493
HULL, Lieut.-Col. A. J.: Treatment of burns by paraffin, 37. (O)
HUMPHREY-DAVY, Lieut. D. N. O'Neale, killed in action, 661
HUMPHREYS, Lieut. Arthur Idwal, killed in action, 309
Humphreys *v.* Miller, 71
HUMPHREYS, Henry, obituary notice of, 178
HUMPHREYS, J.: *Catalogue of the Collection of Skulls and Teeth in the Odontological Museum of the University of Birmingham*, rev., 50
HUNT, Captain Gladston Montague, Military Cross conferred upon, 562
HUNTER, Colonel George Douglas, C.B. conferred upon, 206

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

HUNTER, John, the influence exerted by the military experience of, on himself and on the military surgeon of to day (Surgeon-General Sir G. H. Makins), 213. (O)
Hunterian Lectures (Lieut.-Col. R. H. Elliot), 334
Hunterian Oration, 1917 (Sir G. H. Makins), 213. (O)
HUNTON, Surgeon-Captain Frederick, killed in action, 661, 743
HURLEY, Lieut.-Col. Thomas Er est, C.M.G. conferred upon, 780
HURRY, J. B.: *Poverty and its Vicious Circles*, rev., 122—*Vicious Circles in Sociology and their Treatment*, rev., 582
HURST, A F.: *Medical Diseases of the War*, rev., 365—Infective jaundice at Gallipoli, 527
HURST, Captain J. T., Military Cross conferred upon, 780
HUSBAND, Captain George Staunton, dies on service, 376
HUTCHISON, Robert: *Food and the Principles of Dietetics*, rev., 193—Diagnosis in dyspepsia, 364
HUTTON, Henry Richmond, obituary notice of, 666
HUXTABLE, Lieut.-Col. Robert Beveridge, D S.O. conferred upon, 780
HYDE, Major Dermot Owen, D.S.O. conferred upon, 29
Hygiene, instruction to be given in New York city schools, 40
Hygiene of mercantile ships, 746
Hygiene in the navy (Fleet-Surgeon R. C. Munday), 537. (O)
Hygiene and sanitation school opened by Kansas City Board of Health, 316
Hyperaemia, artificial, in gas gangrene (A. Thies), 594
Hypertrophy, congenital, of the lower limb (H. S. Stannus), 284
Hypochlorous solution electrically produced from hypertonic saline as a disinfectant for septic wounds, and for the throat in diphtheria, scarlet fever, etc. (J. M. Beattie, F. C. Lewis and G. W. Gee), 256. (O)
Hypothyroidism, changes in the central nervous system in (F. W. Mott), 263

I.

IEVERS, Major Osburne, D.S O. conferred upon, 29
IMPEY, Captain Robert Lance, Military Cross conferred upon. 30
Income tax, 36, 108, 144, 212, 231, 284, 532. 636, 788, 860, 896—Officers' (leading article), 231—Review of books on, 16—And the war loan, 444—Petrol duty rebate, 532, 604, 636—And deferred purchase, 668
Index Catalogue of the Surgeon-General's Library of the United States Army, rev., 844
Indexes, half-yearly, for 1916, 25; for 1917, 883

INDIA:
Medical research in (Sir C. Pardey Lukis), 427—Leading article on, 431
Medical services in, report of the Royal Commission on Public Services in, 161—Leading article on, 163, 198—Correspondence on, 208
Medicine and Hygiene for, rev., 160

Indian Medical Services: Report, 161—Leading article, 163, 198—Correspondence on, 208. *See also* Army
Indian ophthalmic practice, some eccentricities of, 234
Infant Aid Society, 348
Infant management, leaflet for Belgian mothers in England, 107
Infant mortality. *See* Mortality
Infant welfare and a Ministry of Health, 630
Infantile death-rate (parliamentary question), 435
Infantile paralysis, principles governing the early treatment of (W. Colin MacKenzie), 249. (O). *See also* Poliomyelitis
Infectious disease in 1916 849
Infectious diseases, concurrent (W. Gifford Nash), 14
Infectious diseases, prevention of, 631
Infectious fevers, suggested use of eusol in, 636
Infirmary, Bristol Royal: Case of gas gangrene in civil practice (F. K. Hayman), 14—Case of alkaptonuria (F. K. Hayman), 364
Infirmary, Edinburgh Eye, Ear, and Throat, report, 494
Infirmary, Edinburgh Royal: Annual meeting, 61—Report on radium treatment at 516
Infirmary, Glasgow Royal: Bequest to, 61—Report, 242
Infirmary, Leeds General, pamphlet on, 233
Infirmary, Liverpool Royal, annual meeting, 347
Infirmary, Royal Victoria Eye, Paisley: Eyesight of munition workers, 278—Annual meeting, 278
INKSON, Lieut.-Col. Edgar Thomas, D.S.O. conferred upon, 29
INNES, Private Edward Cosmo, killed in action, 345
Inoculation, antityphoid, in the Canadian Expeditionary Force, 440
Insanity and the war, 277, 301, 310—Leading article 301
Institution, Liverpool Medical: Special meeting to honour Dr. Thomas R. Glynn, 890
Insurance, Irish National (parliamentary question), 851

Insurance, National:
Calling up notice and insured persons in Edinburgh, 663
Compulsory segregation of tuberculous persons, 433
Conference of representatives of approved societies, 698
Economics of, 177
Highlands and Islands Medical Service Board, 663
Medical bureaux in Edinburgh, 855
Medical certification under the Act (Ireland), 173
Reacceptance of discharged soldiers and sailors, 494

International Clinics, vol. iii, Series 26, rev., 50; vol. iv, Series 26, rev., 514
Intestinal diseases from the Mediterranean, 882
Intestinal obstruction, after-history of three cases of (R. V. de Acton Redwood), 581
Intestinal stasis, abdominal kneading in the treatment of (Joseph S. Bolton), 422. (O)—Correspondence on, 500
Intestine, small, gangrene of, laparotomy, recovery (W. Airlie Ogilvy), 223
Intravenous injections of galyl, etc., 161
Invalid kitchens of London, report, 668
Iodine from seaweed in Russia, 70
IREDALE, Captain L. H. W., Military Cross conferred upon, 780

Ireland:
Ambulance workers' awards, 135
Antrim, tuberculosis in, 812
Asylum inmates for farm labour, 311
Boyle medal, 173
Belfast, care of maternity and child life (Sir John Byers), 494
Bigger, E. Coey, appointed member of General Medical Council, 173
Blackrock War Hospital Supply Dépôt, 278
Boards of guardians and locumtenents of military age, 526
Bonesetters and Rathdown guardians, 598
Civil surgeons in Ulster, 241
College of Nursing 207
Dispensary doctor of military age, 278

DUBLIN:
Domiciliary treatment of tuberculous persons, 698
Hospital for abroad, 598, 631
Hospital ship arrives, 100
Hospital Sunday, 563
Measles epidemic, 408
National baby week, 783
Need for medical men in Parliament, 135
Open-air treatment in Dublin hospitals, success of, 241
Rainfall for 1916, 207
Regius Chair of Physic in the University, 311
Royal Victoria Eye and Ear Hospital, 440
Slum children in Dublin, 311
University representative in Parliament, 207

Election scene (Omagh board of guardians), 598
Emigration statistics, 134
Food consumption of working class families (Professor Thompson), 563
Food control in Irish public institutions, 311
Graded medical salaries, 207, 468, 526, 698
Infant Aid Society, 348
Irish automobile club and wounded soldiers, 408
Irish medical profession and the war, 891
Kilkenny guardians increase the salaries of their medical officers, 698
Local Government Board: Annual report, 62—and medical men of military age, 207, 377, 408—and Poor Law medical officers, 348
Lunacy in 1915, 698
Maternity and child life, 494
Measles epidemic, 408
Medical certification under the Insurance Act, 173
Medical men in Parliament, need for, 135
Medical men and officers of military age, 100, 207, 278, 377, 408, 526
Mortality among nurse children, 408
National baby week, 783
Omagh board of guardians, stormy meeting, 598
Orthopaedic Hospital of Ireland, 311
Poor Law medical officers, graded scales of salaries of, 207, 468, 526, 698
Rathdown guardians and medical men of military age, 408; and bonsetters, 598

Ireland (*continued*)
Recruits for the Royal Army Medical Corps, 440, 468
Registrar-General's returns, 134
Royal Academy of Medicine, 134
Royal Victoria Eye and Ear Hospital, Dublin, 440
Swan Memorial Fund, 135
Tobin, Richard F., appointed inspector for Ireland under Cruelty to Animals Act, 241
Tuberculous persons, domiciliary treatment of, 698
Ulster Medical Society, 135
Venereal Disease, National Council for Combating, meeting in Belfast, 134, 173
Venereal disease, prophylaxis of, protest from non-subscribing Presbyterian Church of Ireland, 563
Voluntary Aid Detachment challenge cup, 241
War bonus for medical officers, 207
Whitla, Sir William, appointed Honorary Physician to the King in Ireland, 100, 134

Irish Automobile Club and wounded soldiers, 408
Irish medical profession and the war, 891
Irish public institutions, food control in, 311
IRVINE, Major Gerard Byrom Currie, dies of wounds, 744
IRVINE, Surgeon L. C. Dundas: Case of second infection of syphilis, 765
IRWIN, Colonel James Murray, C.B. conferred upon, 29
IRWIN, Lieut. Richard Ninyan, killed in action, 438
ISAAC, Captain Ernest Emrys, bar to Military Cross, 561

ITALY:
Aniline products, scheme for manufacture of, 503
Le Malattie del Cuore, first number, 179
Military orthopaedics in, 99
Minister of War decides to remove from military territorial hospitals all orderlies, etc., serving there and send them to war zone, 493
Number of medical officers of the army who have died, 132

IVENS, Miss: French Medal of Honour for Epidemics conferred upon, 890
Ivory Cross, 751
IVY, R. H. (and B. A. THOMAS): *Applied Immunology: The Practical Application of Sera and Bacterins Prophylactically, Diagnostically and Therapeutically*, rev., 265

J.

JACKSON, Lieut. H. S., killed in action, 240
JACKSON, Captain R. W. P., Croix de Guerre conferred upon, 781
Japanese medical literature, review of current, 751
JARDINE, Lieut. Graham Brynmer, killed in action, 890
JARMAN, Captain H. L., killed in action, 170
JATAR, Lieut. Nilkanth Sheiram, Serbian Order of the White Eagle conferred upon, 276
JATAR, Lieut. Nilkranth Skriram, D.S.O. conferred upon, 780
Jaundice, epidemic, in camps (Gardenghi, Frugoni, and Ancona), 404
Jaundice, infectious, pathology and etiology of that common at the Dardanelles. 1915 (Lieut.-Col. C. J. Martin), 445 (O)—Correspondence on, 527
Jaundice, infective, in France (R. Murray Leslie), 649
Jaundice, infective, Larrey and, 201
Jaundice, toxic, in munition workers and troops, discussion at Royal Society of Medicine, 155—Full report, 625
JENKINS, Captain Christopher H., dies of wounds, 782
JENKINS, Major John Stephen, D.S.O. conferred upon, 780
JEPPS, Margaret W. (and Clifford DOBELL): Three common entamoebae in man, and their differential diagnosis, 607. (O)
JELLICOE, Stanley C.: Supernumerary nipples, 212
JESSOP, Walter Hamilton Hylton, obituary notice of, 282
JEWELL, Captain Norman Parsons, Military Cross conferred upon, 562
JOHNSON, Mrs. A. W.: Women doctors in the Viking age, 95
JOHNSON, G. L.: *Weird Adventures of Professor Delapine of the Sorbonne*, rev., 266—*Photography in Colours*, rev., 458
JOHNSON, Lieut. Howard Fife, killed in action, 467
JOHNSON, Major John Tyrer, D.S.O conferred upon, 29
JOHNSTON, Captain A. C. C., Military Cross conferred upon, 780

JOHNSTON, Lieut.-Col. Charles Arthur, D.S.O. conferred upon, 206—C.B. conferred upon, 770
JOHNSTON, David Richmond, obituary notice of, 411
JOHNSTON, James Hunter, obituary notice of, 142
JOHNSTONE, Captain George Gordon, Military Cross conferred upon, 30
Joint affections, hot sand baths in (W. Gordon), 191—Correspondence on, 313
Joint injuries at the British front, 718
Joint wounds on the lines of communication in France, 798
Joints, minor injuries to (Lieut.-Col. Frank Romer), 183. (O)
Joints, stiff, treatment of, 204
JONES, Captain A., Military Cross conferred upon, 780
JONES, Sister G., lost at sea, 524
JONES, Major H., killed in action, 376
JONES, Hugh R., obituary notice of, 566
JONES, Major John Langdale, dies on service, 889
JONES, Captain John Thomas, Military Cross conferred upon, 30
JONES, Lanphier Vernon, estate of, 154
JONES, Major Lloyd (and Captain A. J. GIBSON): Salvarsan treatment of syphilis, 152. (O)
JONES, Colonel Robert, C.B. conferred upon, 129—His clinical articles on orthopaedic surgery reprinted in book form, 491—*Notes on Military Orthopaedics*, rev., 513—Copy presented to the Académie de Médecine, 850—Elected a foreign member of Svenska Läkaresällskapet, 521—Knighthood conferred upon, 770
JONES, Lieut. Thomas William, killed in action, 438
JORDAN, Harvey Ernest (and Jeremiah S. FERGUSON): *Textbook of Histology*, rev., 582
JOURNALS, smaller, 371

K.

Kansas City Board of Health opens a school of hygiene and sanitation, 316
KARRACHY-SMITH, M. B.: *Lessons in Russian*, rev., 265
Kashmir Medical Mission, report, 568
KAUFMAN, Sergeant-Major A., Military Cross conferred upon, 780
KAY, Richard: Future of the medical profession, 139—Puerperal fever treated by vaccine, 221. (O)
KAYE, G. W. C.: *X Rays*, rev., 299
KEANE, Captain Gerald Joseph, D.S.O. conferred upon, 206
KEATES, Captain Courtney Cooper, dies on service, 240
KEBLE, Lieut.-Col. Alfred Ernest Conquer, Serbian Order of the White Eagle conferred upon, 276
Kedani disease, 433. *See also* Tsutsugamushi disease
KEEFER, Major W. Napier, his gifts to the Red Cross, 890
KEITH, Arthur: Loose bullets and foreign bodies in the heart, 278
KELLY, Captain D., Military Cross conferred upon, 780
KELLY, Major Harry Beatty, D.S.O. conferred upon, 29
KELLY, J. A. (and J. B. ROBERTS): *Treatise on Fractures*, rev., 811
KELLY, Captain Thomas James, Military Cross conferred upon, 30
KELSALL, Henry T.: Two cases of removal of foreign bodies from the eye, 81. (O)
KEMP, Lieut. Charles Gordon, Military Cross conferred upon, 562
KENNAWAY, E. L. (and others): Flavine and brilliant green, powerful antiseptics with low toxicity to the tissues, their use in treatment of infected wounds, 73. (O)
KENNEDY, Captain Alex. Mills (and Captain C. C. WOOSTER-DROUGHT): Relation of the type of coccus to the type of disease in meningococcal meningitis, 261. (O)
KENNEDY, Captain C. M. (and others): Treatment of gunshot wounds of abdomen, 317. (O)
KENNEDY, Captain Daniel, Military Cross conferred upon, 852
KENNEDY, Mrs., death of, 698
KENNEDY, Captain Robert Siggins, Military Cross conferred upon, 206
KENNISH, J.: Compulsory mobilization, 498
KENNY, Surgeon-General W. W., C.B. conferred upon, 129
KEOGH, Sir Alfred: G.C.B. conferred upon, 129—Dinner to, 270—Appreciation of Sir William Turner, 530—War Emergency Fund, 858
KERR, Captain Arthur F. G., Siamese Order of the White Elephant conferred upon, 662
KERR, James: Effect of contrasted illuminations on the eye, 271
KERR, Captain Robert Andrew, Military Cross conferred upon, 439
Kew Bulletin, 741, 883
KHARAS, Lieut. Darabochi Rustomji, killed in action, 466
KIDD, Archibald: Danger of small-pox, 529
KIDD, Frank S.: Diseases of the male urethra, 3, 41, 79, 114, 148, 185. (O)
KIDD, Leonard J.: Heart massage, Argaud's method, 497
KILBORN, Major R. K., obituary notice of, 283
Kilkenny guardians decide to raise the salaries of their medical officers, 698
KILPATRICK, James Armstrong, obituary notice of, 247
King Edward's Hospital Fund. *See* Fund
KING, Captain D. R., Military Cross conferred upon, 780
KING, Captain Douglas Reid, killed in action, 853
KING, Captain Maurice Baylis, Military Cross conferred upon, 30
KING, Captain Thomas Shirley, killed in action, 697
KINGSFORD, Beresford: Anaesthesia by warmed ether, 748
KINGZETT, C. T.: *Chemistry for Beginners*, rev., 514
KINSEY, Robert Henry, obituary notice of, 314
KIRKLAND, Captain William Duncan, Military Cross conferred upon, 852
KIRKPATRICK, Colonel Roger, C.B. conferred upon, 780
KNACK: Pitfalls in dark-ground illumination, 203
KNAGGS, Colonel Henry Thomas, C.M.G. conferred upon, 29
Knee-joints, septic, drainage of (Lieut.-Col. W. A. Carline), 294. (O)
KNIGHT, Edward: Garlic in whooping-cough, 72
Knowledge to be published four times a year during the war, 472
KNOX, Major Robert Welland, Serbian Order of the White Eagle conferred upon, 276
KOBER, G. M. (and W. C. HANSON, editors): *Diseases of Occupation and Vocational Hygiene*, rev., 50
KOEHLER: Epidemic of paratyphoid A in a German regiment, 169
KOLLE, W., appointed director of Frankfort Institute for Experimental Research, 36, 584
KÖNIG, Fritz: Amputations and amputation stumps, 492
KRAUSS, G., bequeaths £80,000 to city of Munich for Institute of Orthopaedics, 500
KREHL, L.: *The Basis of Symptoms: the Principles of Clinical Pathology*, rev., 84
KROH, Fritz: Excision of wounds, 307
Kut-el-Amara, a medical meeting at, 26—Surgery at the siege of (Major C. H. Barber), 237. *See also* Society, Amara Clinical
KYRIAKIDES, A.: *English-Greek Dictionary of Idioms, Proverbs, and Phrases*, rev., 160

L.

Laboratory work in England, Canadian medical, 851
Labour, painless, morphine-hyoscine method of (A. F. Martin), 12. (O)
Labour, results of scopolamine-morphine treatment in 150 consecutive cases (W. Osborne Greenwood), 355. (O)—Correspondence on, 472
Labour, "surgical" emphysema during (John Murray), 14—Correspondence on, 108, 380—(George Milne), 262
La Chirurgia degli Organi di Movimento, 568
LAIDLAW, P. P. (and H. H. DALE): Surgical shock, 381
Lancashire, Care Committees for Consumptives in, 494
Lancashire Panel Committee, reacceptance of discharged soldiers and sailors, 494
Land medical transport arrangements of the navy (Surgeon-General Sir James Porter and Staff Surgeon A. Vavasour Elder), 545. (O)
LANDOIS, F.: Abdominal wounds, 343—Open pneumothorax, 374
LANDOUZY, Louis, obituary notice of, 667
LANE, Captain Patrick Joseph, bar to Military Cross, 561
LANE, Sir W. Arbuthnot, C.B. conferred upon, 129
LANE-CLAYPON, Janet: Midwifery service in London, 822
LANGSTAFF, Lieut.-Col. James William, D.S.O. conferred upon, 29
LANKESTER, Miss Fay: After-war professions for women, 859
LANSDOWN, Francis Poole, obituary notice of, 314
Laparotomy, continuous sponges for (Sir William Smyly), 298
LARKIN, Reginald: Prophylaxis of mammary abscess, 765
LARREY and infective jaundice, 201
Latin, compulsory, 33, 66
Latin not compulsory in the universities of Manchester, Liverpool, Leeds, Sheffield, and Birmingham, 500
Latin in the medical curriculum abroad, 352
LAURIE, Captain R. Douglas: Case of haematocolpos in bifid uterus and vagina, 764
LAWLEY, Sir Arthur: Medical services in Mesopotamia, 595
LAWRIE, Hugh: The louse problem, 472
Lead poisoning from bullets (Disselhorst), 132

Leading Articles:
Antiseptics and leucocytes in wounds, 164
Antiseptics, new, 91
Army and civil medical economies, the need for co-operation, 621, 652, 687, 771
Army and the medical profession, 337
Biochemistry of muscular contraction, 552
"Blastomycosis," 460
British surgery at the front, 737
Budget, 622
Carriers of amoebic dysentery, 127
Child mortality, 518
Delinquent children and the war, 231
Diminution of drunkenness, 654
Dysentery at Gallipoli, 738
Filterable phase of certain pathogenic bacteria, 588
Food economy campaign, 553
Food supply of the United Kingdom, 198
Foreign bodies removed from the eye by magnets, 128
Gas gangrene, pathology of, 53
Health of native labourers in South Africa, 165
Health of munition workers, 847
Health of women munition workers, 267
Herbert Spencer, 368
Incomplete cure of the consumptive, 22, 51
Indian Medical Services, 163, 198
Infant mortality in the slums, 369
Legislation to control venereal disease, 268
Maternity, child welfare, and a Ministry of Health, 430—Medical aspects of, 815
Maudsley Hospital, 51
Meat *versus* cereals, 587
Medical aspects of maternity and child welfare, 815
Medical research in India, 431
Medical services in the Somme advance, 488
Medicine at Messines, 813
Mesopotamia Report, 880
Military hospital economies, 813
Military orthopaedics and the American unit, 772
Ministry of Health, the proposed, 517, 653
Mobilization of the profession, 92, 301
More iniquities of the rat, 230
Nineteen sixteen—Nineteen-seventeen, 21
Officers' income tax, 231
Officers of the Territorial Force *à la suite* of a Territorial general hospital, 771
Pathology of cardiac dropsy, 689
Physical education of elementary school children, 268
Poliomyelitis, 846
Rat, more iniquities of, 230
Re-examination of excepted men, 879
Research in mental pathology, 338
Research in war time, co-ordinated, 845
Riding for a fall? (Army and civil medical co-operation), 687
Sanatorium treatment, uses and abuses of, 487
Science and the nation, 398
Shock, nature and prevention of, 397
Small V.A.D. and private hospitals, 588
"Soldier's heart" and the "effort syndrome," 459
T.N.T. poisoning, prevention of, 399
Tuberculosis sanatoriums, annual report of, 199
Venereal disease, legislation to control, 268
War loan, the new, 92
War and other causes of insanity, 301
Water purification in the field, 688

LE BEL, Lieut.-Col. A. E., French Croix de Chevalier conferred upon, 781
Lecture, Cavendish: "A day's work" (Captain Andrew Macphail), 887
Lectures, the Croonian: Biochemistry of muscular contraction (W. M. Fletcher and F. G. Hopkins), 552—Adaptation and disease (Lieut.-Col. J. G. Adami), 837, 872. (O)
Lectures, Hunterian: Indian operation of couching for cataract (Lieut.-Col. Robert Henry Elliot), 334. (O)
Lectures, Morison, 310
Lectures, Oliver-Sharpey: Pathology of cardiac dropsy (Charles Bolton), 642, 678. (O)
LEE, Captain Alaister Fraser, Military Cross conferred upon, 346
LEE, Captain Harrie Bertie, Military Cross conferred upon, 562
Leeds, proposed college of nursing in, 134
LEES, Captain Frederick William, Military Cross conferred upon, 30
LEES, James Ferguson, receives permission to wear the Order of the Nile, 36
LEESON, C.: *The Child and the War, being Notes on Juvenile Delinquency*, 231
LEFTWICH, R. W.: *An Index of Symptoms with Diagnostic Methods*, rev., 458
Leg, fractures of, apparatus for treatment of (V. Soubbotitch), 646. (O)
LEGGE, T. M.: Toxic jaundice, 155, 625
LEHMANN: Geographical distribution of para typhoid A infections, 170

LEIGHTON, Captain T. W.: Supernumerary nipples, 212
Leith, child welfare superintendent appointed, 31
LELEAN, Major P. S.: *Sanitation in War*, rev., 193
LENNANE, Captain Gerald Quin, Military Cross conferred upon 30
LEON, G. A.: Prophylaxis of venereal diseases 244
Leonardo da Vinci: Quaderni d'Anatomia, II. *Ventiquattro Fogli della Royal Library di Windsor. Cuore: Anatomia e Fisiologia.* III, *Dodici Fogli, Organi della Generazione-Embrione*, rev., 336
LE PAGE, William, obituary notice of, 859
Lepers: In the United States, provision for, 444—Cure of in Canton, 699
Leprosy, case of (Humphreys *v.* Miller), 71
Leprosy, garlic in, 36
Leprosy, hypertrophy of the nipple a hitherto undescribed sign of in the male (Arthur Powell), 649
LERICHE, R.: *Traitement des fractures:* I, *Fractures articulaires;* II, *Fractures diaphysaires*, rev., 650
LESLIE, R Murray: Infective jaundice in France, 649
LETHBRIDGE, Sir Alfred Swayne, obituary notice of, 411
Letterkenny guardians and medical officers of military age, 100
Letters from a French Hospital, rev., 620
Lettsomian Oration: Campaign against venereal disease (Sir W. Osler), 694
Leucocyte count as a guide to treatment of wounds (P. Lindemann), 465
Leucocytes, influence of antiseptics on the activities of, and on the healing of wounds, (C. J. Bond), 145. (O)—Leading article, 164
LEVIS, Captain John Samuel, Military Cross conferred upon, 171
LEVY, A. G.: Safe anaesthesia, 65
LEWIS, Lieut. Cuthbert Preston, killed in action, 854
LEWIS, Lieut. Denis Mervyn, killed in action, 630
LEWIS, F. C. (and others): Hypochlorous solution electrically produced from hypertonic saline as a disinfectant for septic wounds, 256. (O)
LEWIS, W. C. McC.: *System of Physical Chemistry*, rev., 485
LEYTON, O.: Modern treatment of diabetes mellitus, 252. (O)
Library facilities for American doctors in England, 776
Lice, prevention of (Captain J. A. Gunn), 579. (O)
Lice, transport of through the air, 202
LIEBREICH, Richard, obituary notice of, 211
LIEK: Elastic pressure in delayed healing, 660
Life assurance, and the War Loan, 339—In war time, 555—Report, 655
LIGAT, D.: Flavine and brilliant green in the treatment of infected wounds, 78. (O)
LIGERTWOOD, Major Charles Edward, D.S.O. conferred upon, 29
LIGHTSTONE, Captain Hyman, D.S.O. conferred upon, 780
Limbs, wounded, apparatus for hot bath treatment of, while the patient is in bed (Basil Sampson), 295
LINDEMANN, P.: Leucocyte count as a guide to treatment of wounds, 465
Lingfield Epileptic Homes and Schools, report, 823
LINZELL, Captain Stanley James, killed in action, 560—Military Cross conferred upon, 562—Croix de Guerre conferred upon, 662, 781
Liquor control, effect of on alcoholism, 651—Leading article, 654
Lister Institute, annual meeting, 696
LITTLE, E. Graham, elected on Senate of London University, 667
LITTLE, James, obituary notice of, 34—Estate of, 557
LITTLEJOHN, Lieut. James William, Military Cross conferred upon, 30
LITTLEJOHNS, Captain Archibald Smith, D.S.O. conferred upon, 780
Liver, rotation of on its vertical axis (John Howell), 219. (O)—Correspondence on, 378
Liverpool: Hygiene of mercantile ships, 746—Venereal disease, treatment of, 172
LLOYD, Dorothy Jordan: On the chemical factors involved in the growth of the meningococcus, 11. (O)
LLOYD-JONES, Major Percy Arnould, killed in action, 28
Local authorities and food control, 663
Local Government Board. *See* Board
LOCKHART-MUMMERY, P.: Making and closing of colostomy wounds 685
LOCKWOOD, Captain Ambrose Lorne, Military Cross conferred upon, 30—(and others): Treatment of gunshot wounds of abdomen, 317. (O)
LOCKYER, Cuthbert (and Thomas Watts EDEN): *New System of Gynaecology*, rev., 733
Locumtenents of military age and boards of guardians (Ireland), 526
LODGE, Sir Oliver: *Raymond, or Life and Death*, 704
LOEWY: Food problem in Germany, 589
LOGAN, Lieut.-Col. David Dale, D.S.O. conferred upon, 780
LOGRE, Dr. (and DEVAUX): *Les anxieux*, rev., 457

LONDON:
Charities, Herbert Fry's Royal Guide to, rev., 426
City of, treatment of venereal diseases in, 172
County Council. *See* Council
Insurance Committee, and the proposed Ministry of Health 584; and the medical adviser for sanatorium benefit, 828
Midwifery, service in (Janet Lane-Claypon), 822
School of economics, work of, 60
Tuberculosis prevention, 406
Tuberculosis, treatment in, 631
Venereal diseases in, publicity arrangements, 406

LONES, Captain Percy East, killed in action, 629
LONG, James: *Food and Fitness, or Diet in Relation to Health*, rev., 193
Longevity and tuberculosis, 521
LORD, Captain Arthur, dies of wounds, 240
LORD, R. E., appointed J.P. for Denbighshire, 284
LORIMER, Captain G. N., Military Cross conferred upon, 780
LOUDON, J. (and G. W. Ross): *System for Case Taking, with Explanatory Notes*, rev., 735
Louse problem (A. W. Bacot), 296—Discussion at the Royal Society of Medicine, 297—Methyl salicylate liniment useful (Hugh Lawrie), 472
LOW, George C. (and H. B. NEWHAM): Intravenous injections of antimony in malaria, 295. (O)
LOW, Captain Herbert Bruce, Military Cross conferred upon, 99
LOW, Captain John, Military Cross conferred upon, 405, 852
LOWMAN, W. H.: Cuprase in cancer, 105
LOWTHER, Richard, obituary notice of, 70
"Lubafax," composition of, 212
"Luc" syringe, 812
LUCAS, E. V., *Outposts of Mercy*, rev., 650
LUCKMAN, Edward Llewellyn, obituary notice of, 499
LUKIS, Sir C. Pardey: Medical research in India, 427
LUMIÈRE: Tetanus after "trench foot," 234
Lunacy in Scotland in 1915, 597; in Ireland in 1915, 698
LUNAN, George: Glycerin of boric acid *B.P.*, 752
Lunatics, number of, under London County Council, 347
Lunatics, pauper, war saving of clerical labour *re* grants, 30
LUNN, Captain Henry Anderson, accidentally killed, 493
LUNN, Captain William Ernest Craven, Military Cross conferred upon, 30
LUTON, Captain Robert Marsden, Military Cross conferred upon, 30
Lymphatic glands. *See* Glands
LYTH, J. C.: The conference with Lord Rhondda, 526

M.

MABON, William, obituary notice of, 531
MCALISTER, Staff Nurse C., lost at sea, 524
MACALISTER, C. J.: Prevention and arrest of venereal disease in men, 196
MACALISTER, Sir Donald, elected Fellow of Royal Society of Edinburgh, 377
MACALLAN, Captain James, dies of wounds, 276
MCASKILL, Captain James Ernest, Military Cross conferred upon, 30
MACAULAY, Captain Francis Cromby, Military Cross conferred upon, 171
MACCALLAN, A. Fergusson, receives permission to wear the Order of the Nile, 36
MACCALLUM, W. G.: *Textbook of Pathology*, rev., 426
MCCARDIE, Captain W. J.: Method of anaesthetizing soldiers, 508. (O)
MCCAW, Lieut Ivan H., wounded, 854
MCCONAGHEY, Lieut.-Col. Maurice E., killed in action, 662
MACCONKEY, A. T.: Note on the keeping qualities of therapeutic serums, 10. (O)
MCINTOSH, Captain Thomas, dies on service, 560—Military Cross conferred upon, 562
MCCRACKEN, Alexander Hutchison, obituary notice of, 859
MCCRACKEN, Surgeon William James, Military Cross conferred upon, 562
MCDIARMID, Captain John Campbell, dies on service, 467
MCDONAGH, J. E. R.: Shock following intravenous injections of chemiotherapeutic products, 565—Colloids in syphilis, 648. (O)
MCDONALD (and others): Transmission of dengue, 339
MACDONALD, Corporal Angus, killed in action, 58
MACDONALD, J. S., elected a Fellow of the Royal Society, 305
MACDONALD, Captain John Valentine, Military Cross conferred upon, 241
MACDONALD, Colonel S., Croix de Guerre conferred upon, 781
MCDONNELL, Major Edmond, D.S.O. conferred upon, 29
MCDOUGALL, Finlay, obituary notice of, 443
MCELFATRICK, Transport Officer Jack E., dies on service, 240
MACEWEN, Surgeon-General Sir William, C.B. conferred upon, 780
MCFARLAND, J.: *Textbook upon the Pathogenic Bacteria and Protozoa, for Students of Medicine and Physicians*, rev. 299
MACFIE, J. W. S.: Monomorphic trypanosome found in the blood of a native of the Gold Coast, 12. (O)
MACFIE, Captain R. Bute (and others): Treatment of gunshot wounds of abdomen, 317. (O)
MCGEAGH, Captain George Robert Denison, Military Cross conferred upon, 30
MACGREGOR, R. D.: Case of "trench fever" contracted in England, 221. (O)
MCGREGOR, Major Roy Stanley, Serbian Order of the White Eagle conferred upon, 276
MACGREGOR, Sir William, elected member of of the Athenaeum Club by the Committee, 412
MCGUFFEN, Lieut.-Col. Chester Fish, D.S.O. conferred upon, 780
MACINTOSH, Major Cyril Leslie S., D.S.O. conferred upon, 780
MCINTOSH, J. (and H. H. DALE): Surgical shock, 382
MCKAY, Lieut. Philip S., killed in action, 662
MACKENZIE, Captain Eric Loftus, Military Cross conferred upon, 30
MACKENZIE, Captain Donald Francis, D.S.O. conferred upon, 29
MCKENZIE, Captain J. T., Military Cross conferred upon, 780
MACKENZIE, Lieut. Keith Ingleby, killed in action, 630
MACKENZIE, Captain Kenneth William, bar to Military Cross, 346 *See also* 240
MACKENZIE, T. C.: Prophylaxis of venereal diseases, 174, 349, 441
MCKENZIE, W. Colin: Principles governing the early treatment of infantile paralysis, 249. (O)—Military orthopaedic hospitals, 669. (O)
MACKENZIE, Captain William Kenneth, bar to Military Cross, 240—A correction, 346
MACKER, Dr., obituary notice of, 315
MACKESSACK, Lieut.-Col. Peter, D.S.O. conferred upon, 780
MACKIE, Captain G., D.S.O. conferred upon, 780
MCKIE, Lieut.-Col. John, D.S.O. conferred upon, 206
MCKINNON, Captain Francis Lorne, Military Cross conferred upon, 744
MACKINNON, Major James, D.S.O. conferred upon, 29
MCKINSTRY, W. H. (and Frank E. TAYLOR): Relation of peridental gingivitis to Vincent's angina, 421. (O)
MACKINTOSH, Colonel D. J., C.B. conferred upon, 129
MACKINTOSH, Lieut. Donald, killed in action, 854
MACLEAN, Inspector-General John Cassilis Birkmyre, C.B. conferred upon, 29
MACLEOD, Lieut.-Col. John Norman, C.M.G. conferred upon, 780
MCLEOD, Lieut.-Col. R. C., dies on service, 58, 205
MACLEOD, Colonel Robert Lockhart Ross, C.B. conferred upon, 29
MACLEOD, Captain William, Military Cross conferred upon, 30
MCLINTOCK, Lieut. Arnold, killed in action, 205
MCMECHAN, F. H. (editor): *American Yearbook of Anaesthesia and Analgesia*, rev., 485
MACMUNN, James: Colloid silver in inveterate prostatic gleet, 685
MCNEE, Captain J. W. (and Captain J. Shaw DUNN): Method of spread of gas gangrene into living muscle, 727. (O)
MCNEILL, Captain R. P., Military Cross conferred upon, 780
MCNEILL, Lieut. William Alexander, lost at sea (H.M.S. *Laurentic*), 206
MACPHAIL, Andrew: *The Book of Sorrow*, rev., 366
MACPHAIL, Captain Andrew: Cavendish lecture, "A day's work," 887
MACPHERSON, Major Robert Nasmyth, killed in action, 597
MACPHERSON, Surgeon-General William Grant, Order of the Crown of Italy conferred upon, 781
MCQUEEN, Lieut.-Col. John Douglas, D.S.O. conferred upon, 780
MACRAE, Captain Patrick Cameron, dies on service, 661
MCSWINEY, Captain Eugene John, dies on service, 170, 206

MACVICAR, Lieut. Neil, dies of wounds, 662
MCWEENEY, E. J.: Danger of small-pox, 469, 600, 664
MAGILL, Colonel James, K.C.B. conferred upon, 780
MAGILL, Captain Robert, D.S.O. conferred upon, 780
Magnets in removal of foreign bodies from the eye (leading article), 128
MAHOMED, Dr.: Sea-water plasma, 766
MAINPRAISE, Lieut.-Col. Cecil Wilmot, D.S.O. conferred upon, 29
MAINWARING Captain Wentworth Roland Caneagh, Serbian Order of the White Eagle conferred upon, 276
MAIR, R. S., resignation of, 500
MAITLAND-JONES, Captain A. G., Croix de Guerre conferred upon, 781
MAKINS, Surgeon-General Sir G. H.: Hunterian Oration, 1917, on the influence exerted by the military experience of John Hunter on himself and on the military surgeon of to-day, 213. (O)—Development of British surgery in the hospitals on the lines of communication in France 789. (O)
Malaria, disappearance of malignant tertian crescents from the blood following the intravenous injection of tartar emetic (Sir Leonard Rogers), 6. (O)—Note on, 24—Correspondence on, 136, 858—(George C. Low and H. B. Newham), 295. (O)
Malaria in France, 848
Malaria and malarial coma, intravenous injections of quinine urethane in treatment of (Lieut. Richet and W. B. Griffin), 190. (O)
Malaria patients in England (parliamentary question), 593
Malaria, two pictures of, 72
Malaria in the United States, 434
Malattie del Cuore, 179
MALCOLM, John D.: Post-operative tympanites, 612. (O)
MALCOLM, Captain John Wright, Military Cross conferred upon, 99
Male ferh, administration of (Kimsey Bourne), 624
Malignant tertian crescents. *See* Malaria
MALLANNAH, S.: Tobacco as flea bane, 412
Malta University. *See* University
MALSEED, Captain Alfred, Military Cross conferred upon, 30
Mammary abscess. *See* Abscess
Man, Prehistoric, rev., 227

MANCHESTER:
Health of, 99
Institute of massage and remedial gymnastics, 30
Laboratory arrangements for diagnosis of venereal disease, 562
Midwives, maternity centres, and child welfare in, 61
Midwives Supervising Committee, report, 61
Radium Institute, report, 439
Scheme for treatment of venereal diseases, 493, 562

MANIFOLD, Colonel Courtenay Clarke, C.M.G. conferred upon, 780
"Manipulative surgery" and man power, 303. *See also* Bonesetters
MANN: Surgical shock, 382
MANN, L.: Treatment of war neuroses, 775
MANN, Staff Nurse A. G., lost at sea, 524
MANSELL, Captain Reginald Anson, Serbian Order of the White Eagle conferred upon, 276
MANSON, J. S.: War and supply of drugs, 412
MANTLE, Lieut. Alexander, killed in action, 782
Manual curative workshops. *See* Curative *and* Soldiers, crippled
MANUEL, King, and curative workshops: Visit to Aberdeen, 348—Report on his various visits, 586
MAPLEDON, Lieut. Gerald Horsley, killed in action, 662
MARIE, Pierre, appointed to chair of clinical neurology in University of Paris, 567
MARKS, Major Alexander Hammett, D.S.O. conferred upon, 30
MARRACK, Captain John Richardson, D.S.O. conferred upon, 780
MARRIOTT, Lieut.-Col. Edward W.P.V., D.S.O. conferred upon, 780
MARSHALL, Captain: Surgical shock, 382
MARSHALL, C. F.: Efficacy of applications for prevention of venereal disease, 600
MARSHALL, Captain Geoffrey: Administration of anaesthetics at the front, 722. (O)
MARSHALL, Lieut.-Col. George Archibald, obituary notice of, 143
MARSHALL, Lieut. John, lost at sea (H.M.S. *Arcadian*), 629
MARSHALL, Captain John Dodds, D.S.O. conferred upon, 29
MARSHALL, Lewis W.: Sciatic hernia, 191
MARSHALL, Staff Nurse M., killed on service, 405
MARTIN, A. F.: Morphine-hyoscine method of painless childbirth, 12. (O)
MARTIN, Lieut.-Col. C. J.: Pathology and etiology of the infectious jaundice common at the Dardanelles, 1915, 445. (O)—(and Sister F. E. WILLIAMS): Etiology of dysentery, 479. (O)—Pathology of barcoo rot (veld sore), 761. (O)
MARTIN, Major E. K.: Amputation retractor, 515
MARTIN, Captain Edwin William Sidney, dies of wounds, 308
MARTIN, Captain Thomas Whittle, killed in action, 560—Military Cross conferred upon, 744
MARTIN, W.: Case of quintuplets, 363
Maryland Medical and Chirurgical Faculty, creates the Osler Testimonial Fund, 782
MASON, E. R. F.: Oldest age of parturition, 442
MASON, Staff Nurse F., lost at sea, 524
MASON, Captain Victor Harold, Military Cross conferred upon, 99
Massachusetts State Board of Health, report, 739
Massage establishments in London, applications for registration, 310
Massage of heart in heart failure (Echlin S. Molyneux), 420. (O). *See also* Heart
Massage Institute, the Manchester, 30
Massage and manipulation, hot sand as a preparation for (W. Gordon), 191
MASSY, George Dunham, killed in action, 28
Maternity and child welfare schemes: Superintendent appointed for Leith, 31—In Edinburgh, 31, 348, 821—In Manchester, 61—Deputation to President of Local Government Board, 206—In Hove 406—In Glasgow, 407—In Dundee, 440—Address by Sir John Byers, 494—Medical aspects of (leading article), 815—Local Government Board report, 822—In London, 855. *See also* Baby
Maternity, child welfare, and a Ministry of Health (leading article), 430
Maternity and a Ministry of Health, 698
MATTHEWS, Horatio: Atropine in eye work, 581
MATTHEWS, Major John, D.S.O. conferred upon, 780
MATTHEWS, Captain John Cuthbert, Military Cross conferred upon, 30
MAUDSLEY, H.: *Organic to Human*, rev., 49
Maudsley Hospital, 51. *See also* Hospital
MAUGHAN, Major John St Aubyn, D.S.O. conferred upon, 29
MAURICE, Lieut. Charles Henry Pryse, dies on service, 170
MAURICE, Captain Godfrey Kindersley, Military Cross conferred upon, 30
MAWDSLEY, Lieut. John Edmund, killed in action, 630
MAXWELL, Patrick William, obituary notice of, 410
MAY, Sir Arthur: Medicine and the sea affair, 533. (O)
MAY, Otto: Prophylaxis of venereal diseases, 378
MAYLARD, A. Ernest: Significance of the lymphatic glands situated in the anterior surface of the atlas, 13. (O)—Elected Fellow of the Royal Society of Edinburgh, 377—Value of pure carbolic acid in the treatment of septic cases, 808
MAYO-ROBSON. *See* Robson
MEARS, F C.: Future of the medical profession, 175
Measles epidemic in Dublin, 408
Measles and German measles, cinnamon as a prophylactic in (W. B. Drummond), 764
Measles, periodicity of, 202
Meat from tuberculous cattle, 746
Meat *versus* cereals (leading article), 587
MECHAN, Arthur: Destruction of sanitary towels and dressings, 486
Medical aid for the Allies, American, 623—(Parliamentary question), 318
Medical Annual, rev., 844
Medical arrangements in Mesopotamia, 818
Medical assessor, opinion of, 71
Medical attendance on officers' families (parliamentary question), 306
Medical boards, instructions to (parliamentary question), 593—Correspondence on, 665, 701, 749, 786
Medical bureaux in Edinburgh, 855
Medical certification under the Insurance Act. *See* Insurance
Medical certificates and the War Office, 176, 209
Medical Committee of Reference (parliamentary question), 693
Medical economies, 752
Medical economies, army and civil, the need for co-operation (leading article), 621, 652, 687, 771—Note on, 488—Correspondence on, 786
Medical examination of female prisoners (parliamentary question), 693
Medical examination of medical men under 41, 167. *See also* War emergency
Medical examination of men called up (parliamentary question), 659, 741
Medical examination of recruits in France, 194. *See also* Recruits
Medical fees to be increased in the Seine department, 223—To be doubled in Boston, Mass., 256. *See also* Fees
Medical inspection of schools. *See* Schools
Medical inspection and treatment from 14 to 18, 461
Medical Insurance Agency, 655. *See also* Life assurance
Medical Life Assurance Association founded in the Republic of Colombia, 484
Medical mayors, 71, 284, 472
Medical meeting at Kut-el-Amara, 26
Medical men of action, 657
Medical men of military age (Ireland), 100, 207, 278, 377, 408, 526
Medical men of military age, unfit, local employment of (parliamentary question), 402
Medical men in Parliament, need for, 135
Medical men in public life, 738
Medical mission, Kashmir, report, 568
Medical museums, 690
Medical needs of the army, 821
Medical officers, shortage of, possibility of relief from India, 893
Medical policy. *See* Medical profession, future of
Medical practitioner's claim quashed (Caley), 568
Medical practitioners in combatant units (parliamentary question), 658
Medical practitioner's successful claim (Lieut.-Col. H. G. Parker), 532
Medical profession, the army and (leading article), 337
Medical profession, the future of the, 102, 131, 139, 174, 210, 244, 700, 747, 783, 823, 856, 892—Future of after the war; part-time medical service, 700, 747, 856
Medical re-examination for army service (parliamentary question), 851, 884—Leading article, 879. *See also* Re-examination
Medical Register, 1917, rev., 812

MEDICAL RESEARCH COMMITTEE:
Report to, on flavine and brilliant green, powerful antiseptics with low toxicity to the tissues; their use in treatment of infected wounds (C. H. Browning, R. Gulbransen, E. L. Kennaway, and L. H. D. Thornton), 73. (O)
Report on amoebic dysentery (Clifford Dobell), 127
Report on three hundred perforating wounds of abdomen (Captain J. Fraser and Captain Hamilton Drummond), 321. (O)
Memorandum upon surgical shock and some allied conditions, 381. (O)
Report on bacteriology of bacillary dysentery, 400
Report on infection of a haemothorax by anaërobic gas-producing bacilli (Lieut.-Col. T. R. Elliott and Captain Herbert Henry), 413 (O)
Report on the "soldier's heart" and the "effort syndrome," 459
Report on cerebro-spinal fever, 555
Report on three common intestinal entamoebae in man, and their differential diagnosis (Clifford Dobell and Margaret W. Jepps), 607. (O)
Report to on the disinfection of drinking water, with a description of a new substance for the preparation of stable tablets for the sterilization of polluted water (H. D. Dakin and Major E. K. Dunham), 682. (O)
Report on method of spread of gas gangrene into living muscle (Captain J. W. McNee and Captain J. Shaw Dunn), 727. (O)
Official report on flavine, 769
Report to on chloramines as nasal antiseptics (E. K. Dunham and H. D. Dakin), 865. (O)
Studies of intestinal diseases from the Mediterranean, 882

Medical research in India (Sir C. Pardey Lukis), 427—Leading article on, 431
Medical service of the army, 399
Medical service and the Army Council, 197—Need for adding the Director-General Army Medical Service, 197. *See also* Army, British
Medical service in Mesopotamia, 595
Medical services in the Somme advance (leading article), 488
Medical students in the army (parliamentary question), 693, 886
Medical students in Germany not to be granted furlough for studies, 702
Medical students and medical service (parliamentary question), 373
Medical students, number of in Swiss universities, 266, 859

Medical and Surgical Appliances:
Abdominal protector, 367
Amputation retractor, 515
Automatic nurse for Carrel-Dakin fluid, 769
Destruction of sanitary towels and dressings, 486
Intravenous injections of galyl, etc., 161
Page turner for armless patients, 769
Paraffin treatment of burns, 549
Radium emanation tubes, 486
Sight testing obturator, 194
Splint for drop-wrist, 123
Steam disinfection, 228
Table for armless soldiers, 583
Test-tube containers and racks, 266
Vitamogen, 844

Medical terms in the *New English Dictionary*, 235
Medical treatment of naval officers (parliamentary question), 741
Medical treatment of soldiers' widows and orphans, 659. *See also* Soldiers
Medical time, waste of, at assizes, 352

LIBRARY U. OF I. URBANA-CHAMPAIGN

Medical work in the Arras advance, 558
Medically unfit soldiers. *See* Soldiers

Medicinal and Dietetic Preparations:
Citrated malted milk, 426
Liquid paraffin, 686
Products of the Merieux Institute, Lyons, 50
Vaccines and tuberculins, 367

Medicine in the army, 270
Medicine and clinical pathology (Fleet Surgeon P W. Bassett-Smith and Surgeon-General H. D. Rolleston), 533. (O)
Medicine and geology, 340
Medicine, number of licences to practise granted in 1914-15, 577
Medicine at Messines (leading article), 813
Medicine in Morocco (Arthur Tacquin), 384. (O)
Medicine and the sea affair (articles by Royal Naval Medical Officers), 533. (O)
Medicine, "stickit ministers" of, 304
Medico-legal: Case of leprosy (Humphreys *v.* Miller), 71—Opinion of medical assessor, 71
Mediterranean, studies of intestinal diseases from, 882
Mediumism, psycho-pathology of. *See* Psycho-pathology
MEECH, Captain Lloyd Remington, Military Cross conferred upon, 99
MEHTA, Dhanjibhai Hormasji: *Prathmic Madad Karanaraone Shikshan*, rev., 875
Melaena and haematemesis (Bethel Solomons), 763. (O)
MELLAND, Lieut. Frederick Bernard, killed in action, 630
MENARY, Fleet Surgeon John, C.B. conferred upon, 780
Meningitis, cerebro-spinal. *See* Fever, cerebro-spinal
Meningococcus, chemical factors involved in the growth of (Dorothy Jordan Lloyd), 11. (O)
Mensuration instruments (R. Fortescue Fox), 380
Mental After-Care Association. *See* Association
Mental diseases, review of books on, 122
Mental disorders in soldiers (parliamentary question), 886
Mental Hygiene, 335
Mental pathology, research in (leading article), 338
Mentally Deficient Women, Home for, 532
Mentioned in dispatches. *See* Dispatches
MENZIES, Captain Adam Fisher, Military Cross conferred upon, 30
MENZIES, F. N. K.: Prevention of tuberculosis, 406
MENZIES, J. Ackworth (and F. A. BAINBRIDGE): *Essentials of Physiology*, rev., 582
MERCIER, Charles A.: Psycho-analysis, 65, 138—*Human Temperaments: Studies in Character*, rev., 193
Merieux Institute, Lyons. products of, 50
MERTENS: Gunshot injuries of the limbs, 169
Mesopotamia: Medical services in, 595—Amara Clinical Society, 659—Medical arrangements in (parliamentary question), 818—Report of the Commission, 875—Leading article, 880
Mesopotamian Commission completes the examination of witnesses, 248—Report, 875—Leading article on, 880
Messines, medicine at (leading article), 813
METCALFE, Captain Charles Beverley, Military Cross conferred upon, 30
METCALFE, Captain J. C., Military Cross conferred upon, 780
Methyl salicylate liniment in treatment of lice, 472
Metropolitan Emergency Surgical Aid Corps, report at annual meeting, 376
MEYNELL, J. L.: Visceroptosis and neurasthenia, 636
MICHEL, R. (and others): *Les Fièvres Paratyphoïdes B à la Hôpital Mixte de Zuydcoote*, rev., 83
MIDELTON, W. J.: Incomplete cure of the consumptive, 177—Mucous colitis, 316
Midwifery service in London (Janet Lane-Claypon), 822
Midwives Association, annual meeting, 439
Midwives Board. *See* Board
Midwives Institute, Incorporated, annual meeting, 143
Midwives, supply, 439
MIGNAULT, Lieut.-Col. A., Légion d'Honneur conferred upon, 596
Military hospitals. *See* Hospitals
Military medal, 132. *See also* Honours
Military medical services in 1916, 124, 129
Military medicine, specialization in, 741
Military orthopaedics. *See* Orthopaedics
Military pensions. *See* Pensions
Military Services Act, the new (parliamentary debate), 491—Medical certificates and medical boards, 491
Military Service Bill, 463
Milk, 270. *See also* Diet, voluntary restriction of
Milk, citrated malted, 426
Milk, "clean," 590
Milk distribution and Board of Agriculture, 603
Milk supply of Birmingham, 31
MILLAN, Captain Kenneth Earl, Military Cross conferred upon, 30
MILLAR, Major Cecil Roy, D.S.O. conferred upon, 29
MILLARD, A. L. J., bequests of, 380
MILLARD, C. Killick: Prophylaxis of venereal diseases, 312—Danger of small-pox, 409, 528, 632
MILLARD, Colonel Reginald Jeffrey, C.M.G. conferred upon, 780
MILLER, Captain Archibald Ingram, killed in action, 437
MILLER, James: Late tetanus, 223
MILLER, Captain Robert Molyneux, D.S.O. conferred upon, 29
MILLIGAN, Surgeon John D., Croix de Guerre conferred upon, 439, 662
MILLIGAN, William Harold, killed in action, 467
MILLS, C. H. (and others): Intramuscular or subcutaneous injection of neo-salvarsan, 569. (O)
MILNE, Lieut.-Col Arthur Dawson, C.M.G. conferred upon, 780
MILNE, George: Subcutaneous emphysema during labour, 262
MILNE, Captain Joseph Ellis, killed in action, 345
Miners' phthisis in South Africa (Watkins-Pitchford, and Moir), 131
Ministry of Health, 461, 489, 893—Leading article, 517, 653—Housing problem and, 525—Society of Medical Officers of Health and, 584—London Insurance Committee and, 584—And infant welfare, 630—Medical women and, 663—Maternity and Women's Co-operative Guild, Hampstead, 698—Association of Municipal Corporations and, 751—Discussion at Glasgow, 782—National Conference of Friendly Societies and, 788—Lord Rhondda becomes Food Controller, 850. *See also* Health *and* Rhondda
MINNITT, R. J.: Note on acidosis, 155
Missouri State Legislature, thirty-five bills introduced for protection of children, destitute, neglected, defective, etc , 316
MITCHELL, Captain H. W. F., Military Cross conferred upon, 780
MITCHELL, John Kearsley, obituary notice of, 751
MITCHELL, Captain J. R.: Military Cross conferred upon, 780
Mobilization, civil, in France, 233
Mobilization, compulsory, 498
Mobilization of the profession, 32, 63, 92, 101, 140, 176, 210, 233, 245, 281, 301, 313, 407, 441, 467, 551—Leading articles, 92, 301—Note on, 131, 200, 233—The calling up notice, 551—Resolution of joint meeting of committees, 551. *See also* Practices of men on active service
MOFFAT, Lieut.-Col. Henry Alford, D.S O. conferred upon, 206
MOIR: Miner's phthisis in South Africa, 131
MOIR, Major John Elliot, dies on service, 206
MOLYNEUX, Echlin S.: Two cases of heart failure in the operating theatre treated by heart massage, recovery, 420. (O)
Monaco, congress to promote expansion of thermo-mineral and climatic stations of the allied nations, 516
MONRO, A. Campbell: Reconstruction of the public health service, 783
MONTEITH, Private James Cue, dies of wounds, 630
Montreal, anterior poliomyelitis in, 208
MOON, Charles, obituary notice of, 566
MOON, R. O.: Psycho-analysis, 33—German views on war-worn soldiers, 97
MOORE, Benjamin: Toxic jaundice, 155
MOORE, E. E.: Prolonged feeding through nasal tube, 618
MOORE, Captain Gilbert, Military Cross conferred upon, 852
MOORE, Captain H., Military Cross conferred upon, 780
MOORHEAD, John, obituary notice of, 69
MORGAN, Colonel Frederick James, C.M.G. conferred upon, 29
MORGAN, J. D. (and G. VILVANDRÉ): *X*-ray diagnosis of gas in the tissues, 8. (O)
MORGAN, John H., takes command of a hospital at Nevers, 493
MORGAN, T. H.: *Critique of the Theory of Evolution*, rev., 875
MORGAN, Captain Wm. Parry: Measure of the potency of antiseptics, 136, 210
MORISON, Lieut. R. Mackenzie, Serbian Order of St. Sava conferred upon, 562
MÖRNER, Count Karl, obituary notice of, 566
Morocco, medicine in (Arthur Tacquin), 384. (O)
MOROWITZ, B. F.: War surgery in the Carpathians, 594
Morphine abuse, warning issued in Germany, 782
MORPHEW, Lieut.-Col. Edward Maudsley, D.S.O. conferred upon, 29
Morphine, export of (parliamentary question), 305
Morphine-hyoscine method of painless childbirth (A. F. Martin), 12. (O)
MORRIS, Captain Charles Reade Monroe, D.S.O. conferred upon, 780
MORRIS, Captain Francis John, Military Cross conferred upon, 30—A correction, 171
MORRIS, Captain John, Military Cross conferred upon, 171
MORRIS, Sergt. John Wallace, dies of wounds, 630
MORRIS, Captain Manfred: Clinical notes on a case of fibroid disease of bursae, 867. (O)
MORRIS, Sir Malcolm: *The Nation's Health: The Stamping Out of Venereal Diseases*, rev., 226—Therapeutic effects of colloidal preparations, 617. (O)
MORROW, A. S.: *Diagnostic and Therapeutic Technic*, rev., 365
MORSE, J. L. (and F. B. TALBOT): *Diseases of Nutrition and Infant Feeding*, rev., 194
MORSON, Surgeon A. Clifford: Case of enterospasm, 873
Mortality, infant: Conference in Glasgow, 242—In the slums (leading article), 369—Correspondence on, 500, 601, 632, 701—Among nurse children in Dublin, 408—Parliamentary questions, 435—Report of medical officer, Local Government Board, 490—Leading article on the report, 578—And a Ministry of Health, 630
MORTIMER, John, obituary notice of, 379
MORTON, Charles A.: Treatment of fractures by splints, 475 (O), 599
MORTON, Hugh: Treatment of bronchial asthma, 702
Mosquito of yellow fever, the hatching of, 167
Moss, sphagnum, for dressings, 277, 752
MOSSOP, Isaac, obituary notice of, 106
Mothercraft, rev., 300
Mothers' pensions. *See* Pensions
Mothers' physical welfare. *See* Physical
Motor cars, supply and repair of, 57
Motor dental surgery for army service, 524
Motor notes for medical men (H. Massac Buist), 85, 123, 228, 877
MOTT, Major F. W.: Changes in the central nervous system in hypothyroidism, 263—Punctiform haemorrhages of the brain in gas poisoning, 637. (O)
MOTTRAM, J. C.: Susceptibility and immunity to rat sarcoma, 462
MOULD, Gilbert E.: Psycho-pathology of mediumism and spiritualism, 139
MOULLIN, Lieut.-Col. C. Mansell: *The Biology of Tumours*, rev., 121—Gastrectomy for carcinoma of the stomach, sequel, 395
Mouth-washes in health and disease (Helen Pixell Goodrich), 473. (O)
MOYNIHAN, Sir Berkeley, C.B. conferred upon, 129
Mucous colitis, 316
MUKERJI, Captain Kalyan Kumar, dies as a prisoner of war, 661
MULLALLY, Captain Gerald Thomas, Military Cross conferred upon, 30
MULLER, Lieut.-Col. Charles Herold, D.S.O. conferred upon, 206
MUMMERY, P. Lockhart: Medical certificates and the War Office, 176
MUNDAY, Fleet Surgeon R. C.: Toxic jaundice, 158—Naval hygiene, 537. (O)
Munich, orthopaedic institute to be founded in, 500
Munition workers, discussion on toxic jaundice among, 155—Health of women munition workers (leading article), 267—And pregnancy (Bonnaire), 271—Eyesight of, 278—Health of Munition Workers Committee prepares a form of medical certificate for workers, 568—Leading article on committee's report, 847
Munitions, Ministry of, order *re* sale of artificial human eyes, 788
MUNRO, Captain William Fraser, Military Cross conferred upon, 852
Münsterberg's library presented to Harvard University, 500
MURATET, L. (and H. VINCENT): *Les dysenteries: Le choléra Asiatique, le typhus exanthématique*, rev., 620
MURCHISON, Captain Kenneth Duncan, D.S.O. conferred upon, 780
MURDOCH William, obituary notice of, 443
MURRAY, Lieut.-Col. Donald Norman Watson, D.S.O. conferred upon, 30
MURRAY, H. E. C. Keith: Suppurative (non-tuberculous) adenitis treated by aspiration, 513
MURRAY, John: "Surgical" emphysema during parturition, 14
Muscular contraction, biochemistry of (leading article), 552
Mushroom poisoning, deaths from in Germany, 241
MYLES, Private Maurice Trevor, dies of wounds, 630
MYLES, Sir Thomas, C.B. conferred upon, 129
MYLES, Staff Surgeon Thomas W., Order of Medalgia of Officer of the Crown of Italy conferred upon, 405
Myoma uteri complicating pregnancy, two cases of (John Benjamin Hellier), 614. (O)
Mystic, psychology of the, 235

N.

NALL, S.: *Aids to Obstetrics*, rev., 650
Nasal antiseptics, chloramines as (E. K. Dunham and H. D. Dakin), 865. (O)
Nasal tube, prolonged feeding through (E. E. Moore), 618
NASH, Captain Ryder Percival, Serbian Order of Saint Sava conferred upon, 376

NASH, W. Gifford: Concurrent infectious diseases, 14
NASON, John James, obituary notice of, 827
NASON, Captain J. W. W., killed in air action, 58
National Baby Week Council. *See* Baby
National Children's Home and Orphanage publishes *A Sanctuary for Little Pilgrims*, 828
National Service and the mobilization of the profession 200 233—Conference summoned by the Director-General, 370, 399. *See also* Mobilization
Naval medicine (articles by many writers), 533 et seq.—Note on, 554
Naval medicine in the great war (Surgeon-General H. D. Rolleston), 224
Naval officers, medical treatment of (parliamentary question), 741
Naval pensions. *See* Pensions
Navy, German, health of, 660
Navy, land medical transport arrangements of the (Surgeon-General Sir James Porter and Staff Surgeon A. Vavasour Elder), 545. (O)

NAVY, ROYAL:
Domville memorial gift, 212
Greenwich hospital pension, 702, 858
Land medical transport arrangements of, 545

Navy, United States, health of, 271
NAYLOR, Lieut. Joseph, lost at sea, 524
Needle for intravenous injection of arsenobenzol preparations, 812
NEIL Judge: Mothers' pensions, 692
NELIGAN, Captain G. E. (and Lieut.-Col. C. H. S. FRANKAU and Captain Hamilton DRUMMOND): Successful conservative treatment of early gas gangrene of limbs by resection of infected muscles, 729. (O)
NELIGAN, Captain John, dies on service, 889
NELIS, Lieut.-Col. James Alexander, obituary notice of, 634
Neo-salvarsan, intramuscular or subcutaneous injection of (Lieut.-Col. L. W. Harrison, Major C. F. White, and C. H. Mills), 569. (O)
Nephritis, trench, chlorinated water and, 858
Nerve grafting as a means of restoring function in limbs paralysed by gunshot or other injuries (Major A. W. Mayo-Robson), 117. (O)
"Nerve leaks," origin of electric currents led off from the human body, especially in relation to (W. M. Bayliss), 387. (O)—Discussion on, 395
Nerve suture, technique of (S. Alwyn Smith), 861. (O)
Nerves, peripheral, operative treatment of injury of (Captain J. Renfrew White), 388. (O)
Nervous disorders in soldiers (parliamentary question), 886
Nervous system, central, changes in, in hypothyroidism (F. W. Mott), 263
Neurasthenia and visceroptosis, 636
Neurasthenic war pensioners, 662
Neurology, review of books on, 843
Neuroses, functional, modern methods of re-education of attentive control used in the treatment of (Mary Bell), 425
Neuroses, war (H. Curschmann), 656—Treatment of (L. Mann), 775
NEVE, A.: Prophylaxis of venereal diseases, 349
NEVE, Ernest F.: Technique of Caesarean section, 615. (O)
NEWHAM, H. B. (and George C. Low): Intravenous injections of antimony in malaria, 295. (O)
NEWLAND, Colonel Foster Reuss, C.M.G. conferred upon, 29
NEWLAND, H. O: *Sierra Leone: Its People, Products, and Secret Societies*, rev, 265
NEWMAN, Captain R. E. U., Military Cross conferred upon, 780
NEWSHOLME, Arthur, K.C.B. conferred upon, 235
NEWTON, Lieut. John, killed in action, 662
New year honours, 235
New York: Hygienic instruction to be given in the city schools, 40—State Health department and after-care of patients who have suffered from poliomyelitis, 90—Future epidemics of poliomyelitis, 96—Number of victims of drug addiction, 107—Defective teeth amongst the school children, 123—Bill to legalize dissemination of knowledge as to birth control, 309—State Board of Charities recommends registration of all feeble-minded persons, 500—Protection of the practices of men on active service, 648—Report of Committee on After-care of Paralysis Cases, 810
NEY, Captain Frederick John James, Military Cross conferred upon, 30
NICHOLS, Major H. J.: Infection of the bile in typhoid fever, 95
NICHOLSON, Frank: Home-made bread substitutes for diabetic patients, 82 (O)
NICHOLSON, Miss R., French Medal of Honour for Epidemics conferred upon, 890
NICHOLSON, Captain William Freeman, Military Cross conferred upon, 30
NICOLL, William: Flies and bacillary enteritis, 870 (O)
NICOLSON, Dav.: Appreciation of William Orange, 67
Nicotine in cigarettes, 144
Nineteen Sixteen—Nineteen Seventeen (leading article), 21
Nipple, hypertrophy of, a hitherto undescribed sign of leprosy in the male (Arthur Powell), 649
Nipples, supernumerary, 144, 180, 212
Nitro glycerine in trench feet (E. S. Ellis), 513
NOBLE, Surg.-Major: Supernumerary nipples, 180
NOBLE, Captain B. B, Croix de Guerre conferred upon, 596
Nonagenarians, 25
NONNE, Max: *Syphilis and the Nervous System*, rev., 366
NORMAN, Surgeon-General W. H., to succeed Sir Arthur May as Director-General of the Medical Department of the Royal Navy, 635—War Emergency Fund, 858
NORTH, Colonel Edward, C.B. conferred upon, 129

Notes, Letters, Answers, etc.:
Abdominal kneading in treatment of intestinal stasis, 500
Abdominal symptoms produced by medicinal doses of opium, 72
Acne, 604
"Antitension spring" for strapping, 828
Appendicitis and enamel ware, 36, 108, 180
"Auto" counter irritation in rheumatoid arthritis, 108
Biebrich scarlet as a plasma stain, 828
Brilliant green ointment, 532
British surgical instrument firms, 36
Bullet wound in pregnant uterus, recovery, 896
Cancer treated by cuprase, 568
Case for opinion, 500
Chilblains, 212
Cocaine prescriptions and penalties, 896
Corrections, 500
Craniometer, Flower's, 108
Daily Graphic and asylums for the insane, 860
Death from shock, unusual cause of, 108
Epileptic, home for, 604
Eusol in infectious fevers, suggested use of, 636
Fees for attendance on patient in cottage hospital, 316
Flavine in cerebro-spinal fever, 636
Forceps, 248
Frederick the Great, the last illness of, 860
Future of British spas, 316
Galyl, 108
Garlic, in leprosy, 36—In whooping-cough, 72, 214
Gas gangrene, 380
Gauze plugging, 860
General de Gallifet's "silver belly," 444
Glycerin of boric acid, *B. P.*, 752
Glycerin in dispensing, 568
Golden syrup 352
Herbalist, successful prosecution of (Perkins Stretton), 472
Holidays on home service, 380, 412
Horse serum in treatment of burns, 636
Income tax, 36, 108, 144, 212, 284, 532, 636, 668, 788 860, 896—And War Loan, 444—Petrol duty rebate 532, 604, 636—And deferred purchase, 668
Inoculation against typhoid in the civil population, 412
Infant mortality in the slums, 500
Latin in the medical curriculum abroad, 352
Louse problem, 472
"Lubafax," composition of, 212
Malaria, two pictures of, 72
Medical economies, 752
Medical practitioner's conviction quashed (W. B. Caley), 568
Medical practitioner's successful claim (Lieut.-Col. H. G. Parker), 532
Mentally deficient women, home for, 532
Mucous colitis, 316
Nicotine in cigarettes, 144
Nipples, supernumerary, 144, 180, 212
Pamphlets issued by War Office, suggested uniform size for, 212
Pepys, Samuel, M.R.C.S., 532
Petrol duty rebate, 532, 604, 636
Poker spine, 860
Practices of medical men dying on service, 144
Price of skill, 180
Professional status and military rank, 604
Prolific Frenchwoman, 180
Promotion of temporary R.A.M.C. officers, 604
Pudic nerve anaesthesia, 352
Quackery, suppression of, 144
Rhubarb leaves, 668, 752
Scopolamine-morphine treatment during labour, 472
Shock following intravenous injections of chemiotherapeutic products, 604
Sore throat, treatment of, 248
Sphagnum moss dressings, 752
State Medical Service, 896
Stigmatization and suggestion, 752
Subcutaneous emphysema during labour, 380
"Surgical" emphysema during parturition, 108
Survival in spina bifida, 604

Notes, Letters, Answers, etc. (*continued*)
Syphilis, influence of absolute rest in the treatment of, 180
Tattoo marks, removal of, 896
Temporary Captain R.A.M.C., 248
Title of "doctor" and the "personality," 180
Tobacco as flea bane, 412
Trusses, 828
Ultra-violet light, protection from, 704
Venereal disease, prophylaxis of, 284, 380
Visceroptosis and neurasthenia, 636
War and the drug supply, 412
Waste of medical time at assizes, 352
X-ray burn, treatment of, 636

Nurse children, mortality among, in Dublin, 408
Nurses' Co-operation, report, 500
Nurses, army (parliamentary question), 659
Nurses, Military Medal conferred upon, 132
Nurses, Red Cross decorations for, 309
Nurses, State registration of, 134—(Scotland), 782—Annual meeting, 859
Nursing, Royal British College of, 133, 207
Nursing services, honours for members of the, 60, 132
NUTCOMBE, Captain Reginald Peter, bar to Military Cross, 744

O.

O'BRIEN, Captain Arthur John Rushton, Military Cross conferred upon, 241
O'BRIEN, Captain Charles, Military Cross conferred upon, 405, 744
O'BRIEN, P. M: Cuprase in cancer, 104
Obturator, sight testing, 194
O'CALLAGHAN, Colonel Denis Moriarty, C.M.G. conferred upon, 780
O'CARROLL, Captain Arthur Drought, D.S.O. conferred upon, 780
O'CONNOR, Captain F. W.: House-flies and amoebic dysentery, 848
Occupation diseases, review of books on, 50
Occupational re-education of the wounded. *See* Soldiers, crippled
ODAM, Lieut. C. W., killed in action, 240
O'DONOVAN, W. J.: Toxic jaundice, 157
Oedema, angio neurotic, adrenalin in (J. Alfred Codd), 808
Officers, disabled, new warrant for (parliamentary question), 626—After-treatment and training of, 667—Hospital for. *See* Hospital
Officers' families medical attendance on (parliamentary question), 306
Officers, grants to by Civil Liabilities Committee, 633
Officers' income tax (leading article), 231. *See also* Income
Officers of junior rank, allowances for families of (parliamentary question), 373
Officers with stiff joints, hospital for at Sidmouth, 788
Officers in uniform not excluded from the exemption from entertainments tax, 828
OGILVY, W. Airlie: Gangrene of small intestine laparotomy recovery, 223
O'GRADY, Lieut.-Col. Standish de Courcy, D.S.O. conferred upon, 780
Ointment, brilliant green, 532
O'KEEFE, Surgeon-General Menus William, Russian Order of St. Anne conferred upon, 781
OLDFIELD, Josiah: Appendicitis and enamelled ware, 180—The soldier's heart, 665
OLDMEADOWS, L. J. H.: Subcutaneous emphysema during labour, 380
OLDRIGHT, William, obituary notice of, 178
OLIVER, James: Ovarian cyst communicating by a valvular canal with the Fallopian tube, 48—Scirrhous cancer of the ovary at the age of 15, 363—Child mortality, 601, 701
OLIVER-SHARPEY Lectures. *See* Lectures
Omagh guardians and an election scene, 598
Open-air treatment in Dublin hospitals, success of, 241
Open air, warm beds in, 433, 528
OPENSHAW, Lieut.-Col. T. H., C.B. conferred upon, 129
Operation, value of feeding during, as a preventive of surgical shock (Herbert H. Brown), 510. (O)
Ophthalmic practice in India, some eccentricities of, 234
Ophthalmology, review of books on, 122, 811. *See also* Eye
Opium, abdominal symptoms produced by medicinal doses of, 72
Opium poisoning (John Webster), 648
Optics, technical, new department for, 817
ORANGE, William, death of, 25—Obituary notice of, 67
Order of St. Michael and St. George, annual service, 412
O'REGAN, Captain Stanley Vincent, Military Cross conferred upon, 853
O'REILLY, Major: Toxic jaundice, 158
O'REILLY, Major Patrick Stanislaus, C.M.G. conferred upon, 780
Organic to Human, rev, 49

ORME, Captain John McCallum, dies on service, 523
ORR, Lieut. John C., killed in action, 662
Orthopaedic centre at Oxford, 891
Orthopaedic hospitals, military (W. Colin Mackenzie), 669. (O)—Note on, 690
Orthopaedic institute to be established in Munich, 500
Orthopaedic military centre in Bristol, 631
Orthopaedic Military Hospital, Vienna, appliances at (Stracker), 275
Orthopaedic unit, American, 779
Orthopaedics, military, in Italy, 99; in Wales, 242—Review of books on, 513, 874—and the American unit (leading article), 772. *See also* Soldiers, crippled
OSLER, Sir William: Recurrence or redeposit of cancer, 455—Lettsomian oration on the campaign against venereal disease, 694—War Emergency Fund, 858
Osler Testimonial Fund, 782
Osteopaths (parliamentary question), 818
OSWALD, Dr.: Insanity and the war, 277
Oto-rhino-laryngology, chair of founded in University of Geneva, 223
Ovarian cancer. *See* Cancer
Ovarian cyst. *See* Cyst
OWEN, Lieut. Iorweth ap Roland, killed in action, 697
OWEN, John Griffith, obituary notice of, 69
OWEN, R.: Oldest age of parturition, 601
Oxford orthopaedic centre, 891
Oxygen, subcutaneous injections of in treatment of trench feet (Captain H. Oswald Smith), 511 (O)—Correspondence on, 702
Oxygen, therapeutic administration of (J. S. Haldane), 181. (O)
Oyster beds, some American, 775

P.

PAGE, Cecil H. W.: Future of the medical profession, 244
PAGE, C. Max: Appliance for the ambulatory treatment of fractures of the thigh, 292. (O)
PAGET, Stephen: Sir Victor Horsley, 750
Page-turner for armless patients, 769
Painless labour. *See* Labour.
PALADINO, Giovanni, obituary notice of, 531
PALLANT, Major Santiago Luis, D.S.O. conferred upon, 29
PALMER, Surgeon-Major Ambrose Henry, dies of wounds, 629
Pamphlets issued by War Office, suggested uniform size of, 212
Pancreatitis, acute haemorrhagic, laparotomy, recovery (G. W. Kilner Crosland), 359. (O)
Panel doctors and the war loan, 245
PANTON, P. N.: Toxic jaundice, 157
PAPPENHEIM, A., obituary notice of, 499
Paracholera due to a vibrio (A. J. Chalmers and N. E. Waterfield), 236
Paraffin, liquid, 686
Paraffin in treatment of burns (Lieut.-Col. A. J. Hull), 37. (O)—Note on, 549—Spray for, 549
Paralysed soldiers. *See* Soldiers
Paralysis cases, after-care of, report of New York Committee, 810
Paralysis, generalized post-diphtherial (J. S. Peebles), 296
Paralysis, infantile. *See* Infantile *and* Poliomyelitis
Paralysis and stiff joints, treatment of, 204
Parathyroids, tetany and the functions of the (D. Noel Paton, Leonard Findlay, A. Watson, D. Burns, J. S. Sharp, and W. Wishart), 575. (O)—Correspondence on, 632
Paratyphoid fever. *See* Fever
Paris. Académie de Médecine's anxiety as to fate of Greek doctors with Francophile sympathies, 71—Huts for soldiers suffering from tuberculosis to be erected in the hospital gardens of, 305—Faculty of Medicine (Wickersheimer), 490
PARKER, Lieut.-Col. H. J., successful claim of, 532
PARKER, Surgeon Joseph T. Edmund, lost at sea (*Ivernia*), 58
PARKER, Captain William Newton, D.S.O. conferred upon, 29
PARKES, Colonel W. H.: Prevention of cerebro-spinal fever, 262
PARKINSON, Captain Charles Kingsley, Military Cross conferred upon, 346
PARKINSON, J. Porter: Pneumonia with hyperpyrexia and heart-block, 192
PARKINSON, W. H.: Supernumerary nipples, 144

Parliament, Medical Notes in:
Allowances for families of officers of junior rank, 373
Army Medical Board decisions, 593
Army Medical Department, 343
Army medical officers, promotion of, 851
Army Medical Service, Mr. Forster's tribute to, 340
Army nurses, 659
Artificial limbs, 557, 626, 693, 818—Cost of, 557
Asylum dietary scale, 305
Bonesetters, 236, 274, 306, 343, 402, 626
Budget, 625
Calling up of medical men, 556, 626
Civil Liabilities Committee, work of, 593
Classification of army recruits by medical boards, 341—Contemplated change, 402
Cocaine, use of by unregistered dentists, 305
Conscientious objector, 851
Criminal Law Amendment Bill, 272, 305, 342, 372, 402, 434, 464, 592
Debate on the address, 236
Disabled sailors and soldiers. *See* Sailors and soldiers
Flavine, 818
Hospital accommodation at Sandhurst, 464
Hospital, supply of spirits to, 343
Infantile death-rate, 435
Irish National Insurance, 851
Local employment of unfit doctors of military age, 402
Manipulative surgery. *See* Bonesetters
Malarial patients in England, 593
Medical arrangements in Mesopotamia, 818
Medical attendance on officers' families, 306
Medical boards, instructions to, 593
Medical Committee of Reference, 693
Medical examination of female prisoners, 693
Medical examination of men called up, 659, 741
Medical inspection of school children, 693
Medical practitioners in combatant units, 658
Medical re-examination for army service, 851, 884
Medical students in the army, 693
Medical students and military service, 373, 886
Medical treatment of naval officers, 741
Medical treatment of soldiers' widows and orphans, 659
Mental disorders in soldiers, 886
Mentally and physically defective prisoners, 851
Military hospitals, visits to, 306
Military Services Act, the new, 491—Medical certificates and medical boards, 491
Military Service Bill, 463
Morphine, export of, 305
Nervous and mental disorders in soldiers, 886
Officers, disabled, new warrant for, 626
Osteopaths, 818
Passing of unfit men, 818
Payment of civilian doctors in V.A. hospitals, 693
Pensions Appeal Committee, 818
Pensions, army, new warrant for, 521
Pensions and grants, naval and military, 306
Pensions for officers, 851
Pensions and gratuities, 659, 693
Pensions for sailors and soldiers, 401
Pensions Statutory Committee, War, 693
Pensions warrant for officers and nurses postponed, 693
Pharmaceutical chemists with colonial diplomas, 305
Pharmacists, registration of, 343
Prisoners of war, 818
Prisoners in Turkey, British, 886
R.A.M.C. officers waiting for work, 658
Recruits, army, classification of, 593
Re-examination of attested men, 373; of rejected and discharged men, 435; for army service, 851
Sailors, disabled, 236, 342; invalided for pulmonary disease, 236
Salonica, deaths from disease at, 626
Shortage of doctors, 626
Soldiers, disabled, 236, 306, 342, 593—Pensions and gratuities, 593—Medically unfit, 306—Pay, deductions during hospital treatment, 851—Training of disabled, 306
Tetany, 886
Vaccination, new circular as to, 343
Value of the Front Bench, 306
Venereal Diseases Bill, 342, 373, 402, 557, 591, 626, 658, 693, 741—New statistics of progress in free treatment, 557—Becomes law, 741
Venereal disease in the army, 306
Volunteer field ambulances, 693
War Pensions Statutory Committee, 693. *See also* Pensions
Woolwich Arsenal Medical Department, 402

Parliamentary representation of Dublin University, 24, 32
PARNELL, G. C.: Clinical test for the estimation of the percentage of glucose, 842
PARSONS, A. R.: Sudden death in tabes dorsalis, 513
PARTRIDGE, Lieut. William Linnell, Military Cross conferred upon, 30
Part-time State Medical Service. *See* Medical profession, future of
Parturition, the oldest age of, 349, 378, 409, 442, 601
Parturition. *See* Labour
PASCOE, Major James Sydney, D.S.O conferred upon, 780
Passing of unfit men (parliamentary question), 818
PATERSON, Captain M. W., Military Cross conferred upon, 780
Pathology, British, work of in relation to the war (F. W. Andrewes), 829. (O)
Pathology, clinical, and medicine (Fleet Surgeon P. W. Bassett-Smith and Surgeon-General H. D. Rolleston), 533. (O)
Pathology, review of books on, 426
PATON, Lieut. Edward Kesson, killed in action, 697
PATON, Noël: The poorer labouring classes and the voluntary ration, 266—(and others): Tetany and the functions of the parathyroids, 575. (O)
PATTERSON, Lieut. Robert Arthur, killed in action, 561
PATTON, C. A.: Treatment of sore throat, 248
PATTON, Major Walter Scott, Serbian Order of the White Eagle conferred upon, 276
Payment of civilian doctors in V.A. hospitals (parliamentary question), 693—Note on, 849
Pediculosis, prevention of (Captain J. A. Gunn), 579. (O)
PEDLEY, T. F.: Value of unpolished rice as food, 635
Pedrosa, sanatorium extension, 396
PEEBLES, J. S.: Generalized post-diphtherial paralysis, 296
PEMBREY, M. S.: The restricted supply of food, its relation to health and efficiency, 605. (O)
PENDRED, Vaughan: Persistency of venereal disease, 191
PENFOLD, Fleet Surgeon Ernest Alfred, D.S.O. conferred upon, 29—(and Deputy Surgeon-General Robert HILL): The service afloat, 539. (O)
Penis, injury to, causes death from shock, 108
PENNANT, Captain Dyfrig Huws, D.S.O. conferred upon, 171
PENOYRE, John: Appeals for mufflers and sweaters for men on active service, 71
Pensions Appeal Committee (parliamentary question), 818
Pensions and grants, naval and military (parliamentary questions), 306, 401, 521, 593, 659, 693—Order in Council (for loss of limbs), 309—Statement *re* new scheme, 370—New warrant for army, 521—Statutory Committee and after-treatment of invalided officers, 667—(Parliamentary question), 693—Postponement of new pensions warrant for officers and nurses (parliamentary question), 693
Pensions *v.* gratuities for discharged soldiers and sailors (parliamentary question), 693
Pensions, Ministry of, change of address, 859
Pensions for mothers, 692
Pensions for officers (parliamentary question), 851
Peptone in bronchial asthma (A. G. Auld), 580, (O), 749
PEPYS, Samuel, M.R.C.S., 532
PEREIRA, J. A. W.: Quo vadis? 893
Peridental gingivitis, relation of to Vincent's angina (Frank E. Taylor and Captain W. H. McKinstry), 421. (O)
Periodicals published by military hospitals, Royal Society of Medicine to make a collection of, 463
Peripheral nerves. *See* Nerves
PERKIN, F. M.: *Textbooks of Elementary Chemistry*, rev., 485
Pernambuco, tuberculosis mortality, 858
PERNET, George: *Health of the Skin*, rev., 686
PERRY, Sir E. Cooper, elected Vice-Chancellor of the University of London, 859
PERRY, Lieut.-Col. Francis Frederick, C.M.G. conferred upon, 780
Persia, cholera in, 248—Swedish military police in, 270
PETER, Lieut. Alexander Gordon, Military Cross conferred upon, 99
PETERS, Captain Rudolph Albert, bar to Military Cross, 561
PETERSON, Frederick, a physician-poet, 740
Petrograd, gift to the Higher Institute for Women at, 412—In favour of mobilization of doctors of both sexes, 603
Petrol duty rebate, 532, 604, 636
Petrol licences, renewal of, 25
PETTIGREW, Lieut. Michael Gladstone, Military Cross conferred upon, 30
PEYTON, Captain Thomas Henry, D.S.O. conferred upon, 29
PFLUGRADT, R.: Closure of cranial defects, 307
Pharmaceutical chemist. *See* Chemist
Pharmacists, registration of (parliamentary question), 343
Pharmacology, review of books on, 365
Pharmakos, 166
Pharyngitis, acute, appendicitis consequent on (Charles Bennett), 360. (O)
Phenacetin commandeered by the Army Council, 603
PHILLIPS, Major J.: Subcutaneous emphysema during labour, 380
PHILLIPS, Staff Nurse J. J., lost at sea, 466
PHIPPS, Lieut.-Col. John Hare, D.S.O. conferred upon, 30
Phthisis. *See* Tuberculosis
Physical education of elementary school children (leading article), 268
Physical Education and Improvement, National League for, leaflets for parents, 704

Physical Education, Portuguese National Congress on, 212
Physical training in public schools, bill drafted in United States, 413
Physical welfare of mothers and children, report on (E. W. Hope and Janet M. Campbell), 635, 735—Report to the Carnegie United Kingdom Trust, 735
Physician-poet, a new (Frederick Peterson), 740
Physiology, review of books on, 298, 582
Pigs in town, 57
PILLMAN, C.: Toxic jaundice, 158
PITT, G. Newton: War Emergency Fund, 824
PITTS, A. T.: *Care of the Teeth*, rev., 686
Placenta as a galactagogue, 203
PLAISTER, Captain Geoffrey Ratcliffe, killed in action, 560, 596
PLANT, Captain A. S., Military Cross conferred upon, 780
Plasma stain, advantages of Biebrich scarlet as a, 828
Pneumonia, acute, cause of death in (Captain H. V. Drew), 581
Pneumonia, with hyperpyrexia and heart-block (J. Porter Parkinson), 192
Pneumonia and toxaemia (S. Riddiough), 732
Pneumonia, traumatic (Joseph Geoghegan), 455. (O)
Pneumothorax, open (F. Landois), 374—(K. Hanusa), 374
POCOCK, Surgeon Frank Pearce, Military Cross conferred upon, 99
POCOCK, Colonel Herbert Innes, C.M.G. conferred upon, 29
Poet-physician (Frederick Peterson), 740
Poisoning by carbon monoxide gas amongst garment workers in the United States, 422
Poisoning, delayed chloroform, intravenous injection of sodium bicarbonate in (George G. Farquhar), 548
Poisoning, food, with special reference to canned goods, investigations on at Harvard, 758
Poisoning, lead, from bullets (Disselhorst), 132
Poisoning, mushroom, deaths from in Germany, 241
Poisoning, opium (John Webster), 648
Poisoning by T.N.T., prevention of (leading article), 399—Cases of in Montreal, 699
POISSON, Captain Paul, Military Cross conferred upon, 30
Poker spine, 860
Poliomyelitis (leading article), 846
Poliomyelitis, 250,000 dollars to be expended on an intensive study of in America, 71—New York State Health Department and after-care of patients who have suffered from, 90—New York Neurological Society's resolution that patients should be treated by neurologists and orthopaedists, 96—In Montreal, 208. *See also* Infantile paralysis
POLLOCK, Lieut.-Col. Charles Edward, D.S.O. conferred upon, 29
POLLOCK, C. Fred., obituary notice of, 379
POOLE, Captain B. R., killed in action, 744
Poor Law institutions, food control in, 347
Poor Law Medical Officers' Association. *See* Association
Poor Law medical officers (Ireland), Local Government Board and, 348—Graded salaries for, 207, 468, 526
POPE, Captain Charles Alfred Whiting, lost at sea, 743
POPE, Lieut.-Col. W. W., C.M.G. conferred upon, 129
PORTER, Lieut.-Col. Bruce, C.M.G. conferred upon, 129
PORTER, Captain Leslie, dies of wounds, 170
PORTER, Surgeon-General Sir James (and Staff Surgeon A. Vavasour ELDER): Account of land medical transport arrangements of the navy, 545. (O)
PORTER, Major William Guthrie, killed in action, 853
Portuguese National Congress on Physical Education, 212
Potash from kelp, plant to be erected on coast of Southern California, 71
POWELL, A.: Early formation of adipocere, 842—Intravenous injections of tartar emetic in malaria, 858
POWELL, Arthur: Hypertrophy of the nipple a hitherto undescribed sign of leprosy in the male, 649
POWELL, Captain Arthur Hunter, D.S.O. conferred upon, 780
POWELL, Lieut. George Henry, killed in action, 697
POWELL, Major John Edward, D.S.O. conferred upon, 780
POWELL, Lieut. Robert Branks, killed in action, 697
POWER, Major Michael Stanislaus, D.S.O. conferred upon, 30
POYNTON, Lieut.-Col. F. J.: Carcinoma of the common bile duct without jaundice, rapid death from metastasis, 483
Practices of men on active service, safeguarding the, 32, 63, 92, 101, 140, 176, 210, 245, 281, 301, 313, 407—Leading article, 92, 301—Note on, 131, 200, 233—Resolutions of New York State Committee of American Physicians for Medical Preparedness, 648. *See also* Mobilization of the profession
Practices of medical men dying on service, 144
Practices in war time, 775. *See also* SUPPLEMENT Index
Practitioner's conviction quashed, 568. *See also* Caley
Prairies, hospital accommodation in, 242
PRASAD, Lieut.-Col. Kanta, Kaisar-i-Hind Gold Medal conferred upon, 770
PRATT, E. F.: Ministry of Health, 893
PRATT, Surgeon R. F., killed in action, 889
Pregnancy clinics at Edinburgh Royal Maternity Hospital, 698
Pregnancy complicated by myoma uteri, two cases (John Benjamin Hellier), 614. (O)
Pregnancy and munition work (E. Bonnaire), 271
Prehistoric Society of East Anglia: *Proceedings*, 227
PRENTICE, George: An unusual cause of death from shock, 108
Presentations, 377, 751
PREST, Edward E.: Incomplete cure of the consumptive, 138
Price of skill, 130, 180
PRICE, William, obituary notice of, 315; will of, 667
PRING, C. H.: Glycerin in dispensing, 601
PRINGLE, Major Robert Norman, D.S.O. conferred upon, 780
Prisoners, British, inhuman treatment of in German camps, resolution of medical faculties of Scottish universities, 563—Official statement as to the number of interned abroad, 788
Prisoners, British, in Turkey (parliamentary question), 886
Prisoners, female, medical examination of (parliamentary question), 693
Prisoners, food for, 272
Prisoners, medical, recognition of the work of 132
Prisoners, mentally and physically defective (parliamentary question), 851
Prisoners, Russian, in Germany, 816
Prisoners of war, British, educational facilities for, 405, 668—*Student Captives* (Alfred T. Davies), 668—(Parliamentary question), 818
PRIVAT: Apparatus for re-education, 697
PROCTOR, Captain R. A. W.: Military Cross conferred upon, 780
PROFEIT, Lieut.-Col. Charles William, D.S.O. conferred upon, 29
PROFEIT, Captain Leopold, killed in action, 662
Professional Classes War Relief Council, annual meeting, 567
Professional organisation, 519
Professional status and military rank, 604
Prolific Frenchwoman, 180
Prostatic gleet. *See* Gleet
Prosthesis, history of, 96
Prostitution, committee to investigate, in France, 179
Prostitution, reviews, 158, 226
Prostitution: the Moral Bearings of the Problem, rev., 226
"Protection of motherhood," 36
PROUD, E. Dorothea: *Welfare Work*, rev., 458
PROUD, Captain John Dover, Military Cross conferred upon, 853
PROUDFOOT, Captain Robert, Serbian Order of the White Eagle conferred upon, 276
PROWSE, William, obituary notice of, 283
PRYNNE, Lieut.-Col. Harold Vernon, D.S.O. conferred upon, 29
Psycho-analysis, 32, 64, 102, 138
Psychology of the mystic, 235
Psychopathic laboratory in Chicago, 740
Psycho-pathology of mediumism and spiritualism, 104, 139
Public health laboratory for North Wales, proposed, 562
Public health and the control of the liquor traffic (Lord D'Abernon), 641—Leading article on, 654
Public health reorganization and education authorities, 850
Public Health Service, reconstruction of, 783
Public Health and Poor Law Medical Services, vital statistics of England and Wales, 1916, 140
Public Vaccinators' Association. *See* Association
PUCKLE, Captain Hugh Noel Murray, Italian Silver Medal for Military Valour conferred upon, 780
PUDDICOMBE, Major Thomas P., D.S.O. conferred upon, 780
Pudic nerve anaesthesia, 352
Puerperal fever treated by vaccine (Richard Kay), 221. (O)
Puerperal sepsis treated by Carrel-Dakin method (John Campbell), 363
PURDON, Captain William Brooke, D.S.O. conferred upon, 29
PURVES, Lieut. Walter Douglas Laidlaw, killed in action, 662
PURSER, Major Lydmar Moline, D.S.O. conferred upon, 29
PYE-SMITH, Lieut. Philip Howson Guy, killed in action, 744
Pye's Surgical Handicraft: A Manual of Surgical Manipulations, Minor Surgery, and other Matters Connected with the Work of House-Surgeons and Surgical Dressers, rev., 84

Q.

Quack treatment of venereal diseases, deputation to Local Government Board, 133
Quackery, suppression of, 106, 144
Quasi-judicial obiter dicta, 347
Quebec, asylum fire in, 243
Quinine commandeered by the Army Council, 603
Quinine urethane, intravenous injections of in treatment of malaria and malarial coma (Lieut. Richet and Walter B. Griffin), 190. (O)
Quintuplets (W. Martin), 363
Quo vadis? 856, 893

R.

R.A.M.C. *See* Army, British
R.A.M.C. funds. *See* Funds
RABAGLIATI, A.: *Initis, or Nutrition and Exercises*, rev., 84
Rabbits so valuable as food therefore not to be used in practical examinations in zoology, 380
Race Renewal, 531
Radiography on the lines of communication in France, 803
Radiology in clinical medicine and surgery (Captain C. Thurstan Holland), 285. (O)
Radium Institute, London, report, 515
Radium Institute, Manchester and District, report, 439
Radium treatment at Edinburgh Royal Infirmary, report, 516
RAE, Lieut. James, lost at sea (H.M.S. *Arcadian*), 629
RAFFLE, Captain Andrew Banks, Military Cross conferred upon, 30
RAM, Subassistant Karta, Russian Cross of St. George conferred upon, 662
RAMSAY, Jeffrey: Notes on so-called "trench fever" as seen in England, 222. (O)
RAMSEY, W. R.: *Care and Feeding of Infants and Children: a Textbook for Trained Nurses*, rev., 194
RANSON, Lieut.-Col. Wilson, D.S.O. conferred upon, 29
Rat, more iniquities of (leading article), 230
Rat sarcoma, susceptibility and immunity to (J. C. Mottram and S. Russ), 462
Rathdown guardians and medical men of military age, 408; and bonesetters, 598
RATHERY, F. (and others): *Les Fièvres paratyphoïdes B à l'hôpital mixte de Zuydcoote*, rev., 83
Ration, voluntary, the poorer labouring classes and, 266. *See also* Food
Rationing of invalids in Germany, 36
RATNAGAR, Captain Sorab Dhunjibhoy, dies on service, 781
RATTRAY, J. M., assault on, 591; progress of, 635
RATTRAY, Lieut.-Col. Malcolm Macgregor, D.S.O. conferred upon, 780
RAWLINS, Morna (and Mary SCHARLIEB): *Outline of the Medical Treatment of Venereal Diseases in Women*, rev., 620
RAWSON, Captain Philip Hugh, Military Cross conferred upon, 171
RAY, Major Matthew Burrow, D.S.O. conferred upon, 29
RAYMOND, Captain Arthur Wilmot, Military Cross conferred upon, 853
REBER, Wendell, obituary notice of, 315
Recalled to Life, 625, 849, 881
RECKITT, Surgeon Charles Edward, dies on service, 170
Recruits, medical examination of in France, 194—Cardiac disease in, 254 (*see also* Cardiac)—For the Royal Army Medical Corps (Ireland), 440, 468—Medical examination of, 530, 565—Classification of army (parliamentary question), 593
REDARD, Paul, obituary notice of, 411
Red Cross, American, mobilization statistics, 412
Red Cross auxiliary hospitals, 562
Red Cross clinic for wounded and disabled officers, 412
Red Cross Committee, International, protests against Germany torpedoing hospital ships, 559
Red Cross decorations for nurses, 309
Red Cross, a foreshadow of the, 434
Red Cross, German, collection of pictures, etc., to be made by, 179
Red Cross Hospital for France (American), 439
Red Cross, medical officer's gifts to, 890
Red Cross Society, auxiliary hospitals opened, 562
REDFERN, John J.: "Surgical" emphysema during parturition, 108
REDWOOD, R. V. de Acton: After-history of three cases of intestinal obstruction, 581
REECE, Surgeon Lieut.-Col. Richard James, C.B. conferred upon, 780
REES, Ferdinand: Incomplete cure of consumption, 102

LIBRARY U. OF I. URBANA-CHAMPAIGN

Re-examination of attested men (parliamentary question), 373
Re-examination of excepted men, 524—(Leading article), 879—(Parliamentary questions), 884—Parliamentary Committee of Inquiry appointed 884
Re-examination of rejected and discharged men (parliamentary question), 435
Refreshment house experiment at Carlisle, 309, 663, 749, 785
Registrar-General's annual report, 550. *See also* Vital statistics
REID, A. Christie: Cuprase in cancer, 105
REID, Major Archibald Douglas, C.M.G. conferred upon, 780
REID, Lieut. Allan George, Military Cross conferred upon, 439
REID, George: *Practical Sanitation: A Handbook for Sanitary Inspectors and Others interested in Sanitation*, rev., 650
REID, John: Stigmatization and suggestion, 752
REID, Captain William Douglas, Military Cross conferred upon, 346
REILLY, Colonel C. C., C.B. conferred upon, 129
REINHEIMER, H: *Symbiogenesis: The Universal Law of Progressive Evolution*, rev., 365
Renal vessel, abnormal, obstructing ureter (R. P. Rowlands), 755. (O)
RENDALL, Corporal Frank, killed in action, 28
RENNISON, Lieut. Walter Martyn, killed in action, 170
RENTOUL, R. R: Prophylaxis of venereal diseases, 284
Research, Advisory Council on, appointed in Canada, 208
Research in war time, co-ordinated (leading article), 845
Return to work—legal and other impediments, 101

Reviews of Books:
Abdomen: Les blessures de l'abdomen (J. Abadie), 226
After-treatment of the wounded: Leitfaden der physikalisch-therapeutischen Nachbehandlung Kriegsverwundeter (Massage, Heilgymnastik, Apparatbehandlung, Thermo- Hydro- und Elektro-therapie), (Victor Hecht), 768
Alimentation rationnelle à très bon marché (M. Gommès), 486
American Otological Society, Transactions, 812
American Pediatric Society, Transactions, 767
Anaesthesia and Analgesia, American Yearbook of (by various authors), 485
Anaesthesia, the Art of (P. J. Flagg), 485
Anaesthetics (J. Blomfield), 812
Anatomy, Applied, the Construction of the Human Body considered in relation to its Functions, Diseases, and Injuries (G. G. Davis), 227
Anxieux, les (Drs. Devaux and Logre), 457
Arachnida and Myriopoda (Stanley Hirst), 768
Artificial limbs (Sir Thomas Anderson Stuart), 620
Artificial Limbs: Les principes fondamentaux de la prothèse orthopédique du membre inférieur (Georges Hendrix), 619
At Suvla Bay; being the Notes and Sketches of Scenes, Characters, and Adventures of the Dardanelles Campaign (John Hargrave), 16
Baby, Care of (J. P. Crozer Griffith), 194. *See also* Infants
Bacteriology and Haematology for Practitioners, Clinical (W. d'Este Emery), 299
Bacteriology, Practical, Blood Work, and Animal Parasitology, including Bacteriological Keys, Zoological Tables and Explanatory Clinical Notes (E. R. Stitt), 514
Bale's Dental Surgeon's Daily Diary and Appointment Book, 1917, 84
Bandaging (A. D. Whiting), 582
Basis of Symptoms: The Principles of Clinical Pathology (L. Krehl), 84
Bed-bug (Bruce F. Cummings), 768
Bed-sores, their Prevention and Cure (C. W. Smart), 686
Blessures de l'abdomen (J. Abadie), 226
Book of Sorrow (A. Macphail) 366
British Dominions Year Book, 1917 (edited by E. Salmon and J. Worsfold), 650
British Journal Photographic Almanac and Photographer's Daily Companion, 1917, 396
Case Taking, System for, with Explanatory Notes (G. W. Ross and J. Loudon), 735
Catalogue of the Collection of Skulls and Teeth in the Odontological Museum of the University of Birmingham (compiled by J. Humphreys), 50
Cerebellar Abscess (I. Friesner and A. Braun), 844
Charaka Club Proceedings, vol. iv, 396
Chemical Physiology, the Essentials of (W. D. Halliburton), 298
Chemical Physiology. *See also* Physiological Chemistry.
Chemistry for Beginners (C. T. Kingzett), 514
Chemistry for Colleges, General (Alexander Smith), 486

Reviews of Books (*continued*)
Chemistry, Elementary, Textbook of (F. M. Perkin), 485
Chemistry, Physical, a System of (W. C. McC. Lewis), 485
Diagnosis and Treatment, New Concepts in (A. Abrams), 266
Diagnostic and Therapeutic Technic (A. S. Morrow), 365
Dictionary, English-Greek, of Idioms, Proverbs, and Phrases (A. Kyriakides), 160
Dietetic Treatment of Diabetes (B. D. Basu), 84
Differential Diagnosis of Main Symptoms, an Index of (edited by Herbert French), 549
Diseases of Nutrition and Infant Feeding (J. L. Morse and F. B. Talbot), 194
Diseases of Occupation and Vocational Hygiene (edited by G. M. Kober and W. C. Hanson), 50
Domestic Economy: Textbook for Teachers and Students. Part I, Theory (Marion G. Bidder), 458. Part II, Practice and Teaching of Domestic Economy (Florence Baddeley), 458
Downward Paths: an Inquiry into the Causes which Contribute to the Making of the Prostitute (A. Maude Royden), 158
Dreams, what they are and what they mean (J. W. Wickwar), 300
Dysentery, etc.: Les dysenteries: le choléra Asiatique, le typhus exanthématique (H. Vincent et L. Muratet), 620
Encyclopaedia Medica, vol. iv 160
Evolution (J. A. S. Watson), 160
Evolution, Critique of the Theory of (T. H. Morgan), 875
Expectant Mother (S. W. Bandler), 812
Eye Diseases: A Handbook of Ophthalmic Practice for Students and Practitioners (G. E. de Schweinitz), 811
Eye. *See also* Ophthalmology
Feeding the Family (Mary S. Rose), 193
Flight of Mariette: A Story of the Siege of Antwerp (Gertrude E. M. Vaughan), 84
Flogging Craze: A Statement of the Case against Corporal Punishment (H. S. Salt), 227
Food and Fitness, or Diet in Relation to Health (J. Long), 193
Food and the Principles of Dietetics (R. Hutchison), 193
Food: L'Alimentation rationelle à très bon marché (M. Gommès), 486
Fractures: Traitement des fractures (L. Leriche), 650
Fractures, Treatise on (J. B. Roberts and J. A. Kelly), 811
General Medical Council Minutes, 650
Glaucoma: A Handbook for the General Practitioner (Lieut.-Col. Robert Henry Elliot), 686
Granuloma Venéreo (H. C. de Souza Araujo), 425
Gynaecology, New System of (edited by Thomas Watts Eden and Cuthbert Lockyer), 733
Heart Disease, Diagnosis and Treatment of (E. M. Brockbank), 227
Herbert Fry's Royal Guide to the London Charities, 426
Hints for Hospital Orderlies (N. C. Fletcher), 458
Histology, Textbook of (Harvey Ernest Jordan and Jeremiah S. Ferguson), 582
Human Temperaments: Studies in Character (Charles Mercier), 193
Immunology, Applied: The Practical Application of Sera and Bacterins Prophylactically, Diagnostically and Therapeutically (B. A. Thomas and R. H. Ivy), 265
Income Tax Returns, Instructions to Members of the Medical and Dental Defence Union of Scotland in Regard to (W. Findlay), 16
Index Catalogue of the Surgeon-General's Library of the United States Army, 844
Index of Symptoms, with Diagnostic Methods (R. W. Leftwich), 458
Indian Ambulance Training, Prathmic Mudad Karanaraone Shikshan (Dhanjibhai Hormasji Mehta), 875
Infant Feeding, Simplified (R. H. Dennett), 194
Infant Feeding, Diseases of Nutrition and (J. L. Morse and F. B. Talbot), 194
Infants and Children, Care and Feeding of, (W. R. Ramsey), 194
Infected Wounds, Treatment of (A. Carrel and G. Dehelly), 844
Initis, or Nutrition and Exercises (A. Rabagliati), 84
Internal Secretion, the Organs of, their Diseases and Therapeutic Action (I. G. Cobb), 515
International Clinics, vol. iii, 26th series, 50—Vol. iv, 26th series, 514
Joint and Muscle Injuries, Treatment of (W. Rowley Bristow), 767
Leonardo da Vinci: Quaderni d'Anatomia. II, Ventiquattro Fogli della Royal Library di Windsor. Cuore: Anatomia e Fisiologia. III, Dodici Fogli, Organi della Generazione-Embrione, 336
Letters from a French Hospital, 620

Reviews of Books (*continued*)
Life and Law: The Development and Exercise of Sex Function, together with a Study of the Effect of Certain Natural and Human Laws and a Consideration of the Hygiene of Sex (Maude Glasgow), 366
Ligations and Amputations (A. Broca), 299
London Dermatological Society: Transactions and Fifth Annual Report, with a List of Officers and Members, 84
Massage for Beginners, Handbook of (L. L. Despard), 875
Meat Hygiene, Textbook of, with Special Consideration of *Ante-mortem* and *Post-mortem* Inspection of Food-producing Animals (R. Edelmann), 486
Medical Annual: A Yearbook of Treatment and Practitioners' Index, 844
Medical Diseases of the War (Major A. F. Hurst), 365
Medical Register, 1917, 812
Mental Diseases: Stati Ansiosi nelle Malattie Mentali (Gaspare Bergonzoli), 122
Mental Nursing (W. H. B. Stoddart) 123
Mesopotamia, in (Martin Swayne), 650
Military Orthopaedics, Notes on (Colonel Robert Jones) 513
Military Orthopaedics: Orthopädische Behandlung Kriegsverwundeter (Hans Spitzy), 874
Moore's Manual of Family Medicine and Hygiene for India (rewritten by C. A. Sprawson), 160
Morbid Anxiety: Les Anxieux (Drs. Devaux and Logre), 457
Mosquitos and their Relation to Disease (F. W. Edwards), 768
Mothercraft, 300
Nation's Health: The Stamping Out of Venereal Diseases (Sir Malcolm Morris), 226
Nature and Purpose of the Measurement of Social Phenomena (A. L. Bowley), 582
Neck-wear, Dangers of (W. G. Walford), 844
Neurology: Formes cliniques des lésions des nerfs (Mme Athanassio-Benisty), 843
Neurology: Hystérie-pithiatisme et troubles nerveux d'ordre réflexe (J. Babinski and J. Froment), 843
Obstetrics, Aids to (S. Nall), 650
One Hundred and One Practical Non-flesh Recipes (Margaret Blatch), 486
Ophthalmologie du médecin praticien (A. Terson), 811
Organic to Human (H. Maudsley), 49
Outposts of Mercy (E. V. Lucas), 650
Oxford University Press Catalogue, November, 1916, 16
Panel Doctor, his Duties and Perplexities (T. M. Tibbitts), 192
Paratyphoid B Fever: Les Fièvres paratyphöides B à l'hôpital mixte de Zuydcoote (F. Rathery, L. Ambard, P. Vansteenberghe, and R. Michel), 83
Pathogenic Bacteria and Protozoa, Textbook of (J. McFarland), 299
Pathology, Textbook of (W. G. MacCallum), 426
Personal Health, a Doctor Book for Discriminating People (W. Brady), 228
Pharmacology and Therapeutics (H. C. Wood), 365
Photography in Colours (G. L. Johnson), 458
Physiological Chemistry, Textbook of (O. Hammarsten), 298
Physiological and Pathological Chemistry of Metabolism, the Problems of (Otto von Fürth), 299
Physiological Chemistry. *See also* Chemical
Physiology, Essentials of (F. A. Bainbridge and J. Ackworth Menzies), 582
Pneumothorax Treatment of Pulmonary Tuberculosis (Clive Riviere), 768
Poverty and its Vicious Circles (J. B. Hurry), 122
Pratique de l'irrigation des plaies dans la méthode du Dr. Carrel (J. Dumas and A. Carrel), 426
Prehistoric Society of East Anglia for 1914–15, Proceedings, 227
Professionalism and Originality (F. H. Hayward), 843
Prostitution, the Moral Bearings of the Problem (M. F. and J. F.), 226
Pye's Surgical Handicraft, a Manual of Surgical Manipulations and Minor Surgery (edited by W. H. Clayton-Greene), 84
Recipes, One Hundred and One Non-flesh (Margaret Blatch), 486
Refraction of the Human Eye and Methods of Estimating the Refraction (H. Thorington), 122
Regimental Surgeon in War and Prison (Captain R. V. Dolbey), 811
Russian, Lessons in (M. B. Karrachy-Smith), 265
St. Thomas's Hospital Reports, vol. xliii, 396
Sanitation, Practical: a Handbook for Sanitary Inspectors and others Interested in Sanitation (G. Reid), 650
Serum Study: Laboratory Course in Bacteriology (Hans Zinsser), 299
Sexual Disabilities of Man and their Treatment and Prevention (A. Cooper), 84

Reviews of Books (*continued*)
Sierra Leone: its People, Products, and Secret Societies (H. O. Newland), 265
Sinhalese Self-taught (M. de Z. Wickremasinghe), 620
Skin, Health of (G. Pernet), 686
Spinal Cord, Diagnosis and Treatment of Surgical Diseases of (C. A. Elsberg), 843
Stammering and Successful Control in Speech and Action (E. L. Ash), 768
Staying the Plague (N. Bishop Harman), 735
Surgery, Emergency (J. W. Sluss), 83
Surgery, Students' Textbook of (H. N. Barnett), 83
Surgical Nursing and Technique (C. P. Childe), 227
Symbiogenesis: the Universal Law of Progressive Evolution (H. Reinheimer), 365
Syphilis and the Nervous System (Max Nonne), 366
Tabetic Ataxia treated by Means of Systematic Exercises (H. S. Frenkel), 844
Tale of a Casualty Clearing Station, 620
Teeth, Care of (A. T. Pitts), 686
Teeth, How to Take Care of (H. E. Sykes-Brown), 582
Tetanus: Les formes anormales du tétanos: Etude clinique, pathogénique, prophylactique et thérapeutique (M. Courtois-Suffit and R. Giroux), 15
Therapeutics, First Principles in (G. F. Goldsbrough), 365
Therapeutics, Textbook of Practical (H. A. Hare), 365
Tumours, Biology of (Lieut.-Col. C. Mansell Moullin), 121
Uniform System of Accounts for Hospitals and Public Institutions, Orphanages, Missionary Societies, Homes, Co-operations, and all Classes of Institutions (Sir Henry Burdett), 123
Urinary Analysis and Diagnosis by Microscopical and Chemical Examination (L. Heitzmann), 549
Venereal Diseases in Women: Outline of the Medical Treatment of (Mary Scharlieb and Morna Rawlins), 620
Ventilation, Some Modern Methods of (R. Grierson), 486
Vicious Circles in Sociology and their Treatment (Jamieson B. Hurry), 582
War and the Nation, a Study in Constructive Politics (W. C. Dampier Whetham), 812
Western Front (Drawings by Muirhead Bone), 122, 300, 514, 620, 768
Weird Adventures of Professor Delapine of the Sorbonne (G. L. Johnson), 266
Welfare Work (E. Dorothea Proud), 458
Whitaker's Almanack for 1917, 228
With a Field Ambulance at Ypres: Being Letters written March 7th to August 15th, 1915 (W. Boyd), 366
Wounds, Infected: Le traitement de plaies infectées (A. Carrel and G. Dehelly), 264—English Translation, 844
X Rays (Captain G. W. C. Kaye), 299
Year Book of the Scientific and Learned Societies of Great Britain and Ireland, 336

REZENDE, Cassio de: Treatment o cancer by cuprase, 568
RHONDDA, Lord, conference with, 468, 496, 456. *See also* Ministry of Health
Rhubarb leaves, death after eating, 635, 668, 752
Rhubarb and red tape, 741
RHYS, Lieut. Watkin Leoline Tom, dies of wounds, 630
Rice, unpolished, value of as food, 635
RICH, Captain V. M., Croix de Guerre conferred upon, 781
RICHARD, Lieut. Lawrence Brown, killed in action, 561
RICHARDS, Captain W. K. A., Military Cross conferred upon, 780
RICHARDSON, Able Seaman Bernard Guy, killed in action, 345
RICHET, Lieut. (and Walter B. GRIFFEN): Treatment of malaria and malarial coma by intravenous injection of quinine urethane, 190. (O)
RICHMOND, Captain Arthur, Military Cross conferred upon, 30
RICHMOND, Major John Duncan, D.S.O. conferred upon, 780
RIDDALL, Private John George, presumed killed in action, 405
RIDDELL, Captain Donald Olson, Montenegrin Silver Medal for Bravery conferred upon, 376
RIDDIOUGH, S.: Pneumonia and toxaemia, 732
Riding for a fall (leading article), 687
RIEDEL, K.: Treatment of traumatic aneurysm, 594
RIGBY, Hugh Mallinson, appointed Surgeon to Queen Alexandra's household, 412
RIGBY, James Arthur, obituary notice of, 106
RIMMER, Captain R.: Case of spirochaetosis ictero-haemorrhagica, 453. (O)
RITCHIE, Surgeon George Lee, Military Cross conferred upon, 171
RITCHIE, Major Theodore Francis, D.S.O. conferred upon, 29
RIVIERE, Clive: *Pneumothorax Treatment of Pulmonary Tuberculosis*, rev., 768
ROBB, A. Gardner: Recent results in the serum treatment of cerebro-spinal fever, 478. (O)
ROBBS, Charles H. D: The calling up notice, 599
ROBERTS, David: Suppression of quackery, 144
ROBERTS, Staff Nurse J., lost at sea, 524
ROBERTS, Colonel James Alexander, C.B. conferred upon, 29
ROBERTS, J. B. (and J. A. KELLY): *Treatise on Fractures*, rev., 811
ROBERTSON, J. R. S.: Price of skill, 180
ROBERTSON, Muriel: Etiology of typhus fever, 733
ROBIN, Albert: Demineralization of muscle in phthisis, 462
ROBINSON, Captain Edmond, killed in action, 466
ROBINSON, Edward Percy: Horse serum in treatment of burns, 636
ROBINSON, Captain G. S., Military Cross conferred upon, 780
ROBINSON, Captain Henry Harold, lost at sea, 743
ROBSON, Major A. W. Mayo: Nerve grafting as a means of restoring function in limbs paralysed by gunshot or other injuries, 117. (O)
ROCH, Lieut.-Col. Horace Samson, D.S.O. conferred upon, 29
ROCK, Surgeon Frank E., lost with H.M.S. *Laurentic*, 170
Rockefeller Foundations, appropriations made by, 531
Rockefeller Institute raises salaries owing to increased cost of living, 208
Rockefeller and Medical Research, 130
RODRIGUEZ, Isidoro, death of, 203
ROGERS, Major Henry, D.S.O. conferred upon, 780
ROGERS, Sir Leonard: Disappearance of malignant crescents from the blood following the intravenous injection of tartar emetic, 6. (O)—Awarded Fothergillian medal of Medical Society of London, 521
ROGERS-HARRISON, Lieut.-Col. Augustus Napoleon, obituary notice of, 143
ROLLESTON, Surgeon-General H. D.: Naval medicine in the great war, 224—Application of surgical methods to the treatment of cerebro-spinal fever, 281—(and Fleet Surgeon P. W. BASSETT-SMITH): Medicine and clinical pathology, 533. (O)
ROLLESTON, J. D.: Casanova, 57
ROMER, Lieut.-Col. Frank: Minor injuries to joints, 183. (O)
RORIE, Major David, D.S.O. conferred upon, 780
RORISON, Captain Walford Douglas Somerled, Military Cross conferred upon, 30
ROSE, Major Alexander Macgregor, D.S.O. conferred upon, 30
ROSE, Mary S.: *Feeding the Family*, rev., 193
ROSE, Lieut. William, killed in action, 597
ROSS, G. W. (and J. LOUDON): *System for Case Taking with Explanatory Notes*, rev., 735
Ross, Harold, appointed certifying factory surgeon for City of London, 500
Ross, Sir Ronald: William Watson and Stephen Coleridge, 32—Tartar emetic and malaria, 136—Poems of, 444
Ross, Lieut. Ronald Maynard, killed in action, 405
Ross, S. J.: Co-ordination of British medical policy, 892
Ross, Lieut.-Col. Thomas Gordon, D.S.O. conferred upon, 30
Ross, Miss W.: French Medal of Honour for Epidemics conferred upon, 890
ROSSITER, George, appreciation of Robert Roxburgh, 443
ROTH, Colonel Reuter Emeric, C.M.G. conferred upon, 780
ROWAN, Colonel H. D., Légion d'Honneur conferred upon, 596
ROWELL, George: Prophylaxis of venereal diseases, 279
ROWLAND, Major Sydney Donville, dies on service, 375, 467
ROWLANDS, R. P.: Obstruction of ureter by an abnormal renal vessel, 755. (O)
ROWNTREE, B. Seebohm: Welfare work in factories, 816
ROWSE, Captain Edward Leopold, Serbian Order of the White Eagle conferred upon, 276
ROXBURGH, Lieut. John Wood, killed in action, 597
ROXBURGH, Robert, obituary notice of, 442
Royal Army Medical Corps, recruits for (Ireland), 440
Royal British College of Nursing, 133—Amalgamation with Royal British Nurses' Association, 133—Meeting in Ireland, 207. *See also* Nursing
Royal Crichton Institution, report (leading article), 338
Royal Institute of Public Health, prevention and arrest of venereal disease in man (C. J. Macalister), 196—Public health and the Control of the liquor traffic (Lord D'Abernon), 651—Welfare work in factories, 816
Royal Medical Benevolent Fund. *See* Fund
ROYDEN, A. Maude: *Downward Paths: an Inquiry into the Causes which Contribute to the Making of the Prostitute*, rev., 158
Rubber drainage staff, grooved (G. Lenthal Cheatle), 120
Rubber shortage in Germany and babies' comforters, 191
RUFFER, Sir Marc Armand, obituary notice of, 602
RUNDLE, Lieut. Beaumont, dies of wounds, 561
RUSCA, Paolo: Fat necrosis, 96
RUSS, Charles: Gonorrhoea treated by electrolysis; a new electrolyte, 616. (O)
RUSS, S.: Susceptibility and immunity to rat sarcoma, 462—Germicidal action of ultra-violet radiation, 656
RUSSELL, Surgeon Archibald McKerrow, killed in action, 743
RUSSELL, Captain Robert Fergusson, dies of wounds, 743
RUSSELL, W.: The food problem, 597
Russia: Manufacture of iodine from seaweed of the Black Sea, 70—Mobilization of all women doctors under 45 years of age, 703
Russian prisoners in Germany, 816
Russian Society for Protection of Mothers and Infants, 36
RUTHERFURD, Captain James Edmund, Military Cross conferred upon, 241
RYERSON, Surgeon-General G. Sterling, appointed honorary Colonel of the Canadian Army Medical Corps, 493
RYLEY, Major Charles, dies on service, 697

S.

St. Patrick's Nurses' Home, annual meeting, 311
SADLER, M. T.: Prevention of infectious disease, 632
SADLER, Captain Vyvyan Kendall, killed in action, 560
Sailors, invalided for pulmonary disease (parliamentary question), 236. *See also* Soldiers and sailors, crippled
SAINT, Captain Arthur Paul, Military Cross conferred upon, 853
Salaries, graded medical (Ireland), 207, 468, 526, 698
SALE, Captain John Carruthers, bar to Military Cross, 561
Salford, notification of births in, 745
Salicylate of soda. *See* Sodium
Salonica, health of the French troops in, 403—Deaths from disease at, 626
SALT, H. S.: *The Flogging Craze: A Statement of the Case against Corporal Punishment*, rev., 227
Salt and soda baths in contaminated gunshot wounds (M. A. Zasuilow), 107
Salvarsan, death after (Captain Maneck D. Wadia), 13. (O)
Salvarsan treatment of syphilis (Major Lloyd Jones and Captain A. J. Gibson), 152. (O)—Correspondence on, 244
SAMPSON, Basil: Apparatus for hot-bath treatment of wounded limbs while the patient is in bed, 295
SAMWAYS, D. W.: Some friendly criticisms, 841
Sanatorium roll of honour (Noel Dean Bardswell), 759. (O)
Sanatorium treatment, uses and abuses of (leading article), 487—Correspondence on, 633
Sanatorium treatment, variations in weight of the tuberculous under (J. Henderson Smith), 505. (O)
Sanatoriums for tuberculosis, annual reports of (leading article), 199—At Pedrosa, 396—At Midhurst, report, 487
Sanctuary for Little Pilgrims, 828
Sand, hot, as a preparation for massage and manipulation (W. Gordon), 191—Correspondence on, 313
SANDERS, Lieut. Archibald Merton, dies of wounds, 524
SANDFORD, Lieut. Charles V., dies of wounds, 662
SANDHAM, Captain George, Military Cross conferred upon, 30
Sandhurst, hospital accommodation at (parliamentary question), 464
SANDOE, Lieut. M. W. A., killed in action, 744
SANDRO, Domenico di, obituary notice of, 751
Sanitary conference in Paris, 309
Sanitary inspectors' examination, successful candidates, 316
Sanitary supervision of students at Yale University, board of health for, 79
Sanitary towels and dressings, destruction of, 486
SANSOM, Charles Lane, K.C.M.G. conferred upon, 236
Sarcoma mistaken for myoma, two cases of supravaginal amputation for (Herbert Spencer), 456
Sarcoma, rat, susceptibility and immunity to (J. C. Mottram and S. Russ), 462
SARGENT, Lieut. Percy William George, D.S.O. conferred upon, 30
SARKIES, Lieut.-Col. Sarkies Carrapiat, obituary notice of, 411

LIBRARY U. OF I. URBANA-CHAMPAIGN

SATCHWELL, Lieut. Ralph William, killed in action, 240
SAUNDBY, Robert, resigns chair of medicine, University of Birmingham, 410
SAVAGE, Sir George: Appreciation of Thomas Seymour Tuke, 350
SAVILL, Agnes: *X*-ray diagnosis of gas in the tissues, 65
SAVILL, Mrs., French Medal of Honour for Epidemics conferred upon, 890
SCARISBRICK, Captain W: Cardiac disease in soldiers and recruits, 254. (O)
SCHARLIEB, Mary (and MORNA RAWLINS): *Outline of the Medical Treatment of Venereal Diseases in Women*, rev., 620
Schaw bequests to Scottish charities, 61
SCHILLING: Transport of lice through the air, 202
School children, elementary, physical education of (leading article), 268
School children, health and feeding of in Berlin, 248
School children, medical inspection of (parliamentary question), 693
School children from 14 to 18, medical inspection and treatment of, 461
School children, medical treatment of in London, 377
School reform (John Adams), 568
Schools, medical inspection of (Canada), 243
SCHWALBE, J.: Adulteration of food in Germany, 623
SCHWEINITZ, G. E. de: *Diseases of the Eye: A Handbook of Ophthalmic Practice*, rev., 811
Sciatic hernia (Lewis W. Marshall), 191
Science and the nation (leading article), 398
Science in peace and war, 520
Science in the School, 203
Scientific and Industrial Research Department established, 635
Scopolamine-morphine treatment in labour, results of 150 consecutive cases (W. Osborne Greenwood), 355. (O)—Correspondence on, 472

Scotland:
Bequests to hospitals, 61
Blind, conference on (Newington House, Edinburgh), 597
British prisoners in German camps, inhuman treatment of, 563
Burial reform and Cremation Society, report, 206
Carnegie Trust, 310
Craigleith Hospital Chronicle, 31
Curative workshops, 348, 855

EDINBURGH:
Calling up notice and insured persons, 663
Child welfare in, 31, 348
Children's Hospital, 597
Deaf soldiers, scheme for, 821
Eye, Ear, and Throat Infirmary, 494
Falling birth-rate in, 206
John O'Groat Benevolent Association, 100
Maternity and Child Welfare Exhibition, 821
Medical bureaux in, 855
Royal Infirmary, 61
Royal Maternity Hospital, 468—Pregnancy clinics, 698
Royal Society of, election of Fellows, 377
Society for relief of destitute sick, 31
Spring graduation ceremony, 494
Training and treatment of disabled sailors and soldiers, 525
Venereal diseases, 821

Erskine Hospital for Limbless Soldiers, 494, 821
Eyesight of munition workers, 278
Food problem, 597

GLASGOW:
Health of, 242
Maternity and child welfare, 407
Mobilization of the profession, 407, 467
Royal Infirmary, 242
Sick Children's Hospital, report, 206
University Court, 821
Venereal diseases treatment, 407

Haig, Major William, presentation to, 377
Highlands and Islands Medical Service Board, 663
Highlands and Islands, parish councils of, advertise for a medical officer in Allahabad *Pioneer*, 377
Housing question in Scotland, 173
Insanity and the war, 277, 310
Kennedy, Mrs., of Dunain Park, death of, 698
Leith, child welfare, superintendent appointed, 31
Lunacy in 1915, 597
Meat from tuberculous cattle, 746
Medical needs of the army, 821
Ministry of Health, proposed, 782
Mobilization of the profession, 407, 467
Morison lectures, 310
Mother and child welfare and the housing question in Dundee, 440
National Association for the Prevention of Infant Mortality, 242
Nurses' registration, 782

Scotland (*continued*)
Scottish Poor Law Medical Officers' Association, report, 207
Scottish universities and exemption from certain preliminary examinations of candidates from overseas colonies, protectorates, etc., 525
Scottish Women's Hospitals, donation from Calcutta, 61
Simpson, James B., appointed Deputy-Lieutenant of the County of Sutherland, 563
Soldiers and sailors, disabled, treatment and training of, 525
Sphagnum moss dressings, 277
Taylor, James, presentation to, 377
Venereal disease, control of, 782
Venereal disease, treatment of in Aberdeen, 172; in Glasgow, 407; in Edinburgh, 821
Vital statistics of 1916, 407

SCOTT, Colonel Bertal Hopton, C.M.G. conferred upon, 29
SCOTT, Captain D. J., Military Cross conferred upon, 780
SCOTT, Captain Ernest, D.S.O. conferred upon, 30
SCOTT, Lieut.-Col. George, C.M.G. conferred upon, 780
SCOTT, Captain George, Military Cross conferred upon, 30
SCOTT, Henry Harold, elected Fellow Royal Society of Edinburgh, 377
SCOTT, Captain James Alwin, Military Cross conferred upon, 30—Bar to Military Cross, 852
SCOTT, Captain Maitland, Italian Silver Medal for Military Valour conferred upon, 781
SCOTT, Captain R. R., Croix de Guerre conferred upon, 596
SCOTT, S. Noy: Mobilization of the profession, 210—Co-ordination of British medical policy, 823—State Medical Service, 896
Scottish Women's Hospitals, donations from Calcutta, 61
SCRIPTURE, E. W.: Treatment of infantile cerebral diplegia, 363
SCUDAMORE, Lieut. Leonard George, dies on service, 560
Scurvy (Captain Clifford), 27
Scurvy, discussion on at Amara Clinical Society, 659
SEARLE, Captain C. F., Military Cross conferred upon, 780
Sea-water plasma (Dr. Mahomed), 766
SEMPLE, Lieut. William David, killed in action, 99
Sepsis, general, intravenous injection of eusol in treatment of (J. S. Fraser, Andrew Campbell, and E. D. D. Dickson), 357. (O)
Sepsis, puerperal. *See* Puerperal
Septic wounds. *See* Wounds
SEQUEIRA, James H.: Early diagnosis and treatment of syphilis, 1, 38. (O)—Dermatitis from explosives used in the air raid, 894
Serbian Relief Fund, 36
Serum, horse, in treatment of burns, 636
Serum treatment of cerebro-spinal fever, recent results in (A. Gardner Robb), 478. (O)
Serums, therapeutic, keeping qualities of (A. T. MacConkey), 10. (O)
Service afloat (Deputy Surgeon-General Robert Hill and Fleet Surgeon E. A. Penfold), 539. (O)
SETON, Lieut.-Col. Sir Bruce, C.B. conferred upon, 780
SHAMBAUGH, G. E.: Case of syringomyelia with marked vestibular symptoms, 812
SHANAHAN, Lieut.-Col. Daniel David, D.S.O. conferred upon, 30
SHARP, Captain A. D., Military Cross conferred upon, 780
SHARP, J. S. (and others): Tetany and the functions of the parathyroids, 575. (O)
SHATTOCK, S. G., elected Fellow of the Royal Society, 305
Shaving brushes and anthrax, 882
SHAW, Lieut.-Col. Charles Gordon, D.S.O. conferred upon, 30
SHAW, Lieut. Eric, Belgian Ordre de la Couronne conferred upon, 562
SHAW, Captain Frederick Roland Studdart, Military Cross conferred upon, 30
SHAW, Captain George Murray, Military Cross conferred upon, 30
SHAW, Captain Lawrence Drew, D.S.O. conferred upon, 780
SHEARER, Colonel Johnston, obituary notice of, 283
SHEEHAN, C. A.: Table for armless soldiers, 583
SHEEHAN, Major George Faber, D.S.O. conferred upon, 780
SHENSTONE, J. C.: Herb growing in the British empire, 624
SHERIDAN, Captain Bertrand Cecil Owens, Military Cross conferred upon, 744
SHIERLAW, Captain Norman Craig, Military Cross conferred upon, 439
SHILLITOE, Buxton, obituary notice of, 35
SHIPLEY, A. E.: Page-turner for armless patients, 769—Elected Vice-Chancellor Cambridge University, 787
Ships, mercantile, hygiene of, 746
SHIPWAY, Francis E.: Anaesthesia by warmed ether, 826
SHIRLAW, Captain Ninian F., killed in action, 820

Shock following intravenous injections of chemiotherapeutic products, 565—Correspondence on, 604
Shock, shell (H. Curschmann), 656
Shock, surgical, and some allied conditions (memorandum from Medical Research Committee), 381. (O)—Leading article on, 397—Correspondence on, 470
Shock, surgical, value of feeding during operations as a preventive of (Herbert H. Brown), 510. (O)
SHORT, A. Rendle: Nature of surgical shock, 470
SHORT, Captain A. V., Military Cross conferred upon, 780
Shortage of medical officers. *See* Medical
Shrapnel ball, wandering (Captain H. L. Gregory), 482. (O)
Sidmouth, Hospital for Officers Suffering from Stiff Joints, 788
Sight-testing obturator, 194
SILVER, Lieut.-Col. John Payzant, D.S.O. conferred upon, 30
"Silver belly" of General de Gallifet, 444
SIMPSON, Captain Frank W. H., killed in action, 308
SIMPSON, James B., appointed Deputy Lieutenant for county of Sutherland, 563
SIMPSON, Robert: Refreshment house experiment at Carlisle, 749
SIMPSON, Thomas Young: Cartilage grafts for closing cranial defects, 512
SIMPSON, W. J.: Colloidal preparations of alkaloids, 648
SINCLAIR, Lieut. George S., killed in action, 782
SINCLAIR, Colonel Thomas, C.B. conferred upon, 29—Ligation of the innominate artery for traumatic aneurysm of the carotid, 288. (O)
SINGH, Sub-Assistant Surgeon Hukam, awarded Indian Order of Merit, 206
SINGH, Sub-Assistant Surgeon Mula, awarded Indian Order of Merit, 206
SINGH, Sub-Assistant Surgeon Rawail, Cross of Karageorge (Serbia) conferred upon, 276
SINTON, Captain J. A., Russian Order of St. George conferred upon, 662
Skill, the price of, 130, 180
Skin grafting (D. G. Greenfield), 482. (O)
SKINNER, Lieut.-Col. William Booth, D.S.O. conferred upon, 206
Skull wounds, infected (H. Burckhardt), 492
SLEMAN, Lieut.-Col. Richard Reginald, Serbian Order of the White Eagle conferred upon, 276
SLOAN, Lieut.-Col. J. M., Russian Order of St Anne conferred upon, 662
SLOAN, Lieut. Thomas Ian Thomson, killed in action, 630
SLOGGETT, Surgeon-General Sir Arthur Thomas, K.C.M.G. conferred upon, 780
SLUSS, J. W.: *Emergency Surgery*, rev., 83
SMALLEY, Captain Arthur Ashton, Military Cross conferred upon, 171
Small-pox, danger of (Ireland), 377—Correspondence on, 409, 469, 497, 528, 600, 632, 664
Small-pox in Berlin, 788
Small-pox vaccination by puncture (Captain H. W. Hill), 189. (O)
SMART, Captain A. G. H., Croix de Guerre conferred upon, 781
SMART, C. W.: *Bed-sores, their Prevention and Cure*, rev., 686
SMART, Captain Herbert Douglas, Military Cross conferred upon, 30
SMITH, Alexander: *General Chemistry for Colleges*, rev., 486
SMITH, Alfred: Operative treatment of fixed backward displacement of uterus, 457
SMITH, Fred. J.: The oldest age of parturition, 349—Quo Vadis? 856
SMITH, George Munro, obituary notice of, 140
SMITH, Lieut. Henry Graham, lost at sea, 524
SMITH, Captain H. Oswald: Treatment of trench feet by the subcutaneous injection of oxygen, 511. (O)
SMITH, Lieut. John Godfrey Bradley, lost at sea (H.M.S. *Arcadian*), 630
SMITH, Lieut. J. Alan Tennyson, killed in action, 405
SMITH, J. Henderson: Variations in weight of the tuberculous under sanatorium treatment, 505. (O)
SMITH, John Walker, obituary notice of, 107
SMITH, Lieut.-Col. Lionel Fergus, C.M.G. conferred upon, 29
SMITH, S. Alwyn: Technique of nerve suture, 861. (O)
SMITH, Major Samuel Boylan, D.S.O. conferred upon, 780
SMITH, Lieut.-Col. Sidney Browning, C.M.G. conferred upon 780
SMITH, Stephen, 94th birthday of, 444
SMITH, Walter: Toxic action of T.N.T., 618
SMITH, Captain William Alexander, dies of wounds, 853
SMITH, W. R.: Toxic jaundice, 158
SMYLY, Sir William: Continuous sponges for laparotomy, 298
SMYTH, R. B., obituary notice of, 379
SNELL, Colonel Arthur Evans, D.S.O. conferred upon, 30
SNELL, Lieut. Herbert, killed in action, 560
SNODGRASS, Captain William McElrea, Military Cross conferred upon, 30
Societies, Scientific, Conjoint Board of, report, 895

Society, Amara Clinical: Discussions on scurvy, 659; on paratyphoid fever, 659
Society, American Gynaecological: Relations of glands of internal secretions to gynaecology and obstetrics, 788
Society, American, Otological: *Transactions*, 812
Society, American Philosophical, 776
Society, Child Study:—John Adams: Educational principles upon which future school reform should be based, 568
Society, Geological: Lyell medal presented to Dr. Wheelton Hind, 340
Society, Harveian:—Robert Hutchison: Diagnosis in dyspepsia, 364
Society, Illuminating Engineering:—James Kerr: Effect of contrasted illuminations on the eye 271
Society, Infant Aid, 348
Society, London and Counties Medical Protection, invests in war loan, 143—Annual meeting, 696
Society, London Dermatological: *Transactions and Fifth Annual Report, with List of Officers and Members*, rev., 84
Society, Medical, of London: — Surgeon-General H. D. Rolleston: Naval medicine in the great war, 224 — Colonel Charters J. Symonds: Treatment of traumatic and arterio-venous aneurysm, 483—Election of officers, 663 — Lettsomian oration, Sir William Osler on the campaign against venereal disease, 694
Society of Medical Officers of Health and the proposed Ministry of Health, 584
Society, Medical Sickness, Annuity and Life Assurance Friendly, 143, 284, 429—Annual meeting, 429
Society, National Clean Milk, 590
Society, New York Neurological: Resolution *re* sufferers from poliomyelitis and polioencephalitis to be treated by neurologists and orthopaedists, 96
Society, Poetry: Poems by Sir Ronald Ross, 444
Society, Prehistoric, of East Anglia, 1914-15, *Proceedings*, 227
Society of Public Analysts: Two cases of opium poisoning (John Webster), 648
Society, Red Cross, British: Treatment and training of disabled soldiers (Hon. Arthur Stanley), 94
Society for Relief of Destitute Sick, Edinburgh, annual meeting, 31
Society for Relief of Widows and Orphans of Medical Men, report, 770
Society, Röntgen: Treatment by ultra-violet radiation, 56—Fournier d'Albe: Type reading for the blind, 234 - T. Thorne Baker: *X*-ray intensifying screens, 491—R. S. Wright: Future of the British *X*-ray industry, 521—Discussion, 895
Society, Royal: Election of Fellows, 305—J. C. Mottram and S. Russ: Susceptibility and immunity to rat sarcoma, 462—C. H. Browning and S. Russ: Germicidal action of ultra-violet radiation, 656
Society, Royal, of Edinburgh: Election of Fellows, 377
Society, Royal, of Arts:—Sir Francis Fox: Retention of the wheat germ in flour, 591—J. C. Shenstone: Herb-growing in the British empire, 624

SOCIETY, ROYAL, OF MEDICINE: Discussion on toxic jaundice in munition workers and troops, 155, 625
Section of Balneology and Climatology — R. Fortescue Fox exhibits mensuration instruments, 380—Physical treatment of disabled soldiers, 767
Children's Diseases Section. — J. Porter Parkinson: Pneumonia with hyperpyrexia and heart-block, 192
Section of Electro-Therapeutics.—W. M. Bayliss: Origin of electric currents led off from the human body, especially in relation to "nerve-leaks," 387, 395—Discussion, 395
Section of Epidemiology and State Medicine.—A. W. Bacot: The louse problem, 296—Discussion, 297—Muriel Robertson: Etiology of typhus fever, 733
History of Medicine Section.—J. D. Rolleston: Casanova, 57
Section of Medicine.—Tropical diseases found in the Balkans (Aldo Castellani), 809
Sections of Medicine, Pathology, and Epidemiology.—Discussion on toxic jaundice in munition workers and troops, 155
Section of Obstetrics and Gynaecology — Herbert Spencer: Two cases of supravaginal amputation for sarcoma mistaken for myoma, 456; Undiagnosed cancer of the cervix, 456
Section of Pathology.—F. W. Mott: Changes in the central nervous system in hypothyroidism, 263—H. Drinkwater: Hereditary deformity of the fingers, 271—H. S. Stannus: Congenital hypertrophy of the lower limb, 284
Section of Pharmacology and Therapeutics. —A. E. Stansfeld: Principles of the transfusion of blood, 297
Proctology Subsection. — P. Lockhart-Mummery: Making and closing of colostomy openings, 685—Discussion, 686
Society, Royal Microscopical:—A. Bacot: Hatching of the yellow fever mosquito, 167
Society, Royal Statistical:—John Brownlee: Infant mortality in the slums, 369
Society for State Registration of Trained Nurses, annual meeting, 859
Society, Surgical Aid, annual meeting, 31
Society, Ulster Medical: Meeting and exhibition of specimens, 135—National Council for Combating Venereal Diseases, 135
Society, Zoological, of London:—Captain S. R. Douglas: Migration of woodcock breeding in West of Ireland, 380
SODEN, Captain Wilfred Newell, Military Cross conferred upon, 30
Sodium bicarbonate, intravenous injection of, in delayed chloroform poisoning (George G. Farquhar), 548
Sodium salicylate in treatment of "trench feet" (W. Gordon), 121
Soldiers, method of anaesthetizing (Captain W. J. McCardie), 508. (O)
Soldiers, armless, table for, 583
Soldiers, blinded, conference at Edinburgh (*re* Newington House), 597
Soldiers, cardiac disease in. *See* Cardiac

SOLDIERS AND SAILORS, CRIPPLED AND DISABLED:
Apparatus for re-education (Privat and Belot), 697
Artificial limbs and surgical appliances for, 206 626, 693. *See also* Artificial
Care of, 881
Curative agricultural work (Bergonié), 692
Curative workshop. *See* Manual
Functional training and re-education of (Canada), 441
German views on, 97
Inter-ally conference on, 132, 603, 656
Italian care of, 99
Manual curative workshops for, 348, 585, 855—In Germany, 597—In Northern France (R. Fortescue Fox), 129
Parliamentary questions on, 236, 306, 342, 593
Payment of pensions to (Canada), 440
Pensions. *See* Pensions
Physical treatment of, report of Royal Society of Medicine's Committee, 767
Prosthesis, history of, 96
Recalled to Life, 625, 849, 881
Stanley, Hon. Arthur, speaks at meeting of West Lancashire Branch of British Red Cross Society, 94
Training of (parliamentary question), 306
Training and treatment of in Scotland, 525
Welsh care of, 242
See also Sailors

Soldiers, deaf, Edinburgh scheme for, 821
Soldiers and sailors, discharged: Army Council instruction *re* admission to military hospitals for treatment, 234—Reacceptance of (Lancashire Panel Committee), 494
Soldier's foot, 66
Soldier's heart. *See* Heart
Soldiers, limbless, Erskine Hospital for, 494, 821
Soldiers medically unfit (parliamentary question), 306
Soldiers, nervous and mental disorders in (parliamentary question), 886
Soldiers' pay, deductions during hospital treatment (parliamentary question), 851
Soldiers and sailors, paralysed, county provision for, 24
Soldiers' and sailors' widows and orphans, medical treatment of (parliamentary question), 659
Soldiers, wounded, educative convalescence for, 854
SOLOMONS, Bethel: Melaena and haematemesis neonatorum, 763. (O)
SOMAGLIA, Count Gian Giacoma della, created a Senator of the Kingdom of Italy, 380
Some friendly criticisms (D. W. Samways), 841
Somersetshire, tuberculosis in, 525
Somme, five months' battle of, 26—Medical services in the advance (leading article), 488
Sore throat, treatment of, 248
SOUBBOTITCH, V.: Apparatus for treatment of fractures of the femur and of the leg, 646. (O)
Southampton Medical Directory for 1917, 668
South Africa. *See* Africa
SOUTTAR, Major Henry Sessions, Officier de l'Ordre de la Couronne (Belgian) conferred upon, 276
Spain, voice from in praise of England, 590—Vaccination in, 618
SPARROW, Surgeon Geoffrey, Military Cross conferred upon, 171
SPEARMAN, B.: Anthrax, death from pneumonia, 809
SPENCE, Lieut. Geoffrey S., dies on service, 561
SPENCER, Herbert (leading article), 368
SPENCER, Herbert: Undiagnosed cancer of cervix, 456—Supravaginal amputation for sarcoma mistaken for myoma, 456
Sphagnum moss dressings, 277, 752
SPICER, Holmes: Appreciation of Walter H. H. Jessop, 282
SPILSBURY, B. H.: Toxic jaundice, 156
Spina bifida, survival in, 604
Spinal cord injuries on the lines of communication in France, 802
Spirits, supply of to hospitals (parliamentary question), 343—Grants in relief of duties on spirits used in voluntary hospitals, 704
Spiritualism, psycho-pathology of. *See* Psycho-pathology
Spirochaetosis ictero-haemorrhagica (Captain R. Rimmer), 453. (O)
SPITTEL, R. L.: Suppuration in gonorrhoeal epididymitis, 842
SPITZY, Hans: *Orthopädische Behandlung Kriegsverwandeter*, rev., 874
Splint for drop-wrist, 123
Splints, German, in transport of gunshot fractures of the thigh, 777
Splints in treatment of fractures (Charles A. Morton), 475. (O) — Correspondence on, 564
SPRAWSON, C. A., rewrites *Moore's Manual of Family Medicine and Hygiene for India*, rev., 160
SPURWAY, John: Fragilitas ossium, blue sclerotics and otosclerosis, 826
SQUIRE, J. E., obituary notice of, 634
STADLER, A.: Arm stumps and artificial hands, 275
STANFORD, Staff Surgeon Charles Edward Cortis, D.S.O. conferred upon 30
STANISTREET, Lieut.-Col. G. B., C.M.G. conferred upon, 129
STANLEY, Hon. Arthur: Treatment and training of disabled soldiers, 94
STANLEY, Captain Herbert V., Military Cross conferred upon, 171
STANNUS, H. S.: Congenital hypertrophy of the lower limb, 284
STANSFELD, A. E.: Principles of blood transfusion, 297
STAPLEY, W.: Diagnosis of phthisis, 497
State Medical Service, 896. *See also* Medical policy
Status lymphaticus from the clinical standpoint (H. C. Cameron), 753. (O)
Steam disinfection, 228
STEEL, Arthur Robert, lost at sea, 523
STEEN, Robert Hunter: Hallucinations in the sane, 766—*The Daily Graphic* and asylums for the insane, 860
STEPHENS, G. Arbour: Shock following intravenous injections of chemio-therapeutic products, 604
STEPHENSON, Captain Humphrey Meigh, Military Cross conferred upon, 853
STEVENS, W. C.: Gas gangrene, 380
STEVENSON, C. M: Future medical policy, 748
STEVENSON, Captain Gerald Hoey, D.S.O. conferred upon, 780
STEVENSON, Lieut. John Black, Military Cross conferred upon, 241
STEVENSON, Lieut. John Huntley Wickham, dies of wounds, 276
STEWART, Major Hugh, D.S.O. conferred upon, 780
STEWART, Captain Matthew J.: Toxic jaundice, 156
STEWART, Lieut. N. W., dies of wounds, 276
STEWART, Lieut. Ronald, lost at sea (H.M.S. *Arcadian*), 889
"Stickit ministers" of medicine, 304
STIEBEL, Lieut. Charles, killed in action,
Stigmatization and suggestion, 691, 752
STIRLING, A. W.: Tonsillectomy, 765
STIRLING, Edward Charles, knighthood ferred upon, 770
STIRTON, James, obituary notice of, 247
STITT, E. R.: *Practical Bacteriology, Blood Work, and Animal Parasitology*, rev., 514
STODDARD, J. L. (and E. C. CUTLER): *Torula Infection in Man*, 460
STODDART, W. H. B.: *Mental Nursing*, rev., 123
STOKES, Sergeant-Major W., Croix de Guerre conferred upon, 596
STORK, Captain Ernest Stanley, D.S.O. conferred upon, 852
STORRS, Surgeon-Captain E. G., Military Cross conferred upon, 780
STOTT, Captain Leonard Boole, Military Cross conferred upon, 30
STOUT, Major Thomas D. Macgregor, D.S.O. conferred upon, 780
STRACKER, Oskar: Appliances at the Military Orthopaedic Hospital, Vienna, 275
Strapping, "antitension spring" for, 828
STRAUSS: Specialization in military medicine, 741
Street accidents in London, decrease of, 531
STRETTON, Perkins, the herbalist, prosecution of, 472
STROUD, Louis: Colloidal preparations of alkaloids, 648
STUART, Sir Thomas Anderson: *Artificial Limbs*, rev, 620
Students prematurely qualified in Germany, proposal that they should be given an opportunity to continue their studies after the war, 262
Suffering Relieved, 203
SUGARS, Captain H. S., Military Cross conferred upon, 780
Suggestion and stigmatization, 691, 752
p-Sulphonamidobenzoic and *p*-sulphondichloraminobenzoic acid in sterilization of drinking water (H. D. Dakin and E. K. Dunham), 682
SULTAN advises the more general use of giant electro-magnets, 143

LIBRARY U. OF I. URBANA-CHAMPAIGN

SUMMERHAYES, Major John Orlando, D.S.O. conferred upon, 30
Surgeons and physicians, 105. *See also* Fees
Surgery, British, development of, at the front (Surgeon-General Sir Anthony Bowlby and Colonel Cuthbert Wallace), 705. (O)—Leading article on, 737
Surgery, British, development of, in the hospitals on the lines of communication in France (Surgeon-General Sir George H. Makins), 789. (O)—Note on, 816
Surgery in a German base hospital (Hermann Fischer), 522
Surgery in the navy (Deputy Surgeon-General W. G. Axford and Surgeon-General G. Lenthal Cheatle), 535. (O)
Surgery, review of books on, 83
Surgery at the siege of Kut (Major C. H. Barber), 237
Surgical Aid Corps, Emergency, 822
Surgical Aid Society. *See* Society
Surgical field service with the German army, 237
"Surgical" emphysema during parturition (John Murray), 14—Correspondence on, 108, 380—(George Milne), 262. *See also* Labour
Surgical instrument firms, British, 36
Surgical shock. *See* Shock
Sussex, scheme for venereal treatment in, 746
SUTCLIFFE, Lieut. F. Malcolm, killed in action, 820
SUTHERLAND, Captain C. G., Military Cross conferred upon, 780
SUTHERLAND, Lieut.-Col. David Waters, C.I.E. conferred upon, 770
SUTTIE, Lieut. David Campbell, Military Cross conferred upon, 30
SUTTON, Lieut. Albert Edward, Military Cross conferred upon, 99
SUTTON, Colonel Alexander Arthur, C.B. conferred upon, 29
SUTTON, Lieut.-Col. Alfred, C.M.G. conferred upon, 29
SUTTON, Walter S., obituary notice of, 247
SWAIN, Lieut.-Col. James, C.B. conferred upon, 129
Swan Memorial Fund, 135
SWAN, R. Jocelyn: Acne, 604
SWANSON, George Isles, obituary notice of, 443
"Swarren crutch seat," 617
SWAYNE, Martin: *In Mesopotamia*, rev., 650
Sweaters for men on active service, an appeal, 71
Swedish military police in Persia, 270
SWEENY, Lieut.-Col. Terence Humphreys, C.M.G. conferred upon, 780
Switzerland, number of medical students in the universities of, 266, 859
SYKES, Sir Percy, his march to Teheran, 270
SYKES-BROWN, H. E.: *How to Take Care of Your Teeth*, rev., 582
SYME, W. S.: Bronchoscopy in treatment of asthma, 868. (O)
SYMONDS, Colonel Charters J.: Treatment of traumatic and arterio-venous aneurysm, 483—War Emergency Fund, 824
SYMONS, Lieut.-Col. Frank Albert, C.M.G. conferred upon, 29: killed in action, 628
SYMONS, Major Vivian Hood, dies on service, 239
Synthetic sunshine, 883
Syphilis, colloids in (J. E. R. McDonagh), 648. (O)
Syphilis, early diagnosis and treatment of (James H. Sequeira), 1, 38. (O)
Syphilis, influence of absolute rest in the treatment of, 180
Syphilis, prophylaxis of 54
Syphilis, salvarsan treatment of (Major Lloyd Jones and Captain A. J. Gibson), 152 (O)—Correspondence on, 244
Syphilis, second infection of (Surgeon L. C. Dundas Irvine), 765
Syringe, the "Luc," 812
Syringomyelia with marked vestibular symptoms (G. E. Shambaugh), 812

T.

Tabes dorsalis, sudden death in (A. R. Parsons), 513
Table for armless soldiers, 583
TACKABERRY, Captain John Bailey, dies on service, 629
TACQUIN, Arthur: Medicine in Morocco, 384. (O)
TAIT, John, elected Fellow Royal Society of Edinburgh, 377
TALBOT, F. B. (and J. L. MORSE): *Diseases of Nutrition and Infant Feeding*, rev., 194
Tale of a Casualty Clearing Station, rev., 620
Tartar emetic, disappearance of malignant tertian crescents from the blood following the intravenous injection of (Sir Leonard Rogers), 6. (O)—Correspondence on, 136, 858. *See also* Antimony *and* Malaria
TATE, Lieut.-Col. Gerard William, D.S.O. conferred upon, 206
TATE, Isobel Addey, dies on service, 240
Tattoo marks, removal of, 896
Taxes on unoccupied furnished houses, 401
TAYLOR, Frank E. (and W. H. MCKINSTRY): Relation of peridental gingivitis to Vincent's angina, 421. (O)
TAYLOR, Frederick, baronetcy conferred upon, 770—War Emergency Fund, 858
TAYLOR, Captain George Pritchard, Military Cross conferred upon, 30
TAYLOR, James, presentation to, 377
TAYLOR, Captain Murray Ross, D.S.O. conferred upon, 780
TAYLOR, Captain Richard Stopford, D.S.O. conferred upon, 780
TAYLOR, Surgeon-General Sir William, death of, 491—Obituary notice of, 530
TAYLOR, Lieut. W. B., dies of wounds, 561
TEBB, Albert E.: Rhubarb leaves, 668
TEBBUTT, Lieut.-Col. Arthur Hamilton, D.S.O. conferred upon, 780
Teeth of New York school children, defective, 123
TEICHMANN, Captain O., Croix de Guerre conferred upon, 697—Military Cross conferred upon, 780
TEMPEST, Lieut. Basil, dies of wounds, 630
TEMPLETON, Lieut.-Col. Charles Perry, D.S.O. conferred upon, 780
Territorial and special reserve officers, 657. *See also* Army, British
TERSON, A.: *Ophthalmologie du médecin praticien*, rev., 811
Test-tube containers and racks, 266
Tetanus, case of, successfully treated with antitoxin (Noel C. Forsyth), 548
Tetanus, delayed, in connexion with injuries to bone not presenting obvious signs of sepsis (Captain M. Foster), 189. (O)
Tetanus in home military hospitals, 888—Analysis by Sir David Bruce, 888
Tetanus, late (James Miller), 223
Tetanus, recurrent (A. M. Westwater), 395
Tetanus relapse after a trivial operation, 371
Tetanus, review of books on, 15
Tetanus, three cases of (Captain R. I. Douglas and Captain C. H. Corbett), 119. (O)
Tetanus, treatment on the lines of communication in France, 793
Tetanus after trench foot (Lumière and Astier), 234
Tetanus among wounded soldiers (Sir David Bruce), 118 (O)
Tetanus lighted up by operation, 883
Tetany and experiments on animals (parliamentary question), 886
Tetany and the functions of the parathyroids (D. Noel Paton, Leonard Findlay, A. Watson, D. Burns, J. S. Sharp, and W. Wishart), 575. (O)—Correspondence on, 632
Therapeutic serums, keeping qualities of (A. T. MacConkey), 10 (O)
Therapeutics, review of books on, 365
THIES, A.: Artificial hyperaemia in gas gangrene, 594
Thigh, fractures of, appliance for the ambulatory treatment of (C. Max Page), 292 (O)
Thigh, gunshot fractures of, German splints and methods for transport of, 777
THÖLE: Treatment of fractures, 436
THOMAS, Captain R. Newall, D.S.O. conferred upon, 780
THOMAS, B. A. (and R. H. IVY): *Applied Immunology: The Practical Application of Sera and Bacterins Prophylactically, Diagnostically and Therapeutically*, rev., 265
THOMAS, J. Lewis: Influence of absolute rest in the treatment of syphilis, 180—Death from high explosives without wounds, 599
THOMAS, Lieut.-Col. J. Lynn, C.M.G. conferred upon, 129
THOMPSON, A. E.: Mobilization of the profession, 441
THOMPSON, Lieut.-Col. Albert George, D.S.O. conferred upon, 30
THOMPSON, Lieut.-Col. C. M., obituary notice of, 70
THOMPSON, G. S.: Method of preparing and using catgut, 873
THOMPSON, Professor: Food consumption of working-class families, 563
THOMPSON, Lieut.-Col. R. J. Campbell, C.M.G. conferred upon, 780
THOMSON, Private Alexander Anderson, killed in action, 597
THOMSON, Major Charles Glendenning, D.S.O. conferred upon, 30
THOMSON, Captain D.: New culture medium for the gonococcus, 869. (O)
THOMSON, D. G.: Psycho-analysis, 32, 138
Thoracotomy, review of book on, 514
Thorax, treatment of wounds of, 205
THORBURN, Captain Harold Hay, C.I.E. conferred upon, 770
THORINGTON, H.: *Refraction of the Human Eye and Methods of Estimating the Refraction*, rev., 122
THORNE, W. Bezly, obituary notice of, 859
THORNTON, Captain Conyngham Vernon, Military Cross conferred upon, 206
THORNTON, Captain Francis Ruthven, Military Cross conferred upon, 30
THORNTON, L. H. D. (and others): Flavine and brilliant green, powerful antiseptics with low toxicity to the tissues, their use in treatment of infected wounds, 73 (O)
THURSTON, Lieut.-Col. Hugh Stanley, C.B. conferred upon, 780
THURSTON, Major Lionel Victor, D.S.O. conferred upon, 30
Thymol mouth-washes, 604
TIBBETTS, T. M.: *The Panel Doctor, His Duties and Perplexities*, rev., 192
TIBBLES, Sydney: Effects of cinematograph displays on the eyes of children, 350
Tigris, hospital ships for, 819
TILBURY, Captain Arthur, lost at sea, 743
TILLEY, Herbert: Recurrence or redeposit of cancer, which? 424
TINAYRE, Marcelle: An early view on women's franchise, 520
Title of "doctor." *See* Doctor
T.N.T., toxic action of (Walter Smith), 618
Tobacco as flea bane, 412
TOBIN, Richard F., appointed inspector for Ireland under the Cruelty to Animals Act, 241
TOCHER, Captain James Williamson, Military Cross conferred upon, 853
TODD, Captain Valentine O., killed in action, 561
Tokyo, new hospital at, 812
TOMLINSON, Fleet Surgeon H. E.: Suggested use of eusol in infectious fevers, 636
TONKING, Lieut. David Wilson dies of wounds, 854
Tonsillectomy (A. W. Stirling), 765—(Vincent Green), 809
Torpedoing of hospital ships. *See* Hospital ships
TOWNSEND, Lieut. A. Eric, killed in action, 308
TOWNSEND, Surgeon-General Sir Edmond, obituary notice of, 142
Toxaemia and pneumonia (S. Riddiough), 732
TRAYER, Captain Hugh George, Serbian Order of the White Eagle conferred upon, 276
TREHERNE, Surgeon-General Francis Harper, Serbian Order of the White Eagle conferred upon, 276—K.C.M.G. conferred upon, 780
"Trench fever" contracted in England (R. D. MacGregor), 221. (O)
"Trench fever," so called, as seen in England (Jeffrey Ramsay), 222. (O)
"Trench foot" importance of the early prophylactic injection of antitetanic serum in (Sir David Bruce), 48 (O)
Trench foot, nitro-glycerine in (E. S. Ellis), 513
"Trench foot," sodium salicylate in treatment of (W. Gordon), 121
"Trench foot," tetanus after (Lumière and Astier), 234
Trench foot treated by subcutaneous injection of oxygen (Captain H. Oswald Smith), 511. (O)—Correspondence on, 702
Trench nephritis. *See* Nephritis
TREVAN, J. W. (and F. A. BAINBRIDGE): Surgical shock, 382
TREVES, Sir Frederick: Appreciation of Sir Benjamin Franklin, 281—Gunshot wounds of abdomen, 377
TREVOR, Major Herbert Edward, killed in action 561
Trinitrotoluene poisoning, prevention of (leading article), 399—Cases of in Montreal, 699
TRIPIER, Raymond, obituary notice of, 247
Tropical disease in the Balkans (Aldo Castellani), 809
Tropical Medicine, Calcutta School of, progress of, 489
TRUBY, Frederick, C.M.G. conferred upon, 770
TRUDEAU, Edward L., death of, 166
Truss, inguinal, with elastic band, 828
Trypanosome, monomorphic, found in the blood of a native of the Gold Coast (J. W. S. Macfie), 12. (O)
Tsutsugamushi disease, 433. *See also* Kedani disease
TUBBY, Mrs. A. H., awarded Medal of Royal Humane Society, 305
Tuberculins and vaccines, 367
Tuberculosis in Antrim, 822
Tuberculosis, congenital (F. Parkes Weber), 816
Tuberculosis, demineralization of muscle in (Albert Robin), 462
Tuberculosis, diagnosis of, 497
Tuberculosis, huts in Paris hospital gardens for men suffering from, 305
Tuberculosis: Incomplete cure of the consumptive (leading article), 22, 51—Correspondence on, 102, 138, 177
Tuberculosis and longevity, 521
Tuberculosis, miner's, in S. Africa (Watkins-Pitchford and Moir), 131
Tuberculosis, mortality in Pernambuco, 858
Tuberculosis, prevention of, in London, 406
Tuberculosis, report on (Australia), 312
Tuberculosis, residential treatment, number of patients, 310
Tuberculosis sanatoriums. *See* Sanatoriums
Tuberculosis in Somersetshire, report of M.O.H., 525
Tuberculosis, study of in America, 166
Tuberculosis treatment in London, 631
Tuberculosis in the United States Army, 740
Tuberculous cattle, meat from, 746
Tuberculous infection, delayed (Professor Delépine) 304
Tuberculous patients, domiciliary treatment of (Ireland), 698
Tuberculous persons, after-care of, 206—Compulsory segregation of, 433—In Lancashire, 494
Tuberculous persons, variations in weight of, under sanatorium treatment (J. Henderson Smith), 505. (O)

TUCKER, Major W. H., Legion of Honour conferred upon, 697
TUKE, Thomas Seymour, obituary notice of, 350
Tumours, review of books on, 121
Turkey, British prisoners in (parliamentary question), 886
TURNBULL, H. M.: Toxic jaundice, 156
TURNER, Lieut.-Col. Aldren, C.B. conferred upon, 129
TURNER, Captain Alfred Charles, D.S.O. conferred upon, 852
TURNER, Captain C. T.: Military Cross conferred upon, 780
TURNER, Captain Edward Percy, killed in action, 438
TURNER, Surgeon-General George Robertson, C.B. conferred upon, 780
TURNER, Lieut.-Col. Reginald George, D.S.O. conferred upon, 206
TURNER, Captain W. G., Military Cross conferred upon, 780
TWEEDY, Hastings: Vaginal plugging for haemorrhage, 618
TWEEDY, Sir John: War Emergency Fund, 858
TWISS, Lieut.-Col. G. E., C.M.G. conferred upon, 129
Tympanites, post-operative (John D. Malcolm), 612. (O)
TYNDALL, Captain W. E.: Early complications resulting from retained bone fragments in a case of gunshot wound of head, 423. (O)
Type-reading for the blind, 234
TYRRELL, Colonel Charles Robert, C.B. conferred upon, 780
Typhoid fever. *See* Fever, enteric
Typhus fever. *See* Fever
TYSON, W. J.: The soldier's heart, 496

U.

Uganda, anthrax in (B. Spearman), 809—Correspondence on, 894
Ulster, civil surgeons in, 241
ULRIK, F. F., obituary notice of, 521
Ultra-violet light, protection from, 704
Ultra-violet radiation, treatment by, 56—Germicidal action of (C. H. Browning and S. Russ), 656
UMNEY, Lieut. Cecil Francis, killed in action, 405
UNDERHILL, Lieut. Reginald, killed in action, 28
UNDERHILL, T. Edgar, obituary notice of, 667

UNITED STATES OF AMERICA:
After-care of paralysis cases, report of New York Committee, 810
American College of Physicians founded, 154
American doctors for France, 591, 623, 691, 779—Orthopaedic unit, 779—Hospital units, 779
American Gynaecological Society: Relation of glands of internal secretions to gynaecology and obstetrics, 788
American Otological Society: *Transactions*, rev., 812
American Pediatric Society, next meeting, 619—*Transactions*, rev., 767
American Philosophical Society, 776
American Review of Tuberculosis, 223
Birth control, bill to legalize dissemination of knowledge of, 309
Board of Health for the sanitary supervision of students established at Yale University, 79, 133
Cancer Control, report of American Society for, 472
Carbon monoxide gas amongst garment workers, 422
Chicago University receives an endowment fund for three research scholarships, 567
Children, destitute, neglected, defective, etc., bills for protection and care of, introduced in Missouri State Legislature, 316
Defective teeth amongst New York school children, 123
Drug addiction, number of victims in New York State, 107
Feeble-minded, registration of, recommended by New York State Board of Charities, 500
Fees, medical, to be doubled in Boston, Mass., 256
Food poisoning, with special reference to canned goods, investigations at Harvard, 758
Health of the army, 248
Health of the navy, 271
Hospital for cancer and nervous diseases to be built in Philadelphia, 248
Hospital for deformities and joint diseases, New York, gift for new building, 35
Hygiene, instruction to be given in New York city schools, 40
Illinois University, gift to, for establishment of an infirmary for use of students and faculties, 429

UNITED STATES OF AMERICA (*continued*)
Lepers, provision for, 444
Malaria in, 434
Massachusetts State Board of Health, report, 730
Medical war organization in, 519
Mental Hygiene, 335
Michigan University unites with University of Detroit College of Medicine and Surgery, 500
Mothers' pensions, 692
Osler Testimonial Fund created in Maryland, 782
Oyster beds, 775
Physical training in public schools, bill drafted, 418
Poliomyelitis: 250,000 dollars to be expended on an intensive study of, 71—New York State Health Department and after-care of patients who have suffered from, 90—Sufferers from to come under neurologists and orthopaedists, says New York Neurological Society, 96
Potash from kelp, plant erected on coast of Southern California, 71
Practices of doctors on active service, protection of, 648
Psychopathic laboratory, 740
Red Cross Hospital for France, 439
Red Cross, mobilization statistics, 412
Rockefeller Foundations, appropriations made by, 531
School of hygiene and sanitation opened by Kansas City Board of Health, 316
Tuberculosis in the army, 740
Tuberculosis, study of, 166
Universal military training advocated by deans of medical schools, 191

Universal military training advocated by authorities of medical schools in United States of America, 191
Universities of Austria, number of students in, 107
Universities, British, their war record, 635
Universities, Scottish: Joint Board of Examiners and exemption from certain preliminary examinations of candidates from overseas colonies, protectorates, etc., 525—Resolution from medical faculties *re* inhuman treatment of British prisoners in German camps, 563
University of Aberdeen: Degrees and pass lists, 444
University of Belfast, Queen's: Degrees and pass lists, 410, 471
University of Birmingham: Appointments, 826—*Catalogue of the Collection of Skulls and Teeth in the Odontological Museum of the University of Birmingham* (J. Humphreys), 50—Latin not compulsory, 500—Resignation of Professor Robert Saundby, 410
University of Bombay: *Calendar* for 1916-17, 105
University of Bristol: Pass lists and degrees, 284
University of Cambridge: Degrees and pass lists, 140, 703, 787, 858—Vice-Chancellorship, Dr. Shipley appointed 787
University of Chicago receives an endowment fund for three research scholarships, 567
University of Dublin: Degrees and pass lists, 499—Parliamentary representation of, 24, 32, 207—Regius chair of physic in, 311
University of Durham: Degrees and pass lists, 499
University of Edinburgh: Annual report, 33—Business Committee's report 601—Degrees and pass lists, 33, 471, 894—Examiners appointed, 178—Spring graduation ceremony, 494—University Court, 178, 894
University of Geneva, chair of oto-rhino-laryngology founded, 223
University of Glasgow: Degrees and pass lists, 499, 894—Graduation ceremony, 499—Prizes awarded, 601—Proposed age limit for professors, etc., 821
University of Illinois, gift to for an infirmary for use of the students and faculties, 429
University of Lausanne, twenty-fifth anniversary of its foundation, 393
University of Leeds: Latin not compulsory, 500
University of Liverpool: Degrees and pass lists, 410, 471—Latin not compulsory, 500—Lectureship in ophthalmology, 854

UNIVERSITY OF LONDON:
Anatomy Department, 499
Annual report of Vice-Chancellor, 826
Appointments, 499
Examiners, 826
Lindley studentships, 471
Meeting of Senate, 245, 499, 826
Military age for university students, 245
Military Education Committee, 352
Personnel of Senate, 826
Rabbits, 499
Recognition of teachers, 245, 499
Recruits, 471
Resignations, 471
Semon Lecture, 245
University College, 140, 178, 352
War List, 313

University, McGill: Proposed six year course in medicine, 747
University of Malta: Conferment of honorary degrees on British doctors, 56
University of Manchester: Commemoration, 439—Degrees and pass lists, 444, 894—Latin not compulsory, 500
University of Melbourne: Information *re* professors, 312
University of Michigan unites with University of Detroit College of Medicine and Surgery, 500
University of Oxford: Radcliffe Travelling Fellow, 378—Theodore Williams scholarship, 787—*University Press Catalogue*, rev., 16
University of St. Andrews: Degrees and pass lists, 105
University of Sheffield: Latin not compulsory, 500
University of Toronto: Antitoxin laboratory, 62—Proposed six year course in medicine, 747
University, Yale: Board of Health for sanitary supervision of students established, 79, 133
Ureter obstructed by an abnormal renal vessel (R. P. Rowlands), 755. (O)
Ureteral obstruction, three cases (Captain G. S. Gordon), 758. (O)
Urethra, male, diseases of (Frank S. Kidd), 3, 41, 79, 114, 148, 185. (O)
Uterus bicornis (under the care of Mr Harman Brown, reported by J. H. Dove), 192
Uterus pregnant, bullet wound in, recovery (Clement Belcher), 896
Uterus and vagina, bifid, case of haematocolpos in (Captain R. Douglas Laurie), 764

V.

V.A.D. Hospitals. *See* Hospitals
Vaccination (parliamentary questions), new circular as to, 343
Vaccination, small-pox, by puncture (Captain H. W. Hill), 189. (O)
Vaccination in Spain, 618
Vaccine treatment successful in a case of actinomycosis (C. W. Dean), 82. (O)
Vaccine treatment of puerperal fever (Richard Kay), 221. (O)
Vaccines and tuberculins, 367
Vaginal plugging for haemorrhage (Hastings Tweedy), 618
VALLANCE, H.: Treatment of cancer by cuprase, 137
Value of the Front Bench, 306
VANSTEENBERGHE, P. (and others): *Les Fièvres paratyphoïdes B. à l'hôpital mixte de Zuydcoote*, rev., 83
VAUGHAN, Gertrude E. M.: *The Flight of Mariette: A Story of the Siege of Antwerp*, rev., 84
VAUGHAN, Lieut. Robert William Walter, killed in action, 781
VAUGHAN-WILLIAMS, Lieut.-Col. Herbert Wynne, D.S.O. conferred upon, 780
Veins and arteries in war surgery, simultaneous ligature of (Captain E. M. Cowell), 577. (O)
Veld sore, 761. *See also* Barcoo rot
Venereal disease in the army (parliamentary question), 306
Venereal Disease Bill, 342, 373, 402, 557, 591, 626, 658, 693, 741—New statistics of progress in free treatment, 557—Passed into law, 741
Venereal disease, campaign against in Havana, 456
Venereal disease, campaign against (Sir W. Osler), 694
Venereal disease, control of: Legislation for (leading article), 268—In Scotland (circular from L.G.B.), 782—In Edinburgh, 821
Venereal disease, efficacy of applications for the prevention of, 600
Venereal disease in France, committee to investigate, 179
Venereal disease in the Germany army, 143
Venereal disease, German criticism of the British campaign against (Blaschko), 624
Venereal disease, legislation urged to ensure doctor not to be liable to action for libel if he warns members of a family *re*, 179
Venereal disease in Manchester, laboratory arrangements for diagnosis of, 562
Venereal Disease, National Council for Combating: Meeting in Belfast, 134, 173—Formation of London and Home Counties Branch, 310—Annual meeting, 854
Venereal disease, notification of in Western Australia, 63
Venereal disease, persistency of (Vaughan Pendred), 191
Venereal disease, prevention of: Note on, 165, 172—Women's manifesto, 172—(C. J. Macalister), 196
Venereal disease, prophylaxis of, 135, 174, 202, 209, 243, 278, 284, 312, 349, 378, 380, 408, 441, 496
Venereal disease, protest from non-subscribing Presbyterian Church of Ireland, 563
Venereal disease, quack treatment of, deputation to Local Government Board, 133

Venereal disease, resolution of Medical Women's Societies *re* appointment of medical women, 248
Venereal disease, review of books on, 226, 620
Venereal disease, treatment of: In Aberdeen, 172; at Bootle, 598; in Brighton, 746; in the City of London, 172; in Liverpool, 172; in London, 406 — Manchester scheme, 493 — Scheme for in Sussex, 746
Venereal schemes, the working of, statement to Parliament by L.G.B., 432
VEY, Captain David Christopher, Military Cross conferred upon, 346
Victoria: Annual rate of growth of the brain, 312—British Medical Association (Victorian Branch), 312—Tuberculosis report, 312—University of Melbourne, 312
Vienna: Appliances at the Military Orthopaedic Hospital (Oskar Stracker), 275
VILVANDRÉ, G. (and J. D. MORGAN): *X*-ray diagnosis of gas in the tissues, 8. (O)
VINCENT, H. (and L. MURATET): *Les dysenteries: Le Cholera Asiatique, le typhus exanthématique*, rev., 620
Vincent's angina. *See* Angina
VINCI. *See* Leonardo
Visceroptosis and neurasthenia, 636
Vital statistics of England and Wales, 1916, 140; for 1915, 519, 550—Registrar-General's annual report, 550—Of Scotland, 407
VITALI, Dioscoride, obituary notice of, 751
Vitamogen, 844
Voice from Spain in praise of England, 590
Voluntary Aid Detachment Challenge Cup, Irish, 241
Volunteer field ambulance (parliamentary question), 693
Vondran hot-air disinfector, 171
VULPIUS: Changing of dressings, 132
Vulvo-vaginitis in children, 767

W.

WADE, Captain Henry, Serbian Order of the White Eagle conferred upon, 276
WADIA, Captain Maneck D.: Death after salvarsan, 13. (O)
WALDO, Henry: Sudden death from apoplexy, 155
Wales: Military orthopaedics in, 242—National library, 745—Public health laboratory for North Wales, proposed, 562
WALFORD, Walter G.: Appendicitis and enamelled ware, 36—*Dangers in Neck-wear*, rev., 844
WALKER, Lieut.-Col. Arthur Nimmo, estate of, 155
WALKER, E. W. Ainley: Life-history of the lower bacteria, 784
WALKER, Captain Frank Muir, Military Cross conferred upon, 853
WALKER, Surgeon Gordon Patrick, killed in action, 375
WALKER, Captain Herbert, Military Cross conferred upon, 562
WALL, Captain F. L., Military Cross conferred upon, 780
WALLACE, Colonel Cuthbert (and Surgeon-General Sir Anthony BOWLBY): Development of British surgery at the front, 705. (O)—Colour changes seen in skin and muscle in gas gangrene, 725. (O)
WALLACE, Captain Robert Bruce, D.S.O. conferred upon, 780
WALSH, Major Roy William W., D.S.O. conferred upon, 780
WALTERS, John, obituary notice of, 895
WAMSLEY, Captain W. B, Military Cross conferred upon, 780
Wandering bullets, 278
Wandering shrapnel ball (Captain H. L. Gregory), 482. (O)
War bonus for medical officers (Ireland), 207
War and chemistry, 303
War and the drug supply, 339, 412

WAR EMERGENCY:
- Army and the civil profession, 488
- Caithness and Sutherland Local Medical War Committee and, 821
- Calling up notice, 551, 556, 599, 687 (parliamentary questions), 556—Leading article, 687
- Central Medical War Committee, 167, 269, 440, 488, 551—And medical examination of medical men under 41, 167—And recruits for the Royal Army Medical Corps (Ireland), 440
- Fund, 824. *See also* Fund, Royal Medical Benevolent
- Irish medical profession and the war, 891
- Medical examination of medical men under 41, 167
- Recruits for the Royal Army Medical Corps (Ireland), 440
- Resolution of Joint Meeting of Central Medical War Committee and Committee of Reference, 551

War and insanity, 277, 301, 310—Leading article, 301
War loan, the new (leading article), 92
War loan, and panel doctors, 245—And the British Medical Association, 248—And life assurance, 339—And income tax, 444
War neuroses. *See* Neuroses
War Office and medical certificates, 176, 209—Suggested uniform size of pamphlets issued by, 212—And the Ministry of Pensions, 439
War Office Committee on Tetanus: Influence of the dressing on the anaërobic flora of wounds, 371—Tetanus relapse after a trivial operation, 371
War pensions. *See* Pensions
War refugees' dispensary, report, 500
War specimens, collection and exhibition of, 54, 97
War surgery in the Carpathians (B. F. Morowitz), 594

War:
- Abdominal wounds (Hans Burckhardt and F. Landois), 343
- "A day's work" (Captain Andrew Macphail), 887
- Amara Clinical Society, 659
- Ambulance light railway trolleys, 522
- American base hospital units, organization of, 742, 779
- American orthopaedic unit, 779
- American Red Cross hospital for France, 439
- Amputations and amputation stumps (Fritz König) 492
- Apparatus for re-education, 697. *See also* Soldiers, crippled
- Appliances at the Military Orthopaedic Hospital, Vienna, 275
- Arm stumps and artificial hands, 275
- Army Medical Service at the Ancre, 854
- Army Medical Service, new address of head quarters, 309
- Arras advance, medical work in, 558
- Arterial wounds, treatment of (Enderlen), 403—(Gebele), 403
- Artificial hyperaemia in gas gangrene (A. Thies), 594
- Artificial limbs and surgical appliances for invalided soldiers, 206
- Canadian Army Medical Corps, 309
- Canadian medical laboratory work in England, 851
- Casualties in the medical services of the navy and army, 28, 58, 98, 132, 170, 205 239, 276, 308, 345 375, 405, 437, 466 493, 523, 559, 596, 628, 661, 696, 743, 781, 820, 853, 889
- Commended for services, 493. *See also* Honours
- Conference on the training of disabled men, 132
- Cranial defects, closure of (R. Pflugradt), 307
- Curative workshops in Germany, 597
- Disinfection by a current of dry hot air, 171
- Dispatches. *See General Index*
- Dressings, changing of, 132
- Educational facilities for British prisoners of war, 405
- Educative convalescence for wounded soldiers, 854
- Elastic pressure in delayed healing (Liek), 660
- Folkestone air raid, 745
- Fractures, treatment of (Thöle), 436
- French Army Medical Museum, 819
- French Army Medical Service, recruitment, organization, and work, 627
- French honours for medical women, 890
- French troops at Salonica, health of, 403
- Gallipoli, operations in, 405
- Gas gangrene (L. Zindel), 466
- German army medical service, changes in, 437
- German army and navy, health of, 660
- German field hospitals notes from, 168
- German views on war-worn soldiers, 97
- Gun deafness, prevention of (A Eysell), 404
- Honours, 29, 60, 99, 132, 171, 206, 240, 276, 309, 346, 376, 405, 439, 467, 493, 561, 595, 662, 697, 744, 780, 852
- Hospital for disabled officers (Sir John Ellerman), 745
- Hospital ships for the Tigris, 819
- Hospital ships, torpedoing of by Germany: Declaration by the British Admiralty, 558—Protest by the International Red Cross Committee, 559
- Italian Medical Service, 132
- Italian Minister for War decides to remove orderlies, etc., from hospitals and send them to the war zone, 493
- Jaundice, epidemic, of camps (Frugoni, Gardenghi, and Ancona), 404
- Lead poisoning from bullets, 132
- Leucocyte count as a guide to treatment of wounds (P. Lindemann) 465
- Medical meeting at Kut-el-Amara, 26
- Medical officers' gifts to the Red Cross, 890
- Medical prisoners, recognition of work of, 132
- Medical services in Mesopotamia, 595
- Medical work in the Arras area, 662
- Mesopotamia, Amara Clinical Society, 659
- Middlesex Military General Hospital, 854
- Military orthopaedics in Italy, 99
- Motor dental surgery for army service, 524
- Neurasthenic war pensioners, 662
- Paralysis and stiff joints, treatment of, 204
- Paratyphoid fevers in Germany, 169

War (*continued*)
- Pensions for loss of limbs, 309
- Pneumothorax, open (Landois and Hanusa), 374
- Prisoners of war, 170, 205, 405
- Prisoners. *See General Index*
- Queen Alexandra's Hospital for Officers, opening of annexe, 820
- Red Cross auxiliary hospitals, increase in number of beds in, 563
- Red Cross decoration for nurses, 309
- Red Cross Hospital for France, American, 439
- Re-examination of excepted men, 524
- Sanitary conference (in Paris), 309
- Salonica, health of the French troops at, 403
- Skull wounds, infected (H. Burckhardt), 492
- Soldiers, crippled and disabled. *See General Index*
- Somme, five months' battle of (Sir Douglas Haigh's dispatch), 26
- Surgery in a German base hospital (Hermann Fischer), 522
- Surgery at the siege of Kut, 237
- Tetanus in home military hospitals, 888
- Transport of gunshot fractures of the thigh, German splints and methods, 777
- Treatment of traumatic aneurysm (K. Riedel), 594
- Twenty months' surgical field service with the German army, 237
- War collection of pathological specimens at the Royal College of Surgeons of England, 887
- War Office and the Ministry of Pensions, 439
- War specimens, exhibition of, at the Royal College of Surgeons, 97
- War surgery in the Carpathians (Morowitz), 594
- Winter catarrhs and bronchitis, 58
- Wounded Allies Relief Committee, change of address, 745
- Wounds, excision of (Fritz Kroh), 307
- Wounds of the thorax, 205

WARD, John: Diagnostic value of the colloidal gold reaction, 139
WARD, Captain Otho Charles, killed in action, 170
WARDROP, Colonel Douglas, C.B. conferred upon, 780
WARING, Lieut.-Col. Anthony Henry, D.S.O. conferred upon, 780
Warm beds in open air, 433, 528
WARNER, Lieut. Bernard Oldershaw, killed in action, 782
WARNOCK, John, C.M.G. conferred upon, 236
WARTHIN, Professor, to lecture on pathology of camp, trench, and hospital infections, 828
Waste of medical time at assizes, 352
Water, chlorinated, and trench nephritis, 858
Water, drinking, disinfection of; with a description of a new substance for the preparation of stable tablets for the sterilization of polluted water (H. D. Dakin and Major E. K. Dunham), 682. (O)
Water purification in the field (leading article), 688
WATERFIELD, N. E.: Paracholera due to a vibrio, 236
WATERHOUSE, Herbert F., knighthood conferred upon, 770
WATKINS-PITCHFORD, W.: Miner's phthisis in South Africa, 131
WATSON, A. (and others): Tetany and the functions of the parathyroids 575. (O)
WATSON, Captain Allan, D.S.O. conferred upon, 405, 595
WATSON, Lieut.-Col. Andrew Alexander, D.S.O. conferred upon, 30
WATSON, Chalmers: Food requirements of children, 408
WATSON, Major Charles Henry, D.S.O. conferred upon, 780
WATSON, J. A. S.: *Evolution*, rev., 160
WATSON, Captain Thomas Arnold, Military Cross conferred upon, 853
WATSON, William, and Stephen Coleridge, 32
MATTHEWS, Lieut. Harold, killed in action, 854
WATTS, Lieut.-Col. Brian, D.S.O. conferred upon, 30
WAY, Captain Cyril James Berkeley, Military Cross conferred upon, 346
Way to help absent doctors. *See* Doctors
WEAVER, Captain John James, accidentally killed, 560
WEBB, Lieut. Arthur Pelham, killed in action, 561
WEBB, Captain C. H. S.: Value of brilliant green as an antiseptic, 870. (O)
WEBER, F. Parkes: Congenital tuberculosis, 817
WEBSTER, John: Opium poisoning, 648
WEBSTER, Lieut.-Col. William, D.S.O. conferred upon, 30

Week:
- Adulteration of food in Germany, 623
- Ambulance dogs, 96
- American doctors for the Allies, 591, 623, 691
- American Philosophical Society, 776
- Ankle-jerk, 556
- Anthrax and shaving brushes, 882
- Appeal to men up to fifty, 658
- Army and the civil profession, 488

Week (*continued*)
Army medical report, 1913, 882
Bacteriology of bacillary dysentery, 400
Barley flour, 339
Birthday honours, 773
British Journal of Ophthalmology, 25
British Medical Association Library receives a rare book, *Asylum Journal of Mental Science*, 658
British Spas, the future of, 201
British *x*-ray industry, future of, 521
Calcutta School of Tropical Medicine, progress of, 489
Canadian Army Medical Service, 23
Casanova, 57
Causal agent in typhus fever, 167
Cavendish lecture, 818
Central Control Liquor Board, Advisory Committee appointed, 658
Central Medical War Committee, 269
Cerebro-spinal fever, 555
Certifying surgeons and compensation for loss of income, 462
Chemistry and the war, 303
Child mortality, 490
Civil mobilization in France, 233
"Clean" milk, 590
Collins, Sir William J., elected M.P. for Derby, 25
Conference summoned by the Director-General of National Service, 370
Contrasted illuminations of the eye, effect of, 271
Curative agricultural work, 692
Dark-ground illumination, pitfalls in, 203
Delineation of internal organs, 401
Demineralization of muscle in phthisis, 462
Dengue, transmission of, 339
Dentists, conscription of, 370
Disabled soldiers. *See* Soldiers
Doctor as whipping-boy, 166
Drug supply and the war, 339
Dublin University parliamentary representation, 24
Ear in modern warfare, 589
Education authorities and public health reorganization, 850
Eyes and no eyes, 817
Fat necrosis, 96
Fighting doctors, 657
Food and drink in billets, 656
Food economy, 491
Food orders, the new, 94
Food for prisoners, 272
Food problem in Germany, 589
Foreshadow of the Red Cross, 434
Fragilitas ossium, blue sclerotics and otosclerosis, 739
French Army Medical Service, 657, 774
Future of British spas, 201
Future of the profession, 131
Gallant act rewarded (Mrs. Tubby), 305
Gas, 591
German criticism of the British campaign against venereal disease, 624
German ideas of humanity, 774
Germicidal action of ultra-violet radiation, 656
"Ghosts," 776
Hatching of the yellow fever mosquito, 167
Health of the United States navy, 271
Herb-growing in the British empire, 624
Hereditary deformity of the fingers, 271
Hereditary retinal glioma, 850
Home reserve, 462
Honorary degrees at Malta, 56
Honours, 129
House-flies and amoebic dysentery, 848
Housing and health reorganization, 816
Indexes, half-yearly, for 1916, 25; for 1917, 883
Indian ophthalmic practice, some eccentricities of, 234
Infection of the bile in typhoid fever, 95
Infectious disease in 1916, 849
Influence of the dressing on the anaërobic flora of wounds, 371
Intestinal diseases from the Mediterranean, studies of, 882
Intracranial aneurysm, 739
Intravenous injections of antimony in malaria, 24
Irish Medical Schools' and Graduates' Association, 400
Jaundice, toxic, 625
Jones, Colonel Robert, elected a foreign member of the Svenska Läkaresällskapet, 521
Journals, smaller, 371
Keogh, Sir Alfred, G.C.B., 129
Kew Bulletin, 741, 883
Larrey and infectious jaundice, 201
Leeds General Infirmary, 233
Library facilities for American medical men, 692, 776
Lice, transport of, through the air, 202
Life assurance in war time, 555
Malaria in France, 848
Malaria in the United States, 434
Male fern, administration of, 624
"Manipulative surgery" and man power, 303
Measles epidemics, periodicity of, 202
Medical Department of the Local Government Board (England and Wales), 55
Medical examination of medical men under 41, 167

Week (*continued*)
Medical inspection and treatment from 14 to 18, 461
Medical Insurance Agency, 655
Medical men in public life, 738
Medical museums, 690
Medical service of the army, 399
Medical terms in the New English Dictionary, 235
Medical war organization in America, 519
Medicine in the army, 270
Medicine and geology, 340
Mental After-Care Association, 340
Military hospitals in the future, 692, 775
Military medical services in 1916, 129
Military orthopaedics, 690
Military pensions, 370
Milk, 270
Ministry of Health, 461, 489, 850
Mobilization of the profession, 131, 200, 233
Mothers' pensions, 692
Motor cars, supply and repair of, 57
National service and the mobilization of the profession, 200, 233, 399
Naval medical service, 554
New year's honours, 235
Nonagenarians, 25
Occupational re-education of the wounded, 656
Orange, William, death of, 25
Orthopaedic surgery, reprint of Colonel Robert Jones's articles on, 491
Oxford Ophthalmological Congress, 83
Oyster beds, some American, 775
Paralysed soldiers and sailors, 24
Paris Faculty of Medicine, 490
Payment of medical officers in V.A.D. hospitals, 849
Pensions, military, 370
Periodicals published by military hospitals, collections of, 463
Petrol licences, renewal of, 25
Physician-poet, a new, 740
Pigs in town, 57
Placenta as a galactagogue, 203
Practices in war time, 775
Pregnancy and munition work, 271
Price of skill, 130
Professional organization, 519
Prosthesis, history of, 96
Psychology of the mystic, 235
Psychopathic laboratory, 740
Rat sarcoma, susceptibility and immunity to, 462
Rattray, J. M., assault on, 591
"Recalled to life," 625, 849
Red Cross, a foreshadow of, 434
Retention of the wheat germ in flour, 591
Rhubarb and red tape, 741
Rockefeller and medical research, 130
Rogers, Sir Leonard, Fothergillian medal awarded to, 521
Royal Medical Benevolent Fund, 400
Royal Society, Council's candidates for election, 305
Russian prisoners in Germany, 816
Science in peace and war, 520
Science in the school, 203
Shell shock, gas poisoning, and war neuroses, 656
Smaller Journals, 371
Soldiers and sailors, disabled, treatment and training of, 94, 129, 881
Soldiers and sailors, paralysed, 24
Specialization in military medicine, 741
"Stickit ministers" of medicine, 304
Stigmatization and suggestion, 691
Surgery on the lines of communication, 816
Swedish military police in Persia, 270
Synthetic sunshine, 883
Syphilis, prophylaxis of, 54
Taxes on unoccupied furnished houses, 401
Taylor, Surgeon-General Sir William, 491
Territorial and Special Reserve Officers, 657
Tetanus after "trench foot," 234
Tetanus lighted up by operation, 883
Tetanus relapse after a trivial operation, 371
Tsutsugamushi disease, 433
Tuberculosis in America, study of, 166
Tuberculosis, congenital, 817
Tuberculosis, huts in hospital gardens in France for men suffering from, 305
Tuberculosis and longevity, 521
Tuberculosis in the United States army, 740
Tuberculous infection, delayed, 304
Tuberculous persons, compulsory segregation of, 433
Type-reading for the blind, 234
Ultra-violet radiation, treatment by, 56
Venereal diseases, prevention of, 165
Venereal diseases, prophylaxis of, 202
Venereal schemes, the working of, 432
Vital statistics for 1915, 519
Voice from Spain in praise of England, 590
War and the drug supply, 339
War loan and life assurance, 339
War neuroses, treatment of, 775
War specimens, collection and exhibition of, 54
Warm beds in open air, 433
Welfare work in factories, 816
Women doctors in the Viking age, 95
Women's franchise, an early view on, 520
X-ray industry, future of the British, 521
X-ray intensifying screens, 491
Weight of tuberculous persons. *See* Tuberculous
WELCH, Surgeon-General George, C.B. conferred upon, 780
WELCH, Major Herbert Locksley St.V., D.S.O. conferred upon, 780
WELCH, Lieut.-Col. John Basil St. Vincent, D.S.O. conferred upon, 30
WELLS, Captain Alan Geoffry, D.S.O. conferred upon, 780
WELSH, Captain Tom, Military Cross conferred upon, 99; killed in action, 560
Welsh. *See* Wales
WENYON, Lieut.-Col. C. M.: House-flies and amoebic dysentery, 848
WERNER, Professor, appointed director of the Institut für experimentelle Krebsforschung at Heidelberg, 264
WEST, Captain Neville, killed in action, 345
WEST, Major Richard Melbourne, D.S.O. conferred upon, 780
WEST, Samuel: War Emergency Fund, 824
WESTON, Major Walter John, D.S.O. conferred upon, 780
WESTWATER, A. M.: Case of recurrent tetanus, 395
WESTWATER, Surgeon-Probationer John Swift (H.M.S. *Swift*), Distinguished Service Cross conferred upon, 662
WETHERELL, James Albert, obituary notice of, 827
WHAIT, Lieut.-Col. John Robert, Serbian Order of the White Eagle conferred upon, 276
WHAITE, Colonel Thomas Du Bedat, C.M.G. conferred upon, 29
Wheat germ in flour, retention of (Sir Francis Fox), 591
WHEELER, Claude Lamont, obituary notice of, 411
WHELAN, Captain L. T., Military Cross conferred upon, 780
WHETHAM, W. C. Dampier: *The War and the Nation: A Study in Constructive Politics*, rev., 812
Whitaker's Almanack for 1917, rev., 228
WHITBY, C. J., publishes a play entitled "The Elder Brothers," 143
WHITE, Major C. F. (and others): Intramuscular or subcutaneous injection of neosalvarsan, 569. (O)
WHITE, H. P. Winsbury: Abdominal symptoms produced by medicinal doses of opium, 72
WHITE, Captain J. Renfrew: Operative treatment of injury of the peripheral nerves, 388. (O)
WHITE, Major M. F., Croix de Guerre conferred upon, 697
WHITE, Lieut.-Col. Sinclair: Appreciation of Duncan Burgess, 141
White City case, 316, 410
WHITEFORD, C. Hamilton: Case of enterospasm in which the portion of intestine involved was of unusual extent, 392. (O)
WHITEHEAD, Surgeon-General Hayward Reader, K.C.B. conferred upon, 29
WHITEHEAD, Lieut.-Col. John Herbert, D.S.O. conferred upon, 206
WHITEHORNE-COLE, Captain A. G., Croix de Guerre conferred upon, 596
WHITING, A. D., *Bandaging*, rev., 582
WHITLA, Sir William, appointed Honorary Physician to the King in Ireland, 100, 134
WHITTINGHAM, Captain Clive Alan, killed in action, 889
WHITTY, Lieut.-Col. Michael J., dies on service, 466
WHITWELL, James R.: Prophylaxis of venereal diseases, 496
Whooping cough, garlic in, 72, 284
WIBBERLEY, Captain Brian William, Military Cross conferred upon, 30
WICKERSHEIMER, Ernest: Paris Faculty of Medicine, 490
WICKREMASINGHE, M. de Z.: *Sinhalese Self-taught*, rev., 620
WICKWAR, J. W.: *Dreams: What they Are and What they Mean*, rev., 300
WIDENMANN: Wounds of thorax, 205
WILEY, Major William, dies on service, 240
WILKINSON, Lieut.-Col. Francis Tichborne, obituary notice of, 247
WILKINSON, W. Camac: Incomplete cure of the consumptive, 138
WILL, Lieut. John George, killed in action, 630
WILLAN, Captain George Thomas, D.S.O. conferred upon, 30
WILLCOCKS, Captain George Charles, Military Cross conferred upon, 744
WILLCOX, Colonel William Henry, C.B. conferred upon, 780
WILLIAMS, Captain David Llewelyn, Military Cross conferred upon, 30
WILLIAMS, Lieut.-Col. Edward Johnston, D.S.O. conferred upon, 780
WILLIAMS, Sister F. E. (and Lieut.-Col. C. J. MARTIN): Etiology of dysentery, 479. (O)
WILLIAMS, H. W., obituary notice of, 703
WILLIAMS, J. Price: Prophylaxis of venereal diseases 280
WILLIAMS, Colonel M. L., dies of wounds, 405, 438
WILLIAMS, Percy G. S., receives permission to wear the Order of the Nile, 36
WILLIAMS, Captain Roger Llewellyn, Military Cross conferred upon, 241

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

WILLIAMSON, Deputy Surgeon-General Benjamin, obituary notice of, 379
WILLIAMSON, Captain Maurice Joseph, Military Cross conferred upon, 30
WILLIAMSON, R. T.: Simple dietetic treatment in diabetes mellitus, 154. (O)
WILSON, Captain Charles McMoran, Italian Silver Medal for Military Valour conferred upon, 781
WILSON, Captain Ivan Stuart, Military Cross conferred upon, 30
WILSON, J. A.: Effects of cinematographs, 313
WILSON, Captain J. Gordon: Effects of high explosives on the ear, 353, 578. (O)
WILSON, Captain J. St George, Military Cross conferred upon, 780
WILSON, Lieut. John Thomson, killed in action, 240
WILSON, Miss M., French Medal of Honour for Epidemics conferred upon, 890
WILSON, Captain Robert Henry, dies on service, 743
WILSON, William Hawkins, receives permission to wear the Order of the Nile, 36
WILSON, W. James: Typhus fever and the so-called Weil-Felix reaction, 825
WINDER, Major Maurice Guy, D.S.O. conferred upon, 30
WINGATE, Major Basil Fenton, D S.O. conferred upon, 30
WINKFIELD, Alfred, obituary notice of, 859
WISHART, W. (and others): Tetany and the functions of the parathyroids, 575. (O)
WITHERS, Lieut.-Col. Samuel Henry, C.M.G. conferred upon, 29
WITHINGTON, Charles Francis, obituary notice of, 315
Women doctors under 45 mobilized in Russia, 703
Women doctors in the Viking age, 95
Women's franchise, an early view on, 520
WOOD, H. C.: *Pharmacology and Therapeutics*, rev., 365
WOOD, Captain John Hutchinson, Military Cross conferred upon, 30
WOOD, Lieut. Paul Bernard, killed in action, 629
WOOD, Lieut.-Col. Russell Elliot, obituary notice of, 246
WOOD, Captain William Ferguson, D.S.O. conferred upon, 852
WOODCOCK, Louisa, obituary notice of, 283
Woodcocks, migration of breeding (Captain S. R. Douglas), 380
WOODFORDE, Private Hector Sidney Ridout, killed in action, 854
WOODHOUSE, Surgeon-General Tom Percy, K.C.M.G. conferred upon, 780
WOODLEY, Major Richard Nason, D.S O. conferred upon, 30
WOODS, Lieut. Frank C., killed in action, 524
WOOLLARD, Major H. H., Croix de Guerre conferred upon, 596
WOOLLEY, S. W., appointed editor of the *Chemist and Druggist*, 751
Woolwich Arsenal, medical department (parliamentary question), 402
WORSTER-DROUGHT, Captain C. C. (and Captain Alex. Mills KENNEDY): Relation of the type of coccus to the type of disease in meningococcal meningitis, 261. (O)
Wound, bullet, in pregnant uterus: recovery (Clement Belcher), 896
Wound, gunshot, of head, early complications resulting from retained bone fragments in a case of (Captain W. E. Tyndall), 423. (O)
Wound treatment on the lines of communication in France, 790
Wounded Allies Relief Committee, change of address, 745
Wounded as we see them at home (W. C. Allardyce), 501. (O)
Wounds of abdomen (Major Barber), 27—(Hans Burckhardt and F. Landois), 343
Wounds of abdomen, perforating (Captain J. Fraser and Captain Hamilton Drummond), 321. (O)
Wounds, anaërobes in. *See* Anaërobes
Wounds of arteries, treatment of (Enderlen and Gebele), 403
Wounds, auto-disinfection of by the use of ether solution (A. Distaso and Captain T. R. Bowen), 259. (O)
Wounds of chest, penetrating, at the casualty clearing stations (Colonel Sir Wilmot Herringham), 721. (O)
Wounds, excision of (Fritz Kroh), 307
Wounds, gunshot, of abdomen, treatment of (Captain A. L. Lockwood, Captain C. M. Kennedy, Captain R. Bute Macfie, and Lieut. S. F. A. Charles), 317. (O)—Correspondence on, 377
Wounds, gunshot, bismuth and iodoform paste in (Louisa Garrett Anderson), 264
Wounds, gunshot, use of salt and soda baths and weak solutions of silver nitrate in treatment of contaminated (M. A. Zasuilow), 107
Wounds, healing of, influence of antiseptics on the activities of leucocytes and (C. J. Bond), 145 (O)—Leading article on, 164
Wounds, infected, acriflavine as dressing for (Colonel C. J. Bond), 872. (O)
Wounds, infected, Carrel-Dakin method of treatment, 264
Wounds, infected, flavine and brilliant green as powerful antiseptics in treatment of (C. H. Browning, R. Gulbransen, E. L. Kennaway, and L. H. D. Thornton), 73. (O)—(D. Ligat), 78. (O)—Leading article on, 91
Wounds, influence of the dressing on the anaërobic flora of, 371
Wounds, leucocyte count as a guide to treatment of (P. Lindemann), 465
Wounds of the limbs, apparatus for hot-bath treatment of, while the patient is in bed (Captain Basil Sampson), 295
Wounds, open suppurating, electrolysis in (D. N. Cooper), 874
Wounds, open treatment of (O. Braun), 169
Wounds, septic, hypochlorous solution electrically produced from hypertonic saline as a disinfectant in (J. M. Beattie, F. C. Lewis, and G. W. Gee), 256. (O)
Wounds of skull, infected (H. Burckhardt), 492
Wounds of thorax (Widenmann), 205
WRAFTER, Assistant-Surgeon George Tresham, Cross of Karageorge (Serbian) conferred upon, 276
WRAITH, Lieut.-Col. Edwin Arnold, D S.O. conferred upon, 780
WREFORD, Captain William Heyman, killed in action, 630
WRIGHT, Sir Almroth: Pathology of gas gangrene, 53—Belgian Ordre de la Couronne conferred upon, 562
WRIGHT, Hamilton, obituary notice of, 470
WRIGHT, Lieut.-Col. Robert Percy, D S.O. conferred upon, 30
WRIGHT, R. S: Future of the British *x*-ray industry, 521
WRIGHT, Colonel Robert Wallace, C.M G. conferred upon, 29
WRIGHT, Major Thomas James, D.S.O. conferred upon, 780
WRIGHT, Captain William Gordon, D.S.O. conferred upon, 30
WRIGHT, Lieut. William Richard, killed in action, 744
Wrist-drop, splint for, 123
WYER, Otho Francis, obituary notice of, 106
WYLLIE, Captain Hugh Alexander, Military Cross conferred upon, 853

X.

X-ray appearances in gas gangrene (Agnes Savill), 15
X-ray burn, treatment of, 636
X-ray and electro-medical apparatus, 521—British, 704
X-ray diagnosis of gas in the tissues (J. D. Morgan and G. Vilvandré), 8. (O)—Harold Black), 9. (O)—Correspondence on, 65
X-ray industry, British, the future of (R. S. Wright), 521—Note on, 704, 895
X-ray intensifying screens (T. Thorne Baker), 491
X-rays, means of protecting radiographers from the injurious effects of, 586

Y.

Year Book of the Scientific and Learned Societies of Great Britain and Ireland, rev., 336
Y.M.C.A. report, 380
YORKE, Captain Harold Ernest Pierpoint, Military Cross conferred upon, 99
YOUNG, A. J.: Supernumerary nipples, 212
YOUNG, Captain Charles Owen James, Military Cross conferred upon, 853
YOUNG, Captain John Miller, Military Cross conferred upon, 30
YOUNG, Morris Y., C.M.G. conferred upon, 29
YOUNG, Captain William Allan, D.S.O. conferred upon, 30
YUZBASHI, Wadia Effendi, Military Cross conferred upon, 780

Z.

ZAKHARIA, El Yuzbashi Musa Khouri, Military Cross conferred upon, 30
ZASUILOW, M. A.: Salt and soda baths and weak solutions of silver nitrate in contaminated gunshot wounds, 107
ZINDEL, L.: Gas gangrene, 466
ZINSSER, Hans: *A Laboratory Course in Serum Study: Bacteriology* 208, rev., 299

LIST OF ILLUSTRATIONS.

PAGE

SPECIAL PLATES.

Colour Changes seen in Skin and Muscle in Gas Gangrene (Colonel Cuthbert Wallace). Three plates. Between 726 and 727
Detection of Gas in the Tissues by *X* Rays (Harold Black). Facing 9
Life-History of Bacteria (Edward C. Hort). Plates between 574 and 575
Method of Spread of Gas Gangrene into Living Muscle (Captain J. W. McNee and Captain J. Shaw Dunn) ... Facing 727
Perforating Wounds of Abdomen (Captain J. Fraser and Captain Hamilton Drummond) ... ... Facing 324–325
X-ray Diagnosis of Gas in the Tissues (J. D. Morgan and G. Vilvandré) ... ... Facing 8 and 9

Abdominal Injuries in a Casualty Clearing Station (Major A. Don) 331
Ambulance Light Railway Trolleys 522
Amputation Retractor 515
Anaërobes, Simple Device for Growth of on Plates (Herbert Henry) 763
Anaesthetics, Administration of at the Front (Captain Geoffrey Marshall) 722
Antiseptics, Influence of on the Activities of Leucocytes and on the Healing of Wounds (C. J. Bond) 146
Artificial Legs 875
Automatic Nurse for Carrel-Dakin Fluid 769
Blood Transfusion, Simple Method of (James Buchanan) ... 512
British Surgery at the Front, Development of (Sir Anthony Bowlby and Colonel Cuthbert Wallace) 705
British Surgery in the Hospitals on the Lines of Communication, Development of (Sir George H. Makins) 789
BURGESS, Duncan 141
Burns Treated by Paraffin (Lieut.-Col A. J. Hull) 37
Drainage Staff, Grooved Rubber 120
Entamoebae of Man, Three Common Intestinal (Clifford Dobell and Margaret W. Jepps) 609
Eusol Injections in Treatment of General Sepsis (J. S. Fraser, Andrew Campbell, and E. D. D. Dickson)... 358
Fracture, Compound, of Long Bones of Extremities, Early Treatment of (Captain Basil Hughes)... 291
Fractures of Femur and Leg, Apparatus for Treatment of (V. Soubbotitch)... 646
Fractures About the Hip, Combined Suspension and Extension Apparatus for (G. M. Hodges) 423
Fractures Treated by Splints (Charles A. Morton) 476
Fractures of Thigh, Appliance for Ambulatory Treatment of (Captain C. Max Page)... 292
German Splints and Method of Transport for Gunshot Fractures of Thigh 777
Greenwich Royal Naval College Medical School: Plan of Queen Anne Building 534
Haematocolpos in Bifid Uterus and Vagina (Captain R. Douglas Laurie) 764

PAGE

Haemothorax, Infection of by Anaërobic Gas-producing Bacilli (Lieut.-Col. T. R. Elliott and Captain Herbert Henry) (Charts) 448
Hospital, New, at Mazagan 386
Hospital Ship for the Tigris 819
Hospital Ships (Fleet Surgeon E. C. Lomas) 542
Hot-bath Treatment in Wounds of Limbs while the Patient is in Bed, Apparatus for (Captain Basil Simpson) 296
Hypochlorous Solution Electrically Produced (J. M. Beattie, F. C. Lewis, and G. W. Gee) 259
Infantile Paralysis, Early Treatment of (W. Colin Mackenzie) ... 249
Infected Wounds: Carrel-Dakin Method of Treatment 265
Life-History of Bacteria (Edward C. Hort) 574
JESSOP, Walter Hamilton Hylton 282
KINSEY, Robert Henry 314
Land Medical Transport Arrangements of the Navy (Surgeon-General Sir James Porter) 545
LITTLE, James 34
Military Orthopaedic Hospitals (W. Colin Mackenzie) 671
MILNE, Captain Joseph Ellis 345
MOORHEAD, John 69
Mouth-washes in Health and Disease (Helen Pixell Goodrich) ... 473
ORANGE, William 67
Oxygen, Therapeutic Administration of (J. S. Haldane) ... 183
Page-turner for Armless Soldiers 769
Perforating Wounds of Abdomen (Captain J. Fraser and Captain Hamilton Drummond)... 321
Pregnancy Complicated by Myoma Uteri (John Benjamin Hellier) 614
Puerperal Fever Treated by Vaccine (Richard Kay) 221
Punctiform Haemorrhages of Brain in Gas Poisoning (Major F. W. Mott) 638
ROWLAND, Major Sydney Donville... 375
Service Afloat (Deputy Surgeon-General Robert Hill and Fleet Surgeon E. A. Penfold)... 539
Sight-testing Obturator 194
Splint for Drop-wrist 123
Spray for Use in Paraffin Treatment of Burns 549
Status Lymphaticus from the Clinical Standpoint (H. C. Cameron) 753
Stretchers as used in the Navy 539
Stretcher, Neil Robertson 539
Table for Armless Soldiers 583
Test-tube Containers and Racks 266
Tetanus among Wounded Soldiers (Sir David Bruce) 119
Trench Feet Treated by Subcutaneous Injection of Oxygen (Captain H. Oswald Smith) 511
"Trench Foot" Contracted in England (R. D. MacGregor) ... 221
Ureteral Obstruction (R. P. Rowlands) 755
Ureteral Obstruction (Captain G. S. Gordon 758
Urethra, Diseases of the Male (Frank S. Kidd) 3, 80
Uterus Bicornis (reported by J. H. Dove) 192

Printed and Published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

LIBRARY U. OF I. URBANA-CHAMPAIGN

610.5
BR
1917
N.H.L.

THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, JANUARY 6TH, 1917.

Lectures
ON
THE EARLY DIAGNOSIS AND TREATMENT OF SYPHILIS.

By JAMES H. SEQUEIRA, M.D., F.R.C.P.LOND., F.R.C.S.ENG.,
PHYSICIAN TO THE SKIN DEPARTMENT AND LECTURER ON DERMATOLOGY, LONDON HOSPITAL; HONORARY CONSULTANT IN DISEASES OF THE SKIN TO THE MILITARY HOSPITALS IN LONDON.

[ABSTRACT.]

THE object of this course of lectures is not to set forth anything new, but to indicate certain practical points raised by the crusade against venereal disease, and specially the assistance which general practitioners and the hospitals can give to the measures introduced by the Local Government Board and the county councils. The early diagnosis and treatment of syphilis may be considered from two points of view—(1) that of the cure of the individual patient, (2) that of preventing the spread of the disease in the community. The second point of view, that of the community, is that which is specially at issue at the present moment—that is to say, we are to consider the early detection and the treatment of syphilis as public health measures. While we are dealing with the disease from this aspect we are at the same time endeavouring to effect a cure in the individual, but as a matter of practice we find that the two efforts do not quite coincide, for it is much easier matter to render an infected patient non-infectious than to cure him of his disease.

To obtain the best results syphilis must be diagnosed early, and it is in this respect that we can claim that great advances have been made in recent years. In the first place, we must get rid of a practice which my experience shows me is still prevalent—that is, in a case of doubtful primary infection to wait until the so-called secondary manifestations develop. Let us always have this in our minds—the very presence of these secondary manifestations means a generalized infection. I know that in many instances when we see a patient with a chancre he is already the victim of a generalized infection, but we must abandon the expectant attitude. We must try and make a diagnosis at the earliest possible moment. Every day is of importance. Experience will help us to know what to look for, what mistakes to avoid, and by actual examination of the serum of the primary lesion we are able to demonstrate the *Spirochaeta pallida* in the majority of *untreated* primary lesions.

THE PRIMARY INFECTION.

The primary infection may be genital or extragenital. The spirochaete enters through some crack or fissure of the skin or mucous membrane, and an inflammatory reaction occurs after a latent interval. This reaction is the "chancre," and it usually appears from three to five weeks after contagion, but it may be earlier or later, the extremes being ten days and three months.

In *the male*, genital chancres occur on the side of the frenum, on the prepuce and glans, and in the sulcus behind the glans. Chancres at the meatus urinarius are rare, and sometimes a meatal chancre may invade the urethral canal. Multiple syphilitic chancres are not very uncommon. A case of two chancres on the body of the penis was shown at one of the lectures. Occasionally the primary lesion is on the skin of the pubic area or on the scrotum.

In *the female*, the labia majora and minora, the fourchette, clitoris, and meatus urinarius are the most common sites. Chancres on the cervix uteri are not infrequent, but the vaginal wall is rarely the site of a primary lesion.

The primary bubo is a single large indurated gland, with occasional small shotty glands in its neighbourhood. It has no tendency to suppurate.

Extragenital Chancres.

These are commonest on the face and fingers. Kissing is the usual cause of lip chancres, but drinking vessels, tobacco-pipes, and blowpipes used in glass-blowing are all known to have conveyed the infection. (During the course four cases of lip chancre were demonstrated.) The next most common sites are the chin, eyelids, nose, cheeks, and ears. In the mouth the tongue and tonsil are most often involved. Finger chancres commonly occur about the nails. I have seen them in doctors, surgical dressers, midwifery nurses, and dentists. I have seen a case of primary chancre of the nipple and anal chancres also occur.

Extragenital chancres are usually larger than the genital sores, and when situated in mucous cavities ulceration occurs early and the surface of the ulcer is often covered with a pseudo-diphtheritic membrane. The primary bubo in extragenital chancres is always large and hard, and has no tendency to suppurate, and these points are often of value in the differential diagnosis. It is, however, of the highest importance to have the serum of a doubtful lesion examined for spirochaetes without delay.

Diagnosis of the Primary Chancre.

In a very early chancre there may be little induration, but as a rule when the patient comes for examination the lesion has a characteristic cartilaginous hardness which, with the hard bubo, is sufficient to make a diagnosis. If the lesion has been untreated, the surface may be scraped, or what is better, a fine pipette should be plunged into the substance. The serum obtained is placed on a slide with a few drops of normal saline solution, and examined by a $\frac{1}{6}$ in. objective by dark background illumination. The white spirochaetes are seen in motion crossing the field.

Another method of demonstration is to mix the serum with a solution of collargol (collargol 1, distilled water 19) as suggested by Harrison. A film is made by spreading the mixture on another slide and the preparation is allowed to dry. The examination is made with a $\frac{1}{12}$ in. oil immersion lens. The spirochaete shows up white on the dark background of the collargol solution, but it is not so easily recognized as in the former method, as it is not in motion.

The serum may be collected in a capillary tube such as is used for vaccination, and, the ends being sealed, may be sent through the post to a laboratory for examination. I do not recommend this method, which should only be employed if it is impossible to send the patient to the bacteriologist for examination.

The affections which may lead to error in the diagnosis of genital chancres are (1) traumatic ulcer, (2) herpes genitalis, (3) soft sore, (4) lichen planus. All these conditions are distinguished by the absence of induration and of the indurated bubo. Soft sores are usually multiple, the inflammatory reaction is much more acute and appears a few days after infection. The bubo in ulcus molle is usually tender, with surrounding painful swelling, and it tends to early suppuration. In herpes the lesions are superficial. They begin as vesicles which rupture early, producing painful non-infiltrated erosions. They appear

within a few days of coitus, and in some cases independently. There is often a history of recurrent attacks. Lichen planus of the glans penis is rare, but I have seen two cases in which a diagnosis of syphilis was made. The lesions are flat, shining, polygonal spots with no induration. There may be an eruption of the same type on the limbs and extremities. In exceptional cases lichen planus is limited to the penis. There is no bubo. Recurrence of induration in the site of an old chancre may take place from two to five years after syphilitic infection, and may lead to a suspicion of reinfection.

Extragenital chancres on the lips are usually not difficult to recognize if the condition be kept in mind. The finger sores may be thought to be whitlows, but any such condition in a medical man or midwifery nurse should be suspect and examined for spirochaetes. A case of localized beard ringworm which had been diagnosed as primary syphilis was shown. There was no bubo, and a microscopical examination showed the hairs to be infected with an ectothrix fungus. A case in which a primary sore of the nipple was diagnosed as cancer was described. The mistake should not have been made, as the patient had a general macular eruption and polyadenitis.

Stage of Generalization (Secondary Stage).

The secondary stage, or stage of generalization, begins from five to eight weeks after the appearance of the primary sore. It must be remembered that in women the history of the primary affection is usually lacking, and in men it may be overlooked or forgotten.

It is important to bear in mind that in the secondary stage there are general symptoms, and it is dangerous to make a diagnosis on the skin eruption alone. There is often an irregular pyrexia. The patient is usually anaemic, the lymphatic glands all over the body are enlarged, hard, and shotty. The glands behind the sterno-mastoid, in the occipital and mastoid regions, and the epitrochlear glands should be examined in all cases. Albuminuria may occur.

The patient complains of loss of strength and wasting, and of headache and pains in the limbs, muscles, and joints. Sore throat may be the symptom for which advice is sought, and I have known fall of hair bring the patient for the first time to the consulting-room.

The Secondary Eruption.

The special features of the eruption which should lead to a suspicion of syphilis are:

1. *Polymorphism.*—The lesions are often of several types; macules, papules, and scaly spots coexist, but although the type varies, the size of the spots varies very little. One does not see large diffuse lesions.

2. *Dissemination.*—As a rule the eruption is widely spread and copious.

3. *Absence of Itching.*—Subjective symptoms are usually absent. The eruption appears insidiously, and itching is uncommon, but it must be borne in mind that this feature is not constant, and, moreover, a patient may be suffering from concomitant scabies or pediculosis.

4. *The Characters of the Individual Lesions.*—These are round, or tend to be round, and they are often grouped or in rings. Except in the case of the macular eruption they have a reddish-yellow, coppery, or hammy colour.

The various types of secondary eruption were briefly described, the remarks on this head being illustrated by cases and by coloured illustrations and photographs shown by the epidiascope.

Differential Diagnosis.—Special attention was directed to—

1. The *macular syphilide* (or roseola), which is the earliest eruption in the stage of generalization. It occurs about six weeks after the chancre, and lasts from three weeks to a couple of months, and sometimes recurs. The spots are rose-coloured, round or oval, rarely larger than a threepenny piece, and all about one size. There is no infiltration, and scaling is absent. The trunk, neck, and limbs, and the palms and soles are affected. This eruption may escape the notice of the patient, and if the examination be made in artificial light it may not be observed by the medical attendant.

Of the acute specific fevers, morbilli and rubella in the adult rarely cause difficulty.

Pityriasis rosea is often mistaken for the macular syphilide. This eruption also occurs on the trunk an adjacent parts of the extremities. The lesions are oval o lozenge-shaped, and also small round spots. They ar pink in colour, and are covered with fine scales attached a the periphery and free towards the centre. The spots ar of varying size, and there is frequently the history of "herald" spot, which, at the time of examination, is larger size than the other lesions. The patient ofte complains of itching, there are no general symptoms, n polyadenitis, and no mucous membrane lesions.

Characteristic examples of pityriasis rosea and th macular syphilide were demonstrated.

2. The *papular syphilide* may appear on the rose spot or independently. The commonest type is *lenticular*, th lesions being round, red or ham coloured, raised firm spot with a shiny surface, and often with a ring of fine scale round the margin. The trunk, limbs, face, palms, an soles are affected.

Lichen planus is not infrequently diagnosed as a papula syphilide, but the characters are strikingly different. Th lesions of lichen planus are polygonal, flat-topped, an shiny. They have a peculiar lilac or violet tint, and ar not infiltrated. Itching is usually a prominent feature The commonest sites of the eruption are the fronts of th forearms, legs, and the thighs, but sometimes the whol of the trunk and extremities are involved. Should th observer be led to suspect syphilis he will naturall examine the buccal mucosa and pharynx, and it i important to remember that in at least one-half of th cases of lichen planus the buccal mucosa is affected, bu the lesions are white papules, streaks, or patches. Ther is no ulceration of the fauces, and there is no genera enlargement of the lymphatic glands.

3. The *squamous syphilide* is an infiltrated papula lesion of coppery or ham colour, capped with scales. Thi type is common in the flexures. It may be mistaken fo psoriasis. In *psoriasis*, however, the lesion is not infil trated, and the scaling is of a bright silvery type, and a a rule some patches will be found in the characteristi sites—the extensor surfaces of the elbows and knees Commonly, also, larger diffuse areas are seen in psoriasis a type of eruption never seen in syphilis. There are n mucous membrane lesions in psoriasis and no genera enlargement of the lymphatic glands. It must not b forgotten that psoriasis is a very common disease, and ma coexist with syphilis. The history of previous attack will here be helpful in the diagnosis.

The *seborrhoides* are also sometimes mistaken for th scale syphilide. A case in which the error was made wa demonstrated. The seborrhoide consists of rounded spot or circinate lesions covered with greasy scales. The scal is commonly affected and red areas covered with greas scales may spread on to the margin of the forehead pro ducing the "corona seborrhoica." On the trunk th seborrhoides show a predilection for the middle line, th sternal and submammary regions, and the interscapula furrow. Itching is common. The mucous membranes ar unaffected, and there is no general enlargement of th lymphatic glands.

4. The *follicular syphilide* is an eruption of miliary dull red hard papules confined to the hair follicles. The are often capped with a dry scale and sometimes becom pustular.

Severe cases of *acne vulgaris* involving the back ma be mistaken for the follicular syphilide, especially if ther are numerous infiltrated lesions and many scars. As rule there is a long history and comedones or "black heads" are found in large numbers. Acne does not caus general enlargement of the glands and there are n mucous membrane lesions. Syphilis, of course, may occu in a patient suffering from acne vulgaris.

5. *Rupia* is an ulcerative type of secondary syphilid occurring in cachectic and alcoholic subjects. It is com paratively rare. The rupial lesion is a round or oval ulce with steep sides and a purplish margin, and a soft bas from which exudes a blood-stained pus. This pus dries t form a characteristic limpet-shell crust. It heals wit deep scarring.

The only affection liable to lead to error is neglecte patches of psoriasis with masses of brownish scale. O removing the scale the psoriasis lesion presents a numbe of bleeding points, but there is no ulceration, as in rupi Psoriasis does not leave scars.

6. *Syphilitic keratodermia* demands a few observations. The lesions are characterized by an increase in the horny layer of the epidermis of the palms and soles. They often form gyrate figures of a dull coppery colour covered with a horny layer. They may be mistaken for chronic eczema or psoriasis. In any case of doubt the blood should be examined by the Wassermann test.

7. *Syphilitic Alopecia.*—In the first year after infection the hair tends to fall. In some cases all that is noticed is a general thinning of the hair, but in others there are patches of baldness. These are often characteristic, the bald areas being of small size, as if the hair had come out from numerous spots about the size of the tip of the finger.

I have had cases of this type sent to me as alopecia areata. In the latter affection the bald areas are of round or ovoid form, quite smooth, and tend to spread peripherally. At the margin one is often able to demonstrate hairs thicker at the distal than the proximal end.

8. *Pigmentary Syphilide.*—As an aid to diagnosis I specially desire to draw attention to a curious pigmentary affection occurring in the first two years of syphilis. It consists of greyish or brownish staining of the neck, especially on the lateral aspects. From its situation it is called the "Venereal Collar." The margin of the pigmented area is ill defined, but the surface is studded with white spots, with a sharp outline varying from a split pea to a shilling in size. The dappled appearance is striking and characteristic. It occurs almost exclusively in women. Arsenical pigmentation resembles it closely, but is almost always found on the trunk—that is, on covered parts.

9. Certain *drug eruptions* may be diagnosed as syphilis. I have known this occur in the case of copaiba, the association of gonorrhoea with a rash leading to the error. The copaiba rash is all of one type, resembling urticaria or morbilli, and there is itching. I have also known an eruption due to iodides diagnosed as syphilis. The iodide eruption is bullous, and commonly affects the face and neck. The vegetating syphilide may be mistaken for an iodide eruption. The history and general symptoms should help in the diagnosis, and in any doubtful case the blood should be tested.

Lesions of Mucous Membranes.—The mucous membrane lesions of syphilis are usually very helpful in making a diagnosis, and on no account should an examination of the fauces, buccal mucosa, tongue, and anal region be omitted. The following points are worthy of notice: Aphthae are rounded yellow, painful superficial lesions occurring on the gums and buccal mucosa. Herpetic lesions in the mouth are also painful. Neither are associated with an eruption on the skin nor with generalized induration of the lymphatic glands. Erythema multiforme, with extensive lesions in the mouth, may be diagnosed as syphilis. The skin eruption especially affects the extremities over bony prominences. There is no general enlargement of the glands, and there is often a history of previous attacks. Condylomata have been mistaken for piles, but the error is due to want of care in examination.

Some Conclusions.

I would remind you that syphilis, as Hutchinson taught us, is a great imitator. *Always* have syphilis in your mind, and particularly when you see what looks like a common variety of eruption with unusual distribution, and where there is an eruption of several types co-existing. Do not make a diagnosis on the rash alone; look for confirmatory signs in the glands and the mucous membranes. Do not pay too much attention to the history, and in any doubtful case take a specimen of the blood and send it to an expert for the "Wassermann" test. Here let me give you some figures as to my own experience with this test. For some years I have sent cases, some hundreds, to Drs. Fildes and McIntosh for "Wassermann" examination. Of cases in which I was clinically certain of syphilis the following results were obtained:

Primary syphilis	...	W.R. positive in 90 per cent.
Secondary syphilis	...	W.R. positive in 99 per cent.
Tertiary syphilis	...	W.R. positive in 95 per cent.
Congenital syphilis	...	W.R. positive in 100 per cent.

(To be continued.)

Lectures
ON
DISEASES OF THE MALE URETHRA.

BY
FRANK S. KIDD, B.C., M.B.Cantab., F.R.C.S.,
ASSISTANT SURGEON, LONDON HOSPITAL, AND SURGEON TO THE GENITO-URINARY DEPARTMENT.

LECTURE I.—URETHRITIS.

Etiology.

Urethritis is in most instances established by the direct implantation of a specific bacterium, the gonococcus of Neisser. Do not forget that it may be caused by other germs, such as colon bacilli, streptococci, staphylococci, and so forth. Investigate all urethral discharges under the microscope. In a consecutive series of one hundred cases, a gonococcus was found in eighty-four, a streptococcus in five, a staphylococcus in eleven cases.

How is the disease contracted by the male? It is contracted in the majority of cases after connexion with an infected woman. Do not forget that a man may contract the disease even though he has used a condom. I have known many instances of this. He probably infects himself by soiling the urethra with the fingers after he has removed the condom, or by washing the penis afterwards in an infected utensil, or the condom may have broken. Urethritis due to other germs than the gonococcus may be contracted from a woman who is menstruating, from a woman who has non-specific vaginitis set up by causes such as an unclean pessary, or by rectal coitus. I have instances of all these. Before the war I had seen only a few undoubted instances of urethritis contracted from infected towels, bathing drawers, or water-closets. Since the war I have seen a number of cases contracted from these sources, as the soldiers are often thrown together at the front or even in camp at home under conditions which favour such contagion.

Spontaneous or Haematogenous Urethritis.

I have on several occasions observed a man develop a slight urethritis at the onset of measles, no germs being distinguishable in the discharge, but only pus and epithelial cells. These discharges have cleared up without treatment. I have also observed a case of mumps that began with orchitis and slight purulent urethral discharge. I have also observed several cases of spontaneous urethritis due to the colon bacillus in men who were very run down, who had not been exposed to infection, and who developed urethritis with or without simultaneous attacks of haematogenous prostatitis and pyelitis.

Surgical Anatomy of the Urethra.

An undertanding of the surgical anatomy of the urethra is essential in the study of urethritis (Fig. 1).

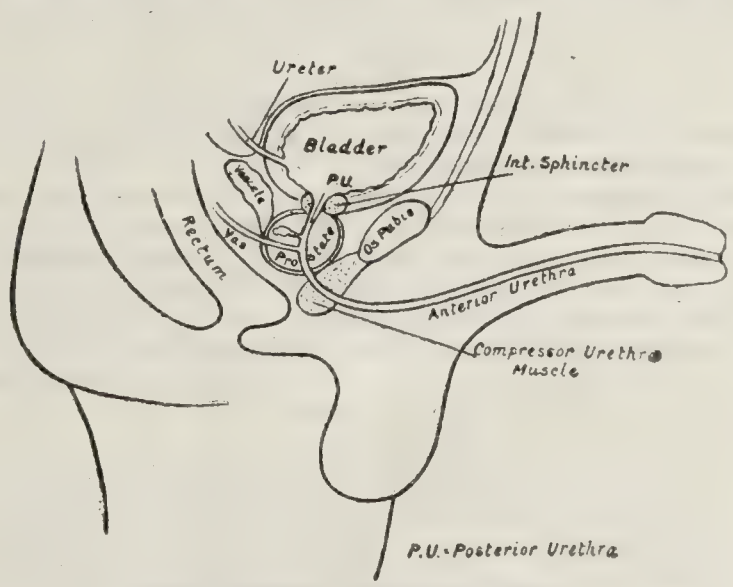


Fig. 1.—Diagram of the male urethra.

The first conception to get into your minds is that the urethra is divided into two portions, the anterior urethra and the posterior urethra.

The point of division is the compressor urethrae muscle ("cut off" muscle) which surrounds the membranous portion of the urethra.

The Anterior Urethra.

In front of the muscle lies the anterior urethra, 6 in. long. This consists of:

1. *The meatus*, which is the narrowest portion of the canal, the calibre being 24 Charrière in average individuals.
2. *The fossa navicularis*, 1 in. long and containing usually one large gland on the roof, the lacuna magna. (Calibre 30 to 35 Charrière.)
3. *The penile or pendulous portion* distal to the scrotum, containing on the roof numerous glands or follicles, and being very resistant to dilatation. (Calibre 28 to 30 Charrière.)
4. *The bulbous portion* extending to the compressor muscle, containing only a few large glands usually on the roof and being very dilatable (calibre 40 to 45 Charrière). The mouths of Cowper's glands open on the floor of the bulb, but these can hardly ever be seen by the urethroscope, and in my experience are only found infected on the very rarest occasions.

The compressor urethrae is a powerful voluntary muscle which passes into spasm on the slightest provocation, as by the stimulus of antiseptics or instruments on the mucous membrane. It can only be relaxed by an effort of will or by desensitizing the mucous membrane with novocain or stovaine.

There are no glands of any importance opening into the membranous urethra, and this part of the canal hardly ever acts as a reservoir of latent urethritis, though it is sometimes the site of troublesome strictures, soft and hard.

The Posterior Urethra.

This is between one and two inches long, and is one of the most highly sensitive and highly absorptive mucous membranes in the body. Half a grain of cocaine in the deep urethra is absorbed in a few minutes and may kill a patient. A few bacteria carried into the deep urethra by an unclean instrument will set up a rigor and may even lead to death from septicaemia. Treat the deep urethra with the utmost care, gentleness, and respect. The deep urethra has a calibre of 35 to 40 Charrière. The roof and sides are seldom provided with glands. On the floor lies the verumontanum—a sensitive erectile structure on the apex of which open the ejaculatory ducts guarded each by a powerful sphincter muscle. On each side of the verumontanum open numerous ductules of the prostatic glandular tubules. The uterus masculinus lies in the centre of the verumontanum, and is a bogey often cited to explain failure to cure. Actually it is very seldom a factor of importance in keeping up a discharge.

The posterior urethra is cut off from the bladder by a weak involuntary muscle, the internal sphincter of the bladder. It used to be taught that the bladder and deep urethra were practically one; and that the internal sphincter did not keep the urethra shut off from the bladder. I am convinced from practical observation that this is not the fact, and that in the majority of cases the internal sphincter is a potent cause in keeping urethritis from spreading to the bladder. The bladder mucous membrane also seems to be highly resistant to the gonococcus. In practice, therefore, consider the deep urethra as distinct from the bladder.

The urethra is not a simple tube; if it were, urethritis would be a simple disease. The tube needs to be kept moist so that the walls, naturally in a state of collapse, can be separated widely during the passage of urine without tearing. For this purpose mucus-secreting glands of various sizes are provided in the walls of the tube, "glands of Littre," "follicles," "lacunae of Morgagni," "prostate glands," "vesiculae seminales." The mouths of the glands point forwards.

If the healthy urethra is inspected by means of the urethroscope the mouths of the secreting glands glistening with mucus can be seen chiefly on the roof of the canal. The glands serve to keep the walls of the canal moist and glistening. In exceptional cases glands both small and large are found on the floor or sides of the canal.

The mucous membrane is lined by epithelial cells stratified in the fossa, but further back columnar. Underneath is found a submucous areolar coat, rich in elastic fibres and blood vessels, which merges with the muscular and cavernous tissues of the corpus spongiosum. Directly underneath the submucous coat is a well-defined layer of unstriped muscle fibre disposed in circular rings. These rings are very obvious on urethroscopic examination. Underneath this layer lies the cavernous tissue of the corpus spongiosum. The lymphatics of the front portion of the urethra lead to the glands of the groin on both sides. The lymphatics of the deep urethra and prostate lead to the hypogastric and external iliac glands, and so to the lumbar glands.

Look upon the urethra, then, as a tube divided into two parts:

1. *The anterior portion*, non-absorptive and easily accessible.
2. *The posterior portion*, very sensitive, and hard to get at.

Look upon these two portions of tube not as cylinders with smooth walls, but as cylinders with numerous perforations in their walls, these perforations leading to blind tubes or glands of varying length and complexity.

URETHRITIS (GONOCOCCAL).

Pathology of the Living as Observed Clinically.

Incubation Period.

After implantation in the fossa navicularis, the gonococcus lies apparently dormant for a period of two to seven days, during which time it is in reality multiplying itself until it becomes many myriads of germs. In 180 cases the average incubation period was seven days, the shortest one day and the longest twenty one days.

Development of the Disease.

At the end of the incubation period the germs, now present in vast quantities, elaborate poisonous bodies which irritate the tissues and set up inflammation. As a result an exudation is poured out of the blood vessels into the urethra, which exudation appears at the opening of the urethra as a yellow purulent discharge. The urine passing over the inflamed urethra causes pain. These two facts inform the victim that he has contracted the disease. During the incubation period the victim does not know that he or she has any infection, and in many of my cases I have records that connexion with other persons have taken place during this period, with consequent spread of the disease. In this way married men or women who have gone astray have given the disease to their wives or husbands by going with them during the incubation period before they have realized that they are in fact infected or infectious. In 180 cases 24 married men were found, six of whom had thus given it to their wives. Of these 24 married men, it was known that 15 had contracted it from women other than their wives. The remainder had undoubtedly got it from their wives who had gone astray.

Do not be deceived because the incubation period seems to have been unduly prolonged. In reality the patient has had a mild discharge and has not noticed it, and only a bout of alcohol or excessive coitus or some debilitating factor has brought on a more profuse and therefore obvious discharge.

Rate of Ascent.

In cases of urethritis the germs ascend the urethra at varying rates. If the germs are very virulent or if the patient is very run down in health and indulges in excessive alcoholic or sexual excitement, then the germs may ascend quickly and reach the deep urethra in a few days. In the average case it is ten days to a fortnight before they get as far as the deep urethra, and in some cases three or four weeks. How the gonococcus ascends we do not know. All we know is that if we use the urethroscope during the early acute stage (a practice I do not advise) we can see quite clearly how high the inflammation has spread. We see the walls of the tube highly inflamed for some inches and then quite suddenly we see the mucous membrane pale and healthy. Evidently the germ grows steadily upwards in the ordinary cases; but in hyper-acute cases it ascends by some process the nature of which we do not exactly know.

As the gonococcus spreads up the canal it sinks into the mouths of the glands and also sinks into the areolar and muscular tissue beneath the basement membrane, and in severe cases it reaches the dorsal lymphatics and the glands of the groin. The blood vessels dilate and pour

forth plasma and pus cells (inflammation). The mucous membrane can be seen to be red and swollen and bathed in pus; and pus can be seen pouring out of the glands of Littre, the glands themselves being swollen so that their bodies project into the lumen of the canal.

When the germs reach the deep urethra (58 per cent. in 180 consecutive cases that came up to be examined, but almost invariably in untreated cases) they penetrate the tubules of the prostate gland and the seminal vesicles, so that these glands can be felt by a finger in the rectum as hot and swollen. In 15 per cent. of posterior cases the germs spread to the testicles, but they very seldom reach the bladder, and hardly ever the kidneys. The only evidence of bladder infection is greatly increased frequency of micturition. Most cases labelled as gonococcal cystitis are really cases of deep urethritis. The bladder, unlike the urethra, is highly resistant to the gonococcus.

If a case comes to us before the disease has spread to the deep urethra, and if we at once institute irrigation or injection treatment, then it is most exceptional to find the disease spreading at a later date to the deep urethra. It is most important to recognize this fact. If a large number of cases in the early acute stage are observed clinically it will be noted that on the average it takes about ten days to a fortnight before the germs reach the deep urethra and prostate, though there are exceptions to the rule in hyperacute cases.

This is a fact of vital importance.

Treatment of Early Anterior Urethritis.

During the early stages the germs, being confined to the anterior urethra, are easily got at by means of antiseptic applications, and can be got under control and prevented from spreading to the deeper parts. The disease can then be cured in a few weeks often, indeed, in a week. This is a fact that has not been widely appreciated. A fatal doctrine has been taught in many of the English schools—namely, that in the early acute stages injections should not be used. This is a most pernicious fallacy and needs to be eradicated from the mind of the profession. Evidence gathered by modern clinical observers goes to disprove this fallacy. Clinical experience shows that it is in the early stages that antiseptics properly applied in suitable strengths can cure the disease quickly. Antiseptics used to be applied in unsuitable strengths, and that is why this fatal doctrine grew up.

Pace Almroth Wright no disease illustrates better than acute urethritis the favourable reaction of purulent tissues to the application of suitable antiseptics, and this reaction can be used as a constant and living proof of the fallacy of some of Wright's statements or "postulates"—for example, "These general truths are firmly based upon experiment. It can be demonstrated that none of our ordinary antiseptics extirpate microbes . . . in purulent discharges."[1]

Anterior urethritis if left alone or treated by vaccines, or irrigated only with salt solution, spreads rapidly upwards. If in the same purulent stage potassium permanganate in suitable strengths is applied to the suppurating mucous membrane of the anterior urethra by injections or irrigations, the discharge is at once lessened, and in a few days disappears, and with it the germs that caused the inflammation. In other words—

"It can be demonstrated every day that an ordinary antiseptic, potassium permanganate, in suitable concentrations can extirpate microbes (gonococci) in urethral purulent discharges."

These "general truths" may be firmly based upon experiments in the laboratory, but they are found not to hold in the out-patient department.

Spread to Posterior Urethra.

If a case is left alone or treated simply by rest in bed, medicines or vaccines, what happens? Or if a case comes to us in which the disease has already spread to the deep urethra, what happens? If we observe a large number of cases we find that almost invariably the disease spreads to the deep urethra and prostate in the course of ten days to three weeks, and sets up acute inflammation in this structure.

The inflammation in the deep urethra remains acute for at least five weeks from the first sign of urethral discharge, and very often for as long as seven or eight weeks.

During this stage of acute deep urethritis the patient is in a hyper-sensitized state, and it is very easy to upset the equilibrium between the germs and the tissues, and to set up blood infection. This explains why considerable wisdom, clinical knowledge, and judgement are required in the treatment of acute deep urethritis, and why such good results are obtained if the patient can be confined to his bed.

Chronic Stage: Carriers.

At the end of this period of five to eight weeks the inflammation suddenly dies down, and the patient seems to develop partial immunity; that is to say, he is no longer in a hyper-sensitized state, and he ceases to produce very much pus. It then becomes possible to employ strong treatment for the deep urethra, and it is much harder to upset the balance by unwise treatment. It is then safe for the patient to get about, take exercise, and try to get fit. At the same period the gonococcus clearly becomes modified also—that is to say, it ceases to produce an intense irritant poison, and does not easily invade the blood stream and irritate the body into producing a large amount of discharge.

A few cases undergo natural resolution at this stage, but only a few. The patient often thinks he is cured, as all burning and pain ceases, and urethral discharge is hardly noticeable. All the same, this state of mind is only due to lack of close observation. A careful observer will note a little gleety discharge in the morning on rising, or will notice threads in the urine, or even a slight turbidity of pus in the urine. A really careful, scientific, trained worker can soon detect the fact that a man is not cured but has passed into the chronic stage; or, in other words, has become a "gonococcus carrier." If he examines the threads he will find pus cells and a few gonococci in them. If he examines the prostatic secretion microscopically he will find pus cells and gonococci. If he uses the urethroscope he will find infected glands of Littre or patches of submucous infiltration, where the gonococci are still lurking under the mucous membrane and setting up patches of chronic inflammation (= early stricture or soft stricture). These facts can readily be detected by a trained clinical observer, but are usually conveniently ignored by those who are after short cuts to cure—a very fatal thing for progress.

In other words, there is a chronic stage in urethritis which has been largely neglected in the past both by patient and doctor, so that the patient is told that he is cured and goes about spreading the disease to other people. If this chronic stage did not exist, the gonococcus would have died out long ago. Very few people will copulate willingly when suffering from profuse urethral discharge, but they are only too ready to return to their old ways when they have entered the chronic stage of urethritis, especially if they have been told by their medical advisers that they need not worry about a slight gleet or a few threads, or have been told to "let it rip"—that classical phrase of the mentally inert.

NOTES ON SYMPTOMS AND SIGNS.

I do not propose in these lectures to describe in detail the ordinary symptoms of acute urethritis, such as burning and discharge and so forth, as they are sufficiently well known both to the doctor and to the layman. What I do want to emphasize here is that these are only the signs and symptoms of the early acute stages (five to eight weeks). What I want to bring to your notice is the importance of not neglecting the signs and symptoms of the chronic stage.

Gleet.

In the chronic stage there may be a slight gleet noticed only in the mornings ("*goutte militaire*," "*bon-jour* drop"), or there may be nothing more than a few threads in the urine. A man in the chronic stage may pass perfectly clear urine for weeks at a time, containing not a trace of pus or threads; yet in such a case if we massage the prostate and vesicles we may find the secretion full of pus cells and gonococci. This is particularly true when the disease is confined only to one vesicle. The mouth of the vesicle tends to become occluded and the gonococci may only come out during excessive coitus or after an excess of alcohol.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Chronic Prostatitis and Neurasthenia.

Another very important fact to note is the effect of chronic prostatitis on the general health. A man with chronic prostatitis may lose a stone or more in weight, may become severely neurasthenic, and so depressed as to be suicidal. This neurasthenic condition is often aggravated by a low meat free diet, which the patient has adopted on the advice of his doctor. All this vanishes with the cure of the prostatitis. Probably a chronic toxaemia is responsible, or it may be that subconscious irritation of the complex nerves of the prostate with their close emotional connexion in the mid-brain, may be the cause of the nervous depression. Remember that nothing helps so much in the cure of a chronic prostatitis as cheerful suggestion and attention to the general health. Sea air, a generous diet, and open-air exercise are the most important elements in success in treatment.

"*Sciatica*," "*Lumbago*," "*Chronic Rheumatism*."

Another clinical fact should be emphasized. I find that a very large number of cases labelled as chronic sciatica, chronic lumbago, chronic rheumatism, have their origin in an unsuspected gonococcal focus in the prostate or seminal vesicle. In such cases the doctor is often content to squeeze the urethra and if no discharge is obvious then he dismisses gonorrhoea as a possible cause. More careful observers may even look at the urine. But here again in most cases not even threads are to be seen, let alone pus. The only way to exclude chronic gonorrhoea as a cause of obscure rheumatism is to massage the prostate and vesicles and examine the secretion under the microscope. If pus is detected, then the cause has probably been found. If treatment directed to the cause is instituted, in six weeks to three months all the pains vanish and a brilliant cure is obtained.

Fever.

There is another clinical sign to which I would like to call attention. So long as the disease is confined to the anterior urethra we seldom, if ever, find fever. It seems clear that the anterior urethra is a highly resistant surface and does not allow the passage of fever-producing poisons into the blood. Once the disease has spread to the deep urethra fever is quite common, especially if the patient is not at rest in bed. The deep urethra is a highly absorptive surface and lets through at once the fever-producing poisons. Over and over again I have met with patients suffering from a deep urethritis who have been allowed to get about by their doctors with a temperature of 103° or 104° F. It has not occurred to their doctors that it is necessary to take their temperature. In the case of any other acute disease the temperature would be taken as a matter of routine, and no patient would be allowed to be up and about with such a high temperature. It should become a routine practice to take the temperature in cases of acute posterior urethritis, and if the temperature is raised above the normal the patient should be ordered to bed.

Another interesting fact is that in cases of chronic posterior urethritis which are not doing well a persistent subnormal temperature can often be noted. When the disease takes a turn for the better, simultaneously the temperature rises to normal and remains there.

Haematuria.

Haematuria is not an uncommon symptom at the onset of an acute posterior urethritis. Usually a few drops of blood are squeezed out at the end of micturition. If strong irrigations are exhibited in such cases a profuse haematuria may be set up. In such cases use only the mildest injections, for example, $\frac{1}{5000}$ potassium permanganate, and above all do not use a sound or a cystoscope.

Retention of Urine.

This is quite common at the onset of a hyperacute posterior urethritis. In such cases rectal examination always reveals a large abscess of one or both lobes of the prostate. Gentle pressure with the finger will empty the abscess a little, and the retention may at once be relieved.

REFERENCE.

[1] Treatment of Infected Wounds, British Medical Journal, June 3rd, 1916, p. 793.

DISAPPEARANCE OF MALIGNANT TERTIAN CRESCENTS FROM THE BLOOD FOLLOWING THE INTRAVENOUS INJECTION OF TARTAR EMETIC.

BY

SIR LEONARD ROGERS, M.D., F.R.C.P., F.R.S., I.M.S.

PROFESSOR OF PATHOLOGY, CALCUTTA.

[PRELIMINARY NOTE.]

THE discovery of the value of cinchona and quinine in malaria has been of incalculable value. Nevertheless even quinine is not an ideal drug for the disease, because although it rapidly kills the intracorpuscular stage of the parasite and brings about the cessation of the febrile paroxysms, yet it completely fails to destroy the extracorpuscular cycle, which is responsible both for the frequent relapses of the ague, and, still more important, for the infection of mosquitos, and through them of other persons. The difficulty in completely eradicating a malarial infection is well known. Thus Norman Chevers relates that he suffered from attacks for eighteen years in India after contracting the disease in Chittagong, and for six years more after he returned to England, and that his friend, Sir Ranald Martin, had frequent attacks of ague throughout his long Indian service, and for no less than thirty years more in England, although both of them took quinine freely for the attacks. Prolonged daily doses of quinine for months at a time will often prevent relapses but even this measure may fail. A drug which will really cure malaria and destroy the infective extracorpuscular stage of the parasite is, therefore, still much to be desired.

The uniform success which I have already reported, in the cure of kala-azar by tartar emetic intravenously, now amounting to over twenty consecutive cases in Europeans led me to hope that the drug, once it is able to kill the Leishman-Donovan parasites, which are so highly resistant to quinine, might possibly also be inimical to the quinine resisting stages of the malarial parasites, of which the malignant tertian crescents are the most characteristic. It is well known that once they appear in the blood they remain present for months on end quite uninfluenced by quinine. Thanks to the kindness of my friend Captain N. H. Hume, I.M.S., I have recently had an opportunity of testing the effect of the drug in the following two cases showing numerous crescents in the blood.

CASE I.—*Apyrexial Case showing Numerous Crescents in the Blood treated with Tartar Emetic Intravenously.*

A Russian sailor, aged 20, admitted for general debility, but without fever. Numerous malignant tertian crescents found in the finger blood, one in every few fields of the microscope.

The following tabular statement will best bring out the treatment and its effects:

	Blood Examination.	Treatment.
First day	Very numerous crescents	——
Second day ...	,, ,, ,,	——
Third day	,, ,, ,,	——
Fourth day ...	,, ,, ,,	Tartar emetic 4 cg. intravenously.
Fifth day	Very few crescents	Tartar emetic 8 cg. intravenously.
Sixth day	,, ,, ,,	——
Seventh day ...	No crescents found	——
Eighth day ...	One crescent found	Tartar emetic 8 cg. intravenously.
Ninth day	No crescents found	——
Tenth day	,, ,, ,,	——
Eleventh day ...	,, ,, ,,	Tartar emetic 12 cg. intravenously.
Twelfth day ...	,, ,, ,,	——
Thirteenth day ...	,, ,, ,,	——
Fourteenth day ...	,, ,, ,,	——

The patient left hospital two days later much improved in his general health, and having gained 10 lb. in weight. His temperature was normal while in hospital except for a rise to 100.2° on the evening after the injection of 12 cg. of tartar emetic.

Unfortunately it will not be possible to follow this patient up, as he has left Calcutta in his ship. The rapid disappearance of the crescents from his peripheral blood was most encouraging, but I realized that it would not be safe to draw far-reaching conclusions from a single case. Fortunately a second one very soon presented itself.

CASE II.—*Acute Malignant Tertian Infection yielding to Quinine; subsequent Appearance of Numerous Crescents, which disappeared after Intravenous Injections of Tartar Emetic.*

European male, aged 45, admitted for fever of ten days' duration accompanied by rigors. Very numerous ring malignant tertian parasites were found, several in every field of the microscope. The following tabular statement shows the progress and treatment of the case:

	Blood Examination.	Treatment.
First day	Very numerous malignant tertian rings	Quinine gr. 10 t.d.s.
Second day ...	———	Tartar emetic 8 cg. intravenously. Quinine omitted.
Third day	No malarial parasites	———
Fourth day ...	,, ,, ,,	———
Fifth day	,, ,, ,,	———
Sixth day	A few crescents found	———
Seventh day ...	Very numerous crescents	———
Eighth day ...	,, ,, ,,	———
Ninth day	Crescents fewer	Tartar emetic 8 cg. intravenously. Temperature rose to 104.8 F.
Tenth day	Very few crescents	———
Eleventh day ...	No crescents found	———
Twelfth day ...	One crescent found	———
Thirteenth day ...	No crescents found	———
Fourteenth day	,, ,, ,,	———
Fifteenth day ...	,, ,, ,,	———
Sixteenth day ...	,, ,, ,,	———
Seventeenth day...	,, ,, ,,	———

The rise of temperature to 104.8 on the evening after the injection of 8 cg. of tartar emetic, followed by a very great reduction of the crescents in the peripheral blood, is very significant, in view of the fact that similar rises occur in kala-azar after the injections only as long as parasites are present, for such reactions are best explained as due to the liberation of toxins from the parasites destroyed by the drug. This view is supported by the fact that no ring intracorpuscular forms of the malignant tertian parasites were found during the time the crescents were present which could account for the febrile reaction.

Here we have a second case in which recently developed crescents rapidly disappeared from the peripheral blood following the intravenous injection of a single 8 cg. dose of tartar emetic. Two such consecutive cases are very unlikely to be an accidental phenomenon. The dose used in the last case is less than half what has been safely given repeatedly in kala azar cases.

THE INFLUENCE OF TARTAR EMETIC ON BENIGN TERTIAN PARASITES.

The following experiences of the use of tartar emetic in benign tertian malaria are also of interest. Early in September last an Indian boy was admitted to my kala-azar ward. I found very numerous benign tertian malarial parasites in his blood. Although I recognized the presence of a rather serious infection I decided to try tartar emetic, and gave 4 cg. intravenously in a 2 per cent. solution, the strength used in all the cases mentioned in this paper. His temperature had varied during the previous three days from 99° in the morning to from 101° to 102° F. in the evening, but on the evening of the day on which the tartar emetic was given it rose to 104°, showing a strong reaction. On the following day very few benign tertian parasites could be found. Two days after the first injection the same dose was repeated. On that morning only one parasite was found, and none on the next day or on several other occasions during the next three weeks. As low fever persisted when I saw the patient again, after an interval of three weeks, I did a spleen puncture and found Leishman-Donovan bodies, showing the case to be a mixed infection—a rare condition in Calcutta. As the boy objected to further intravenous injections he was given antimony ointment inunctions. He gained weight steadily, and has had no rise of temperature to above 100° F. during the last month. However, on making a recent examination of his blood I found one ring and one extracorpuscular benign tertian parasite, thus showing that the two comparatively small doses of tartar emetic had failed to eradicate his malaria completely, and suggesting caution in expecting too much from such a short course of the treatment. A 4 cg. dose was now given, and the parasite had disappeared again by the next day. He has had no quinine during the two months he has been in hospital.

Captain Hume has kindly tried tartar emetic injections in two other cases of benign tertian malaria. In one man it required three doses of 4, 8, and 10 cg. to stop the paroxysms of fever and to cause the malarial parasites to disappear from the peripheral blood, so that in this case the drug appeared to be less efficient than quinine against the intracorpuscular stage of the benign tertian parasite. In the other case one 4 cg. dose was followed by the cessation of one paroxysm, converting the infection from a double to a single one. Quinine was then given and the fever ceased.

In the first of the above cases the effect of the tartar emetic on the malarial parasites was very striking, but in the second and third it appeared to be less efficient than quinine against the intracorpuscular stages of the parasite, while it is certainly far less convenient, owing to the administration of quinine by the mouth being much simpler than giving an intravenous injection.

COMMENTARY.

Much further experience will be required to settle these points, but the indications to be derived from these few cases appear to be that quinine should be used to check the malarial paroxysms, while tartar emetic should subsequently be given intravenously, in the hope that it may prove of value in destroying the extracorpuscular stages of the malarial parasites, and so prevent relapses, and greatly lessen the infectiveness of the patient to malarial-bearing mosquitos, by killing the crescents of the malignant tertian variety and the corresponding resisting forms of the other types of malaria.

In view, however, of the many disappointments which have been met with in attempts completely to eradicate the protozoal parasites of malaria, sleeping sickness, and amoebic dysentery, it is well not to be too sanguine regarding the success, possibly only temporary, of tartar emetic given intravenously in causing the malignant tertian crescents to disappear from the peripheral blood in my two cases. The observations are, however, of sufficient interest and importance to make it advisable to place them on record without delay, in order to allow others to investigate the subject, as many prolonged observations will be necessary before any reliable conclusions can be arrived at. If this drug should prove successful in really curing malaria, or in removing the infectiveness of the patients treated with it, a new and most important addition will accrue to our armamentarium in the battle against the most widespread scourge of tropical and subtropical countries, the value of which it would be difficult to overestimate.

Since writing the above I have been fortunate enough to meet with the following two additional cases:

CASE III.—*Malignant Tertian Crescents of an East African Infection treated with Tartar Emetic Intravenously.*

A European male, who had just returned from British East Africa, where he had suffered from several attacks of malaria, was sent by his doctor to consult me. I found crescents easily in his blood on two occasions with one day's interval. Eight cg. of tartar emetic were now injected intravenously, and two days later no crescents could be found by a careful search of two blood films. Two further doses of 10 cg. each were given on alternate days, and on each occasion the blood was examined for parasites with a negative result, and he stated that he felt much better after the treatment.

No reactionary rise of temperature occurred in this case, the crescents having been fewer than in Case II. As blackwater fever frequently follows repeated attacks of African malaria, if the destruction of the crescents in the

peripheral blood should prove a preventive of relapses, blackwater fever itself may possibly be greatly diminished by the tartar emetic treatment.

CASE IV.—*Benign Tertian Gametes disappearing from the Blood after the Intravenous Injection of Tartar Emetic.*

A European male from Assam, admitted for malarial fever for which he had taken quinine; he had had no fever after admission. Only the quinine-resisting extracorpuscular fully developed parasites were present in the peripheral blood, and were easily found on three consecutive days. On the fourth morning 8 cg. of tartar emetic were given intravenously. A blood slide taken that evening showed after a long search one benign tertian gamete with distinct chromatin body and pigment, but with an incomplete outline as if it was breaking up. A careful search on the following four days s owed no malarial parasites. During this time he received two further doses of 10 and 12 cg. respectively of tartar emetic intravenously, after the last of which he felt some nausea. He has now left hospital, but I hope to be able to follow him up.

This case indicates that the drug has a destructive effect on the gametes of the benign tertian as well as the malignant tertian variety of malaria, and makes it probable that it will act similarly on the quartan form, which is rare in Calcutta.

THE X-RAY DIAGNOSIS OF GAS IN THE TISSUES.

BY

J. D. MORGAN, B.A.CANTAB., M.D., C.M.McGILL, C.A.M.C.,

RADIOGRAPHER WITH CANADIAN GENERAL HOSPITAL, B.E.F., FRANCE,

AND

G. VILVANDRÉ, M.R.C.S., L.R.C.P., R.A.M.C.,

RADIOGRAPHER WITH BRITISH GENERAL HOSPITAL, B.E.F., FRANCE.

(*With Special Plate.*)

THE war has added a new and important rôle to those already performed by the *x* rays, namely, the early diagnosis of the presence of gas in a wound.

The subject has previously been mentioned in at least two short articles—by Woodburn Morrison[1] and by Ledoux-Lebard.[2] But as time goes on, and experience with this serious condition increases, we have become more and more impressed with the importance of the *x* ray findings, both in regard to the much earlier diagnosis of the presence of gas which can be made by this method than by any other, and also by the definite information given as to the extent of tissue involved.

We here deal with a number of interesting examples of this condition, in several of which the early warning given the surgeons, through the *x*-ray findings, probably saved the limbs, if not the lives, of the wounded men. At the same time it must be noted that the interpretation of the skiagrams of such cases is not without its own particular pitfalls.

Where the typical clinical symptoms—the tender, swollen tissues, which on palpation give the characteristic crepitation; the foul odour about the wound; the rapid, thready, pu se, and greyish drawn appearance of the face of the toxic patient—are well marked, the surgeon, naturally, does not need to rely on the *x* rays for diagnosis; but even in such cases, where possibly amputation of the limb is the only treatment giving any hope of saving the patient's life, most valuable information may be supplied by the *x* rays as to the extent of the tissues involved.

On the other hand, a number of cases have been observed in which the presence of gas in the wound was entirely unsuspected till revealed by the rays during the routine examination for pieces of metal or for fractures. Figure 1 is an instance; the gas appears as white spaces in front of the humerus. All cases in which gas was reported by the radiographer were immediately operated on, and very free drainage established. The presence of gas was confirmed in every case. In several of them (Case I) the gas continued to spread for a time, even after free drainage was established; in others the patients made an uninterrupted recovery.

We cannot but feel that the results, particularly in the former cases, might have been far different than they proved to be had it not been for the timely warning supplied by the skiagrams. The quantity of gas found in the tissues is no criterion of the virulence of the infection. We have several times seen patients where, according to the radiogram, much gas was present, do quite well on opening up the tissues, whereas in other cases where but little gas was found, the infection spread with such rapidity as seriously to endanger the patient's life. A consideration of the clinical findings, in conjunction with those afforded by the *x* rays, will, in most cases, give a clue to the virulence of the infecting organism. A high temperature and other indications of toxaemia, and the presence of gas (even in minute quantities), is always indicative of virulent infection; whereas, when no clinical signs of intoxication are present, even comparatively large quantities of gas in the tissues may be considered to be due to organisms of but low virility.

It is not our intention to deal here with the bacteriological side of the question. In all our cases cultures were made from matter taken from the wounds. This was done, with one exception, by means of swabs, and in all these cases the results were negative. In this one case (Case I), however, pieces of the infected muscle were sent to the laboratory; the result was a pure culture of *B. aërogenes capsulatus*. This was obtained in anaërobic agar medium. No aërobic culture was made. It is intended that, at this hospital, in future all cultures of such cases will be made according to this method.

When gas is present it usually appears in the skiagram as bubbles, varying in size, and arranged in strings (Fig. 2), or scattered broadcast through the tissues (Fig. 3). In one case (Fig. 4) it lay as a clear layer under the skin and between the muscle sheaths. In another it lay in thin layers widely scattered through the tissues about the wound. Occasionally it appears as large, irregular spaces in the wounded area. A case in which the presence of gas was first diagnosed by the *x* rays before any clinical evidence was visible except some swelling of the leg which might have been due to an ordinary septic wound is shown as Fig. 5. These are cases in which the difficulty of differentiating between the shadows caused by the gas in the tissues, and those caused by the wounds themselves, are particularly marked. Only experience, and a general consideration of the case, can help in arriving at a correct diagnosis.

Another pitfall to be avoided is the differentiation between surgical emphysema and gas in the tissues of the thoracic wall. Fortunately it is but rarely that both conditions are present at the same time. This did occur, however, in one of our cases, and Fig. 6 shows surgical emphysema of the chest wall in a case of haemothorax.

Then, again, there are the shadows of normal structures which must be kept in mind when making a diagnosis; as, for example, in Fig. 7, where the shadows caused by the normal popliteal space are shown; and, in Fig. 8, showing the presence of a bursa under the quadriceps extensor tendon.

In conclusion, let us again indicate the two points which appear to us to be of the utmost importance regarding the diagnosis of gas in the tissues by the *x* rays:

1. It supplies a means of making an earlier and more definite diagnosis than can be made by any other method.

2. In cases where an amputation is under consideration, the rays will give information as to the extent of the tissues involved, and, by so doing, may obviate a further operation later on, which might otherwise be necessary owing to the fact that the first operation did not include all the infected tissue.

CASE I.

Pte. F. H. Wounded in the right shoulder. Temperature 102°, pulse 108. *X*-ray report: Fracture of scapula, and some damage to neck of humerus. No metal present. A small quantity of gas present in the posterior axillary fold.

Treatment.—Free drainage, and excision of all gangrenous tissue. In spite of this treatment, the gas (which, previous to the report from the *x*-ray department, was entirely unsuspected) continued to spread rapidly. The spread was finally stopped by the use of hypochlorite dressings and the intravenous injection of eusol. He was discharged to England some three weeks later.

CASE II.

Private G. C. Perforating wound 3 in. above the knee. Exit wound on inner side of the popliteal space. *X*-ray report: No metal present. Small gas pockets above the knee-joint. There is a large quantity of gas between the muscle sheaths and under the skin from the knee to the ankle (Fig. 4). Temperature 100°, pulse 84.

Treatment.—Free drainage. Gas escaped. Discharged to England a week later. Temperature 98°, pulse 80.

J. D. MORGAN AND G. VILVANDRÉ: X-RAY DIAGNOSIS OF GAS IN THE TISSUES.

(Descriptions in Text.)



FIG. 1.

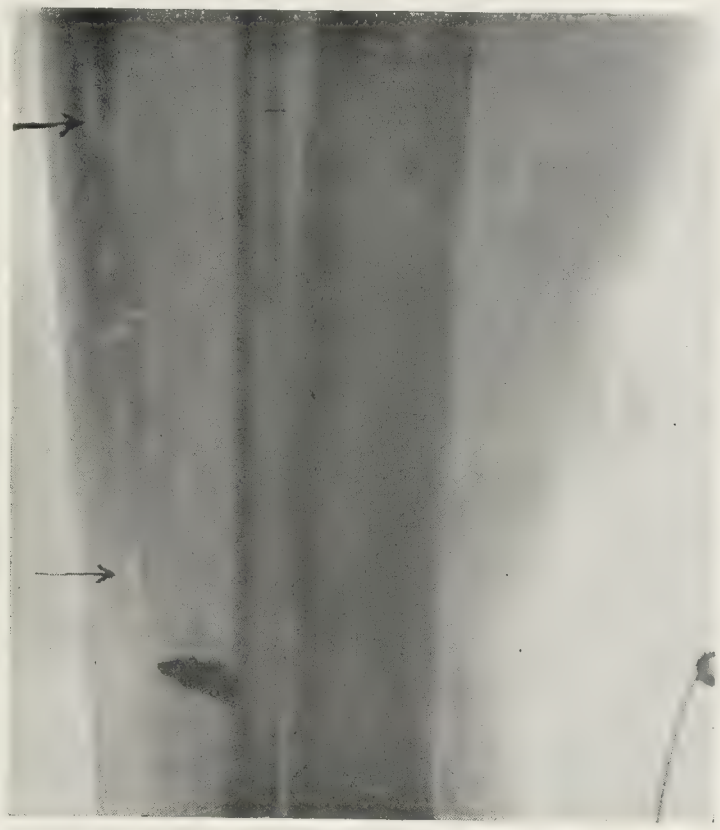


FIG. 2.

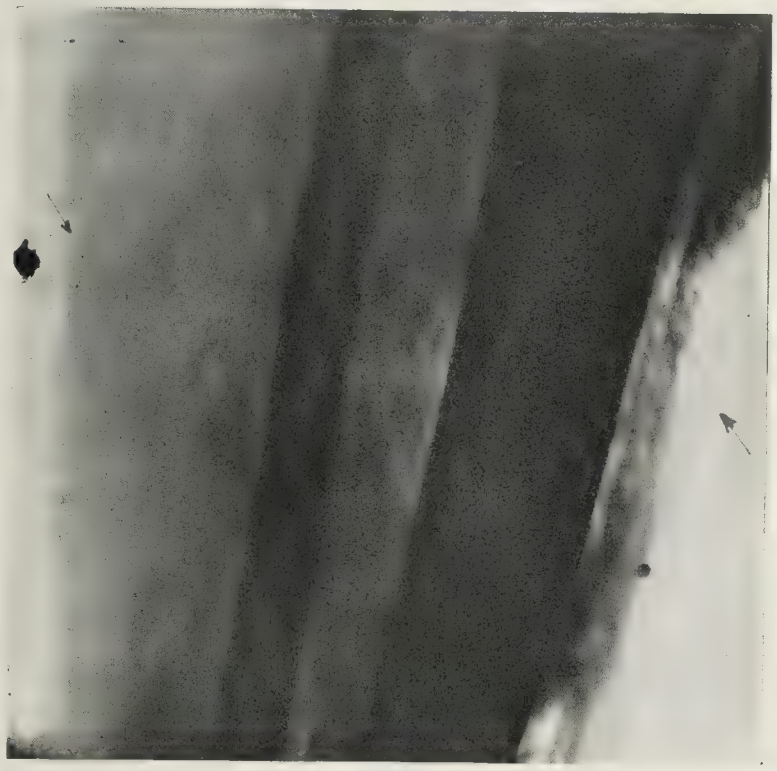


FIG. 3.



FIG. 4



FIG. 5.

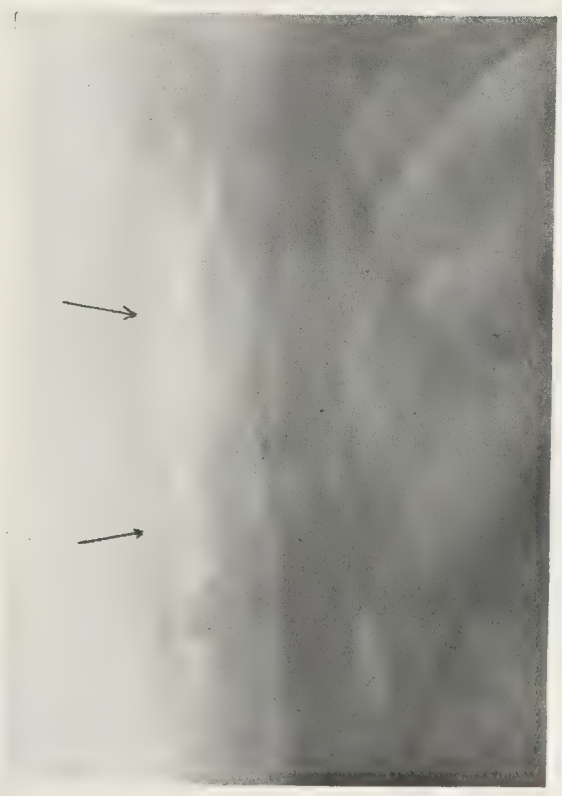


FIG. 6.

LIBRARY U. OF I. URBANA-CHAMP

J. D. MORGAN AND G. VILVANDRÉ: X-RAY DIAGNOSIS OF GAS IN THE TISSUES.



FIG. 7.

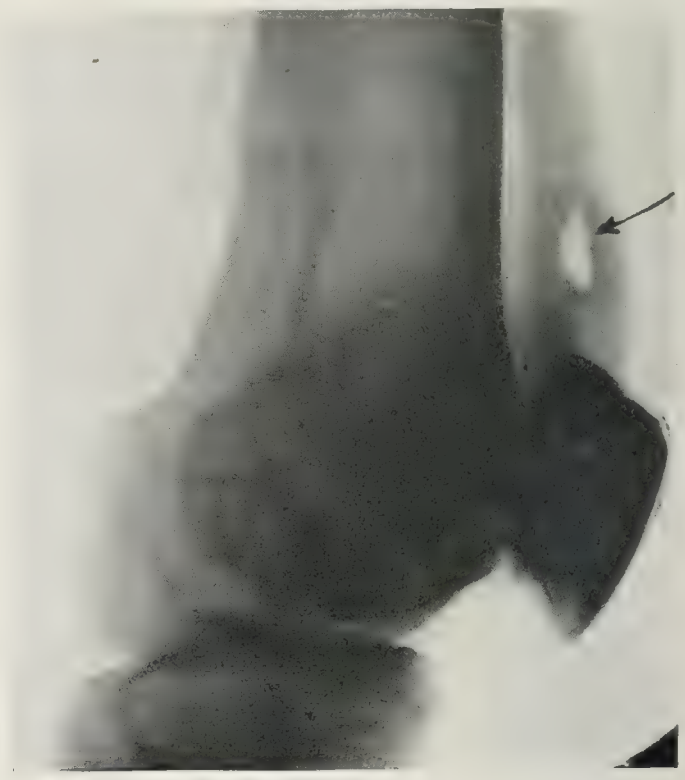


FIG. 8.

HAROLD BLACK: DETECTION OF GAS IN THE TISSUES BY X RAYS.

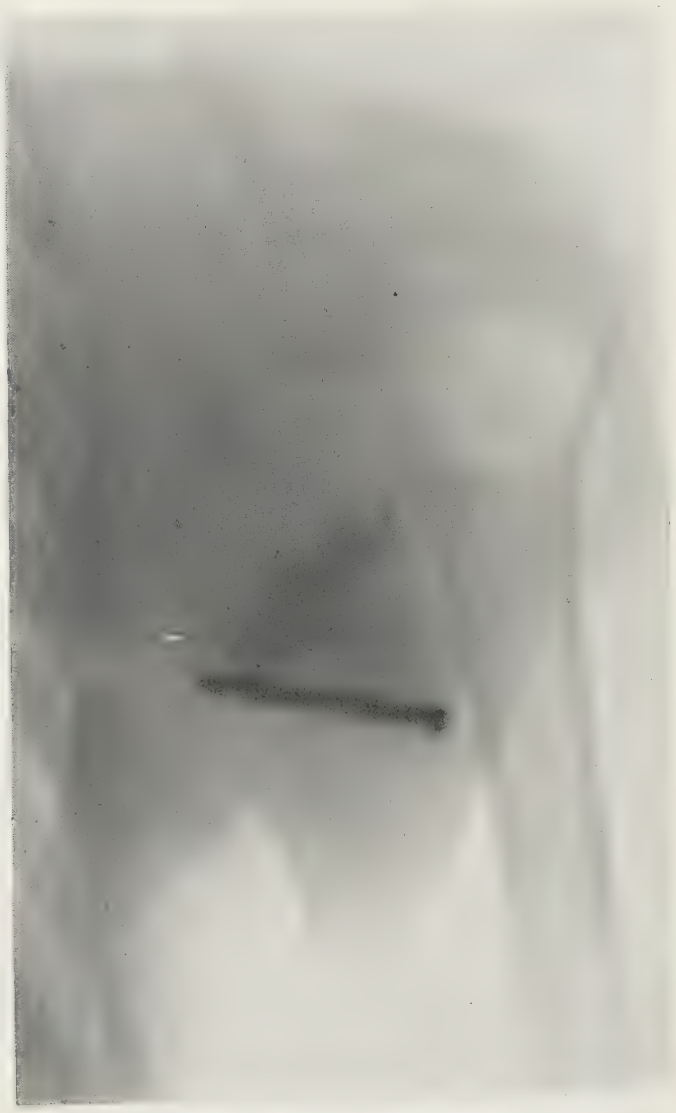


FIG. 1.—The round white area overlapping the neck of the humerus is due to a collection of gas.



FIG. 2.—At the upper left corner of the skiagram the point of a bullet is seen, surrounded by an area of lightness due to gas.

CASE III.

Pte. A. S. There was an irregular incised wound on the inner side of the left calf. *X*-ray report: Two pieces of metal and gas present (Fig. 3).

Treatment.—Metal removed and free drainage established. Temperature 104°, pulse 140. Peroxide bath given. A few days later he was discharged to England.

CASE IV.

Pte. F. N. was wounded in the upper part of the left calf. There was considerable swelling. The presence of gas was not suspected. Temperature 102°, pulse 120. *X*-ray report: Several pieces of metal, and gas, present.

Treatment.—The metal was removed, and the wound freely opened. The temperature was then 103°. On the following day the temperature was 104°, pulse 144. As the patient's condition continued to get worse, amputation was performed. On the following day temperature 102°, pulse 110. A week later the patient was discharged to England; temperature 100°.

CASE V.

Here, too, the presence of gas was diagnosed by the *x* rays (Fig. 5) before any clinical evidence was visible, except some swelling of the leg, which might have been due to an ordinary septic wound.

CASE VI.

Pte. A. M. was wounded in the knee, near the head of the fibula. *X*-ray report: No metal present. The skiagram suggested the presence of gas in the anterior portion of the knee-joint, above the level of the patella. Temperature 102°, pulse 116. Next day temperature 101°, pulse 112. He was discharged to England.

CASE VII.

Pte. A. G. was wounded about the middle of the patella. *X*-ray report: Some damage to the lower pole of the patella. A piece of metal lies just below and internal to this bone. No gas was noticed at the subsequent operation. The recovery was uninterrupted, the temperature being normal after the fifth day.

Again, compare with these last two the following:

CASE VIII.

In this case no wound was present. The shadow of the air space (Fig. 8) was probably caused by a bursa under the tendon of the quadriceps extensor.

Fig. 6 shows surgical emphysema of the chest wall in a case of haemothorax.

Fig. 7 is a skiagram of a normal knee, showing the shadow caused by the popliteal space.

CASE IX.

In this case there were no clinical signs which suggested the presence of gas. This was, however, diagnosed by the *x* rays. (Fig. 1.) The infection did not spread after free drainage had been established.

REFERENCES.

[1] *Archives of Radiology and Electrotherapy*, December, 1915.
[2] *Journal de Radiologie et d'Electrologie*, July–August, 1916.

THE DETECTION OF GAS IN THE TISSUES BY X RAYS.

By HAROLD BLACK, M.D., M.R.C.P.,

RADIOGRAPHER TO THE SECOND BIRMINGHAM WAR HOSPITAL, HOLLYMOOR.

(With Special Plate.)

To Colonel Gilbert Barling, Consultant Surgeon to the Southern Command, I am indebted for the suggestion to record the experiences we have had in the Birmingham Base Hospital at Hollymoor of the *x* rays detection of gas in the tissues.

It has been shown that gas gangrene may assume various forms and be due to different organisms.

At Hollymoor few cases of the acute or rapidly spreading form have occurred, and in these the diagnosis has been only too obvious without the help of the *x*-ray department. The less malignant form has been seen more commonly, and the object of this note is to emphasize the value of *x* rays in diagnosis.

In the last six months there have been nine cases radiographed by my assistant, Sergeant Brailsford, in which he has demonstrated the presence of gas. When these cases were sent for *x*-ray examination there was in most instances no suspicion that any gas was present, and in no case was it clinically certain. The demonstration of the presence of gas was a great help to the surgeon in the treatment of the cases, and it is obvious that, by dealing with the condition in its early stages, much relief was given to the wounded patients, and a large amount of destruction of the tissues must have been obviated.

The appearances of gas in the tissues are similar to those we are accustomed to see on pictures of normal body cavities that contain air—namely, a black area on the negative or a white area on the positive, which contrasts with the surrounding greyness.

The size of the area of blackness or whiteness varies naturally with the amount of gas present. In some of the cases it was a single spot less in size than a threepenny piece (1.6 cm. in diameter); in others it was as large as a florin (2.8 cm. in diameter). In most of the cases there were several spots present, and these were apparently isolated from one another. When the areas were small their outline was more or less oval and the margins sharp.

These gas bubbles are very clearly shown on the negatives, but, being small, they are very difficult to reproduce. I have chosen two of the cases, in which the gas collections were large, for illustration.

An interesting point in the cases is that in every case in which gas was shown on the negative the culture made from the pus or foreign body showed the *Bacillus perfringens*. In some of the cases no gas could be detected at the operation when the tissues were opened up, but the constant finding of this bacillus on culture confirmed the *x*-ray diagnosis.

Another point of interest is the length of time or latent period between the date of the injury and the detection of the gas. In one case this was almost five weeks.

The patients presented no unusual clinical features. All had a moderate pyrexia, all complained of pain. Tenderness was present on pressure over the affected areas, but no crepitation could be felt.

After operation a speedy recovery was the rule.

I append a summary of the cases made for me by Sergeant Brailsford, to whom I am much indebted. I also wish to express my thanks to the surgeons in charge of the cases for their permission to publish them.

CASE I.

Pte. L. Wounded in left thigh on April 4th; admitted April 17th. Radiographed on April 18th. Bullet shown at depth of 3¼ in. with gas. The next day another radiograph showed that the gas had increased, the shadow being about the size of a florin, whereas the previous day it was about the size of a sixpence.

On April 20th Colonel Gilbert Barling removed the bullet, but no gas was detected at operation. Culture from the bullet showed *Bacillus perfringens*.

CASE II.

Pte. C. Wounded July 1st; admitted July 6th. A radiograph on July 6th showed (Fig. 1) a large piece of metal in the axilla at a depth of 2½ in., with a large area of gas overlapping the shadow of the neck of the humerus.

The metal was removed by Mr. Newetson on July 7th; gas obvious at operation. Culture from the metal revealed *Bacillus perfringens*.

CASE III.

Sergeant D. Wounded in shoulder July 25th; admitted August 7th. Radiograph on same day showed fracture of fifth and sixth ribs, with bullet at depth of 1½ in.

Another radiograph made on August 19th showed small gas bubbles. Bullet removed by Colonel Barling; no gas detected at operation. Culture showed *Bacillus perfringens*.

CASE IV.

Pte. N. Wounded in thigh on July 31st; admitted August 6th. Radiograph on August 7th showed bullet and gas. The bullet was removed by Mr. Savage on August 8th; gas was noticed at the operation. Culture grew *Bacillus perfringens*.

CASE V.

Pte. L. Wounded in thigh August 26th. Radiograph on September 29th showed (Fig. 2) fracture of femur, many metallic fragments, and a gas bubble around the shadow of a bullet (upper left corner of print).

Operated on by Major Tweedy September 30th. Culture showed *Bacillus perfringens*.

CASE VI.

Cpl. S. Wounded August 31st; wound opened up in France. Admitted September 6th. Continued slight secondary haemorrhage. Pain in wound severe. Radiograph on September 13th showed shrapnel bullet 2½ in. deep, with gas in the muscles.

Opened by Mr. Lewis Graham the same day. Bullet removed, but no gas observed. Culture from bullet revealed *Bacillus perfringens*.

CASE VII.

Rifleman J. Wounded September 3rd; admitted September 21st. Radiograph on September 25th showed comminution of scapula and of the head of the humerus, many metallic fragments, and several gas bubbles.

On September 26th Major Tweedy opened up the area; no gas was detected. Culture showed *Bacillus perfringens*.

CASE VIII.

Pte. G. Wounded September 10th; admitted September 20th. Three wounds present over lower part of sternum and one large laceration from which pus poured. Radiograph on September 24th showed three foreign bodies and gas.

Metal removed by Mr. Hewetson. Culture from pus showed *Bacillus perfringens*.

CASE IX.

Lombardier R. Wounded in left loin on September 26th; admitted October 2nd. Radiograph on October 4th showed large piece of metal at a depth from the back of 3 in., with a halo of gas.

Removal by Mr. Furneaux Jordan on October 5th. Gas obvious at operation. Culture from bullet grew *Bacillus perfringens*.

[This paper was received by the Editor on October 27th.]

NOTE ON THE KEEPING QUALITIES OF THERAPEUTIC SERUMS.

BY

A. T. MacCONKEY, M.B., D.P.H.,

BACTERIOLOGIST IN CHARGE OF SERUM LABORATORIES, LISTER INSTITUTE OF PREVENTIVE MEDICINE.

AT the present time, when it is necessary to keep large stocks of therapeutic serums on hand to meet any sudden call, it becomes of importance to know the rate at which serums deteriorate.

The serum which has been the most carefully studied in this respect is antidiphtherial serum.

Diphtheria Antitoxin.

Anderson (1910) examined the question under experimental conditions and found that the average yearly loss in unitage was about 20 per cent. when the serum was kept at room temperature (70° F.–95° F.); at 15° C. the loss was about 10 per cent., and at 5° C. about 6 per cent. per annum. Dry diphtheria antitoxin kept in the dark at 5° C. remains stable for at least five and a half years. Old serums are just as good as fresh serums when the relative unitage is taken into account.

The writer (1913) also carried out some experiments in this direction. His results confirm those of Anderson inasmuch as he found that the loss during one year amounted to 7 per cent. when the serum was kept in an ice chest, and to 14 per cent. when the store temperature varied between 6° C. in winter and 16° C. in summer. At 36° C. the loss was 37 per cent. in six months and 51 per cent. in twelve months. One serum kept in bulk (100 c.cm.), instead of in the ordinary ampoules, at 36° C. lost 62 per cent. of its antitoxin in six months.

We see from these observations what we can count upon when the serum is kept under proper conditions, namely, in the dark and in the cold.

But serums on the market are not always stored so carefully, judging from tests carried out on samples of serum which have been in commerce.

In the *Journal of the Royal Army Medical Corps*, vol. iii, 1904, p. 601, are given results of an examination of some samples of diphtheria antitoxin. The interval between the tests was about fourteen months, and during that time some of the samples had made two voyages to India and back. The maximum loss in unitage was 20 per cent., and the average loss some 7 to 8 per cent.

Miller (1905), who examined eighty-two samples of returned serum, mentions that "A half-dozen packages of serum had evidently been exposed to considerable heat, as the serum in them was firmly coagulated." He concluded that—

1. The high potency serums change more rapidly than the weaker, but in neither case is the loss of potency as rapid as is usually supposed.
2. The ordinary packages of serum retain their full therapeutic value for the time limit, which is often stamped on the labels.
3. The demand frequently made for fresh antitoxin is not justified.

Kinyoun and Hitchens (1907) tested 100 serums, samples of "returned antitoxin" which had been subject to the usual commercial conditions. The time between the first and final tests varied from thirteen to twenty-seven months. The loss in unitage varied from 0 to 48 per cent.; the latter occurred in eighteen months. Many of the serums were out for more than eighteen months without losing so much.

In the following table are given the results of an examination of a number of samples of serum which had been in commerce, and which were all returned at the same time. It must be noted that the tests were not carried closer than 50 units. Thus a 450 unit serum might be 475 units or more, a 300 unit serum might be 340, and so on. Serum No. 4, for instance, may originally have been, say, 640, and the loss really 6 to 7 per cent., but as the serum was, for market purposes, originally reckoned as 600 units its loss in commerce was *nil*. These batches of serum were made up of bleedings which had been kept for varying periods before being mixed up to form a batch. Serum No. 7 was composed of serums which had been in store for from two to sixteen months before being mixed, and therefore the "age of serum" is put as two to sixteen months:

TABLE I.—*Showing the Loss of Antitoxin which occurred in Samples of Diphtheria Antitoxin which had been in Commerce for Various Periods.*

No. of Batch.	Age of Serum.*	Period between First and Final Tests.	Unitage when Sent Out.	Unitage when Returned.	Loss in Unitage.
	Months.	Months.			Per Cent.
1	19–24	72	500	400	20
2	6–23	55	450	300	33
3	11	46	900	800	11
4	4–14	51	600	600	*Nil.*
5	9–13	47	550	300	45
6	3–54	49	450	300	33
7	2–16	44	550	450	18
8	3–16	41	450	350	22
9	5–13	40	450	350	22
10	7	39	1,100	600	45
11	5–9	39	450	350	22
12	6–9	36	600	400	33
13	5–6	36	450	300	33
14	4–7	33	450	350	22
15	2–9	32	450	350	22
16	10–16	25	450	400	11
17	13–16	24	450	400	11
18	6–12	29	600	450	25
19	4–7	29	550	350	36
20	7–13	28	400	300	25
21	10–14	27	450	400	11
22	13–20	18	450	350	22
23	11–16	23	500	450	10
24	7–16	22	500	450	10
25	11–22	22	600	450	25
26	12–16	19	450	300	33
27	7–16	19	400	350	12
28	10	21	500	350	30
29	13–24	17	550	400	27
30	11–14	17	500	400	20
31	14–22	9	450	400	11

* That is, period between the date of collection and the date of first testing and sending out into commerce.

The average period during which these serums were on the market is about two and a half years, and the average loss in unitage during that period is about 23 per cent., or about 10 per cent. per annum. Nothing is known about the conditions under which these serums were stored while in commerce, but it is obvious that the rates of deterioration varied greatly. If we compare the losses in Nos. 19, 20, and 21, and also those in 26 and 27, we must conclude that unless we know how serum has been stored the putting on the label of a time expiry limit tells us nothing, and may lead to a false sense of security.

Tetanus Antitoxin.

Kept under similar conditions this antitoxin loses its strength at about the same rate as diphtheria antitoxin.

Antiplague Serum.

Taking the antitoxin content of this serum as a criterion, it has been found that antiplague serum when stored under proper conditions changes little in the course of two years. (Cf. MacConkey, 1912.)

Antidysentery Serum.

There is no generally accepted method of standardizing this serum. In these laboratories we have for several years used as test "toxin" the dry, powdered bodies of bacilli of the Shiga type. The strength of this powder has remained fairly constant for three years—$\frac{1}{20}$ mg. suspended in distilled water or salt solution and injected intravenously usually proving fatal to a rabbit of 1,000 to 1,500 grams in four to five days. The test dose, 1–5 mg., of this "toxin" is mixed with the serum and at once injected intravenously. Tested in this way, antidysentery serum appears to retain its "toxin" neutralizing power with little change for at least one and a half years. Some serum which was sent out to India, kept there in an ice chest for one year and then returned, showed, when retested, no deterioration.

Antiscorpion Serum.

This serum preserves its property of neutralizing scorpion venom with little change for two years.

Antimeningococcic Serum: Antistreptococcic Serum.

We cannot say how long these serums retain their value, as there is no method accepted as reliable for standardization purposes. A paper on the standardization of antimeningococcic serum has appeared in the *Journal of Immunology*, August, 1916, but this journal has not been available as yet.

General Remarks.

It is specially to be noted with regard to diphtheria antitoxin and tetanus antitoxin that the loss which occurs on keeping is in the number of units only. The *quality* of the antitoxin remains the same, but the *quantity* is less. This decrease can easily be remedied by giving larger doses.

It would add greatly to our knowledge if, when either antiplague serum or antidysentery serum is used, a note were made of the distinguishing mark on the bottle. If this were always done and mentioned in reports we should in time possibly be able to establish a relationship between the quality of the serum and the therapeutic effect.

REFERENCES.

Anderson (1910): *Bulletin No. 66* Hyg. Laby. U.S.P.H. Service.
Kinyoun and Hitchens (1907): *Centralbl. f. Bakt.*, I, Ref., xl, p. 1.
MacConkey (1912): *Journ. Hyg.*, xii, Supplement, p. 387. (1913): *Journ. Hyg.*, xii, p. 511.
Miller (1905): *Centralbl. f. Bakt.*, I, Orig., xxxviii, p. 233.

ON THE CHEMICAL FACTORS INVOLVED IN THE GROWTH OF THE MENINGOCOCCUS.

BY

DOROTHY JORDAN LLOYD, D.Sc.

(Report to the Medical Research Committee, from the Biochemical Laboratory, Cambridge.)

THE writer, in a recent number of the BRITISH MEDICAL JOURNAL,[1] stated that "the meningococcus needs for its metabolism (*a*) some digested protein, and (*b*) a comparatively high concentration of the vitamines or accessory growth hormones." The evidence in support of this generalization is given in full in the current number of the *Journal of Pathology and Bacteriology*, vol. xxi, p. 113, and is summarized below.

It is found that in order to obtain primary growth of the meningococcus, either from the throat or from spinal fluid, the medium used must contain some such substance as blood, serum, milk, beaten-up eggs, or certain vegetable products, as, for example, extract of peaflour (Gordon and Hine), or starch (Vedder). The influence of these additional substances in stimulating the growth of the more difficult pathogenic organisms on the ordinary nutrient media has usually been attributed to the influence of the additional protein, but that this hypothesis is untenable is shown by an examination of the properties of the stimulating factor present in blood. This substance is very freely soluble in 80 per cent. alcohol, it is moderately stable to heat, withstanding a temperature of 100° C. for over an hour; it possesses, moreover, the property of being absorbed with very great rapidity by filter paper. These properties suggest that the stimulating factor belongs to the same class of substances which Hopkins has shown to be a *sine qua non* in mammalian diet—namely, the accessory growth hormones, or, as they are more generally called, the vitamines. Gordon and Hine,[2] in their latest paper on the culture of the meningococcus, have also come to the belief that the stimulating influence of this peaflour extract is due to vitamine action, and the properties of the stimulating factor described by Shearer[3] in the nasal mucus suggest that it also falls into this class.

The meningococcus, then, needs vitamines for its primary growth *in vitro*, but during the early stages of subculture this need becomes greatly diminished. After a certain number of subcultures, varying from one to ten according to the strain, the meningococcus will grow vigorously on a vitamine-free medium, provided that there is present an abundant supply of free amino-acids. The only medium, as far as the writer's knowledge goes, that fulfils these two conditions, that is, vitamine-free and amino-acid rich, is the tryptic digest of casein prepared by the method of Cole and Onslow.[4] This medium gives very heavy growth of laboratory strains, even when sown from dilute emulsions of the coccus in Ringer's solution. Douglas's tryptic heart agar[5] also gives good growth with laboratory strains, though not so readily as Cole and Onslow's medium. It probably always contains some vitamine. The ordinary heart-broth peptone agar does not give subculture even of laboratory strains of the meningococcus unless a solid mass of the organisms be smeared thickly over the surface of the medium. Under these conditions growth is obtained, but undoubtedly the cause of growth is that a large number of the organisms die and release a vitamine supply which stimulates the growth of the survivors. The relation between the supply of free amino-acids and vitamines in media used for subculture may be summed up as follows: In the presence of an abundant supply of free amino-acids the meningococcus will grow without the addition of vitamines; in a medium containing a poor supply of free amino-acids, vitamine must be added in order to obtain growth. This relationship suggests that the amino-acids are the essential food substances, and that the function of vitamines in accelerating growth is exerted through their effect upon protein equilibrium in the cell.

Another essential condition for the laboratory culture of the meningococcus is that the organism must be kept permanently in a moist atmosphere. Given moisture, cultures of the meningococcus on agar slopes will readily survive for three weeks or more.

The medium described in the previous paper of the writer was made by adding defibrinated blood to tryptic heart agar, steaming to coagulate the blood proteins, and finally clearing by means of the centrifuge. The transparent blood medium can also be made by taking Cole and Onslow's tryptic casein agar as a basal medium, and the clearing can be accomplished by straining through a layer of glass wool (not filter paper).

The transparent medium gives a good growth in both primary and secondary culture with many of the more delicate pathogenic organisms. Pure cultures of the following organisms have been readily obtained on it from infected swabs: The meningococcus, *Micrococcus catarrhalis*, the pneumococcus, *Streptococcus pyogenes*, *B. influenzae*, *B. xerosis*, *B. diphtheriae*. It seems justifiable to extend the theory of the vitamine influence to all such "parasitic" micro-organisms. It is easy to imagine that the development of the parasitic habit may be accompanied by an increasing tendency to depend on the vitamine supply from the tissues of the host. The need of a generous vitamine supply in the primary culture of a micro-organism may be taken as an indication of the parasitic habit. The disappearance of this need in subculture may, on the other hand, indicate a reversion to a non-parasitic type of metabolism.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, July 29th, 1916, p. 143. [2] Ibid., November 18th, 1916, p. 678. [3] *Lancet*, November 20th, 1915. [4] Ibid., July 1st, 1916. [5] Ibid., October 10th, 1914.

LIBRARY U. OF I. URBANA-CHAMPAIGN

NOTE ON THE MORPHINE–HYOSCINE METHOD OF PAINLESS CHILDBIRTH.

BY

A. F. MARTIN, M.D.Vict.,

Temporary Lieutenant R.A.M.C.; Medical Officer to G.H.Q., Salonica Army.

The importance of the article in the British Medical Journal for October 14th last by Drs. Haultain and Swift on this subject cannot be overestimated. I have thought that a few further observations from my own experience in fifteen cases, all primiparae, would perhaps be of help. These results were embodied in a paper read before the Bradford Medico-Chirurgical Society in March, 1916.

To acquire the technique of Kronig's method was not easy. The first difficulty was to know when to give the first dose. I fancy I have met cases in which the os was the size of a crown, but where, notwithstanding this, the uterine pains were inhibited by the hyoscine, which paralyses the nerve endings in the uterine muscle.

The rule laid down by Drs. Haultain and Swift will be of great help; but my experience leads me to say that the first dose should not be given until the pains have reached that point when the uterine reflex will not be denied. The early, ineffective, "niggling" pains should have given place to longer pains to which the woman is beginning to bear down, and which result in a tense bag of membranes for more than a few seconds, and some stretching of the cervix.

Earlier than this the woman can be relieved by inserting a tampon soaked in a freshly prepared solution of 2 per cent. cocaine through a narrow Ferguson's speculum, as recommended some time ago in the columns of the British Medical Journal.

One disadvantage of the method is that in the hands of a beginner the drugs certainly make the pains less frequent and weaker, so that labour is longer, and I think forceps more often used when the head is on the perineum—a minor consideration with reasonable care.

My impression is that the dose I used (morphine gr. $\frac{1}{4}$, hyoscine gr. $\frac{1}{100}$) was a little too large in some susceptible women, where the uterine reflex was weak or not fully established. The known reaction of the patient to drugs should be considered, and each case thought out as a separate entity. Hyoscine gr. $\frac{1}{150}$ is more to be recommended, and I have tried morphine gr. $\frac{1}{6}$ in some of my best cases. Pituitrin 1 c.cm. is of no use to reinforce weak pains. I have tried it repeatedly.

Drs. Haultain and Swift favour an early second dose. In my last case I obtained amnesia with morphine gr. $\frac{1}{6}$, hyoscine gr. $\frac{1}{100}$, the hyoscine being repeated in two and a quarter hours in a dose of gr. $\frac{1}{300}$, which has been my usual dose for repetition. I thought this case was going to prove a failure, for the degree of mental dissociation was slighter than I had usually obtained, the patient talking quite aptly during the pains. On questioning her afterwards, she remembered nothing after the first injection had been given ten minutes.

In my experience, it is safer to decide when to give a reinforcing dose by the patient's condition rather than by the clock. I could not find much satisfaction in the memory test. It perhaps was made too obvious. I shall try it again by using something less dramatic than a pair of scissors and assuming an offhand manner. I endorse Drs. Haultain and Swift's opinion that the amnesic state can be efficiently estimated on general observation of the patient.

Another disadvantage of too deep anaesthesia is that sometimes the patient cannot concentrate sufficiently to bear down and help the pains by her own efforts as well as normally. This is present in any case in some susceptible women, a reinforcing dose being only given every two or three hours.

The state to be aimed at is one in which the patient does what she is told promptly and effectively during the pain, of which she complains bitterly at the time. After the pain is over she talks irrelevantly for a few seconds, and then settles down to a light noiseless sleep. Stertorous breathing soon after a reinforcing dose is to me a sign that it has been given too soon or has been too large. It is especially to be avoided at the beginning and end of the treatment.

The method is suitable for general practice provided the practitioner can give the case undivided attention from the beginning to the end, and has a nurse who knows when to call him, and can give one of the early reinforcing doses herself. Nurses usually send too late. This happened in my only case which failed. When I first saw the patient dilatation was complete. The pains were slowed down by a full dose, and what had promised to be a fairly quick labour developed into a very tedious one, and the second dose did not produce amnesia.

The accoucheur need have no dread of chloroform in these cases; less than usual is required for a forceps operation; it is taken well, and has not been followed by increasing haemorrhage or lack of vitality in the child.

No babies have been lost in my fifteen cases, but one needed a lot of stimulation to induce breathing, although the heart was quite sound and slow all the time. In this case the last part of labour was quicker than expected, and I had given hyoscine gr. $\frac{1}{300}$, the fourth dose, only half an hour before the baby was born. A dose should never be given within two hours of the birth of the child estimated on probabilities.

Kronig makes a point of using a fresh solution of hyoscine, but I have found the tablets of Messrs. Parke Davis, and Burroughs and Wellcome very satisfactory.

I usually give a little chloroform when the head is being born.

What danger there is lies in overdosage of morphine and hyoscine. The advantages, to my mind, very much outweigh the disadvantages. Nothing has given me more pleasure than to be able to relieve some of the worst pain in one's experience.

PRELIMINARY NOTE ON A MONOMORPHIC TRYPANOSOME FOUND IN THE BLOOD OF A NATIVE OF THE GOLD COAST.

BY

J. W. S. MACFIE, D.Sc.,

Pathologist, Gold Coast.

Hitherto all the trypanosomes described as occurring naturally in the human blood have been polymorphic. Lanfranchi, it is true, had the misfortune to infect himself with a trypanosome that appears to have been either *T. brucei* (Zululand) or *T. evansi*, but as this accident occurred in his laboratory the infection was not a natural one. Recently I have been privileged to examine two blood slides from a native of the Gold Coast suffering from trypanosomiasis, and as the parasite found was of a monomorphic type the infection is of considerable interest.

The patient was a native man, a member of the Gold Coast Constabulary, who was examined by Dr. E. W. Graham at Tamale and found to be suffering from trypanosomiasis. The history of the case suggested that the infection might have taken place about three weeks previously, but apart from slight fever, which Dr. Graham thinks may not have been due to the trypanosomes, the patient had no symptoms of illness. After the first injection of atoxyl the trypanosomes vanished from the blood, and up to the time of writing they have not reappeared. I am indebted to Dr. E. W. Graham not only for sending me the blood films but also for taking a great deal of trouble to trace the patient, who had left Tamale, and for trying to obtain for me the strain in animals, and I take this opportunity of expressing my sincere thanks to him.

Dr. Graham, in the first instance, sent me last September a single blood film, but, in reply to my telegram asking him if he could procure further materials, sent me a second film which he had taken before the parasites disappeared from the blood. In both films a moderately heavy infection with trypanosomes was found, and even at first glance it was evident that the morphology of the parasite was unusual.

The trypanosomes resembled very closely *T. vivax*, the parasite of which Bruce says, "This species of pathogenic trypanosome can at once be recognized among all the others by its shape alone." They were monomorphic—that is, they were all of the same form and nearly of the same size. The body showed the characteristic abrupt

narrowing immediately anterior to the nucleus. The cytoplasm was relatively clear, and showed an alveolar structure. The posterior end was usually blunt, and the large rounded blepharoplast was terminal or nearly so. The undulating membrane was poorly developed, so that the flagellum ran usually along the body in a more or less straight line, and there was always a long free portion to the flagellum. The nucleus was long, oval, and often divided into several pieces.

A hundred trypanosomes taken as they came from each of the films were drawn with the aid of a camera lucida and measured (see Table I). Of these 200 parasites the longest measured 24 μ, the shortest 18 μ, and the average worked out at 20.7 μ. The numbers of trypanosomes of each length were almost exactly the same in the two films. These measurements indicate clearly the monomorphic character of the parasite.

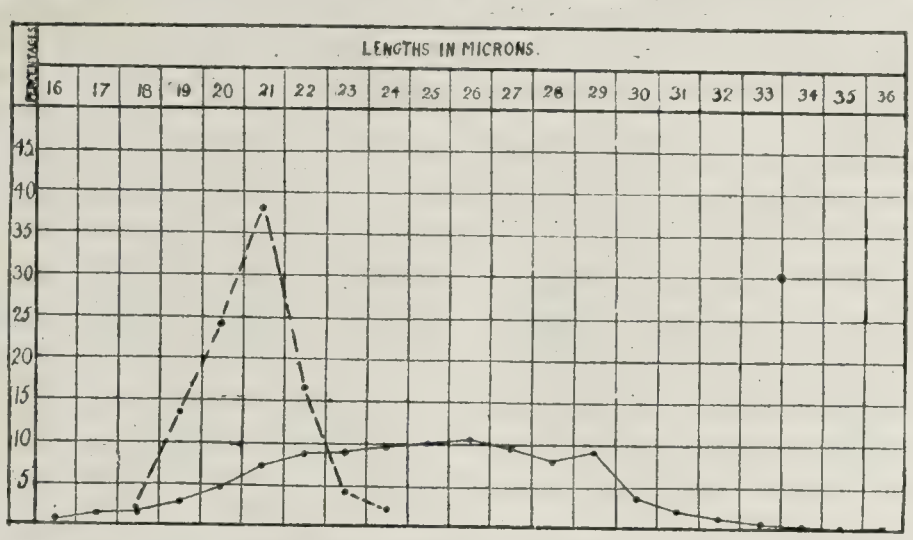


CHART 1.—The distribution according to length of *T. gambiense* (continuous line), and the monomorphic trypanosome (broken line) found in the blood of a native of the Gold Coast.

TABLE I.—*Measurements of Length of the Monomorphic Trypanosome found in the Blood of a Native of the Gold Coast.*

Materials.	Number Measured.	Lengths in Microns.							Average Length in Microns.
		18	19	20	21	22	23	24	
First specimen ...	100	3	14	25	37	17	3	1	20.6
Second specimen ...	100	1	13	23	39	16	5	3	20.8
Totals	200	4	27	48	76	33	8	4	
Percentages ...		2.0	13.5	24 0	38.0	16.5	4.0	2.0	20.7

In order to emphasize the profound difference between this trypanosome and the organism usually found in human trypanosomiasis (*T. gambiense*), I have plotted as curves the measurements of length by percentages in Chart I, and have added as contrast those for *T. gambiense*, as given by Stephens and Fantham.

The morphology of this trypanosome very closely resembles that of *T. vivax*. The small number of measurements that have been made so far suggest, however, that it is a little smaller, the crest of the curve occurring at 21 μ instead of at 23 μ. The trypanosome appears, indeed, to be intermediate between *T. uniforme* and *T. vivax* as regards its morphology, but further examinations will have to be made before any definite conclusion can be arrived at.

T. vivax is an exceedingly common parasite of domestic animals in West Africa, and was found in no less than 76 per cent. of the hump-backed cattle examined by me at Accra. It would therefore be a serious matter if this species were proved to be pathogenic to man. Further investigations are in progress, and it is still possible that the strain may be obtained for laboratory experiments, although as the patient has been apparently free from parasites for a long time the chances are not very great. Meanwhile, as I expect to be leaving the Gold Coast almost immediately, this preliminary note is published in order to draw attention to the fact that there is in West Africa a species of monomorphic trypanosome capable of infecting man.

THE SIGNIFICANCE OF THE LYMPHATIC GLANDS SITUATED ON THE ANTERIOR SURFACE OF THE ATLAS.

BY A. ERNEST MAYLARD, B.S.LOND.,
SURGEON TO THE VICTORIA INFIRMARY, GLASGOW.

One, perhaps, of the commonest places for tuberculous lymphatic glands is just below the angle of the jaw—that is to say, at the upper part of the anterior triangle. The reason for this is probably to be found in the greater readiness with which they are infected by lymphatics passing from the mouth, and more particularly from decayed molar teeth. But the tonsils and upper parts of the pharynx may also be regions from which septic matter may be conveyed. From whatever source, however, derived it is certain that the infection very frequently extends not only to the more superficially situated glands but to those lying deep in the cervical region, as deep as the transverse process of the atlas.

The clinical significance of this implication of the deeper glands lies in the fact that treatment applied solely to the superficial ones will leave the deeper still untouched and a probable source of future trouble. It is a very common experience to be asked to deal with a "sore" in the upper part of the neck that will not permanently heal. The story usually obtained is that a glandular abscess has been opened, and possibly its walls scraped; that the wound healed but then broke down, and a small discharge issued for a time, followed again by healing. This ding-dong condition of matters goes on for months, until the case at last comes into the hands of the operating surgeon for radical treatment. What is then found is that a circuitous sinus conducts down to a caseating and suppurating gland lying on the transverse process of the atlas. After this has been removed permanent healing takes place.

It is often solely for desired cosmetic effects that the practitioner is tempted to make a small incision into the superficial, enlarged, suppurating glands; and possibly he puts in a small drainage tube or lightly stuffs the cavity. His chief object is to produce as small a scar as possible. But, considering the protracted course which the condition is only too likely to take, there can be but little doubt that the best cosmetic results are obtained by the radical treatment—that is to say, by a free incision and a complete extirpation of the deep-lying glands. The dissection is often by no means easy, and, although quite free from danger in experienced hands, it should not be lightly undertaken. Both the jugular vein and the spinal accessory nerve are liable to be implicated; and when there is much in the way of periglandular inflammation and adhesions, one or the other, without due care, may be injured.

DEATH AFTER SALVARSAN.

BY
MANECK D. WADIA, M.R.C.S., L.R.C.P.,
CAPTAIN I.M.S.,
MEDICAL OFFICER, PRISONERS OF WAR CAMP, SUMERPUR, RAJPUTANA.

I AM much obliged to the Director Medical Services in India for permission to publish the following case, and to Captain P. Hayes, R.A.M.C., for comments:

A sepoy, K——, aged 23 years, was admitted into hospital on May 22nd, 1916. He had a chancre on the penis about six weeks before, which healed under treatment. There was nothing important in his past history. He was thin and somewhat anaemic, and presented a typical secondary rash on the body, with mucous patches in mouth and general adenitis. Nothing abnormal was detected in the chest and abdomen and the urine was normal. A dose of castor oil was given and he was kept on milk diet. Salvarsan 0.5 gram was given intravenously at 10 a.m. on May 23rd. He had a good deal of vomiting and

diarrhoea, and rapid, feeble, but regular pulse during the day, and was rather restless during the night. Next morning the vomiting had stopped and the pulse was stronger. He had five motions during this day but no vomiting. On May 25th the pulse was almost normal; the urine showed a fair cloud of albumin. On May 27th he was all right but weak.

On the morning of the 29th he was deeply jaundiced; the stools contained bile; the urine contained traces of bile and albumin. He was given calomel 3 grains, followed by magnesium sulphate ½ oz. three hours later, and was ordered milk diet.

On May 30th it was noted that he had had no sleep during the night; he had passed five motions, all containing bile. The liver was enlarged and tender; the spleen was not palpable; the pulse was regular but weak, the temperature normal. He suffered from hiccough.

On June 1st the jaundice was deeper; the motions were loose, and contained bile; the urine showed traces of bile and albumin, but no casts or crystals of leucin or tyrosin. Emetine hydrochloride 1 grain was injected hypodermically on May 31st and June 1st, once on each day.

On June 3rd his condition was becoming worse. The temperature was 99° F., and the pulse 70 and feeble. Jaundice was the same, and the liver was still enlarged and tender. Blood examination showed nothing abnormal. On June 5th the condition of the liver, stools, and urine was the same, and jaundice was still present. The pulse was 74, and feeble; the heart sounds were weak, but there was no murmur; nothing abnormal was detected in the lungs. The rash had faded a little, but the ulcers in the mouth and on the lips were worse. He was kept on milk, bovril, and brandy, but his general condition became worse, and at 5 p.m. he collapsed and died. *Post-mortem* examination was not allowed.

Two consecutive doses of 0.5 gram salvarsan from the same stock were given by me to another sepoy at an interval of three weeks; he had diarrhoea, vomiting, and feeble pulse for two days after the first dose, but very slight reaction after the second dose.

The interest in the case here recorded lies in the long period between the administration of the salvarsan and the manifestation of toxaemia. The symptoms would suggest acute yellow atrophy or phosphorus poisoning, but both are negatived by the fact of there being enlargement of the liver throughout, and also as to the former by the absence of leucin and tyrosin in the urine.

There must have been a storage of arsenic in the liver, giving rise in all probability to acute fatty degenerative changes in the cells.

Captain Armstrong, I.M.S., who has kindly looked up the literature on the subject, says that three similar cases have been recorded, in one of which a necropsy was performed. This was a woman who was given three doses of salvarsan at an interval of nine days without any untoward symptoms. Three or four days after the last dose she developed toxic symptoms, diarrhoea and vomiting, jaundice, enlargement of liver, and severe abdominal pains, and died. *Post-mortem* examination showed diphtheroid necrotic ulcers in the intestines, perforation of the stomach, and acute fatty degeneration of the liver.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

"SURGICAL" EMPHYSEMA DURING PARTURITION.

I AM recording this case as I have not heard of a similar one, and do not find the possibility of this condition arising during labour mentioned in several books on midwifery I have consulted.

The patient, A. B., aged 24, primipara, was being attended by a midwife, and was in labour fourteen hours before I was sent for. On my arrival she presented a most alarming appearance; the face was scarlet and swollen to twice its normal size, so much so that both eyes were completely closed. The upper part of the chest wall and the neck were also much swollen, and the affected parts presented all the characteristics of subcutaneous emphysema—that is, they were soft to the touch and fine crepitations could be distinctly felt on slight pressure. The extension of the emphysema was interfering with respiration, and both the midwife and relatives thought she was dying. I concluded that the condition was due to the rupture of some subpleural pulmonary vesicles caused by the violent straining, and I immediately made preparations to deliver by forceps. The child was abnormally big, and a large caput succedaneum had formed. Twenty-four hours afterwards the emphysema had somewhat abated.

In this case the condition would probably not have arisen had the midwife taken less responsibility on herself and summoned medical assistance earlier. I have no doubt she will exercise more care in future after the fright she experienced.

Blackhill, co. Durham. JOHN MURRAY, M.B., B.Ch.

CONCURRENT INFECTIOUS DISEASES.

THE notes of Drs. Rice-Oxley and Lambert Benson in the BRITISH MEDICAL JOURNAL of November 25th and December 16th, 1916, describing concurrent attacks of measles and chicken-pox, remind me of several instances of concurrent infectious diseases which I have met with here during the last twenty-five years.

I have seen mumps concurrent with whooping-cough and also with measles. On several occasions I have seen measles and chicken-pox in the same patient, and in two or three children I have met with three diseases concurrent—namely, measles, chicken-pox, and whooping-cough. Once I saw a boy with a very pronounced German measles rash and three days later the eruption of measles. He had been exposed to the infection of both diseases, and I had not the least doubt of the concurrence of the two diseases.

The above remarks show that in my practice concurrence of infectious diseases has not been very rare.

Bedford. W. GIFFORD NASH.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

BRISTOL ROYAL INFIRMARY.

CASE OF GAS GANGRENE IN CIVIL PRACTICE.

(By F. K. HAYMAN, M.B., B.S.)

ON July 28th J. T., aged 17, a munition worker, was brought to the casualty department, having sustained a severe crush of the left hand by a machine used for stamping certain metal parts of shells.

The contents of the thenar and hypothenar eminence were extruded *en masse* through the skin, and there was a cut on the palmar surface of the middle finger, extending down to the bone, and severing the flexor tendons.

The hand was soaked in eusol for about twenty minutes, and then, under a general anaesthetic, the parts were cleaned up with eusol and replaced as far as possible. There was no dirt on the hand other than "machine débris"; no sign or history of faecal or other contamination. A wet eusol dressing was applied.

On July 29th at 3 p.m., when he attended again, the hand was slightly puffy in the palm, there was no pain, and he felt perfectly well; his temperature was 99°. At 8 p.m. he again attended (as a result of his father taking his temperature, and finding it 104°), the hand was distinctly swollen in the palm and dorsum, and the middle and fourth finger. No fluctuation was found. The temperature was 104.6°. He was admitted, and the hand was fomented. This was about thirty-six hours after the injury. There was a trace of albumin in the urine.

At 1 a.m. on July 30th the hand was enormously swollen and tense; there was fluctuation in the palm and dorsum, and crepitation was found over the wrist-joint and the third and fourth fingers, which were semi-anaesthetic. There was solid oedema up to within two inches of the elbow-joint, and the hand was beginning to assume a dusky purplish colour. There was no pain, and he looked and felt well. The temperature was 104°, the pulse 120; glands not enlarged. I made very free incisions all over the hand and forearm up to the elbow; there was no pus, but gas, having a slight odour not offensive, escaped from the cuts on the hand. The arm was dressed frequently with eusol and peroxide, and oxygen was percolated through the dressing under jaconet. I proved that it got right through by lighting a glowing match at the other end of the dressing with it.

At 9 a.m. all the fingers were dusky, anaesthetic, and crepitant. The dorsum and palm had a similar appearance, but retained some sensation. The oedema of the forearm had largely subsided, and was now only evident in the lower third. The temperature was 103° and the pulse 130. Owing to the fact that the patient felt and looked so well, and that some sensation was retained, it was decided not to operate at once. He spent the day with his arm in a peroxide bath, and no further spread of gangrene occurred. The glands were not enlarged.

At 8 p.m. he felt and looked as usual, and was in no pain; but his temperature was now 102°, and his pulse 160 and markedly dicrotic. I therefore performed a flush amputation just below the elbow-joint, and injected eusol 50 c.cm. intravenously. The stump was kept in a eusol and peroxide bath. One hour after the operation his pulse was 90, and the temperature 99.6°. Three hours after the pulse was 104.

Subsequent progress was uneventful. The temperature and pulse settled in a few days to normal, the stump remained healthy, and on August 14th was trimmed up and sewn over. Some sepsis followed, but no gangrene, and the stump is now securely healed.

A surprising feature of this case was the complete absence of any constitutional symptoms, except the pulse and temperature. He was mentally and physically perfectly normal throughout, and in no pain.

Reports of Societies.

X-RAY APPEARANCES IN GAS GANGRENE.

AT a meeting of the Association of Registered Medical Women on December 12th, 1916, Dr. AGNES SAVILL read a paper on the *x*-ray appearances in gas gangrene, as observed at the Scottish Women's Hospital, Royaumont, France, situated twenty-five miles behind the firing line. Of the cases admitted between July 1st and mid-September, 1916, 304 contained the organisms of gas gangrene, and of these 100 presented the clinical evidences of gas. Every wounded man was examined by the surgeon immediately on admission, and a specimen from the wound was sent for bacteriological examination. Cases demanding immediate surgical intervention were taken to the *x*-ray room and operating theatre without delay. Cases reported to contain anaërobic infection, even without clinical evidence of the presence of gas, were operated upon immediately, and this procedure was undoubtedly the means of aborting the course of gas infection and saving both limbs and lives. It was found that cases arriving within twenty-four hours of being wounded usually recovered, while those detained three days on the journey were usually lost. Experience showed that *x*-ray examination was of great value to the surgeon in revealing the presence of gas and its extent and situation; and by September it was even found possible to report the variety of gas infection. It was shown by Pech, radiologist to the military hospital at Creil, that the presence of fine striation of individual muscles was always associated with the *Vibrio septicus*, and the prognosis was very grave. Two cases of this kind at Royaumont died within twenty-four hours. Three totally distinct appearances were observed in the *x*-ray plates, which gave positive evidence of gas, and these, with few exceptions, corresponded to three distinct forms of infection: (1) Simple swelling with a pale misty outline, the degree of swelling giving some evidence of the amount of infection present. *B. perfringens* was the chief organism found in this form, owing probably to the oedema usually associated with this organism. (2) Swelling made up of dark woolly clouds, due to infiltration of the tissues by gas, accompanied at times by sharply outlined bubbles. This diffuse cloudiness was generally associated with *B. perfringens* and *sporogenes* together. (3) Striation, coarse and fine (both rare), the dark lines of gas infiltration mapping out the individual muscle fibres. The organisms found associated with this form were *Vibrio septicus* and *E. histolytica*, *B. fallax*, and *B. perfringens*. Fallacies to be avoided were actual loss of tissue, extensive ecchymosis, and abscesses; no reliance could be placed on negative plates. With regard to prognosis, simple swelling was most favourable, provided correct surgery were immediately performed. The type with cloudy swelling might run a favourable course unless deep-seated gas were present, when it was extremely serious. The presence of striation gave the worst prognosis.

Reviews.

ATYPICAL FORMS OF TETANUS.

THOUGH tetanus in its ordinary manifestations has been shorn of most of its terrors during this war by prompt prophylactic measures, yet cases have occurred from time to time where, owing to the tardiness of administration of antitoxin, or perhaps to an attenuation of the virus, the disease declares itself in a localized form. These localized types are little known, and probably many cases are missed. A signal service to medicine has been rendered by MM. COURTOIS SUFFIT and GIROUX by their publication of *Les formes anormales du tétanos*.[1] The book is full of excellent information, written in the best French textbook style, the facts marshalled in orderly manner and clearly set forth, with no waste of words and no loss of perspective.

The authors divide abnormal or atypical forms of tetanus into three main classes: cephalic, monoplegic, and paraplegic; and the symptomatology, diagnosis, and prognosis of each form are carefully considered.

Cephalic Tetanus.

Cephalic tetanus, the authors say, very often escapes recognition owing to the fact that the wound of the face or head is so slight and has healed so quickly that no notice is taken of it and the clinical signs are frequently attributed to other causes. The simplest variety of this form (non-paralytic cephalic tetanus) is very rare and the only sign is trismus with contractions of certain facial muscles, with or without dysphagia. When the latter is present there is pharyngeal spasm, and feeding is difficult; there are usually convulsions of the neck muscles and sometimes respiratory difficulties. The less the effect on respiration the more hopeful the prognosis. Exceptionally a hydrophobic form has been met with: violent convulsive spasms, arising from the wound and spreading over the face, neck, and pharynx, eventually reaching the diaphragm, bring about grave respiratory troubles, dyspnoea and asphyxia. These last cases closely resemble rabies, and are almost invariably fatal.

Cephalic tetanus with facial paralysis has provided most cases for study. It occurs after head wounds, with the infection localized to the nerve area of the trigeminal. The symptomatology is characteristic and pronounced. At the beginning the contractions are limited to the cephalic, especially the facial, region, though later they may spread to adjacent areas. Facial paralysis may precede, accompany, or follow the spasms and the trismus. The paralysis is generally unilateral and in relation to the site of the wound, but there may be diplegia if the wound is near the middle line. When the paralysis is total the whole nerve is affected and hyperacousis and taste disturbances result; when it is partial the superior or inferior branches of the facial only are affected. Peripheral at first, it may become central by absorption of toxin along the nerve. The condition is not lasting, and when the infection is conquered it is seldom that it leaves traces behind. Such a disease must be carefully distinguished from the results of ordinary nerve trauma, from hysterical manifestations, and from tic douloureux of the face. It may be acute, subacute, or chronic in its progress. The slower it is the better the outlook. It is less fatal than the ordinary form of tetanus, the mortality not exceeding 50 per cent.

Cephalic tetanus with paralysis of the oculo-motors—a relatively rare form—occurs when tetanus follows wounds of the eye or its neighbourhood. The paralysis is generally the first sign of the disease, and for several days may be the

[1] *Les formes anormales du tétanos: Etude clinique, pathogénique, prophylactique et thérapeutique.* Par M. Courtois-Suffit et R. Giroux. Préface du Prof. F. Widal. Collection Horizon. Précis de Médecine et de Chirurgie du Guerre. Paris: Masson et Cie. 1916. (Cr. 8vo, pp. 177. Fr. 4.)

UNIVERSITY OF ILLINOIS-CHICAGO CAMPUS

only symptom, thus rendering accurate diagnosis exceedingly difficult. The third nerve is almost always affected, but often the fourth and sixth as well, giving the symptoms of ptosis and strabismus, with more or less complete paralysis of the external muscles. This form may exist alone or be complicated by facial paralysis. The conditions must be differentiated from ocular spasms, cerebro spinal and tuberculous meningitis, fracture of the orbit, fracture of the base of the skull with compression, and traumatic hysteria. The prognosis is not very unfavourable; chronicity is a factor of cure; when the condition has lasted from one to three months cure is to be looked for, and the ophthalmoplegia clears up fairly quickly.

Exceptionally there is another form of cephalic tetanus, of which the outstanding feature is the affection of the hypoglossal nerve with the syndrome of labio-glosso-pharyngeal paralysis. It is associated with facial paralysis, and is interesting as suggesting the nuclear origin of the paralysis in the course of cephalic tetanus.

Monoplegic Form.

In this there is localization of the infection to a limb, especially the wounded limb. The onset of the symptoms may be early or late; in early cases they come on in from four to five days after the wound, in late cases three weeks or more may elapse. The first symptoms are usually pains in the neighbourhood of the wound, soon followed by localized spasms. There may be convulsive shocks, with clonic movements and tonic contractions, and to the palpating hand the limb has the sensation of a block of wood. More or less distinct spasm of the abdominal muscles is frequently observed. Contrary to what occurs in the ordinary form of tetanus, the general signs here are of little value; the temperature is little if at all above normal, he pulse is moderately accelerated (100 to 120), but there is no irregularity, the anxious facies is perhaps a striking feature, the tendon reflexes are exaggerated, and there is hyperexcitability of the muscles and nerves to galvanic and faradic currents. Diagnosis is by no means easy. Spasmodic monoplegia due to cerebral or medullary cause, incomplete hemiplegia, causes of irritation to motor and mixed nerves, spasms due to lesions of bones, joints, muscles, and tendons, tetany, poisoning by strychnine, and hysterical contractions must all be carefully excluded. The more localized the infection, and the more chronic the case, the more favourable is the outlook, but the condition is always grave in view of the complications which may arise and the possible secondary generalization of the infection.

Paraplegic Form.

The paraplegic form of tetanus is divisible into two subclasses. In the superior form the arms, forearms, and hands are in forced flexion; in the interior form the lower limbs are in forced and fixed extension as a whole, with the foot in the position of equinus varus. The condition in its initial symptomatology may closely simulate tetany, hysterical paraplegia, and cerebro-spinal meningitis, but diagnosis should not long remain in doubt. Here slow evolution and cure are the rule.

The authors have devoted interesting chapters to the pathology, prophylaxis, and curative treatment of tetanus in general. The last is particularly good, informative, and judicial, and even for that alone the book should be in the hands of all military surgeons. It is an excellent contribution to medicine.

INCOME TAX.

We have received from the Medical and Dental Defence Union of Scotland a copy of the second edition of a pamphlet prepared by the Secretary, Mr. W. Findlay, and issued under the title of *Instructions to Members in regard to Income Tax Returns*.[2] The difficult task of condensing so complex a subject has been performed with admirable clearness and brevity. The treatment of the methods by which the "relief in respect of unearned income" is obtained and of the procedure in connexion with appeals is particularly successful. We gather that there must be one or two minor points of difference between Scottish and English practice, but it is not at all clear why "no allowance is made for wages of employees where such servants are used for professional and domestic purposes." So far as our experience goes, the portion of such expenses reasonably attributable to professional work is allowed in England; any other ruling would seem open to a *reductio ad absurdum*. On the other hand, the writer, in dealing with the question of motor expenses, recommends the charging of the cost of replacement rather than the percentage depreciation, whereas here the latter is refused on the apparently valid legal objection that such allowances do not apply to professional earnings.

On one point we find ourselves in disagreement with the "Instructions." We have consistently urged that advantage should be taken of the tacit consent of the authorities to the inclusion of receipts from appointments in the general return. The convenience of thus avoiding an allocation of expenses is obvious. The difficult question of "successions" naturally receives scant attention in a publication intended mainly to meet the normal case, but we are pleased to see that a lengthier note is considered necessary on super-tax. There is an error in the appropriately brief note on excess profits duty; the margin or abatement is £200 per annum not £100.

[2] 155, Saint Vincent Street, Glasgow.

NOTES ON BOOKS.

At Suvla Bay: Notes and Sketches,[3] by Mr. J. Hargrave, gives a vivid account of the experiences of a scout who enlisted in September, 1914, and went through the Dardanelles campaign as a sergeant in a field ambulance. The book will make a strong appeal to medical readers. The author does not hesitate to tell of the grimmer side of war, and some of his stories are grim enough, as that of the party from his ambulance who went out on a hazardous mission and never returned. The author emphasizes the value of the scout's training on the modern field of battle. Mr. Hargrave has a facile pencil, and the drawings and sketches with which the book is copiously illustrated are full of life and vigour, and convincing in their evident truth.

The *Oxford University Press General Catalogue*[4] gives a full and well-arranged list of all the books and periodicals published by the Oxford Press, together with a number of those issued jointly by H. Frowde and Messrs. Hodder and Stoughton. The *Catalogue* is of unusual interest because it gives a number of bibliographical details serviceable to prospective purchasers, including the size and date of the volumes advertised, and is also illustrated. The comprehensive index is particularly useful, comprising subjects as well as the names of the authors. The list of medical works and their authors shows that the Press keeps well abreast of the times, and can furnish the medical practitioner and student with almost a complete outfit of books.

[3] *At Suvla Bay: Being the Notes and Sketches of Scenes, Characters, and Adventures of the Dardanelles Campaign*, made by John Hargrave ("White Fox") whilst serving with the 32nd Field Ambulance, X Division, Mediterranean Expeditionary Force, during the Great War. London: Constable and Co., Limited. 1916. (Post 8vo, pp. 189; illustrated. 5s. net.)

[4] *Oxford University Press Catalogue*, November, 1916. Oxford, London, New York: H. Milford 1916. (Demy 8vo, pp. 574.)

THE CANADIAN ARMY MEDICAL SERVICE.

Report of the Board of Inquiry.

The report of the Board of Inquiry, appointed in November by Sir George Perley, High Commissioner for Canada, has been issued. It is signed by all the members, and is dated December 21st, 1916. The report opens with some general observations as follows:

The Board having assembled in accordance with War Office letter No. 121/medical/2893, A.M.D.I., dated November 25th, 1916, proceeded to consider the report on the Canadian Army Medical Services by Colonel H. A. Bruce, the Special Inspector General appointed by Major-General Sir Sam Hughes, and a reply thereto by Surgeon-General G. Carleton Jones, then Director Medical Services, Canadian Expeditionary Force. Both officers have been examined by the Board, and in addition evidence from the officers and others enumerated in the appendix No. 1, was heard. A report of the evidence taken and copies of various documents submitted to the Board are annexed to this report. The Board, in preparing its report, has not only taken into account the evidence submitted to it, but has ventured to incorporate into some of its recommendations its own knowledge of conditions so far as they affect the efficiency of the Canadian Army Medical Service.

In making this report the Board has constantly kept in view not only the welfare of the sick and wounded of the Canadian Expeditionary Force, but the interests of the Government and people of Canada, and has been especially careful in its comments upon the work of the Director of Medical Services, whose administration has been so severely criticized by the Inspector-General in his report and in his evidence.

It will be convenient to summarize here the principal points emerging from Colonel Bruce's report. These are—

(*a*) The concentration of Canadian sick and wounded in Canadian hospitals.
(*b*) The suitability of V.A.D. hospitals for the care and treatment of Canadian soldiers.
(*c*) The system of medical boards.

Before offering any general remarks on these topics, the Board thinks it right to explain that up to February, 1916, the accepted policy was to provide special hospital establishments for Canadian patients; that about that date, owing to various considerations, practical and sentimental, it was determined, with the consent of the War Office, to deal with Canadian patients in the same fashion as British patients are dealt with—that is, by distributing them throughout the United Kingdom to the great series of central hospitals, each with its group of affiliated auxiliaries.

In the report of the Special Inspector-General the latter system is condemned, and a return to the policy of Canadian hospitals for Canadian sick and wounded advocated. The issue is a fair one, for there is much to be said on both sides; but the Board, after very careful consideration, has come to the conclusion that the policy therein recommended is not only unwise but impracticable, having regard to the amount of accommodation that would be required owing to the increase of Canadian troops in Europe.

The arguments for and against are set forth under the headings into which this report is divided, but it will be convenient to consider here the principal reasons that have led the Board to the opinion that a reversion to the original scheme of concentrating Canadian sick and wounded in Canadian hospitals is impossible.

All through the report of the Inspector-General the dominating idea is a conception that the Canadian Expeditionary Force is something separate and apart from the imperial army, a conception that may be summarized as the "water-tight compartment" policy in matters medical. The Board is of opinion that as long as the Canadian Expeditionary Force forms an integral part of the imperial army, such a view is no more possible in the United Kingdom than it is in France; and, so long as Canadian troops continue to operate under the command of the Commander-in-Chief, British Expeditionary Force, it must continue to be impossible to discriminate in the medical arrangements of Canadian and British troops. The personal experience of the majority of the members of the Board amply confirms this view, so far as the arrangements at the French front and at the Overseas bases are concerned, and the Board has satisfied itself that it would be inadvisable to attempt separation on the return of the sick and wounded to the United Kingdom.

It appears to the Board that to separate, on their return to England, men who have fought side by side, must tend to undo the bond of brotherhood sealed in the face of the enemy. The Board is aware that these considerations of high policy do not strictly come within its purview, but cannot refrain from adverting to this aspect of the matter, because it would almost appear as if the report under consideration was based upon the conception that the Canadian Forces had a similar relation to the British armies as that held by the allied nations.

The policy that the Board ventures to attribute to Colonel Bruce would have prevented the use of Canadian medical units in the Mediterranean, because Canadian troops did not happen to be employed in that theatre of war, and the sending of Canadian hospitals to Paris for the use of the French sick and wounded. Indeed, the sending of Canadian medical units to the Mediterranean is criticized from this very point of view in the report of the Inspector-General. Again, and for similar reasons, the Board is in profound disagreement with the view that Canadian Army Medical Corps personnel should not be associated with the British Service in scientific inquiries and in other work; on the contrary, it is of opinion that such participation is both desirable and necessary in the best interests of the two services. The Board, too, is at variance with the contention that the services of the Canadian Army Medical Corps should in the main be confined to Canadian troops; field ambulances serve primarily the Canadian formations, but in the case of the line of communication units, their work must of necessity be largely with other than Canadian troops. This aspect of the case, it is fair to say, was repudiated by the Inspector-General when placed before him.

The Board feels bound to place on record that in some of the opinions expressed by Colonel Bruce he is misled by a lack of intimate knowledge of army organization and of the inter-relation of the various branches of the service, as in some of his criticisms he has failed to make allowance for the sudden expansion of the army and for the unavoidable want of specialized training in its ancillary services. Such imperfections as have existed are rapidly being remedied, and it is plain truth to say that in no war in history has sickness been so well controlled or the sick and wounded so well cared for. The Board, relying on its own observations and the evidence laid before it, is abundantly satisfied that the Canadian sick and wounded have been thoroughly well cared for, not only in the Central Hospitals, whether British or Canadian, but in the Voluntary Aid Hospitals, which Colonel Bruce criticizes. These latter hospitals are the outcome of a mobilization of the medical resources of the United Kingdom, and in them Canadian soldiers are not only well cared for professionally but are comfortable, happy, and at home. The Board desires to emphasize its dissent from the criticisms of these institutions, which it believes to be unjust and undeserved.

The other principal issue raised in the report of the Inspector-General, the system of Medical Boards, is dealt with in detail hereafter, and the Board agrees that there is much justice in the criticisms levelled at the complicated arrangements that have been permitted to grow up. With the reorganization proposed the Board is unable to concur, and has ventured, as the result of the combined experience of its members, to suggest a system that it believes to be simple and likely to be practical in operation.

The Board does not concur in Colonel Bruce's view that a complete reorganization from "top to bottom" of the Canadian Army Medical Service is necessary. In its opinion, the reforms he suggests would not remedy the defects he deplores, which are not due to the system, but to inexperience on the part of officers, military and medical, and to defaults in administration, which are commented upon in the detailed criticisms that the Board has felt it its duty to record.

The Board cannot conclude this general review of its findings without adding that the report of the Inspector-General ignores the good work done by Surgeon-General Jones and his staff under circumstances of novelty and great difficulty. The Board has not hesitated to criticize those matters wherein, in its opinion, the Director of Medical Services has failed, but does so with great reluctance, for it is satisfied that much of what has been accomplished has been the result of his zeal and industry, while the good relations of the Imperial and Canadian services are largely due to the tactful performance of the many delicate duties that fell to his lot.

The Board would also point out that the lack of an organized Canadian staff was a very serious handicap to the Director of Medical Services in his dealings with the important subject of non-effective troops.

The remainder of the report deals with Colonel Bruce's criticisms paragraph by paragraph. It will be seen that certain sections are of general interest, and have a direct bearing on several matters of concern to the profession in the United Kingdom.

I.—Soldiers arriving in England from Canada Medically Unfit.

The Board is agreed that large numbers of soldiers have come and continue to come from Canada who are unfit for service at the front. The cases come under two main headings:

1. Men who do not comply with recruiting standards as to age. Of one series of cases, numbering 1,366, submitted to the Board, 849 were either under or over age. As the recruiting medical officer is not required to consider the

age of recruits, the charge as regards the C.A.M.C. is reduced to the second class—namely:

2. Men who are unfit by reason of a physical disability. The Board is satisfied that a large number of men have been passed who ought not to have been passed, owing partly to inexperience on the part of examining medical officers, partly to hurry, partly to carelessness, and partly to the opinion of the medical officer being overridden by commanding officers.

The Board advises that examining medical officers should be responsible, as in the British service, that a recruit's apparent age corresponds with his declared age; that there should be inspectors of recruiting familiar with the requirements of the army in the field; that no soldier should be sent overseas unless classified by a medical board as fit for general service.

The Board has come to the conclusion that this important matter has not received the attention it deserved, and that adequate representations with regard to it have not been made. The Board is not prepared to define the share of the responsibility of the D.M.S. for this failure, because the Adjutant-General's Branch of the staff, to which the subject pertains, was not represented in England until recently, but it considers that, in the absence of the Adjutant-General's Branch, it was the duty of the D.M.S. to represent by all sources open to him the fact that large numbers of men were reaching England unfit for general service.

II and III.—Distribution of Casualties and Concentration of Hospitals.

Under this head the Board points out that Colonel Bruce's objections to the present system of treating a moiety of Canadian patients in imperial hospitals distributed throughout the United Kingdom, and his advocacy of the policy of concentrating them in purely Canadian hospitals, are interdependent.

As regards distribution, the Board recognized that the Canadian soldier returning to England from France is not in the same position as the British soldier so returning, but, despite this important difference, the Board is of opinion that, practically speaking, a system of distribution which is satisfactory in the case of the British soldier, need not be inefficient in the case of the Canadian.

The Board considers that what is required to meet the special circumstances of the Canadian soldier is an extension of the system of Canadian convalescent hospitals, and organized co-operation as regards inspection between the Canadian and Imperial services. The Board is satisfied that considerable difficulties must arise in the collection and distribution of Canadian invalids to Canadian hospitals, because the problem begins at the front, and, from the personal experience of the majority of the members of the Board, it believes that it is quite impracticable to earmark and collect Canadian casualties at the base in France, and that it would be difficult and inconvenient to direct them solely to Canadian hospitals in England. Special arrangements for their dispatch would be necessary, and while the Board had it in evidence from the principal embarkation medical officer that the difficulties are not insuperable, they are sufficient to enhance the complexities of an already complex problem. The administrative difficulties in this respect would, the Board believes, be found in practice serious, and would almost necessarily involve the provision of clearing hospitals at or near the ports in England. Even if the difficulties of collection in France could be got over, it would necessitate the holding of Canadian patients in France until a sufficient accumulation occurred to justify special arrangements for distribution on arrival in England. This policy the exigencies of war would be bound to frustrate. If, however, this proved to be possible, the difficulties of distribution to Canadian hospitals in England would disappear.

But the Board is of opinion that the present system must hold the field if it is found impracticable to find suitable hospital accommodation for the whole of the Canadian sick and wounded in the Shorncliffe area and its neighbourhood, to which it is important that any such scheme should be confined. The establishment of Canadian hospitals in England, even if all were situated south of the Thames, would not meet the requirements, but might even accentuate the difficulty of distribution, and, in either case, the Board is satisfied that the policy of centralization would be unwise and expensive, and is impracticable. It considers that it is unwise on broad grounds of policy, believing that it is to the best interests of both British and Canadian soldiers that they should meet one another, and, as illustrative of Canadian sentiment in this matter, remarks that the Canadian hospitals at Beachborough, Taplow, and Orpington are governed by explicit provisos on the part of the donors that they are not to be confined to the treatment of Canadian sick and wounded.

That such a policy would be expensive is certain, for it would probably be necessary to erect hut hospitals, at large cost and with much delay. The Board is of the opinion that such expenditure would not be justified without very grave and urgent necessity. It does not believe that any such necessity exists, for, after conversation with many Canadian soldiers in different hospitals and with officers and others familiar with the working of the present system, it has failed to discover any general sentiment among Canadian troops in favour of their exclusive treatment in Canadian, rather than in British, hospitals. The present system permits the individual Canadian soldier to select, subject to administrative convenience, the neighbourhood to which he would desire to be sent, and, while there is evidence that Canadian soldiers from time to time ask to be sent to a particular locality or transferred from one hospital to another, the reason generally given is to be near relatives in the United Kingdom, and is not generally associated with their treatment and comfort in imperial hospitals.

The Board does not suggest that the existing Canadian hospitals in England should be given up, and does not object to a reasonable extension of these hospitals, but, even without extension, there is no reason why any wish on the part of a Canadian soldier to be treated in a Canadian hospital should not be met, just as the desire to go to a particular neighbourhood in Great Britain is gratified whenever circumstances permit.

Even if sufficient separate accommodation could be provided for all Canadian casualties in one area in England, it would either be necessary to retain a large number of empty beds to meet the eventualities of war, or, if these were utilized for British patients, as Colonel Bruce suggests, then they might not be available for Canadian patients when the Canadian Corps was heavily engaged. In the opinion of the Board, such a policy must of necessity break down under the stress of war. The special advantages that Colonel Bruce claims for a policy of concentration can be attained with existing arrangements, which are sufficiently extensive to permit of the utilization of the special skill of Canadian physicians and surgeons in all branches of medicine and surgery.

The question of cost cannot be considered apart from that of the existing arrangements, whereby Canadian soldiers are subsisted in imperial hospitals, whether military or V.A.D., at a cost of three shillings a head a day, whereas the average cost to the public of Canadian soldiers in Canadian hospitals, as of British patients in British hospitals, is from six to seven shillings a head a day. The difference is due to cost of personnel and equipment. The Board thinks it right to state that similarly British patients are maintained in Canadian hospitals at the same charge of three shillings, but obviously the balance of advantage is in favour of the Canadian Government, and if Colonel Bruce's policy were adopted the many advantages of this reciprocal agreement would be very much diminished.

Although it has considered these questions on a money basis, the Board believes that, if it could be established that the Canadian soldier suffered from being treated in imperial hospitals, the Canadian Government would not consider the cost in any way, but there is ample evidence that Canadian soldiers have not suffered from being treated in imperial hospitals.

This important subject has been dealt with at some length, because the chief consideration in the reorganization suggested by Colonel Bruce is a policy of preferential treatment, which the Board considers impracticable in its application, and which it believes to be unwise and opposed to Canadian sentiment.

IV.—Unnecessary Detention in Hospitals, etc.

The Board does not agree that there is a lack of efficient medical inspection in hospitals, but agrees with Colonel Bruce and Surgeon-General Jones that additional inspec-

tion of Canadian hospitals, and of Canadian patients in British hospitals throughout the United Kingdom, is desirable from the Canadian standpoint. There is evidence that the desirability of special inspections of Canadian patients in British hospitals was not fully recognized by the then D.M.S. until July of this year, but the Board is of opinion that this policy, with which the Board is in complete sympathy, should have been initiated at an earlier period. From early in the war the Canadian Red Cross had organized a system of visits to Canadian patients in British hospitals throughout the United Kingdom, and the valuable information collected in this fashion was available to the D.M.S., and frequently utilized by him.

The Board agrees with Colonel Bruce and Surgeon-General Jones as to the desirability of additional consultants being appointed, and thinks that there is ample scope for a consulting surgeon, as well as a consulting physician, in Canadian hospitals in the United Kingdom, although it recognized that Canadian hospitals have had the advantage of the advice of experienced consultants. The Board suggests that it would be better if Canadian consultants were appointed to the Imperial Army, instead of their services being confined to Canadian hospitals, and if this policy were adopted it might apply not only to the United Kingdom but to France. The Board thinks it right to refer to the allegation that there have been many errors of diagnosis and treatment. The Board is decidedly of the opinion that there is no cause for alarm on this score, as such errors as have come to notice are incidental to the exigencies of active service, and believes that they do not prevail to as great an extent as in the ordinary course of practice in civil hospitals whether in Europe or Canada.

In opposition to the views of both Surgeon-General Jones and Colonel Bruce, the Board is of opinion that it would be preferable that the head of the medical service should remain in Ottawa as the principal medical adviser of the Government upon all questions, such as the medical examination of recruits, the organization of new units, selection of medical officers for commissions, and other questions upon which the Government in Canada might desire the advice of a senior and responsible officer, matters which, in the opinion of this Board, are intimately bound up with the success of the forces in the field.

The Board is agreed that there is a considerable accumulation of convalescent Canadian patients in imperial hospitals, and that this is due to the insufficiency of accommodation at present in Canadian convalescent hospitals. The Board is also satisfied that there are in the United Kingdom a large number of Canadian invalids who ought to be sent back to Canada, but whom it has been impossible to repatriate because the available accommodation in Canada has been insufficient. The Board attaches the greatest importance to the early provision of sufficient accommodation for returning invalids in Canada, and directs attention to the fact that all invalids returning to Canada have so far been conveyed in returning transports or passenger steamers. In view, however, of the increased number of Canadian troops in Europe and the growing number of serious cases, who it is generally agreed should be sent to Canada at an earlier stage, the Board suggests that the provision of a regular hospital ship should be considered.

V.—Use of V.A.D. Hospitals.

The Board of Inquiry does not concur in Colonel Bruce's recommendation that the use of V.A.D. hospitals by the C.A.M.C. should be discontinued, and makes the following remarks on the system:

1. *Inefficiency:* It does not agree that, as a class, the V.A.D. hospitals are inefficient, and the evidence which, to Colonel Bruce, indicated inefficiency, was really due to defective classification, whereby some V.A.D. hospitals, which were not equipped for all purposes, occasionally contained patients for whom treatment should have been prescribed in a hospital of a higher scale. Even in such cases, facilities for the transfer of such incidental admissions to primary hospitals were always available, and in no case did the Board find that faulty treatment could fairly be attributed to the V.A.D. system.

2. *Expense:* The charge for a patient in a V.A.D. hospital never exceeds three shillings a day, and the Board has it in evidence and is satisfied that the cost per patient in a military hospital is at least six shillings per day.

3. *Unsatisfactory:* Colonel Bruce's point of view would appear to be that those hospitals which are the inevitable outcome of a general mobilization of the medical resources of Great Britain are unsatisfactory from an administrative and professional point of view, but the Board is satisfied that in no other way could the situation arising out of the war have been met, nor could it be altered now without vast and unjustifiable expenditure. The Board in its report passes in review the following points mentioned by Colonel Bruce as evidence of the unsatisfactory nature of these institutions:

(*a*) *Inconvenient Location*, the Board considers, was in many instances inevitable, as accommodation had to be made use of wherever available. The inconvenience is largely minimized by the system of classification of patients, by ample facilities for transportation, and by periodic inspections by imperial and administrative officers.

(*b*) *Medical Staff:* The medical staff is generally found from the local practitioners, who nearly all give their services gratuitously and make large sacrifices in so doing. The investigations of the Board do not support these allegations of inefficiency. The standard of professional efficiency naturally varies, but there is no ground, even in the special reports made by Colonel Bruce's direction, for the grave indictment contained in his report, "a good deal of the surgery is bad"; and if patients have been retained in these hospitals too long, it has been caused by the insufficiency of accommodation in Canadian convalescent hospitals and to delays in connexion with the C.A.M.C. in England.

(*c*) *Nursing Staff:* In all hospitals there is a nucleus of trained nurses (10 per cent.) whose work is supplemented by the devoted efforts of the Voluntary Aid Detachments, the members of which have undergone courses of instruction in first aid and home nursing, and who, after two years of hospital work, are many of them so efficient that the Imperial Government has not hesitated to send them to the great hospitals in France and in the Mediterranean. In no case has the Board had reason to be other than satisfied with the nursing in these institutions.

The Board states that the comments made in Colonel Bruce's report on the V.A.D. hospitals have been widely resented, and expresses the opinion that these strictures are unjustified and regrettable. While it agrees with Colonel Bruce that patients could sometimes be more advantageously treated in, and more speedily evacuated from, large military hospitals, the advantages of the V.A.D. system should not be overlooked in this regard. In these hospitals the Board found the Canadian patient well fed, comfortable, and happy, and receiving an amount of care only possible in institutions organized on the lines of "the home." This has been an enormous asset in the case of soldiers widely separated from their kith and kin.

VI.—Administration of Shorncliffe Group of V.A.D. Hospitals.

The report explains the system under which V.A.D. hospitals are affiliated in groups to central military hospitals and the particular arrangements made at Shorncliffe. It expresses the opinion that the Canadian staffs employed in connexion therewith have been larger than were necessary. It does not agree that the employment of C.A.M.C. personnel should be confined to purely Canadian institutions or that the Canadian ambulance service should not be used for imperial patients. In all these points the Board is opposed to the policy suggested by Colonel Bruce and in agreement with that carried out by General Jones.

VII.—Relations with the Red Cross.

The report of the Board makes reference to the necessity for the continuance of the past harmony between the Red Cross Society, British and Canadian, and the medical service, and considers that the admitted irregularities at one place do not vitiate the policy, but it adds that while rumours of irregularities were widespread, they apparently did not reach the ears of the D.M.S. The Board also adds that glaring departures from accepted service methods of administration passed unnoticed at Surgeon-General Jones's inspections.

VIII.—Detailing of C.A.M.C. Personnel for Imperial Service.

The Board disagrees with Colonel Bruce, and expresses the strong opinion that the forces and resources of the army must be pooled in this struggle, and that interchange of personnel is desirable and necessary in the interests of both services. It is of opinion that the very instances quoted by Colonel Bruce prove the desirability of such interchange, and believes that the policy adopted by Surgeon-General Jones will commend itself to the authorities.

IX.—Situation at Shorncliffe.

With regard to the situation at Shorncliffe, where the A.D.M.S. Canadians was also A.D.M.S. Dover (British), the Board, both from its own observations and experience and

from the evidence submitted, is opposed to the opinion expressed in Colonel Bruce's report. The Board is satisfied that the arrangement has been, and is, a good and satisfactory one as regards both the Canadian and British interests.

X.—Surgical Operations not Tending to Increased Military Efficiency.

The Board agrees with Colonel Bruce that much surgery fitting in civil life is not advisable in military practice, and has evidence to the effect that efforts have been made to induce newly commissioned medical officers to regard physical unfitness from a military point of view, and that experience has effected a marked improvement in this respect. It appears that in the appendix to his report mention was made of twenty-one cases, and the Board states that one at least of these has come under its attention. The hospital records of that case were, the Board states, incorrectly reported by Colonel Bruce. The man had not suffered from the disability stated, the operation performed was not as stated, and the mention of the surgeon's name accentuated the grave injustice of the criticism.

XI and XII.—Special Hospitals.

The Board is of opinion that a special hospital, such as that at Ramsgate, is essential. If treatment had to be delayed until the patient could be sent to Canada, even if sufficient accommodation existed there, the beneficial results of early treatment would not be attained. The Board, however, recognizes that many cases have been admitted and detained there whose immediate transfer to Canada was desirable, and this remark is applied in a special degree to cases of amputation. The Board, however, had evidence that the facilities existing in Canada are not as yet sufficient to meet the requirements in this respect. The Board, while recognizing that trades should not be taught in England, believes that there is a distinct therapeutic value in work for selected cases. The value of institutions in fitting men to return to duty was shown by the report of the officer commanding, which stated that 60 per cent. of the patients were discharged to full duty. Similar remarks are made with regard to Buxton Hospital, and the report states that Colonel Bruce admitted that his criticism had reference to its use for cases of chronic rheumatism. The Board is in agreement with his views in this respect. The consulting physician reported that seventy-one of all the cases treated at Buxton had returned to full duty. The Board states that it holds that this hospital serves a useful purpose.

XIII.—Venereal Situation.

The Board finds that the efforts of the D.M.S., soon after his arrival in England, to secure adequate provision for these cases were not invariably supported by the higher authority, proper accommodation was not provided as asked, and, as a result, the discipline and control essential in this class of case were not secured. A solution of the difficulty can only be reached, the Board holds, by co-operation between the medical service and the Adjutant-General's Branch, and concurs in the view that the segregation of all such cases in an area by themselves, under special arrangements for treatment and discipline on the lines of a convalescent hospital, which combines treatment and training, is essential.

XIV.—Infectious Diseases.

The Board states that the system of utilizing the isolation hospitals of local authorities is that generally adopted by the British service whenever possible, and considers that it was properly followed in this instance.

XV.—Medical Board Situation.

The Board of Inquiry agrees that there is a necessity for reformation in the medical board situation and in the classification of casualties. It is of opinion that an easy solution of the problem would be the adoption of the British system so far as applicable, and makes suggestions in this direction.

XVI.—Records.

The Board generally agrees with the criticisms made by Colonel Bruce, but points out that they are of universal application, and apply to all medical services in all wars. The desirability of improvement has not been lost sight of, and all available information is the subject of record by the Medical Research Committee. The Board does not agree that the defects in the system are attributable to the C.A.M.C., or that the proposals of Colonel Bruce are practicable. It is satisfied that Surgeon-General Jones has done a great deal towards the establishment of a better system than has hitherto been available in armies in the field.

XVII.—Pensions.

The Board notes that Colonel Bruce withdrew certain remarks to which his attention was drawn, and expresses the opinion that the ultimate investigation of pensionable cases should take place in Canada.

XVIII.—Co-ordination.

Many of the matters under this head are dealt with by the Board in its comments on the first section of Colonel Bruce's report. It is of opinion that the only course is the enforcement of stringent examination on enlistment, and adherence to whatever standard of fitness may be laid down in regulations from time to time. As to questions raised with regard to quarantinable diseases, such as trachoma, the Board agrees with Colonel Bruce that special action should have been taken to obtain sanction for the return of such cases to Canada.

XIX.—C.A.M.C. Personnel not used to Advantage.

The Board disagrees with the contention underlying Colonel Bruce's report that the services of officers and other ranks C.A.M.C. should be confined to Canadian troops. It does not accept the statement that Canadian medical units are not serving, except in a small proportion of cases, Canadian sick and wounded in France. The statement is found to be incorrect as regards the thirteen field ambulances, and as regards the casualty clearing stations and stationary and general hospitals, the Board considers it obvious that their employment on the line of communication necessitates their being used for all troops using that line. The Board is therefore of opinion that Colonel Bruce did not appreciate the need of trained experts at the base and in casualty clearing stations, and holds that a specially trained practitioner who can efficiently command a field ambulance is, as a rule, of more value at the front than as a specialist in a general hospital.

XX.—Consulting Specialists.

The Board is agreed as to the desirability of appointing civilian practitioners of eminence as consulting physicians and surgeons to Canadian hospitals in the United Kingdom, but holds that the appointment of consultants to the Expeditionary Force is a matter for the decision of the imperial authorities. (See IV, above.)

XXI.—Discontent as to Promotion.

The Board dryly remarks that this source of discontent exists in all armies. It found no evidence that it was abnormal in the C.A.M.C. It considers that the initial error lay in giving no lower rank than that of captain to officers joining the C.A.M.C. It recommends that the ordinary rules of promotion be observed and the senior officer selected for promotion, provided he has all the necessary qualifications, and that all future first commissions be in the rank of lieutenant.

XXII.—C.A.M.C. Training School.

The Board agrees with Colonel Bruce's statement that the C.A.M.C. training school has never been properly organized; it has not yet been given an establishment, and only recently suitable accommodation. As it is in effect the dépôt of the Canadian Army Medical Corps overseas, the Board considers it of particular importance that it should be fully organized under an officer with practical experience in the field. It finds that efforts were made by the D.M.S. from time to time to get a suitable location and that no responsibility attaches to him, as he did not receive assistance or support from the authorities. It recommends that this important question should receive early consideration.

XXIII.—Economy in Management.

The Board does not agree that in the operation of the medical service sufficient attention has not been paid to economy in management; on the contrary, the various arrangements that have come to its knowledge have been generally most advantageous to the Canadian Government.

British Medical Journal.

SATURDAY, JANUARY 6TH, 1917.

1916–1917.

THE war, and the strain on the resources of all classes caused by its prolongation, has led to a sort of grand inquest of the nation not confined to the House of Commons. All classes have taken a share in it, and all the organizations of peace, and all the institutions which have grown up under it, have been examined and their defects searched out. Mankind gives itself, in these fierce times of stress, the blessed consolation of a belief that things will be better after the war than they were before—that there will be a new spirit in a new-made world.

In the conduct of the war we seem to have reached the stage of construction when the critics are being set to mend matters; in the conduct of civil life we seem to be still mainly in the stage of criticism seeking to destroy what it judges to be defective. Medicine has not escaped this general tendency; it does not seek to escape it, and its keenest critics are those of its own household. We have seen the very fundamentals of the principles of the treatment of wounds re-examined, we have seen bacteriology and intensive clinical observation and laboratory investigation applied to the analysis of known epidemic diseases with resulting improvement in prophylaxis and administration, and we have witnessed the recognition of some diseases of this class which are either new or hitherto rare and imperfectly studied.

It has been chiefly on questions of organization that criticism has been loudest, and the organization of the medical profession has come in for its share. We are told by many voices that the medical body politic is sick. At the one extreme we have the physician who prescribes trade unionism, and at the other him who as vehemently recommends a State Medical Service. The two prescriptions are incompatible, and the patient, who is not convinced that he is so sick as his doctors make out, may be forgiven if for the present he declines to swallow either. Among the advocates of a State Medical Service are those who seem to attach most importance to the hard case of the young man serving in the Royal Army Medical Corps who, when demobilized, will be at a loose end, and, having served his country, ought not, it is said, to be put to the inconvenience of beginning civil work with his foot on the lowest rung of the ladder. To admit that there is something in this argument is not to accept it as conclusive. Other advocates rest their case chiefly on the contention that a State Medical Service would ensure greater efficiency not only in the prevention but also in the treatment of disease; they seem bent on reviving the scheme of the Minority Report of the Poor Law Commission, and are fascinated by the idea of a graded service, somewhat on the lines of the Royal Army Medical Corps, which would attend not only to prevention, but to clinical treatment. Both classes of advocates agree in recommending a State Medical Service on the ground that it would eliminate competition. That competition is an evil they assume as axiomatic; so far from being axiomatic, however, the assumption needs very clear proof, for it is contrary to the history of human development, and contrary, indeed, to the whole doctrine of evolution.

At the other extreme we have those who vehemently demand a trade-union system. We believe that they are flogging a dead horse, not so much because they could only attain their ideal by a disruption of the profession, but because in the conditions under which the profession exists and must always exist unless converted into a State service, a trade union would not give any real powers beyond those possessed by a voluntary association such as the British Medical Association. The grounds for this opinion were very fully set out in a reasoned and fully documented statement of the position published a few years ago. The facts and deductions in this statement have been ignored but they have not been controverted.

The British Medical Association comes in for the criticism of each of these opposing factors because it has shown no readiness to accept the panacea of either. We will here lay no further stress on the point that the two schemes are incompatible, if not mutually destructive; rather we would say that we are certain that the Association will welcome all fair criticism, and all attempts, from whatever quarter, to make it a more efficient instrument for the maintenance of the honour and interests of the profession; but there are many who, in their eagerness to promote their own views as to the policy the profession should follow in the future, take to denouncing the Association instead of setting themselves to convince their fellows.

The ordinary medico-political work of the Association has not been intermitted during the past year, though it has necessarily been curtailed by the absorption of so many active workers on war service, many of them abroad. It has continued to give constant attention to the many matters connected with national insurance which affect not only those actually working under the scheme, but more and more all members of the profession engaged in all kinds of practice; it has represented the views of the profession with regard to the new official schemes for maternity and child welfare, and the control of venereal diseases, and has given expression to the wishes of the profession on many other matters touching its special interest in England and Wales, in Scotland, and in Ireland.

The organization of the profession to meet the strain which the war puts upon its resources was taken in hand at an early date, and the work connected with it has involved the expenditure of much time, energy, and money. The establishment of the Central Medical War Committee for England and Wales, which works with local committees, and with a national committee in Ireland, was due to the initiative of the Association, and the English committee is in close co-operation with a similar committee established in Scotland, and with the special Committee of Reference of the Royal Colleges in London. These committees were recognized under the Military Service Acts as the Central Professional Committees for England and Wales and for Scotland, and the Reference Committee was similarly recognized for certain special purposes. They are now representing to the Government the desire of the medical profession, should mobilization of the nation for national service become necessary, to organize the scheme as it affects the medical profession so as to secure the highest efficiency with the least dislocation of civil work.

It is a matter of regret that the scientific work of the Association has perforce been so greatly curtailed during the war. It has only been possible to hold annual general meetings for the transaction

LIBRARY U. OF I. URBANA-CHAMPAIGN

of business; it has not been possible to arrange for meetings on the customary large scale in the sections of which clinical discussions could take place. There are many reasons for this, which must be obvious to everyone; among them is the fact that so large a proportion of the more active minds of the profession are at present engaged in war work. The columns of the Journal have necessarily reflected this bent of men's minds, and we are glad to be told by one in a position to judge, that the British Medical Journal "has taken the chief place as the diary of men's thoughts from month to month." The scientific work of the Branches and Divisions has also suffered seriously during the war. Apparently in the majority of instances no meetings for scientific discussion have been held, but the reports of the few meetings of the kind which have reached us seem to show that it would now be possible for other Branches to arrange to make experiments on the same lines. We have received and published from time to time interesting reports of medical meetings in the armies, and the last example will be found this week at p. 26, where a meeting during the siege of Kut is reported. If medical men under the trying circumstances of that siege were able to meet and discuss with so much effect topics of purely medical interest, it occurs to us to ask whether Branches in this country might not now be able to follow their example.

THE INCOMPLETE CURE OF THE CONSUMPTIVE.

I.

The treatment of tuberculosis by open-air methods in chest hospitals and sanatoriums has now been extensively tried in all civilized countries.

So much has been claimed for it by enthusiasts and so many promises have been held out by promoters, political and otherwise, that the time has come when the question may reasonably be asked: To what extent are all these prophecies and promises being fulfilled?

Abundance of evidence is available to prove that tuberculous affections of bones, joints, and glands are far more successfully treated in the open air than in closed institutions. Recovery is now shown to be possible in cases that were formerly regarded as hopeless. But for all such cases prolonged treatment is necessary, and they form but a small percentage of the total incidence of tuberculosis. To the lay mind, at any rate, the term "tuberculous disease" is synonymous with consumption of the lungs. How does the matter stand with respect to the latter? Has the introduction of sanatorium treatment produced any marked improvement in the case incidence or in the average death-rate?

It has been frequently pointed out that ever since the year 1837, when registration was first attempted, there has been a steady diminution in the death-rate from consumption on the whole, although fluctuations have been noted at irregular periods. It does not appear, however, that any striking change has been brought about during recent years, such as would be expected if the new methods had achieved the success that had been predicted for them.

In the course of a closely reasoned commentary on the parts played by heredity and environment respectively, Professor Karl Pearson, writing in 1912, presented statistics to prove that the death-rate from phthisis during the period between 1847 and 1866 was already falling much more rapidly than the general death-rate, and that this proportion was still more noteworthy between 1866 and 1891, whereas, during the last period, from 1891 to 1910, the most active period of the antituberculosis "crusade," the rate of fall, so far from being accelerated, would appear to have been retarded. A similar conclusion with respect to mortality was arrived at by Messrs. Elderton and Perry in 1910. In a special comparison between the pre- and post-sanatorium days they appear to have been reluctantly compelled to admit that no proof could be detected to indicate that the introduction of the new methods had been followed by diminished relative mortality.

The conclusions of trained statisticians cannot be ignored, more especially when they are supported by the general, if less precise, balance of clinical opinion, and therefore it must be taken as agreed that, in so far as reduction of death-rate is concerned, the treatment of consumption by open air and sanatorium methods has not fulfilled the promises of its earlier promoters.

The ratio of case incidence to population is not easy to determine for purposes of comparison. Only since the introduction of notification has any semblance of accuracy been approached. In some of the latest reports from county sanatoriums the records tell of numerous cases, only notified after death. In one of them as many as 425 such unnotified deaths are tabulated as having occurred during the year 1915.

It is thus impossible to form from such imperfect data any clear idea as to the relative increase or decrease of the disease in general, but the great fact remains for contemplation that the necessary accommodation has not yet been found for the large number of consumptives who have been recommended for sanatorium treatment, by tuberculosis dispensary committees or by Insurance Commissioners, and that a very considerable proportion of them are a source of danger to others.

Among the many influences that may be at work to maintain and foster the spread of tuberculosis, that of housing must always take a prominent place. In his Harveian oration before the Royal College of Physicians in 1911, the late Dr. Theodore Williams emphasized the point that the task of reducing or abolishing tubercle does not lie wholly with the doctors, but also with those who have it in their power to remove or lessen the principal causes for the spread of tuberculosis. Amongst these he mentions overcrowding, insanitary houses, lack of pure water and milk, and the want of open spaces and adequate means of ventilation. The experience of all medical officers of health has been in agreement as to most of these evils, and much has been done to remedy some of them.

In his report for the present year, the medical officer of health for Derbyshire repeats with emphasis a well-considered opinion that the problem of tuberculosis is essentially a housing problem. It is in the overcrowded, ill-ventilated home that the disease is fostered and spread. Even where cleanliness prevails and good water and milk supplies are secured, the presence of one tuberculous person, occupying the same living and sleeping rooms as a number of other inmates, presumably healthy, is injurious to the one and a constant source of risk to the others. So potent is this factor that tuberculosis has been defined by established authorities as a disease of the dwelling, the affection being chiefly acquired in bedrooms.

Evidence collected by Sir Shirley Murphy showed that the death-rate from tuberculosis in London steadily increases with the proportion of the total population, living more than two in a room, in tenements containing less than five rooms.

Although it obviously operates to spread the disease, overcrowding must not be regarded as the cause of it. The evil effects are only manifested in places where a source of infection already exists.

Tuberculosis thrives in stagnant air, especially if it be contaminated by animal exhalations. Its development and progress are checked in pure air, frequently changed.

These facts being fully known and widely recognized, the very simple conclusion follows that in order to restore the affected individual to health and to protect his immediate surroundings from risk of infection, some means must be adopted to remove him to a hygienic environment and to maintain him there so long as he shows evidence of infectivity.

But under present conditions a vast amount of public money is being expended in the temporary repair of the damage done by overcrowding, a considerable proportion of which is being deliberately wasted, with the connivance, if not the approval, of the authorities concerned.

No one conversant with the subject can ignore the fact that patients in various stages of disease are constantly being permitted, on discharge from chest hospital or sanatorium, to return to the identical conditions of life from which they had been temporarily rescued, still discharging bacilli in their excretions.

No doubt a few may be able to maintain the health the sanatorium has restored to them, but very many others will relapse for lack of a more extended treatment. Their former life is resumed, and no return will be forthcoming for all the care, attention, and money that have been expended.

The false economy of half measures is proverbial, and no better instance could be adduced than this one-sided system of dealing with tuberculosis.

It is satisfactory to note that in some districts attempts are being made to shake off this reproach and to organize a system more in keeping with the dictates of common sense. Recent reports show that efforts are being made to supply shelters where the infected individual who is still able to work may spend his nights for an indefinite period in fresh air and alone. The amount of interchange of air needed for the successful treatment of pulmonary tuberculosis is far in excess of that which is usual in most households. It can be provided in specially constructed buildings, and suggestions have been made, and some of them carried into effect, for the provision in industrial districts of rows of cubicles, open to the air on one side, and efficiently protected from rain storms, or by the construction of shelters on existing outbuildings, and approached from the first floor of the dwelling in the patient's own home. But all such structures have to be provided at public expense in the first instance, and, although a moderate return in the way of rental might be forthcoming, the chief return would take the form of additional wage-earning power to the community.

THE CANADIAN ARMY MEDICAL SERVICE.

THE general tone and purport of the report of the Board of Inquiry, appointed last November by the High Commissioner for Canada to inquire into the criticisms contained in a report made by Colonel H. A. Bruce, Special Inspector-General, Canadian Army Medical Service, will give much satisfaction both to that service and to the public. The Board was instructed to express its opinion as to whether the criticisms were justified in whole or in part, and to state whether it endorsed and concurred in Colonel Bruce's recommendations. Speaking generally, the Board does not endorse the criticisms nor concur in the recommendations. It is particularly satisfactory to us in this country to know that the experienced officers constituting the Board are abundantly satisfied that the Canadian sick and wounded have been thoroughly well cared for not only in the central hospitals, whether British or Canadian, but also in the V.A.D. hospitals. This finding entirely confirms the impression we formed from observation both in France and England, and from communications received at various times during the last couple of years. The Board does not approve the recommendation which would have had the effect of segregating Canadian sick and wounded. We gather from the report of the Board that Colonel Bruce must have started with a mistaken view of the relations which should exist, and we are glad to say do exist, between the Imperial and the Canadian forces, including the medical corps of each. They have fought together and worked together, ever ready to give help each to the other as occasion arose. To what a degree Colonel Bruce allowed himself to be obsessed by what the Board calls the "water-tight compartment" policy appears from a paragraph which implies that Colonel Bruce entertained the view that the Canadian Army Medical Corps personnel should not be associated with the British service in scientific inquiries. The medical profession everywhere will sympathize with the words in which the Board professes its profound disagreement with this view, and emphasizes its contrary opinion that such participation is both desirable and necessary. It is necessary in the best interests of the two services, and above all in the best interests of the fighting men for whose benefit the two services exist. It is, indeed, extraordinary that at this time of day such a contention should have been raised. Colonel Bruce is a surgeon of distinction, but military medical administration is a special branch of medicine not to be learnt in a day. The civilian practitioner has accommodated himself unconsciously to the conditions of civil life, but an army is a community living a very special kind of life, and a civilian thrown suddenly into it cannot be competent to judge. The Board is of opinion that Colonel Bruce failed to allow for the sudden expansion of the army and for the unavoidable want of specialized training in its ancillary services; but it states that such imperfections as have existed are rapidly being remedied. The conditions under which the Army Medical Services have had to work during the operations in France have been in many respects novel, and this fact, apart from the enormous expansion of the armies, has created many difficulties. In the opinion of those best qualified to judge they have been overcome with most remarkable success. That this is the simple truth is shown by the praise Sir Douglas Haig in his dispatch accords to the work of the medical service, both Imperial and Dominion. On some points the Board recommends further reforms; its recommendations have to do in particular with the medical examination of recruits in Canada, which it considers were, for various reasons, insufficiently strict, and with the system of medical boards. The Board is of opinion that there is much justice in Colonel Bruce's criticisms of the complicated arrangements that have been permitted to grow up in this latter respect. Though it is unable to agree with the reorganization he proposed, it recommends the adoption of a system which it believes will be simple and practical in operation. We may perhaps be permitted, in conclusion, to congratulate the officers of the Canadian Army Medical Corps on the result of the inquiry, which will leave them free to go on with the good work they have been doing for Canada and the Empire, and to continue steadily to improve it in the light of increasing experience. We understand that the High Commissioner, who is Minister for the Canadian Expeditionary Force, has cancelled Colonel Bruce's appointment as Special Inspector-General.

LIBRARY U. OF I. URBANA-CHAMP

DUBLIN UNIVERSITY: PARLIAMENTARY REPRESENTATION.

By the promotion to the judicial bench of Mr. James Campbell, who was the junior member of Parliament for the University of Dublin, a vacancy now exists in the parliamentary representation of that ancient seat of learning. Two candidates offer themselves for election. One is Mr. Samuels, K.C., who was defeated on a former occasion by Mr. Campbell, but who, as a member of the Senate, and with a seat on the Council, claims that he has a very thorough knowledge of university requirements. The second candidate is Sir Robert Woods, M.Ch. (*honoris causâ*), the distinguished Dublin specialist in diseases of the throat and nose, who is honorary professor of laryngology and otology in the University, an ex-president of the Royal College of Surgeons in Ireland, and ex-president of the Leinster Branch of the British Medical Association and of the Irish Medical Association. As between these two candidates, there can be no question that Sir Robert Woods would make the better representative of the University in the House of Commons. For nearly a century, with the single exception of Lecky the historian, lawyers have represented the University, and the time has come when the medical graduates may properly claim that this succession of legal talent, however distinguished, should be broken. The House of Commons already contains a very large proportion of lawyers; they constitute some 25 per cent., whereas the percentage of representatives of science and medicine taken together would be shown by some figure with a decimal point in front of it. Its debates and legislation on matters affecting public health, and the application of science to national needs suffer by reason of this paucity of trained minds, and no occasion for remedying this defect in our national armament should be let slip. By sending Sir Robert Woods to the House of Commons the electors of Dublin University will have gone some short way to diminish the evils that must necessarily arise when medical men and men of science are in a hopeless minority in the Houses of Parliament. Sir Robert Woods is a broad-minded, tolerant man of scientific attainments and of great common sense. He is standing as a non-party candidate, as an imperialist, and as a medical man. He has defined his position as regards an Irish settlement in the following sensible terms: He will oppose the revival of any controversy as to a settlement being made during the continuance of the war; he will oppose the coercion of any section of the Irish; he will at the termination of the war support a settlement if the Unionists and Nationalists in Ireland have agreed upon one and if Parliament is willing to sanction it. It is, we conceive, the duty of every medical man who has a vote to record it for Sir Robert Woods, and as the election will take place within a very short time it is desirable that those who are acquainted with the present addresses of medical graduates who are serving at the front or elsewhere should, in response to the request of Professors Dixon and Craig, published at page 32, immediately communicate the correct addresses to the Committee Rooms, 24, Trinity College, Dublin.

PARALYSED SOLDIERS AND SAILORS.

AT an early stage of the war the British Red Cross Society took up the question of making suitable provision for men paralysed by their wounds. Such men, when discharged from the army, though they may receive the maximum pension, are, in the majority of instances, not in a position to provide themselves with the skilled nursing and special appliances their condition requires, and it seldom happens that their friends are able to make good the deficiency. With the assistance of the Auctioneers' and Estate Agents' Institute the Red Cross was able to acquire and equip the Star and Garter Hostel on Richmond Hill. The accommodation there provided, though considerable, is, owing to the prolongation of the war, inadequate to deal with all of these distressing cases, even were it desirable to assemble all in one place. Most of the men naturally desire to be in some hostel near their own home, where they can easily be visited by their relations and friends. An agreement has now been come to with the military authorities by which the Joint Committee of the British Red Cross Society and the Order of St. John will become responsible for the treatment of all men paralysed as a result of wounds in the war. A letter has been addressed to the local Red Cross Committees in each county, asking them to take steps to provide for men belonging to their own county. Lists have been compiled of paralysed men in various hospitals all over England, showing the county in which each is domiciled, and it is asked that the name of any paralysed man who desires to get into a permanent hostel or hospital near his own home should be sent to Dr. Fox-Symons, at the British Red Cross Society, 83, Pall Mall, London, S.W. On receipt of this communication, which should include particulars relating to the case and full details as to the man's domicile, Dr. Fox-Symons will communicate with the county representative. It is possible that the British Red Cross Society may eventually receive a grant from the Statutory Committee to assist in this work, and such grants would appear to be well within the scope of the purposes to which the funds at the disposal of the committee may be allocated; but in order to prevent delay the society is prepared to bear such expense as may be necessary, at all events for the present. It is hoped, however, that assistance will also be forthcoming from the locality in which the man's home is.

INTRAVENOUS INJECTIONS OF ANTIMONY IN MALARIA.

SINCE 1906, when Nicolle and Mesnil first recommended the use of antimony in trypanosomiasis, this drug has also been used in the treatment of dermal leishmaniasis, ulcerating granuloma, and Mediterranean and Indian kala-azar. To Broden and Rodhain belongs the honour of having first devised the method of giving the salt intravenously, a procedure which got over the difficulty of oral and subcutaneous administrations. The results obtained in the different diseases mentioned have been satisfactory on the whole, but the difficulty of completely eradicating protozoal parasites is well known, and in trypanosomiasis, at any rate, relapses have not been infrequent even after several courses of antimony injections. Great success has followed intravenous injections of tartar emetic in that intractable form of ulceration known as "ulcerating granuloma of the pudenda," and what is known as dermal leishmaniasis in South America has also reacted very favourably. Following up these discoveries many different authors have employed such injections in kala-azar, the results obtained having been much better than by any previous method of treatment. In a paper published in this issue of the JOURNAL Sir Leonard Rogers records a series of interesting observations on cases of malaria treated by tartar emetic injections. In two of these the injections caused crescents to disappear from the peripheral blood, and in another benign tertian gametes disappeared. Should it be proved that injections of tartar emetic will sterilize cases of malaria a great advance will have been made even on the quinine method, but, as Rogers indicates, a good deal more work and the lapse of a longer time will be needed to determine this point. The disappearance of the gametes alone will not, of course, effect a cure, for the active asexual forms must also be acted upon and killed off. New drugs have from time to time been brought forward for the treatment of malaria; in fact, there is a French one on the market now called "diemenal," a solution of colloidal manganese, which is said to cure malaria much more effectually than quinine, and also to prevent relapses. Time alone will show if

such a claim is well founded, and the same must be said of antimony. Rogers's observation is interesting, and may prove to be very important. The results of his own further observations will be awaited with interest, and doubtless the publication of his preliminary note will stimulate others to put this method to the test.

"THE BRITISH JOURNAL OF OPHTHALMOLOGY."

THE first number of the *British Journal of Ophthalmology* (January, 1917) appears with a foreword by "P. S." (Mr. Priestley Smith), who explains, as has already been stated in our columns, that the new periodical has been brought into existence by the union of the *Reports of the Royal London Ophthalmic Hospital*, the *Ophthalmic Review*, and the *Ophthalmoscope*. It was in 1857 that the staff at Moorfields began to issue periodical reports of their clinical and operative experiences and of the researches carried out in the museum and laboratories of the hospital. This publication now fills twenty volumes. The *Ophthalmic Review* first appeared in 1881, and the *Ophthalmoscope* in 1903. Every student of the subject, "P. S." says, knows that all these have played important parts in the progress of ophthalmology, but their work has sometimes overlapped, implying waste of strength, and the present is a moment when all sorts and conditions of men ask themselves how they can better utilize their resources and increase the efficiency of their work. Therefore the promoters of all three periodical publications have been willing to join forces in a more comprehensive enterprise, which is already, we are glad to learn, assured of welcome and support in all parts of the British empire. It is also hoped that the hospitality of its pages will be accepted from time to time by ophthalmic surgeons in Holland, Sweden, and some other countries, whose original work has hitherto been published elsewhere. This expectation may, we trust, be fulfilled, for it is every way desirable that international amenities between our own and the other northern European countries should be encouraged. The new journal is financed by a company which has been formed by British ophthalmic surgeons, and of which Mr. W. H. H. Jessop, President of the Ophthalmological Society of the United Kingdom, is chairman. To him, as the prime mover in the new enterprise, the cordial thanks of all those interested in it are due. "P. S." concludes by an invitation to contributors in which are quoted the words of Sir William Bowman in the first number of the *Moorfields Reports*, when he referred to those "who would fain leave science more advanced than they found it." The editor of the new journal is Mr. Sydney Stephenson, formerly editor of the *Ophthalmoscope*, the sub-editor Mr. Erskine Henderson, and the chairman of the Editorial Committee, with which they act, is Mr. J. B. Lawford. The first paper in the number is the first part of a paper by Mr. Priestley Smith on the blood pressure in the eye and its relation to chamber pressure. There is a paper on choroidal melanomata by Mr. Foster Moore, three papers on the use of magnets for the removal of foreign bodies, some abstracts of papers published elsewhere, a review, and some notes. We wish the new periodical every success.

RENEWAL OF PETROL LICENCES.

THE Petrol Control Committee (19, Berkeley Street, London, W.) has informed the British Medical Association that medical practitioners should observe the following procedure in applying for a renewal of their petrol licences. The form of application, which is to be found on page 7 of the licence, should be filled in, preferably with the name and address written in printed characters, and forwarded together with a remittance covering the duty on the full number of gallons applied for. In cases where a supplementary licence has been issued both forms of application should be forwarded together. Licences do not expire automatically on January 31st, and consequently, if more than one month's allowance is still due under the licence, an application for a renewal of such licence should not be made until a short time (say a fortnight) before it is exhausted, and in any case no application should be made until after the second week in January.

NONAGENARIANS.

WE publish this week obituary notices of two Fellows of the Royal College of Surgeons of England who were nonagenarians. Mr. Richard Barwell, formerly surgeon to Charing Cross Hospital, who was 90 years of age, became a Fellow of the College in 1853. Mr. Buxton Shillitoe, who was long a well-known practitioner in the city of London, had attained the age of 91, but he did not become F.R.C.S. until seven years after Mr. Barwell. The senior Fellow is now Mr. T. Pridgin Teale, F.R.S., of Leeds. He was admitted a Fellow in May, 1857, and as he was born in June, 1831, he is probably not only the senior, but the oldest Fellow. The next name in the chronological list is that of Mr. D. B. Balding, of Royston, chairman of the Council of the Poor Law Medical Officers' Association, and at one time president of the Cambridge and Huntingdonshire Branch of the British Medical Association, and coroner for Hertfordshire. The senior Fellow of the Royal College of Physicians of London is Sir Hermann Weber, and as he was born in 1823 he is probably the oldest Fellow in years. He was elected a Fellow in 1859, the same year as Dr. William Odling, who was for the thirty years preceding his retirement in 1912 Waynflete Professor of Chemistry in the University of Oxford. We do not know who is the oldest member of the British Medical Association, but until a better claim is established we may assign the position to Dr. Horace Dobell, who wrote to us from his retirement at Parkstone Heights, near Bournemouth, on December 30th, to say that he hoped to celebrate his entrance into his 90th year on New Year's Day. We regret to learn that on starting that day for his usual constitutional walk of an hour he was taken suddenly ill, but are glad to learn that he was able to leave his bed two days later.

THE HALF-YEARLY INDEXES FOR 1916.

THE usual half-yearly indexes to the JOURNAL, to the EPITOME, and to the SUPPLEMENT have been prepared and will be printed. They will, however, not be issued with all copies of the JOURNAL. Any member or subscriber who desires to have one or all three of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C. Such copies will be dispatched shortly after the middle of January.

WE regret to have to announce the death, on December 31st, 1916, at the age of 83, of Dr. William Orange, C.B., who was a member of the medical staff of Broadmoor Criminal Lunatic Asylum from the date of its opening in 1862 down to 1886, and was medical superintendent for the last sixteen years of that period.

SIR WILLIAM J. COLLINS, M.D., M.S., has been elected a member of Parliament for Derby without a contest. He represented St. Pancras in the House of Commons from 1906–10. He is senior surgeon to the Royal Eye Hospital, and ophthalmic surgeon to the King George's Hospital, London, and has done much public work, not only in the House of Commons and in the London County Council, of which he was chairman in 1897–98, but in many other directions. He was, for instance, plenipotentiary for Great Britain to the International Opium Conference at the Hague in 1911–12, 1913, and 1914.

HARRIS
UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

THE WAR.

THE FIVE MONTHS' BATTLE OF THE SOMME.

SIR DOUGLAS HAIG'S DISPATCH.

SIR DOUGLAS HAIG'S dispatch on the operations of the British Expeditionary Force in France from May 19th to December 23rd, falls naturally into four parts. The first deals with the objects of the offensive and the preparations made for it; the other three with its several phases.

The objects were to relieve the pressure on Verdun, to assist our Allies in the other theatres of war by stopping any further transfer of German troops from the Western front, and to wear down the strength of the forces of the enemy. In spite of the fact that the heavy autumn rains, at a time when there were good grounds for hoping to achieve yet more important successes, prevented full advantage being taken of the favourable situation created by the beginning of October, these three main objects had been attained when active operations ceased in November: Verdun had been relieved; the main German forces had been held on the Western front, so that in November the strength of the enemy there was greater than in July, and the enemy's strength had been very considerably worn down.

Preparation.

A period of preparation was needed in the first place for increasing the size of the British Army, for the further training of officers and men on the spot, and for increasing the supplies of ammunition, but it was necessary also in order to accumulate stores at a convenient distance from the front, to organize means of communication and to dig communication trenches. Many miles of new railways, both standard and narrow gauge, and trench tramways were laid; roads were improved and new ones made, and long causeways built over marshy valleys; dug-outs were provided as shelters for the troops, for use as dressing stations for the wounded, and as magazines for storing ammunition and food.

Except in the river valleys the existing supplies of water were hopelessly insufficient to meet the requirements of the numbers of men and horses to be concentrated in the area as the preparations for the offensive proceeded, and it became necessary to sink wells and borings, and to install over one hundred pumping plants; more than 120 miles of pumping mains were laid and every preparation made to ensure an adequate water supply to the troops. The work had to be done under very trying conditions, the weather was bad, the local accommodation totally insufficient for housing the troops, who had to content themselves with such rough shelters as could be provided in the circumstances, and all work was liable to constant interruption from the enemy's fire, and also by attacks in force made on the Vimy Ridge on May 21st and in the neighbourhood of Hooge on June 2nd, the latter necessitating a counter-attack on June 13th, which was successfully accomplished by the troops on the spot.

The first phase of the offensive began on July 1st after an artillery bombardment which commenced on June 24th; during the same period gas was discharged with good effect in more than forty places along our lines, on a frontage which in total amounted to over fifteen miles. The first phase ended on July 14th, when a night attack was delivered on a wide front, and that it was a complete success was the highest possible tribute to the quality of the troops and to their discipline and spirit.

Then followed a phase of slow and methodical progression with almost continuous fighting, ending in the great attack on September 15th, when the "Tanks" were brought into action for the first time. The next large attack was launched on November 13th, and brought the British line to the advanced position in which it now stands. Both these operations, it is said, were carried out without great cost in casualties.

THE MEDICAL ARRANGEMENTS.

The dispatch contains no direct statement as to the number of our casualties. but it is, of course, known that they were large and put the medical arrangements to a severe test. On this point the dispatch contains the following paragraph:

"The losses entailed by the constant fighting threw a specially heavy strain on the medical services. This has been met with the greatest zeal and efficiency. The gallantry and devotion with which officers and men of the regimental medical service and field ambulances have discharged their duties is shown by the large number of the R.A.M.C. and medical corps of the Dominions who have fallen in the field. The work of the medical services behind the front has been no less arduous. The untiring professional zeal and marked ability of the surgical specialists and consulting surgeons, combined with the skill and devotion of the medical and nursing staffs, both at the casualty clearing stations in the field and the stationary and general hospitals at the base, have been beyond praise. In this respect also the Director-General has on many occasions expressed to me the immense help the British Red Cross Society has been to him in assisting the R.A.M.C. in their work.

"The health of the troops has been most satisfactory, and during the period to which this dispatch refers there has been an almost complete absence of wastage due to disease of a preventable nature."

All the arrangements were, we know, very carefully thought out before the advance on July 1st and modified as circumstances required, casualty clearing stations being moved up as necessary. In this connexion we may refer to the great value of the telephone system which the Signal Service organized. Through it, supplemented where necessary by the motor cycle dispatch riders, it has been possible to keep the most advanced units of the medical service in touch with all others down to and beyond the casualty clearing stations.

EMPLOYMENT OF GAS.

On the use of gas the dispatch contains the following paragraph:

> The employment by the enemy of gas and of liquid flame as weapons of offence compelled us not only to discover ways to protect our troops from their effects, but also to devise means to make use of the same instruments of destruction. Great fertility of invention has been shown, and very great credit is due to the special personnel employed for the rapidity and success with which these new arms have been developed and perfected, and for the very great devotion to duty they have displayed in a difficult and dangerous service. The army owes its thanks to the chemists, physiologists, and physicists of the highest rank who devoted their energies to enabling us to surpass the enemy in the use of a means of warfare which took the civilized world by surprise.
>
> Our own experience of the numerous experiments and trials necessary before gas and flame could be used, of the great preparations which had to be made for their manufacture, and of the special training required for the personnel employed, shows that the employment of such methods by the Germans was not the result of a desperate decision, but had been prepared for deliberately.

Since we have been compelled, in self-defence, to use similar methods, it is satisfactory to be able to record, on the evidence of prisoners, of documents captured, and of our own observation, that the enemy has suffered heavy casualties from our gas attacks, while the means of protection adopted by us have proved thoroughly effective.

MENTIONS.

In the *Gazette* of January 2nd a further dispatch is published from Sir Douglas Haig submitting the names of officers, ladies, non-commissioned officers and men serving, or who have served under his command, whose distinguished and gallant services and devotion to duty he considers deserving of special mention. The list is very long and we are unable to deal with it in this issue.

A MEDICAL MEETING AT KUT-EL-AMARA.

WE have received from Major C. H. Barber, I.M.S., a report of a meeting which the medical officers of the Kut garrison, taking advantage of the unusual opportunity afforded them by the siege, held on April 1st, 1916—that is, in the fifth month of the siege. Demonstrations on cases of beri-beri by Captain Cane, R.A.M.C., on scurvy by Captain Clifford, I.M.S., and on gunshot wounds of the abdomen by Major Barber, I.M.S., were given. The meeting had been twice postponed, and even on the day it was held the weather was unfortunately bad

enough to prevent several officers from attending, but the following were present:

*Colonel Patrick Hehir, C.B., I.M.S., A.D.M.S., 6th Division.
*Lieutenant-Colonel Browne-Mason, R.A.M.C., D.S.O.
Major W. M. Pearson, I.M.S.
*Major E. V. Aylen, R.A.M.C., D.S.O.
*Major C. H. Barber, I.M.S.
Captain D. Arthur, I.M.S.
*Captain H. H. King, I.M.S.
Captain E. G. S. Cane, R.A.M.C.
*Captain W. L. Fretz, R.A.M.C.
Captain T. E. Osmond, R.A.M.C.
Captain R. C. Bifford, I.M.S.
Captain M. L. Puri, I.M.S.
Captain L. A. P. Anderson, I.M.S.
Captain C. Newcomb, I.M.S.
Captain J. Murphy, R.A.M.C., D.S.O.
Lieutenant W. C. Spackman, I.M.S.
Lieutenant P. O'Donoghue, I.S.M.D.
Assistant Surgeon Fratel, I.S.M.D.
Assistant Surgeon Aquino, I.S.M.D.
Assistant Surgeon de Souza, I.S.M.D.
Assistant Surgeon A. J. Hixon, I.S.M.D.
Subassistant Surgeon Subadar Thakur Das.
Subassistant Surgeon Abdul Quaium
Subassistant Surgeon Gurdayal Singh.
Subassistant Surgeon Waryam Singh.

* The officers with an asterisk against their names have since been exchanged and have returned to India or England.

Beri-beri.

Starting at the British General Hospital, a series of twenty-six cases of beri-beri were shown by Captain E. G. S. Cane, who pointed out the signs and symptoms of the disease.

Case 1, now convalescent, showed only muscular atrophy and absence of knee-jerks, but had previously suffered from oedema of legs, abdomen, and lungs, cardiac dilatation, and tachycardia.

Case 2 now showed tachycardia only.

Case 3 was an example of great emaciation—a 13 st. man reduced to 8 st. He had previously suffered from paralysis of both arms. He now felt quite well, but was not able to walk. He ate everything he could get of meat, rice, and bread, but did not put on weight.

Case 4 had loss of tactile sensation in the legs from just above the knees downwards.

Case 5 at one time had become suddenly unconscious and had remained so for three days, with no after-effects.

In *Cases 6 and 7* there was abdominal distension, now without ascites. The distension varied with the time of day, generally being worse at night.

Cases 8 and 9 showed great emaciation.

Captain Cane said that unfortunately for purposes of demonstration only the chronic cases were left, all the slighter cases—some sixty in all—having been discharged. Of these only two had returned to hospital. In answer to questions, he said that the men usually came in complaining of swelling in the legs, inability to walk in consequence, and palpitation. The pain was in the calf, in the shin bone, and especially just behind and above the knee. The earliest signs were usually tenderness in the calf, oedema of the legs and loss of knee-jerks, and tachycardia; there were no heart murmurs, but oedema and distension of the abdomen with occasional ascites, and slight oedema of the face; sometimes, not often, areas of anaesthesia occurred on any part of the lower extremities, not confined to any particular nerve areas. Paralysis of the arms was occasional but rare; anaemia was a constant feature. Later on the oedema of the legs went down and wasting was ushered in. Wounds in beri-beri cases, several of which had occurred in hospital, healed very slowly, the granulation process in soiled and open wounds being especially dilatory.

In fatal cases death was usually due to heart failure in the early days of and before the siege, but, later on, uncontrollable dysentery was the determining factor. Two nursing orderlies who were looking after cases of the latter kind contracted the disease, but it was possible that they were already previously affected. Progress was on the whole very good. As regards treatment, no drug appeared to be of much use. Tonics of various sorts were given. Early in the siege the white bread of the ration was replaced by brown and much improvement in the beri-beri cases followed this change.

Wounds of the Abdomen.

The meeting then adjourned to the Indian General Hospital, where Major Barber, I.M.S., showed a number of abdominal cases, a few amputations, and other cases. The abdominal cases were all due to penetrating or perforating gunshot wounds of the abdomen involving the peritoneal cavity and its contents, and had all, with one exception, been operated on by laparotomy successfully. With the exception of one case, in which the liver alone had been injured, all had sustained very extensive damage to the intestines, both the large and the small; the holes and rents therein had been stitched up and the peritoneal cavity cleaned and drained. The liver case referred to was one in which a bullet had gone through the right pleura near the costal margin, smashing a rib and tearing the right lobe of the liver, leaving a gaping rent 3½ to 4 in. in length. This was closed by deep catgut sutures and the peritoneal cavity cleaned of blood; no injury to the gut could be found. Major Barber said that he exhibited these cases in order to show that operation by laparotomy for perforating wounds of the abdomen was not only not hopeless but imperative in every possible case where the general condition of the patient was good enough, and where there seemed no doubt that the hollow viscera were injured. Out of some 80 cases of which he had notes he had now operated on 33, of whom 10 had recovered, whilst of the remaining 47 only 1 had survived—the case now shown. During the later half of the siege the recuperative power of the men had seriously deteriorated, or the figures would no doubt have been better, but they were sufficient to indicate the value of operation.

The earlier the case was got the better the prognosis, and it was doubtful if, as a rule, operation was worth while if over fifteen hours had elapsed before the case arrived in hospital, since after that time severe peritonitis had set in.

The most serious complication was haemorrhage, which accounted for a large percentage of the deaths before operation was possible, or so reduced the resistance of the patient to the shock of the injury as either to contra-indicate operation or seriously to jeopardize his chances of recovery after operation. The extent of the damage to the gut varied enormously from two or three holes to fifteen or sixteen, any or several of which might take the form of large longitudinal rents, or of groups of holes close together, for which resection was the only remedy. In only one case had he found any holes to be so small as to suggest the possibility of their being occluded by natural processes, and in this case they were not the only lesion. Bleeding was nearly always severe, and came either from mesenteric vessels or from the torn gut walls, whilst intestinal contents often exuded in large quantity.

The above remarks, Major Barber said, were especially applicable to cases of wounds below the transpyloric plane. Wounds above that plane were not necessarily so serious, and might sometimes be left alone, since a drilled hole through the liver often healed up quickly, and the stomach above the plane presented a single viscus with its two walls closely applied to solid structures; natural occlusion of two small holes might here take place fairly easily. He then showed several examples of wounds which narrowly missed the peritoneal cavity, and said that sometimes it was very difficult to decide whether it was affected or not, knowledge of anatomical relations and levels being severely tested. He was of opinion that these penetrating wounds of the belly should be treated as acute abdominal cases, and be operated on at once in field ambulances if these were stationary for long enough, as frequently happened. No special instruments or apparatus, beyond those supplied to hospitals, were absolutely necessary, and the chance of these cases reaching a base hospital in time in Mesopotamia was very remote.

A very interesting case of arterio-venous aneurysm diminishing under pressure was then shown, and also an extradural abscess case, occurring two and a half months subsequent to a scalp wound.

Scurvy.

Proceeding to the 57th Stationary Hospital, members were shown some cases illustrating the classical signs of scurvy by Captain Clifford, I.M.S.

The first case was one showing the extent to which the gums may be involved without the occurrence of any suppuration. The whole of the gums of the lower jaw were puffy and inflamed; the papillae stood out from the teeth, and the mucous membrane of both cheeks and palate was oedematous. The case was one of six weeks' standing and had previously suffered from infiltration of the thigh muscles. This had resolved, and there was

LIBRARY U. OF I. URBANA-CHAMPAIGN

now extreme emaciation of the lower extremities. The next case was one with little or no mouth signs, but with marked oedema of the feet and induration of the calf and flexor thigh muscles. When made to stand up he could only attain to a bent-kneed crouching attitude, but complete flexion was easy and painless. The next case illustrated one of the commonest sites of the vicarious haemorrhages met with in this disease. The patient's right eye showed a subconjunctival haemorrhage of some extent. It was limited on the inner side by the corneo-scleral junction, but on the outer the effusion was diffuse and passed to the back of the eye above. No permanent harm had resulted from these haemorrhages; there had been only very temporary diminution of vision and no pain, but there was still some photophobia present after three weeks. A fourth case was again an example of an effusion of blood. The man had a hard, tumour-like swelling in the region of the gall bladder. When admitted three weeks earlier the swelling was more diffuse and less indurated, and appeared to be situated in the subperitoneal tissue. The patient at first had suffered some pain, but this soon passed off; there were other undoubted signs of scurvy present.

The next two cases illustrated the adverse effect of scurvy on wounds. The first was a gunshot wound of the hand with compound fracture of the bones. Instead of healing up, the wound had deteriorated, and become full of thick grey pus, which on being washed away left an unhealthy-looking grey surface, covered with pin-point haemorrhages, and dark plugs of blood-clot were seen scattered over the surface, closing bleeding capillaries. The wound was three months old, and refused to heal, although all dead bone had been removed. There was no surrounding induration, and the edges of the wound were thin and undermined. The second case showed a large wound over the glenoid cavity of the scapula. The arm had been removed two months previously on account of extensive bone injury and continued suppuration. Scurvy had attacked the patient twelve days after the amputation, and the wound at once began to bleed from numerous points on the already granulating area. The progress of the case was checked, and, on account of the abundance of pus, fomentations had once more to be applied to the wound. The scurvy was being checked by giving the patient tinned pineapple, which, Captain Clifford said, caused a very remarkable improvement in these cases. The granulations now looked fairly healthy, though they bled extremely easily: there was no induration around the wound, such as would have been found in an otherwise healthy person with a chronic granulating ulcer.

This concluded the demonstrations, and brought to an end a meeting which will live long in the memory of those who attended it. The downpour of rain damped the spirits of the Turks and gave us a quiet afternoon, so that we were all able to forget for a short time that we were a beleaguered garrison.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Drowned.

Surgeon Probationer W. S. Allardice, R.N.V.R.

Surgeon Probationer William S. Allardice, R.N.V.R., was reported in the casualty list published on December 30th, 1916, as having been drowned on service.

ARMY.

Killed in Action.

Major P. A. Lloyd-Jones, D.S.O., R.A.M.C.

Major Percy Arnould Lloyd-Jones, D.S.O., R.A.M.C., was killed in action on December 22nd, 1916, aged 40. He was the son of Mr. E. Lloyd-Jones of Abbotshill, Malvern, Worcestershire. He graduated B.A.Camb. with honours in 1898, and M.B. and B.C in 1907. He was a student at St. Bartholomew's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1904. After acting as house-surgeon of Bedford County Hospital he entered the R.A.M.C. as lieutenant on July 30th, 1904, becoming captain on January 30th, 1908, and major on July 1st, 1915. In the South African war he served in the ranks for over a year, gaining the Queen's medal with three clasps; he received the order of the Crown of Italy and the Commemoration Medal for services in the Messina earthquake; and in the present war had commanded a field ambulance with the temporary rank of lieutenant-colonel, had been mentioned in dispatches, and received the D.S.O. on June 23rd, 1915.

Died of Wounds.

Captain R. F. Hughes, A.A.M.C.

Captain Rogers Forrest Hughes, whose death from wounds we recorded last week, was born on May 6th, 1890, and was the elder son of Sir Thomas Hughes, for many years Lord Mayor of Sydney. He was educated at St. Ignatius College, Riverview, Sydney, and entered the Sydney University, where he graduated B.A., M.B., C.M. at the end of 1915. He represented his school at cricket and football and his university at hockey. He relinquished the post of resident medical officer at St. Vincent's Hospital in March, 1916, to enlist with the Australian Army Medical Corps, and after serving with a military base hospital left for service abroad in August. Just before leaving Australia he married Eileen, the youngest daughter of Mr. and Mrs. Maher, of Collaroy Station, Merriwa N.S.W. He arrived in France on December 1st, and was detailed as regimental medical officer to an Australian battalion. It was while attending to a wounded man in the dressing station on December 11th that he was severely wounded; he died the same day.

Lieutenant E. Howe, R.A.M.C.

Lieutenant Ernest Howe, R.A.M.C., whose death was reported last week, died of wounds on December 14th, 1916, aged 30. He was born at Dove Holes, Buxton, educated at the Victoria University, Manchester, where he graduated M.B. and Ch.B. in 1909, and, after acting as house-physician of Manchester Royal Infirmary, went into practice at Hazel Grove, near Stockport. He had only recently taken a temporary commission in the R.A.M.C., and went to the front in October, 1916.

Wounded.

Captain M. H. Barton, R.A.M.C.(T.F.).
Lieutenant T. H. Drake, R.A.M.C. (temporary).

Deaths among Sons of Medical Men.

Atkinson, Noël Mitford Henson, Second Lieutenant East Lancashire Regiment, attached Royal Flying Corps, younger son of Dr. and Mrs. T. Reuell Atkinson, of Chadwell Heath, Essex, killed December 27th, 1916, aged 25 years. He was educated at Chigwell School, getting his colours for cricket and football, and winning many prizes for swimming. He was a colour-sergeant in the school O.T.C. He matriculated at the London University, and entered Guy's Hospital, but, not finding hospital life congenial, he left the hospital at the end of a year and entered the Insurance Company of Manton, and from that transferred to the Hong Kong and Shanghai Banking Corporation. On the outbreak of war he enlisted in the U.P.S. Battalion, Royal Fusiliers, spent all last winter in the trenches, rose to the rank of sergeant, and was sent home, in the spring of 1916, for a commission. After some months at Balliol College, Oxford, he was gazetted to the East Lancashire Regiment. His elder brother Guy, a second lieutenant in the same regiment, died on October 30th, 1916, from wounds received on October 24th, 1916.

Hincks, Bertram, Second Lieutenant King's Royal Rifle Corps, youngest son of Dr. T. S. H. Hincks, of Hay, Hereford, killed on December 18th, 1916, aged 24. He was educated at Christ's College, Brean, and was farming in Canada till the beginning of the war, when he enlisted in the Canadian Scottish, and came to England with the first Canadian contingent. He went to France early in 1915, and took part in the second battle of Ypres, and in the battle of Festubert. He then received a commission in the K.R.R.C., and after a period of training in England, returned to the front last September. He was killed instantaneously by a sniper.

Hobart, Frederick Audrey, Private, Argyll and Sutherland Highlanders, youngest son of the late Dr. N. T. Hobart, of Cork, killed December 12th, 1916, aged 33.

Massy, George Dunham, London Regiment, elder son of the late Lieutenant-Colonel George Massy, I.M.S., killed on December 15th, 1916, aged 36.

Rendall, Frank, Corporal the Buffs, East Kent Regiment, second son of Dr. Rendall, late of Maiden Newton, Dorset, killed November 18th.

Underhill, Reginald, Lieutenant Duke of Cambridge's Own Middlesex Regiment, eldest son of Dr. F. T. Underhill, medical officer of health, Vancouver, British Columbia, killed November 18th, 1916. For nine years he had been a sergeant in the 6th Duke of Connaught's Own Rifles, Vancouver. He enlisted on August 4th, 1914, came to England as a sergeant in the 7th Battalion, 1st Canadian Division, and was given a commission in the Middlesex Regiment on December 22nd, 1914. He had served for eighteen months at the front when he was wounded last March, and returned to the front in July. He had three brothers serving, one of whom was killed last March.

HONOURS.

A SPECIAL supplement to the *London Gazette* issued on January 1st contains long lists of honours and promotions. The following medical officers are among the recipients. The *Gazette* does not specify how many belong to the Territorial Force, but we have inserted, so far as the information at our disposal permits, an indication in the case of officers receiving the D.S.O. and the Military Cross, who number eighteen and fourteen repectively.

To be K.C.B.

Surgeon-General Hayward Reader Whitehead, C.B., F.R.C.S.

To be C.B.

Colonel (temporary Surgeon-General) James Murray Irwin, M.B., late R.A.M.C.

Inspector-General John Cassilis Birkmyre Maclean, M.B., R.N.(ret.).

Colonel Robert Lockhart Ross Macleod, M.B., A.M.S.

Colonel Gerald Cree, C.M.G., A.M.S.

Colonel Alexander Arthur Sutton, D.S.O., A.M.S.

Colonel George Henry Barefoot, C.M.G., R.A.M.C.

Temporary Colonel Thomas Sinclair, M.D., F.R.C.S., A.M.S.

Lieutenant-Colonel Edwin Thomas Fairweather Birrell, C.M.G., M.B., R.A.M.C.

Colonel Herbert Stanley Birkett, C.A.M.C.

Colonel James Alexander Roberts, C.A.M.C.

To be K.C.M.G.

Surgeon-General Richard William Ford, C.B., D.S.O.

Colonel Maurice Percy Cue Holt, C.B., D.S.O., A.M.S.

To be C.M.G.

Colonel Thomas Daly, R.A.M.C.

Colonel William Lewis Gray, M.B., R.A.M.C.

Colonel Foster Reuss Newland, M.B., A.M.S.

Colonel Henry Thomas Knaggs, M.B., A.M.S.

Colonel Herbert Innes Pocock, R.A.M.C.

Colonel Bertal Hopton Scott, R.A.M.C.

Colonel Robert Wallace Wright, M.B., R.A.M.C.

Colonel Thomas Du Bedat Whaite, M.B., R.A.M.C.

Colonel Frederick James Morgan, A.M.S.

Temporary Colonel Thomas Crisp English, M.B., F.R.C.S., A.M.S.

Lieutenant-Colonel Arthur Russell Aldridge, C.S.I., M.B., R. of O., R.A.M.C.

Lieutenant-Colonel (temporary Colonel) John David Ferguson, D.S.O., R.A.M.C.

Lieutenant-Colonel Samuel Henry Withers, M.B., R.A.M.C.

Lieutenant-Colonel (temporary Colonel) Ferberd Richard Buswell, R.A.M.C.

Lieutenant-Colonel Lionel Fergus Smith, M.B., R.A.M.C.

Lieutenant-Colonel (temporary Colonel) Frank Albert Symons, D.S.O., M.B., R.A.M.C.

Temporary Lieutenant-Colonel Gordon Morgan Holmes, M.D., R.A.M.C.

Temporary Lieutenant-Colonel Herbert Lightfoot Eason, M.D., R.A.M.C.

Lieutenant-Colonel Alfred Sutton, A.A.M.S.

Lieutenant-Colonel Edward Charles Hart, C.A.M.C.

To be C.I.E.

Lieutenant-Colonel James Graham Hojel, M.B., I.M.S., Officer Commanding Lady Hardinge War Hospital, Bombay.

Morris Y. Young, M.B., Medical Officer at the Oil Fields, Persian Gulf.

To be Companion of the D.S.O. in Recognition of Services in the Battle of Jutland.

Fleet Surgeon Ernest Alfred Penfold, M.B., R.N.

Was in the fore medical distributing station when a heavy shell burst just outside, killing and wounding many. He was knocked down, bruised, and shaken, but personally assisted in the removal of the wounded and tended them with unremitting skill and devotion for forty hours without rest. His example was invaluable in keeping up the morale of the wounded and of the medical party under very trying conditions, the shell having destroyed instruments, dressings, etc.

Awarded the Distinguished Service Cross.

Surgeon Hother McCormack Hanschell, R.N.

In recognition of his services with the Tanganyika Flotilla. The comparative immunity from sickness enjoyed by the members of the expedition was due to the unremitting care bestowed by Surgeon Hanschell on the health of the personnel and on the sanitary state of the camps and vessels.

Noted for Accelerated Promotion.

Fleet Surgeon Alfred James Hewitt, R.N., who has been mentioned in dispatches, has been noted for accelerated promotion in recognition of the conspicuous gallantry and very exceptional professional ability which he displayed as medical officer of H.M.S. *Pegasus* when that ship was sunk by the *Königsberg* in September, 1914.

To be Brevet Colonels.

Lieutenant-Colonel H. H. Norman, M.B., R.A.M.C.

To be Brevet Lieutenant-Colonels.

Major G. Ormrod, M.B., R.A.M.C.

Major (temporary Lieutenant-Colonel) E. Ryan, D.S.O., R.A.M.C.

Awarded the D.S.O.

Captain Robert George Archibald, M.B., R.A.M.C., employed Egyptian army.

Captain Frank Rhodes Armitage, M.B., R.A.M.C.(T.F.)

Lieutenant-Colonel Marcus Hill Babington, R.A.M.C.

Captain (temporary Major) Winfred Kelsey Evanan, R.A.M.C.

Captain Frederick Arnot Bearn, M.C., M.B., R.A.M.C.(S.R.).

Major (temporary Lieutenant-Colonel) William Bennett, M.B., R.A.M.C.

Lieutenant-Colonel William Arthur Benson, R.A.M.C.(T.F.)

Captain (temporary Major) Reginald Ernest Bickerton, M.B., R.A.M.C.(T.F.)

Major (temporary Lieutenant-Colonel) Elliot Beverly Bird, R.A.M.C.(T.F.)

Major Robert Barclay Black, M.B., R. of O., R.A.M.C.

Lieutenant-Colonel (temporary Colonel) Robert James Blackham, C.I.E., F.F.P.S., R.A.M.C.

Lieutenant-Colonel (temporary Colonel) Ernest William Bliss, R.A.M.C.

Major (temporary Lieutenant-Colonel) John Hanfield Brunskill, M.B., R.A.M.C.

Major (temporary Lieutenant-Colonel) Ronald Anderson Bryden, R.A.M.C.

Captain Hector Mackay Calder, M.B., R.A.M.C.(T.F.)

Lieutenant-Colonel Frederick Fitzgerald Carroll, M.B., R.A.M.C.

Lieutenant-Colonel Robert William Clements, M.B., R.A.M.C.

Lieutenant-Colonel Harold Collinson, M.B., F.R.C.S., R.A.M.C.(T.F.)

Major John Marcus Hobson Conway, F.R.C.S.I., R.A.M.C.

Captain Myer Copians, M.D., R.A.M.C.(T.F.)

Major (temporary Lieutenant Colonel) Hugh Allan Davidson, M.B., R.A.M.C.

Captain David Dickie, F.R.C.S., R.A.M.C.(T.F.)

Captain (temporary Major) Gilbert Henry Dive, R.A.M.C.

Lieutenant-Colonel (temporary Colonel) Henry Mason Dunn, M.B., R.A.M.C.

Captain (temporary Major) Georgie Bennick Edwards, R.A.M.C.

Lieutenant-Colonel Otto William Alexander Elsner, R.A.M.C.

Major Henry Horace Andrews Emerson, M.B., R.A.M.C.

Major and Brevet Lieutenant-Colonel (temporary Lieutenant-Colonel) FitzGerald Gabbett FitzGerald, R.A.M.C.

Major (temporary Lieutenant-Colonel) William Richard Power Goodwin, R.A.M.C.

Major William Haig, R.A.M.C.(T.F.)

Major (temporary Lieutenant-Colonel) Thomas Ernest Harty, R.A.M.C.

Major (temporary Lieutenant-Colonel) Wm. John Saundry Harvey, R.A.M.C.

Lieutenant-Colonel Frank Hawthorn, M.D., R.A.M.C.(T.F.)

Lieutenant-Colonel Henry Hewetson, R.A.M.C.

Lieutenant-Colonel Henry Charles Rupert Hime, M.B., R.A.M.C.

Major (temporary Lieutenant-Colonel) Andrew Edward Hodder, M.B., R.A.M.C.(T.F.)

Major (temporary Lieutenant-Colonel) Charles Walter Holden, R.A.M.C.

Captain Frederick Duke Gwynne Howell, M.C., R.A.M.C.

Lieutenant-Colonel Wilfrid Edward Hadlestone, R.A.M.C.

Major (temporary Lieutenant-Colonel) Dermot Owen Hyde, M.B., R.A.M.C.

Major Osburne Ievers, M.B., R.A.M.C.

Lieutenant-Colonel Edgar Thomas Inkson, V.C., R.A.M.C.

Major John Tyrer Johnson, M.B., R.A.M.C.

Major (temporary Lieutenant-Colonel) Harry Beatty Kelly, M.B., R.A.M.C.

Lieutenant-Colonel James William Langstaff, R.A.M.C.

Temporary Major (temporary Lieutenant-Colonel) Charles Edward Ligertwood, M.D., R.A.M.C.

Major (temporary Lieutenant-Colonel) Edmond McDonnell, M.B., R.A.M.C.

Captain (temporary Major) Donald Francis Mackenzie, M.B., R.A.M.C.

Major (temporary Lieutenant-Colonel) James Mackinnon, R.A.M.C.(T.F.)

Lieutenant-Colonel Cecil Wilmot Mainpraise, R.A.M.C.

Temporary Captain John Dodds Marshall, M.B., R.A.M.C.

Major John St. Aubyn Maughan, R.A.M.C.

Major Cecil Roy Millar, R.A.M.C.

Temporary Captain Robert Molyneux Miller, R.A.M.C.

Lieutenant-Colonel Edward Maudsley Morphew, R.A.M.C.

Major Santiago Luis-Pallant, R.A.M.C.

Temporary Captain William Newton Parker, M.D., R.A.M.C.

Captain (temporary Major) Thomas Henry Peyton, R.A.M.C.(T.F.)

Lieutenant-Colonel (temporary Colonel) Charles Edward Pollock, R.A.M.C.

Lieutenant-Colonel (temporary Colonel) Charles William Profeit, M.B., A.M.S.

Lieutenant-Colonel (temporary Colonel) Harold Vernon Prynne, F.R.C.S., R.A.M.C.

Captain (temporary Major) William Brooke Purdon, M.C., M.B., R.A.M.C.

Major Lydmar Moline Purser, M.B., R.A.M.C.

Lieutenant-Colonel Wilson Ranson, F.R.C.S., R.A.M.C.(T.F.)

Major (temporary Lieutenant-Colonel) Matthew Burrow Ray, R.A.M.C.(T.F.)

Major (temporary Lieutenant-Colonel) Theodore Francis Ritchie, M.B., R.A.M.C.

Lieutenant-Colonel Horace Samson Roch, R.A.M.C.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Major (temporary Lieutenant-Colonel) Alexander Macgregor Rose, M.B., R.A.M.C.
Lieutenant (T.) (temporary Colonel) Percy William George Sargent, M.B., F.R.C.S., A.M.S.
Temporary Captain Ernest Scott, M.B., R.A.M.C.
Lieutenant-Colonel (temporary Colonel) Daniel David Shanahan, R.A.M.C.
Lieutenant-Colonel (temporary Colonel) John Payzant Silver, M.B., R.A.M.C.
Staff Surgeon Charles Edward Cortis Stanford, M.B., Royal Navy, R.N. Div.
Major John Orlando Summerhayes, R.A.M.C.(T.F.)
Lieutenant-Colonel Albert George Thompson, M.B., R.A.M.C.
Major Charles Glendenning Thomson, R.A.M.C.
Major Lionel Victor Thurston, R.A.M.C.
Lieutenant-Colonel Andrew Alexander Watson, R.A.M.C. (T.F.)
Lieutenant-Colonel (temporary Colonel) Brian Watts, R.A.M.C.
Captain (temporary Lieutenant-Colonel) George Thomas Willan, H.C. Field Ambulance, R.A.M.C.
Major (temporary Lieutenant-Colonel) Maurice Guy Winder, R.A.M.C.
Major (temporary Lieutenant-Colonel) Basil Fenton Wingate, R.A.M.C.
Major Richard Nason Woodley, R.A.M.C.
Captain (temporary Major) William Gordon Wright, R.A.M.C.
Temporary Captain William Allan Young, M.B., R.A.M.C.

Lieutenant-Colonel George Walter Barber, A.A.M.C.
Major Joseph Espie Dods, M.C., A.A.M.C.
Major Henry Kenneth Fry, A.A.M.C.
Lieutenant-Colonel (temporary Colonel) Charles Henry William Hardy, V.D., A.A.M.C.
Major Alexander Hammett Marks, A.A.M.C.
Lieutenant-Colonel John Hare Phipps, A.A.M.C.
Lieutenant-Colonel Thomas Gordon Ross, A.A.M.C.
Lieutenant-Colonel Charles Gordon Shaw, A.A.M.C.
Lieutenant-Colonel John Basil St. Vincent Welch, A.A.M.C.

Temporary Colonel Arthur Evans Snell, C.A.M.C.
Lieutenant-Colonel William Webster, C.A.M.C.
Lieutenant Colonel Robert Percy Wright, C.A.M.C.

Lieutenant-Colonel Donald Norman Watson Murray, N.Z.M.C.

Temporary Major Michael Stanislaus Power, S.A.M.C.

Awarded the Military Cross.

Temporary Captain William Ainslie, M.D., F.R.C.S., R.A.M.C.
Temporary Captain Delvine Bell, M.B., R.A.M.C.
Temporary Captain Francis Gordon Bell, M.D., F.R.C.S., R.A.M.C.
Temporary Captain John Francis Bourke, R.A.M.C.
Temporary Captain Hedley Boyers, M.B., R.A.M.C.
Captain Robert Burgess, R.A.M.C.(T.F.)
Temporary Captain George Beatty Burwell, M.B., R.A.M.C.
Captain Francis Samuel Carson, R.A.M.C.(T.F.)
Captain Colin Cassidy, M.B., R.A.M.C., employed Egyptian Army.
Temporary Captain Alexander Bruce Cheves, M.B., R.A.M.C.
Captain Alfred Joseph Clark, R.A.M.C.(S.R.).
Captain Thomas Courtenay Clarke, R.A.M.C.(T.F.)
Captain Hugh Gregan Crawford, R.A.M.C.(S.R.).
Temporary Captain Douglas Edward Crosbie, R.A.M.C.
Captain Arthur Gordon Cummins, M.B., R.A.M.C., employed Egyptian Army.
Temporary Captain William Edgsworth David, M.B., R.A.M.C.
Captain Duncan Davidson, M.B., R.A.M.C.(T.F.)
Captain Daniel Dougal, R.A.M.C.(S.R.).
Captain Thomas Ingram Dun, M.B., R.A.M.C.(S.R.).
Temporary Captain John Leeper Dunlop, M.B., R.A.M.C.
Captain Charles Derwent Edwards, M.D., R.A.M.C.(T.F.)
Temporary Captain Evan Evans, R.A.M.C.
Captain Thomas Gordon Fleming, M.B., R.A.M.C.(S.R.).
Temporary Captain Carleton Yates Ford, M.D., R.A.M.C.
Temporary Captain Donald Thomas Fraser, M.B., R.A.M.C.
Captain John Fraser, M.B., R.A.M.C.(S.R.).
Temporary Captain Archibald Fullerton, M.B., R.A.M.C.
Captain William Rickards Galwey, M.B., R.A.M.C.
Captain John Galbraith Gill, M.B., R.A.M.C.
Temporary Captain David Hamilton Hadden, M.B.
Captain George Harris Haines, R.A.M.C.(S.R.).
Temporary Captain Harold Parrish Hamilton, M.B., R.A.M.C.
Temporary Captain George Francis Hardy, R.A.M.C.
Captain William Theodore Hare, R.A.M.C.(S.R.).
Captain William Clavering Hartgill, R.A.M.C.(S.R.).
Captain Robert Lance Impey, M.B., R.A.M.C.(S.R.).
Captain George Gordon Johnstone, M.B., R.A.M.C.(T.F.)
Captain Thomas James Kelly, M.B., R.A.M.C.(S.R.).
Temporary Captain Maurice Baylis King, M.B., R.A.M.C.
Captain Gerald Quin Lennane, F.R.C.S.I., R.A.M.C.(T.F.)
Temporary Lieutenant James William Littlejohn, M.D., R.A.M.C.
Temporary Captain Ambrose Lorne Lockwood, M.D., R.A.M.C.
Captain William Ernest Craven Lunn, M.B., R.A.M.C.
Temporary Captain Eric Lofts Mackenzie, M.B., R.A.M.C.
Temporary Captain William Macleod, R.A.M.C.
Temporary Captain Alfred Malseed, M.B., R.A.M.C.
Temporary Captain John Cuthbert Matthews, M.B., R.A.M.C.
Captain (temporary Lieutenant-Colonel) Godfrey Kindersley Maurice, R.A.M.C.(T.F.)
Temporary Captain George Robert Denison McGeagh, R.A.M.C.
Temporary Captain Adam Fisher Menzies, R.A.M.C.
Temporary Captain Kenneth Earl Millan, M.B., R.A.M.C.
Temporary Captain Francis John Morris, R.A.M.C.
Captain Gerald Thomas Mullally, M.B., F.R.C.S., R.A.M.C. (S.R.)
Captain Frederick John James Ney, R.A.M.C.(T.F.)
Temporary Lieutenant William Linnell Partridge, R.A.M.C.
Temporary Lieutenant Michael Gladstone Pettigrew, R.A.M.C.
Temporary Captain Andrew Banks Raffle, M.D., R.A.M.C.
Temporary Captain Arthur Richmond, M.B., R.A.M.C.
Captain George Scott, M.D., R.A.M.C.(T.F.)
Captain James Alwin Colville Scott, R.A.M.C.(T.F.)
Captain Frederick Roland Studdart Shaw, M.B., R.A.M.C (S.R.)
Temporary Captain George Murray Shaw, M.B., R.A.M.C.
Captain Herbert Douglas Smart, R.A.M.C.(T.F.)
Captain William McElrea Snodgrass, M.B., R.A.M.C.(S.R.)
Temporary Captain Wilfred Newell Soden, M.D., R.A.M.C.
Captain Leonard Boole Stott, M.B., R.A.M.C.(T.F.)
Temporary Lieutenant David Campbell Suttie, M.B., R.A.M.C.
Captain George Pritchard Taylor, M.B., R.A.M.C.
Temporary Captain Francis Ruthven Thornton, R.A.M.C.
Temporary Captain Brian William Wibberley, M.B., R.A.M.C.
Temporary Captain David Llewelyn Williams, R.A.M.C.
Captain Maurice Joseph Williamson, R.A.M.C.
Temporary Captain Ivan Stuart Wilson, M.D., F.R.C.S., R.A.M.C.
Captain John Hutchinson Wood, M.B., R.A.M.C.(T.F.)
Temporary Captain John Miller Young, M.B., R.A.M.C.

Captain James Bentley, A.A.M.C.
Captain John Bright Birch, A.A.M.C.
Captain Arthur Edmund Colvin, A.A.M.C.
Captain Eric Mortley Fisher, A.A.M.C.
Captain John Thomas Jones, A.A.M.C.
Captain Charles Beverley Metcalfe, A.A.M.C.

Captain Angus Alexander Drinnan, C.A.M.C.
Captain Frederick William Lees, C.A.M.C.
Captain Robert Marsden Luton, C.A.M.C.
Captain James Ernest McAskill, C.A.M.C.
Captain William Freeman Nicholson, C.A.M.C.
Captain (acting Major) Paul Poisson, C.A.M.C.
Captain Walford Douglas Somerled Rorison, C.A.M.C.

El Yuzbashi (Captain) Musa Khouri Zakharia (Effendi), Egyptian A.M.C.
El Yuzbashi (Captain) Nasralla El Burgi (Effendi), Egyptian A.M.C.

Honorary Captain George Sandham, N.Z.M.C.

England and Wales.

THE object of the Local Government Emergency Provisions (No. 2) Act, 1916, which received the Royal assent on December 18th, is to save, during the period of the war, the clerical labour involved in making out and examining detailed annual claims for the pauper lunatic grants payable under the Local Government Act, 1888. This object is secured by making the grant one of fixed amount.

THE INSTITUTE OF MASSAGE AND REMEDIAL GYMNASTICS.

The Institute of Massage and Remedial Gymnastics, which has recently been established in Manchester, has now issued its syllabus of training. The training is for one year of thirty working weeks, and candidates will not be allowed to sit for examination unless they have attended at least two-thirds of the lectures and classes given by the training school they are attending and have done satisfactory practical work on *bona fide* patients under qualified supervision. If not trained nurses, candidates must hold the certificate of the British Red Cross Society or the St. John Ambulance Association in first aid and home nursing, and no candidate will be accepted under 19 years of age. At present teachers must either hold a recognized "teachers'" or the "two years' training certificate," or have been teaching previous to January, 1915, but, after January, 1919, the qualifications will be more restricted. Candidates will be required to pass an examination in the following subjects: Part 1. Anatomy and elementary physiology. Part 2. Theory of movement and remedial gymnastics—theory and practice of massage and bandaging and application of splints, and the examination will consist of written papers and oral and practical work. The fee for

the examination is three guineas and one certificate will be given which will include massage, remedial gymnastics, and mechano-therapy.

MILK SUPPLY.

Last October the Lord Mayor of Birmingham, Mr. Neville Chamberlain, now Director of National Service, appointed a committee to inquire into the cause of the rise in price of milk in the city. The committee took evidence in confidence from farmers, dairymen, milk-chocolate manufacturers, railway officials, and others, and one of the members, Councillor Appleby, prepared valuable statistics. These and the text of the report itself have not been published, but the conclusions have been printed in the *Birmingham Daily Mail*. Though they have reference primarily to conditions affecting the supply of milk to Birmingham, they deal with matters of general application throughout England, and it has seemed well to reproduce them in full.

1. That the increased price paid by the consumer is the result of the cumulative demands of the farmer and distributor, the latter being frequently represented by both wholesale and retail milk dealers.
2. The increased demand of the farmer is due to the higher prices he has to pay for labour and for foodstuffs, and to the increased demand for milk, both for manufacturing and domestic purposes.
3. In so far as labour is concerned, we think the increased demand can be justified, as also in respect of the cost of concentrated food, but we are of opinion that in some cases, where the farmer is using his own home products for keeping his cows, he is getting a double profit—first on the products, and then on the milk. In our opinion the fair way of assessing the cost of the home products consumed by milk cows is to take the consumable value at two-thirds and not the current market price. In our judgement, when fixing the maximum selling price, the net cost, *plus* a reasonable profit, should be taken, and not, as in official statistics, the current market value.
4. On the evidence given to us it would appear that 1s. 3d. per gallon for milk delivered in Birmingham would be a fair winter price to pay the farmer, and would give him a profit.
5. That the farmers who are giving up milk producing and are merely fattening their beasts for the butcher have failed to realize that the breeding of calves and the production of milk are interdependent and essential to both the sale of meat and milk, and are vital in the national interests. The committee are of opinion that it would be advisable for the Board of Agriculture to consider whether a restriction could not be put on the slaughter of milk cows, unless they have been certified by a veterinary surgeon as past useful milking.
6. That the farmers are entitled to great consideration in the matter of labour, and should be helped by every one; but we deplore what we consider to be the unpatriotic and selfish tendency exhibited by some farmers of giving up milk producing in order to make larger profits out of other branches of farming. We believe that the action of the Board of Agriculture in encouraging the production of cheese offers a direct incentive to the farmer to use for this purpose milk that would otherwise come into large towns for domestic use.
7. The price of milk to the distributor has been increased by the action of milk condensers in purchasing milk from farmers for the first time during the mid-winter months.
8. On the evidence given us we think that the distributor with proper management is making a good profit on his business. It would appear that 6d. is a fair average margin for distribution. This would mean that the price to the customer should not exceed 5½d. per quart at the present time.
9. That it is advisable that milk should be delivered only once a day. We think in the winter at least this could be arranged.
10. That the consumer is suffering from the cumulative profits of several individuals, and it would materially help him if the middlemen could be eliminated.
11. That the price of milk fixed by the Order dated November 15th and December 15th, 1916, should be further considered by the Controller in the light of this report.

SURGICAL AID SOCIETY.

At the fifty-fourth annual meeting of the Royal Surgical Aid Society held at the Mansion House, London, it was reported that nearly 24,000 patients had been relieved during the year, and that 36,000 appliances had been supplied. A slight reduction in the annual subscriptions had been more than made up by an increase in life subscriptions and payments by patients. Lieutenant-Colonel D'Arcy Power, F.R.C.S., spoke from personal observation of the large amount of valuable work which the society was carrying on, and said that from the professional point of view the system adopted by the society was eminently satisfactory, a surgeon's certificate being required in every case, so that patients were not fitted with unsuitable appliances. Mr. Laming Evans, F.R.C.S., in responding on behalf of himself and his colleagues to a vote of thanks to the surgical staff, said that each case was decided on its merits, and not all cases which went to the surgeons' room were fitted with an appliance; when it was considered more desirable, the patient was advised to go to a hospital for operation. Opportunity was also afforded to the patient's general practitioner to give his opinion.

Scotland.

DR. GRACE H. GIFFEN DUNDAS, at present acting as M.O.H. for Ramsgate, has been appointed medical superintendent under the child welfare scheme for Leith. Dr. Dundas took the triple qualification, Scotland, in 1894, and the diploma of F.R.C.S.I. and the D.P.H.Camb. in 1901. She received her medical training at the Medical College for Women, Edinburgh, where she was at one time senior demonstrator of anatomy.

EDINBURGH SOCIETY FOR THE RELIEF OF DESTITUTE SICK.

At the 131st annual meeting of the Society for the Relief of the Destitute Sick it was reported that its work had at first decreased after the outbreak of war, owing probably to enhanced wages and abundance of employment. As the war dragged on prices had increased in larger proportion than wages, and the outlay of the society on each case had increased. The amount distributed by the visitors, who paid 7,339 visits, was £2,409. The number of new applicants during the year was 976. The Lord Provost, who presided, said that the society was doing splendid work, which should not be overlooked by the benevolent public. Dr. J. W. Ballantyne, moving a vote of thanks to the visitors and the election of officers, said that the average number of visits was a little over twenty a day—all paid by gentlemen interested in the work. These visitors were to be looked upon as valuable auxiliaries of the medical profession in Edinburgh.

CHILD WELFARE IN EDINBURGH.

Last July we gave an account of a very complete scheme for child welfare in Edinburgh prepared by Dr. Williamson. It was considered too large to be carried out in the present time of stress, but a modified scheme has now been adopted by the Public Health Committee. It provides for six centres for the treatment of defectives, for curative work, and for child clinics. It will be worked in line with the different dispensaries and other institutions for children, and will entail the employment of a number of nurses, superintendents, and clerks, to work under the medical officer of health. It is proposed to postpone the appointment of a medical superintendent owing to the fact that so many members of the profession are on active service. The estimated cost of the original scheme was £6,000, and of the modified scheme about £4,000.

"CRAIGLEITH HOSPITAL CHRONICLE."

The first number of the *Craigleith Hospital Chronicle* appeared in December, 1914, and the present Christmas and New Year part completes the fourth volume of a publication which in its own way has ably "done its bit." The authoress of a bright and informative article on "Our Ally the Dog" is Eve Blantyre Simpson, the daughter of the late Sir James Young Simpson, of chloroform fame, and she has contrived to bring together a wonderful number of facts respecting the part our canine friends have played in wars, past and present. Dr. J. A. MacDougall continues his series of articles on "The Story of some Scottish Regiments," and deals in this part with the Gordon Highlanders. Poetry is not lacking, and there is a Hymn of Hate (the Craigleith one,) written by "Pip-squeak" of "Z" Ward; the thing hated is castor oil. A Sassenach gives his impressions of the wild revelry of Hallowe'en, with its ducking for apples amongst the navies of germs, which, he thinks, brought out Scottish heroism in a high light. The "Hospital Notes" are interesting, and the *Chronicle's* editor says, "We are sorry to have to record that Captain Rainy, who has so long been in charge of a number of medical wards, has been demobilized; he is, however, continuing to visit his old wards in a voluntary capacity." The 2nd Scottish General Hospital has every reason to be proud of its monthly magazine. (Annual subscription, 7s. 6d.)

Correspondence.

DUBLIN UNIVERSITY: PARLIAMENTARY REPRESENTATIVE.

SIR,—May we claim a small space in the JOURNAL in order to urge upon the members of the British Medical Association who are entitled to vote for a parliamentary representative of Dublin University to record their votes at the forthcoming election for Sir Robert Woods, who is standing as a non-party candidate?

It would be idle for us to dwell upon the advantages that the presence of a distinguished scientific representative like Sir Robert Woods in the House of Commons would confer upon the nation as a whole, and upon the medical profession in particular.

It must be obvious to the medical graduates of Dublin University that the legal profession has enjoyed more than its share of the parliamentary representation of the University, and a splendid opportunity is now offered whereby a change may be effected in this direction. Owing, however, to the large number of medical graduates who are serving their King and country in the various theatres of the present war, it will be extremely difficult to get into direct communication with many of the voters. We would therefore appeal to your readers to forward immediately, as a matter of urgency, to the address given below, the addresses of any Doctors of Medicine of Dublin University who are known to them to be absent from their usual home addresses, so that proxies may be sent to such voters.—We are, etc.,

A. FRANCIS DIXON,
Professor of Anatomy, Trinity College,
JAMES CRAIG,
King Professor of Practice of Medicine,
Hon. Secretaries.

24, Trinity College, Dublin, Dec. 30th, 1916.

MOBILIZATION OF THE PROFESSION.

SIR,—When a colleague of mine read out the letter signed "F.R.C.S.E." which appeared in your issue of December 30th, I was convinced that he had written it himself, so closely did it correspond to the account of our own experiences.

I quite agree with "F.R.C.S.E." that there are more than enough men in the R.A.M.C. at present to do all the work that is needed if their services were properly organized; and if it were not that I hesitate to make too large a call on your space I could give chapter and verse to prove this.

Personally I have now just completed my year, and if I had to do all the work I have done in that time again I could easily fit it into one month and have plenty of time for recreation or study.

It can be no question of my having fallen on a "soft job," as I have done practically every sort of job in my time, both at home and in France, with the exception of work in a casualty clearing station, where I believe the medical officers are generally overworked. I must acknowledge that during my stay of two months in an advanced dressing station I had two days of very strenuous duty, but the work I did could have been done quite as efficiently by any student dresser or well-trained orderly.

I think before any scheme of medical mobilization is started it would be well if the British Medical Association were to make inquiries about the men already serving, as to their duties and the conditions under which they work. If, after this, a better organization were instituted, I believe the needs of the army could be easily met by the men already enrolled, and even a number could be sent back to their practices. The War Office has been very generous in acknowledging the ready response of the personnel of the medical profession. Surely it will not object if an offer is made by the British Medical Association to help in making use of the material supplied.—I am, etc.,

M.CH.

December 31st, 1916.

WILLIAM WATSON AND STEPHEN COLERIDGE.

SIR,—Admirers of Mr. William Watson will scarcely like to see his Muse humiliated by having to sing the praises of the ingenious Mr. Stephen Coleridge for "His Labours in Mitigation of Animal Suffering"—and, I may add, in aid of human suffering. The poem is, quite properly, placed in Mr. Watson's new book, called *Retrogression* (John Lane), and begins:

> Swordsman of Mercy, merciless to these
> Who feign that the All-Maker gladly sees
> His lowlier creatures racked and riven while man
> Buys with their agony a dreadful ease.

Surely "these" ought to be "those"—but for the rhyme; and the All-Maker can at any moment stop a practice of which He disapproves. But it is not clear whether the "dreadful ease" which man buys for himself at the cost of giving agony to animals refers to amelioration of sickness by experiments on them; or to satisfying hunger or gluttony by devouring them daily in millions; or merely to the mitigation of boredom by frightening, wounding, maiming, or killing them for sport. I hope that some commentator will some day elucidate this obscure passage, since, personally, I think that the antivivisectors care very little about "animal suffering" and are chiefly concerned to do as much injury to science as possible because it treads on the toes of their dogmas. Perhaps you will allow me to quote some humble verses of mine on the subject, which, while they show far less poetic inspiration than Mr. Watson's, are probably nearer the truth. They are taken from a little satire called *The Setting Sun* (John Murray, 1912), which I wrote on the state of Britain before the war. When talking of various kinds of cranks, I said:

> Or see that sham philanthropist
> The anti-omni-scientist.
> It is not wrong to gorge our gluttons
> Upon the tender young of muttons,
> Untimely torn, and piteous-eyed,
> Straight from their bleating mother's side;
> Nor wrong to skin the living mullet
> To make it red for gourmand's gullet;
> Nor cruel the quivering cod to crimp,
> To peg the lobster, boil the shrimp;
> To slaughter birds for women's hats,
> Or keep a million murdering cats;
> Or let the sportsman for his pleasure
> Kill, maim and injure without measure.
> But when great Science seeks to seize
> The dreadful secrets of disease,
> Th'impostor tells the British thickhead
> Her action is indeed most wicked.
> Better to let our children die
> Than hurt a mouse or kill a fly!

My suggestion was that the prevalence of the antiscience fad in Britain was a sign of mental "retrogression" rather than the reverse; and my satire has been largely justified by the experiences of the war.

Mr. Watson tells the subject of his eulogy that the poets are on his side. Tennyson might have been; but he also commended "believing where we cannot prove," which I, for one, consider dishonest. We must, however, really protest when Shakespeare is made to lead the applause of Mr. Stephen Coleridge!—I am, etc.,

RONALD ROSS.

London, W., Dec. 30th, 1916.

PSYCHO-ANALYSIS.

SIR,—Dr. Mercier's paper on psycho-analysis in your issue of December 30th, 1916, is delightful reading, and I am sure voices the opinions of the great majority of British alienists, indeed so much so that one suspects Dr. Mercier of using his powerful pen for the purpose of setting up a bogey for the obvious pleasure of knocking it down, killing the slain. Surely it is notorious that the dirty doctrines of Freud, Jung and Co. have met with scant support among British psychiatrists either in their teachings or writings. Still it may be that Dr. Mercier is fully justified in his most able sledge-hammer attack on this most dangerous form of doctrine, in the light of a possible propaganda among lay teachers of children. There are always a huge number of Carlyle's fools, eager, open-mouthed to swallow "ground toads," "sour milk bacilli," Yankee religions, or pornographic abominations, if only duly sugar-coated with pseudo-science, not to mention the many weak-spined Britishers who, honouring no prophets of their own, hail those from Germany *in excelsis*. With the significant exception of writers on aberrations of the sex instinct, Krafft-Ebing, Bloch and Co., British alienists have much less to learn from Germans and Austrians than from the French and Italians; naturally if we want to

learn about moral leprosy we go to those who practise among moral lepers.

While agreeing with every word of Dr. Mercier's trenchant denunciation of the topsy-turvy futilities of so-called psycho-analysis, I think it is opportune to aver that British medicine has erred in the past in totally ignoring the very considerable influence of the sex instinct—one of the two great primal instincts of human, and indeed of all, beings—on the normal and abnormal emotional side of our nature; indeed, one could go further and assert that in the study of Mind, the predominant partner, the Intellect, had been studied without sufficient regard to the almost equally important Instincts and Emotions.

To bring this short appreciation of Dr. Mercier's paper to a close, I must congratulate him on his most ingenious and probably correct explanation of the origin and continuance of the cult of psycho-analysis, for no truly sane observer watching the growth and development of infants could possibly read into the food instinct its great twin the sex instinct, especially, *horribile dictu*, the aberrant incestuous variety of the latter.—I am, etc.,

D. G. THOMSON, M.D.,
President of the Medico-Psychological Association.

Thorpe, Norwich, Jan. 2nd.

SIR,—May I suggest that the famous phrase, "*Credo quia impossibile*," which occurs in Dr. Mercier's article on Psycho-analysis in the BRITISH MEDICAL JOURNAL of December 30th, 1916, should be attributed to Tertullian and not to Quintilian?—I am, etc.,

London, W., Jan. 2nd. R. O. MOON.

THE PATHOLOGY OF CANCER.

SIR,—In connexion with a resuscitation of the parasitic theory of cancer, a belief from which I have myself never wavered, I may briefly recount the history of a "cancer house" from direct knowledge; I referred to it at the meeting of the Pathological Section of the Royal Society of Medicine when the communication by Professor S. G. Shattock and Dr. L. S. Dudgeon was made (December 5th, 1916).

The history concerns an old Georgian farmhouse in South Devon, lying somewhat low and surrounded by hills, with a stream running by one side and passing into a pond below the level of the front entrance. The house had several large cellars beneath it, which were always damp. All its rooms, but particularly the kitchen and the servants' quarters, were infested with mice. The farm and its buildings had been for many years in the possession of my family, but the house was usually occupied by tenants who were not members of the family. Among these several instances of malignant disease having been the cause of death were known, although I have unfortunately no details.

Some forty years ago a member of my family and his wife, a lady several years older than he, came to occupy the house. My family on his side is a long-lived one, and has been altogether free from malignant disease for at least two previous generations. Some eight years after this couple, who had no children, entered into possession, one of the elder female servants developed carcinoma of the mammary gland, and two years later the wife contracted carcinoma of the larynx and died in the house. About three years afterwards the husband, then forty years of age, who had remained in the house after his wife's death, became the subject of primary carcinoma of the liver. The house was subsequently tenanted by another family, of whom two members died within its walls from malignant disease; details of these cases I cannot furnish. The house has since been demolished.

From a purely clinical point of view, it has always seemed to me that malignant disease was in some way dependent upon an infective agent; and I have often wondered whether the domestic mouse, always with us and frequently fouling our food, might not be a carrier or intermediate host of a virus capable of producing sarcoma or carcinoma in the human subject.—I am, etc.,

W. MCADAM ECCLES, M.S., F.R.C.S.

London, W., Jan. 1st.

COMPULSORY LATIN.

SIR,—In your issue of December 30th, 1916, Sir Henry Morris and Dr. M. Greenwood, jun., bring forward arguments refuting the idea, which they seem to think I suggested in your issue of December 23rd, that a knowledge of Latin (and Greek) ensures that medical men will spell correctly.

It is a curious coincidence (I do not suppose that Sir Henry Morris and Dr. Greenwood collaborated) that each makes use of the word "ensure." Never for a moment did I imagine, and I certainly did not write, that a study of Latin and Greek would ensure correct spelling. There are, no doubt, certain people who never did and never will spell correctly. What I do maintain is that even a slight knowledge of Latin and Greek (such a knowledge, for example, as is attained by the average boy in the classical fifth form at our public schools) is likely to help towards the correct spelling of such words in our language as are directly derived from Latin and Greek—and how many such words occur in medical writings! Now the majority of the misspelt words quoted from Mitford by Sir Henry Morris are not, I think, directly derived from the "dead" languages in question; the majority of my "choice specimens" are so derived. Further, "such people as pharmaceutical chemists" are surely more likely to scrutinize and criticize the prescriptions, for example, of medical men than such volumes as Mitford's *Greece*.

As to the chief value of Latin and Greek in the curriculum I do not propose to argue; I may say, however, that I do not agree with Dr. Greenwood that "the real case in favour of imparting a knowledge of the classical tongues is that he who possesses such knowledge can enter at will into a world of thought and fancy," etc., any more than I imagine that the only use of such knowledge is to help men to spell. At the same time, apart from the training of the minds of our embryo medical students, I still believe that the study of Latin and Greek does possess this utilitarian property of making it more likely that those who have studied these languages will be able to spell such words as "diphtheria" and "unconscious."—I am, etc.,

Cambridge, Dec. 31st, 1916. DOUGLAS COW.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

THE annual report of the University for 1916 states that the register of the General Council of the University for 1915 contained 12,654 names. The total number of matriculated students in 1916 was 1,741, of whom 1,060 were men and 681 women. There were 941 students (including 238 women) in the faculty of medicine. In that faculty 446 students, or over 47 per cent., belonged to Scotland; 143, or over 15 per cent., to England and Wales; 34 to Ireland; 79 to India; 216, or nearly 23 per cent., to British colonies and dependencies; and 23 to foreign countries. In spite of the inclusion of women students, the total number in the faculty of medicine showed a decrease of 112 as compared with 1915, of 788 as compared with 1914, and of 1,520 as compared with 1913. The number from the colonies and dependencies is 23 in excess of the number for 1915, the increase being accounted for by students from South Africa. Over 5,000 members of the University—graduates, officials, or past and present students—are serving, or have served, in His Majesty's Forces. A number of others are cadets in the University O.T.C., and a large number of graduates and undergraduates (men and women) are engaged in the production of munitions or in other branches of national service. Many honours have been gained by members of the University, and 250 are known to have given their lives.

The total value of the University fellowships, scholarships, bursaries, and prizes is over £21,000, and of this amount the faculty of medicine accounts for £5,565. Government grants amounting to £14,500 in respect of losses due to the war during the years 1914–15 and 1915–16, have been received by the University. Funds amounting to £18,000 have been transferred to the University Court by the Royal Victoria Hospital Tuberculosis Trust, with a view to the foundation in the University of a Chair of Tuberculosis.

The following degrees were conferred at the recent graduation ceremony:

M.D.—J. L. Annan, A. M. Caverhill, H. J. M'Caw, Captain H. MacCormac, R.A.M.C., Lieutenant W. M. W. Shepherd, R.A.M.C., J. Sorley, Captain M. Mackenzie, R.A.M.C.

M.B., B.S.—Janet C. P. Alison, Surgeon Probationer D. L. Baxter, R.N.V.R., W. C. Craig, Surgeon Probationer F. R. Cripps, R.N.V.R., J. A. Hadfield, Jeannie Harper, Jane E. Hay, Surgeon Probationer N. Jennings, R.N.V.R., G. C. M'Ewan, J. R. S. Mackay, P. D. M'Laren, Annie M. Madin, M. Morrison, J. S. Munro, Lieutenant T. P. Paar, R.A.M.C.(S.R.), F. O. Taylor.

Obituary.

JAMES LITTLE, M.D.EDIN., M.D. (HON. CAUSÂ) DUBL., LL.D. (HON. CAUSÂ) EDIN.,

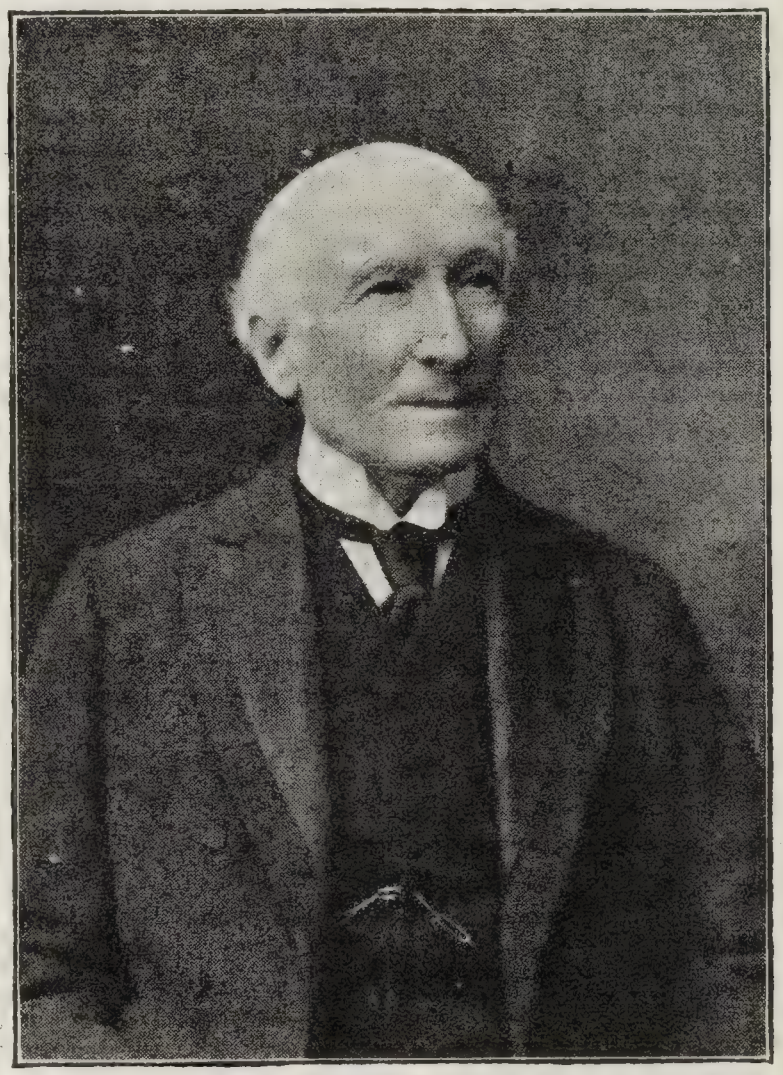
FELLOW AND EX-PRESIDENT ROYAL COLLEGE PHYSICIANS IN IRELAND; HONORARY PHYSICIAN-IN-ORDINARY TO H.M. THE KING IN IRELAND; REGIUS PROFESSOR OF PHYSIC IN THE UNIVERSITY OF DUBLIN

By the death of the veteran Dr. James Little, on December 23rd, 1916, the medical profession in Ireland has lost its *doyen*, and a personality remarkable in many ways has passed away.

The writer of this notice enjoyed his close friendship for fifty years, was his colleague for sixteen years, and entertained the liveliest feelings of gratitude and affection towards him. A few weeks before his death, when chatting with him in his study, the writer said to him: "I will remember the many acts of kindness and the help you gave me in my early career, and I will never forget it." Dr. Little similarly befriended other young men from time to time, and once your friend he remained ever your friend.

He hailed from the North of Ireland, for he was born in Newry on January 21st, 1837. He represented all the best qualities of an Ulsterman. Indeed, he was a happy blend of southern geniality with northern shrewdness, and was completely free from any touch of that brusque austerity which is sometimes accredited to the North of Ireland.

His life was varied and full of many activities. In 1856, just after he had obtained the diploma of L.R.C.S.I., he was placed for a time in charge of the Armagh County Infirmary, and was already held in high esteem by his seniors, Dr. Robinson of Armagh and Dr. James Cuming of Belfast. In 1861 he graduated M.D. of the University of Edinburgh. For three years he acted as surgeon in the service of the P. and O. Steam Packet Company, travelling to and from India, and the experience thus gained proved of great value in later life. He spent two years in private practice in Lurgan, and then devoted a year to post-graduate study on the Continent.



Photograph by] DR. JAMES LITTLE. [*Alfred Werner, Dublin.*

Shortly after this he took the decisive step in his life, and resolved to leave the narrower sphere of country practice, and to try his fortune in the larger arena of Dublin. In this city he became closely associated with Dr. Alfred Hudson, who recognized Little's ability, and was instrumental in his getting him appointed physician to the Adelaide Hospital, with which he was honourably connected as clinical teacher for forty-six years.

Nevertheless, at the end of his first year in Dublin, Little felt so doubtful of success that he once told the writer that he seriously thought of abandoning the venture. Fortunately, his native pluck stood to him; he rapidly gained ground, and in a few years came into the full fruition of his hard work. For many years he enjoyed an enormous and lucrative practice, and was the favourite consultant in all quarters of Ireland.

He was an admirable and impressive clinical teacher, and a brilliant and attractive lecturer on the practice of medicine. In this capacity he filled two chairs—first in the Ledwich School of Medicine, Peter Street, and later, in the Royal College of Surgeons in Ireland. In 1898 Dr. Little succeeded the late Sir John Banks, K.C.B., as Regius Professor of Physic in the University of Dublin, and during the sixteen years in which he occupied this chair he took a prominent part in the conduct of the Final Examinations in Medicine. He never allowed the calls of his private practice to interfere with the duties connected with his Regius Professorship, and even for the recent Final Examination, which began on December 11th, he set an examination paper, and only abandoned the conduct of the clinical examination at the last moment.

He was eminently a "clubbable" man, and was a member of five clubs: three in Dublin—namely, Dublin University, the Friendly Brothers of St. Patrick, and the exclusive Kildare Street Club—and two in London, the Junior Carlton and the Athenaeum.

He loved to enjoy the hospitality of his numerous friends, and in his own house played the frequent part of generous host and charming companion. Even towards the close of his life he was the leading spirit in all social functions, full of zest, and was one of the happiest and most humorous of after-dinner speakers.

Throughout his long life his mind preserved its youth, and he was ever quick to assimilate modern ideas, and could enjoy the discussion of scientific subjects which were novel to him, even if unable to criticize them.

In Dublin there exists a limited private medical society, called the Biological Club, which meets weekly for eight months of the year. Little was one of the most regular attendants at its meetings, made many valuable contributions, and enlivened its discussions by his genial wit and acute comments. So recently as last spring he read a most interesting account of the prolonged illness of one of his patients under the title of "The history of a heart." By the irony of fate the heart was the organ which gave way in his own case and led to his final decline and death.

In 1897 he was appointed Crown nominee for Ireland on the General Medical Council, and took a most active share in its proceedings. He was always listened to with attention and respect, and so popular was he with his fellows that, some years ago, he was within a point or two of being elected President of the Council. In spite of increasing infirmity and in opposition to the wishes of his medical advisers, he insisted on attending the recent meeting of the Council, so keen was his interest and so unfaltering his will power.

In addition to the other demands upon his time and energies, Dr. Little, in 1868, took up the onerous post of editor of the *Dublin Quarterly Journal of Medical Science*, and three years later he altered its publication to that of a monthly periodical, under the title of *The Dublin Journal of Medical Science*, and he never lost sight of its welfare long after he had retired from its active management. He did not write any book of signal importance, and his life will survive in the memory of his contemporaries rather than in medical literature.

He was warmly attached to the Royal College of Physicians of Ireland, and received from it every possible token of honour or office. For two years he zealously and courteously filled the responsible post of Registrar of the College, and in all matters of difficulty his wise counsels were highly esteemed by the College. He reigned as president of the College for two years—1886–88, and

steered its course with unfailing dignity, hospitality, and consummate tact.

In the year 1877 he was present at the inaugural meeting of the medical profession in Dublin for the establishment of the Dublin (late Leinster) Branch of the British Medical Association, and proposed at the meeting a resolution in favour of the project. When the Association of Physicians of Great Britain and Ireland held its annual meeting in Dublin some years ago, Dr. Little, as a matter of course, occupied the position of president. He was also a prominent figure at the celebrations which were held in 1912 to commemorate the bicentenary of the Medical School of Trinity College, Dublin.

When 35 years of age he married Anna, daughter of Robert Murdoch, who predeceased him in 1914. By her he had three children, who survive him, two sons and a daughter.

In sum, there have been greater and more illustrious physicians, but none who excelled, and few who equalled, James Little in gaining the esteem and affection of his friends and patients, and his memory will ever be cherished by all who knew him.

He was, in truth, the "beloved physician," and his motto with his patients was:

Aegroto, dum anima est, spes est.

W. G. S.

RICHARD BARWELL, F.R.C.S.,

CONSULTING SURGEON, CHARING CROSS HOSPITAL.

MR. RICHARD BARWELL died at Norwich on December 27th, 1916, aged 90. He had been for several years the senior Fellow of the Royal College of Surgeons of England, having taken that diploma in 1852 at the same time as the late Mr. Bryant of Guy's Hospital.

Richard Barwell was born in Norwich and studied medicine at St. Thomas's Hospital. He was dresser to Joseph Henry Green in 1847, and took the diploma of M.R.C.S. in October, 1848. He held the office of house-surgeon during the worst part of the great cholera epidemic—namely, July to September, 1849—and it fell to his duty to superintend the admission of cholera patients into the hospital. He was afterwards demonstrator of anatomy to the medical school of St. Thomas's Hospital, and in 1855 was appointed assistant surgeon to Charing Cross Hospital, becoming full surgeon in 1872. He retired, and was made consulting surgeon in 1888. He was lecturer in anatomy at the Medical School for several years, resigning in 1874; in 1878 he was appointed lecturer on surgery, an office he retained until his resignation of the surgeoncy to the hospital ten years later.

Barwell's first contribution to medical literature entitled "Asiatic cholera, its symptoms, pathology, and treatment," was based on his experiences in 1849. In 1857 his course of practical lectures delivered at the Working Women's College, Red Lion Square, on the "Care of the sick," showed that he was one of those who took part in the reform of the very faulty hospital and private nursing then prevalent.

Barwell contributed many papers to medical societies, journals, and encyclopaedic works. One of the subjects to which he gave particular attention was the treatment of aneurysm; he introduced the use of ox aorta as a ligature, and wrote a treatise on *Aneurysm, especially of the Thorax and Root of the Neck*, the main object of which was to show how, already in 1880, the introduction of asepticism had diminished the risks attendant on the surgical treatment of aneurysm. It is interesting to note that he used the term "asepticism," not "antisepticism," then more familiar to surgeons. He relates a terrible case under his own observation in 1847, where an eminent surgeon ligatured the carotid for aneurysm with fatal results. Pyaemia slowly developed, and though the ligature came away on the twenty-fourth day the patient, already septicized, lingered on for seven weeks. Such results were quite frequent in those days. Barwell's own successful operations where double distal ligature was practised for innominate aneurysm were duly recorded at the time. It was, however, chiefly as an orthopaedic surgeon, at a period when that department of practice was in its infancy, that Barwell was best known. He wrote a book on *Diseases of the Joints* and also on *The Cure of Club-foot without Cutting Tendons*, but the publication which made his name best known was his book on the *Causes and Treatment of Lateral Curvature of the Spine*, first published in 1868. In a fourth edition, issued in 1889, he described in full the mechanism of his scoliosis gauge, which quickly afforded concise measures of all deviations, and he declared in the fifth edition, published in 1895, that further experience had convinced him of its value.

Mr. Barwell married Miss Mary Diana Shuttleworth of Preston, Lancashire; and their son, Mr. Harold Shuttleworth Barwell, is surgeon for diseases of the throat and ear to St. George's Hospital.

MR. BUXTON SHILLITOE, F.R.C.S., died at his residence in Bournemouth on December 23rd, having attained his 91st year. His professional education began in 1849 at University College, and he took the diploma of M.R.C.S. in 1851. He did not, however, present himself for the examination for the Fellowship until 1860, so that he was not at the head of the list of Fellows which still includes several younger men who took the diploma at an earlier date. He practised for many years in the City of London, first in Finsbury Circus and afterwards in Frederick Place, Old Jewry. He was appointed surgeon to the London Lock Hospital in 1887. He resigned from the active staff in 1909, but he continued to keep his seat upon the board of management until his death. He was also on the surgical staff of the Great Northern Hospital. He devoted much attention to diseases of the genito-urinary tract, but did not contribute largely to medical literature. He devised a conical catheter which he described in the *Medical Times and Gazette* (vol. ii, 1860, p. 5). In 1864 Shillitoe first availed himself of the Zittmann treatment of the later forms of syphilis, which consisted in giving strong doses of decoction of sarsaparilla, followed by full doses of potassium iodide. The patient was usually kept in a room where a uniform high temperature was maintained. He appears to have used this treatment with excellent results. Buxton Shillitoe was fond of the study of botany, and was well known at the Linnean Society, of which he was a Fellow.

MR. JOHN EWENS of Clifton, Bristol, who died on December 15th, 1916, aged 86, was the son of Mr. George Davy Ewens of Axminster. He received his medical education at St. George's Hospital, and took the diplomas of L.R.C.P.Edin. and L.S.A. in 1851, and that of L.R.C.P.Lond. ten years later. After practising in Dorset for a quarter of a century he removed to Bristol, where he held the post of surgeon to the Bristol Royal Hospital for Sick Children from 1876 to 1896, when he was appointed consulting surgeon. He was especially interested in orthopaedic surgery, and particularly in deformities and derangements of the foot. He was an honorary member of the British Orthopaedic Society, and a member of the British Medical Association, and had filled the office of vice-president of the Dorset and West Hants Branch.

The Services.

EXCHANGES.

OFFICER serving with Field Ambulance in Egypt wishes to exchange with officer at present at home. Hospital if possible. Lieutenant or Captain. Address, No. 101, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), M.O. Battalion R.E., one year in France, desires exchange to Ambulance Train (in England preferred).—Address, No. 9543, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical officer, Yeomanry regiment, East Coast, in England since 1914, wishes to exchange with medical officer abroad (Territorial).—Address, No. 99, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), stationed at hospital near London, desires exchange with Sanitary Officer abroad. Has D.P.H. and experience of sanitation.—Address, No. 98, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain, R.A.M.C.(S.R.), Bacteriologist in charge of Mobile Laboratory in France, twenty months' service abroad, wishes to arrange exchange with bacteriologist in hospital or district laboratory at home. Opportunity for good work and healthy neighbourhood essential.—Address, No. 97, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), medical officer attached Brigade R.F.A., eighteen months in France, desires exchange to Ambulance Train (England).—Address, No. 93, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

THE Hospital for Deformities and Joint Diseases, New York, has received from Mr. Herbert Kauffman, of Pittsburg, a gift of £200,000, to be used for the erection of a new building and as an endowment fund.

Medical News.

THE King has granted to the following gentlemen his licence and authority to accept and wear the decoration of the Third Class of the Order of the Nile conferred upon them by His Highness the Sultan of Egypt in recognition of valuable services rendered: Dr. William Hawkins Wilson, Professor of Physiology at the Government School of Medicine, Cairo; Dr. Herbert William Dudgeon, Director of the Lunatic Asylum, Khanka, near Cairo; Dr. A. Ferguson MacCallan, Director of the Ophthalmic Hospitals, Egypt; Dr. Percy G. S. Williams, Director of Section, Public Health Department, Cairo; Dr. James Ferguson Lees, Medical Officer, Public Health Department; Dr. William Hastings, Director of Section, Public Health Department, Cairo; and Dr. Thomas Bogie Hamilton, M.B., medico-legal expert, Native Parquet, Cairo.

IT is announced that Professor W. Kolle, head of the Berne Institute of Hygiene and Bacteriology, has been appointed director of the Frankfort Institute for Experimental Therapy in succession to the late Paul Ehrlich.

THE Russian Society for the protection of mothers and infants, which is under the patronage of the Czarina, has established a new periodical, entitled "Protection of Motherhood" It is published at Petrograd (Nicolaiewskaia, 49). Two numbers have already been issued, and the journal will continue to appear monthly during 1917.

A DISCUSSION on the physical welfare of children after infancy from the national, social, and public health standpoints, will be opened by Dr. W. Leslie Mackenzie, medical member, Local Government Board for Scotland, at a meeting of the Royal Sanitary Institute (90, Buckingham Palace Road), on Wednesday, January 31st. The chair will be taken by Sir George Newman, Chief Medical Officer, Board of Education, at 4.30 p.m.

WE announced a short time ago that the Belgian War Ministry had decided to begin the publication of a periodical with the title *Archives Médicales Belges*, to contain reports of the exiled Belgian nation. We learn from the editors that the first number will appear towards the end of January, and that it will be printed by disabled soldiers attending the Institut Militaire Belge de Reéducation professionnelle at Vernon.

THE following arrangements have been made between the Serbian Legation in London and the Serbian Relief Fund with regard to the administration of funds collected in Great Britain for the benefit of the Serbs; the Legation is the representative in Great Britain of the Fund for the Serbian Red Cross Society, and the Fund for Serbian Distress in the War is administered by the Serbian Minister in London, who sends help where it is most urgently needed. The Serbian Relief Fund (5, Cromwell Road, S.W.) works under a British Executive Committee, and has now added to its former work a fund for the education of Serbian boys in England and the St. Helen's Fund for Serbian Orphans. Donations sent to the Serbian Legation (195, Queen's Gate, London, S.W.) will be acknowledged by the Serbian Minister, and donors are asked to state for which of the two funds their gifts are intended. The Legation will be pleased to answer inquiries.

SOME further particulars of the system of rationing invalids in Germany can be gathered from a letter published in the *Muenchener medizinische Wochenschrift*. The organization is controlled by a central committee, which issues a form upon which a doctor is required to enter full particulars as to diagnosis, complications, duration of illness, anticipated ill effects from deprivation, character of the food required—milk, eggs, butter, meat, meal, or meal-containing foods—and the period for which the rations would be needed. The doctor was required to forward the form to the central office without disclosing to the patient the particulars he had given on it. In this way the onus of refusal was transferred from the doctor to the central tribunal. The scheme, like a good many other schemes devised by the Germans in an emergency, would not work. The population began to search for symptoms which would justify them in applying for invalid dietary; and although the scheme was introduced in the summer, when privation would be least felt and the health of Berlin is generally good, the curve of morbidity rose rapidly. Greater Berlin, it is said, provided 100,000 claims for sick rations within a short time, and the doctors were placed in a very invidious position, for although the ultimate decision rested with the committee, every doctor was expected to sift the claims, and to reject at once those unwarranted in order to prevent the committee being overwhelmed with work.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

G. P. desires to hear of a school where the daughters of medical practitioners are received on special terms.

INCOME TAX.

J. H. is entitled to allowances for abatement, etc., which exceed his military pay for the present financial year. That pay has not been taxed, but only the excess of his allowances over the pay has been allowed in calculating the tax on his civil income. He will thus have no benefit from the provision of a special military rate of tax.

*** We regret to say that our correspondent seems to have no remedy. The case is covered by Sec. 30 (2) of the Finance Act, 1916, extending to the special rate the operation of Sec. 19 (2) of the Finance Act, 1907. In effect these provisions lay down the principle that all allowances shall be made primarily from that portion of the income which is taxable at the lowest rate.

LETTERS, NOTES, ETC.

BRITISH SURGICAL INSTRUMENT FIRMS.

AN incidental reference to Frederick Weiss in a note in the JOURNAL (December 30th, p. 924) might be misunderstood to imply that we supposed that the business of John Weiss and Son, Ltd., had ceased. This, of course, is not the case, although it is now a limited company which is entirely British; the last Weiss associated with it (a grandson of the founder) died some years ago. The Frederick Weiss mentioned in our note was, we are informed, the son of the John Weiss, inventor of the screw lithotrite, who founded the business in 1787.

GARLIC IN LEPROSY.

MR. A. D. J. EDAL-BEHRAM (Surat, India) writes: In your issue of October 21st, 1916, Colonel Sir Leonard Rogers proposes to commence research on the action of gynocardates on the human acid-fast bacillus of tuberculous disease. May I most respectfully beg to point out that oleum allii (oil of garlic) has been shown to have a complete destroying action on tubercle bacillus by Professor Poore, Professor Cavazzani of Vienna, Dr. McDuffie of Metropolitan Hospital of New York, Dr. Minchin of Dublin, and others? Under the circumstances, would it not be worth while to try oleum allii (oil of garlic) on leprosy and investigate its action on Hansen's bacillus? Garlic can be had more easily than chaulmoogra. Colonel Sir Leonard Rogers will be the best man for it, looking to the facilities he has at Calcutta.

APPENDICITIS AND ENAMELLED WARE.

DR. WALTER G. WALFORD (South Hampstead, N.W.), writes: My son recently returned from the front with an enamelled iron teacup such as I learn is served out in camp for ordinary use. Now enamel is practically glass, and this stuff is extensively flaking off both the interior and exterior of the cup, and would wash down the throat with every mouthful of liquid swallowed. Appendicitis was almost unknown before this ware was brought into use. If we wanted to give our brave soldiers appendicitis, could we better ensure it than by supplying such cups?

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE TREATMENT OF BURNS BY PARAFFIN.

BY LIEUT.-COLONEL A. J. HULL, F.R.C.S.,
ROYAL ARMY MEDICAL CORPS.

DR. BARTHE DE SANDFORT introduced a treatment for burns by means of a preparation of paraffin which he called ambrine. The treatment consisted in washing the burns with sterile water, drying, and painting or spraying a layer of ambrine over the surface. The surface was then covered with a thin layer of wool, and a second coat of paraffin applied. The paraffin solidifies almost instantaneously, and a thicker layer of wool and a bandage are then applied. The paraffin preparation, ambrine, is a secret one, and the property of the Ambrine Company, Paris.

Observations of Dr. Barthe de Sandfort's treatment, and experiments with ambrine, carried out in a military hospital, gave one the impression that the treatment was valuable. Burns healed with rapidity; constitutional symptoms rapidly abated; pain was reduced to a minimum; scarring appeared to be obviated, or at any rate was not apparent. The need for grafting large burns appeared to be avoided. The burns healed so rapidly with healthy granulations that there appeared to be nothing to be gained by grafting. The patients were singularly free from sepsis. The conclusion arrived at from experimenting with the ambrine treatment was that mild burns healed with singular rapidity, and severe cases recovered which would have been unlikely to recover by the ordinary methods of treatment. Observers who had had large experience of burns treated by picric acid, ointments, and other methods in ordinary use, were unanimously of opinion that the paraffin method was superior to the older methods. The experience of those who had witnessed the results of burns after liquid fire attacks was that the ambrine treatment would save many lives, and accelerate the recovery of all burns.

A preparation resembling ambrine may be produced by impregnating hard paraffin with a small quantity of tar. The substance is not in very good solution, and falls to the bottom of the paraffin when the wax is heated. The excellent results obtained would therefore appear to be due to mechanical causes. The protection of the burn from the air, the protection of the newly-formed granulations from damage, the splint-like effect of the wax in holding the damaged tissue immobile and at rest, appear to be the attributes which produce the effect. The heat of the applications and the conservations of heat to the surface may encourage the lymph flow, determine the supply of blood to the new capillaries, and favourably affect healing. The relief from pain and rapidity of healing is due to the fact that the burn is held at rest in a plaster-like cast of paraffin, and a suitable nidus in which the epithelium will proliferate is provided.

The absence of scarring depends upon the fact that skin can be reproduced in two ways. First, by direct proliferation of the epithelium in the depth of the wound. This method of healing is only possible in wounds of the first and second degrees, which form the vast majority of all cases of burns coming under treatment. Secondly, by the extension of the epithelium from the edge of the wound in cases of burns of the third and deeper degrees. These burns are comparatively rare, and are the only cases suitable for grafting. The effect of the paraffin in the first class is to protect and stimulate the growth of epithelium, islets of which can be seen growing over the base of the burn. In the second class the epithelium spreading from the edge is protected and stimulated.

The first point to be determined was whether equally good results could not be obtained with commercial paraffin, section wax, or similar pure hard paraffin. The ambrine preparation has peculiar and valuable mechanical properties. It has a lower melting point than ordinary section wax, is much more plastic when cooling and has not the tendency to crack which ordinary hard paraffin has. It also adheres well to the skin and is not liable to slip after a dressing is applied.

Hard paraffin is not a suitable application in its raw state; it lacks the mechanical properties of ambrine; there is an absence of the flexibility and adhesiveness which ambrine possesses. I found that if hard paraffin of suitable melting point be subjected to a temperature of 130° C. by means of superheated steam, the melting point was reduced about 2° C., and the hard paraffin now possessed the mechanical properties of ambrine. The therapeutic value of ambrine appears to be entirely mechanical, and I suggest that the processes of impregnation with tar or other substances are associated with the application of superheated steam, and that it is this superheated steam that is the essential process in its manufacture. The clinical results of the application of hard paraffin—treated with superheated steam—to burns appear to me to be indistinguishable from those of ambrine

Better results are obtained by the addition of certain antiseptic and stimulating substances. The wounds become clean more rapidly, pain is decreased, and the offensive smell associated with the ambrine dressings is avoided, and the burns heal more quickly. It was found necessary to change the treatment of sluggishly-healing burns treated by ambrine to a paraffin containing an antiseptic. The change was always beneficial. The argument that an antiseptic will destroy the saprophytic action of bacteria and will retard the treatment has not been borne out by clinical experience.

It is unnecessary to describe in detail the various experimental preparations. Laboratory experiments were made with a view to impregnating paraffin with various antiseptic substances—resin, essential oils, and tars. Experiments were made in order to produce a paraffin possessing the requisite melting point, plasticity, and adhesiveness. Cases were treated in the burn wards with various experimental preparations. Tar preparations were at first used; paraffin impregnated with oil of eucalyptus proved more efficacious. In order to obtain a painless treatment experiments were made with paraffin preparations containing analgesic substances. Potassium sulphate was used in one successful preparation (No. 4 paraffin), but was discarded as unnecessary in later preparations. After progressively improved results, a paraffin was finally arrived at having the mechanical properties of ambrine and containing a small amount of antiseptic. This is now in routine use known as No. 7 paraffin.

The results obtained by the use of No. 7 paraffin have surpassed the results obtained by ambrine or any other tried preparation. Severe burns of the third degree, accompanied by sloughing, and in a very septic condition, have cleaned and taken on healthy repair under this treatment, after a trial of the ambrine treatment. Severe burns of both palmar and dorsal surfaces of the hands, extending to the tendon sheaths, have healed in three weeks without contracting cicatrices. Extensive burns of the flexor surfaces of the limbs, the regions most likely to be altered by contracting cicatrices, have healed without apparent scarring. Burns of the face heal with a new healthy skin without scarring.

Severe burns due to cordite, petrol, and liquid fire have been healed with this preparation; there have been no untoward results.

Patients who have been admitted with septic burns of extensive areas have rapidly recovered from constitutional symptoms, the temperature usually becoming normal in a few days.

The treatment is practically painless, and patients rarely complain of pain after the first application. It has never been found in the least necessary to give an anaesthetic for the first or subsequent dressings. The rapidity of healing, the absence of sepsis or pain, the healthy new skin resulting, without contractile cicatrices or deformity, have been really remarkable. Burns become clean more rapidly than under ambrine treatment. Sloughs of deep tissues, in some cases down to bone, readily separate, and the burns become clean.

Method of Treatment.

The paraffin treatment is begun at the first dressing; very exceptionally, in very septic burns, the paraffin is replaced by hot boric fomentations for two days after two days of paraffin treatment.

The burn is washed with sterile water and dried. The drying is accomplished by placing a dry piece of gauze over the burn. An electric drying apparatus, such as is used by a hairdresser for drying hair, if available, is a convenient method of drying the burn.

[2924]

LIBRARY U. OF I. URBANA-CHAMPAIGN

The burn is next covered with a layer of paraffin at a temperature of 50° C. The No. 7 paraffin has a melting point of 48° C. The temperature may be estimated by waiting until the wax shows a solidifying film upon the surface. A broad camel-hair brush, sterilized in wax, has been found to be a rapid and painless method of applying the paraffin. A spray may be used, but sprays readily get out of order, are troublesome to use, and the dressing takes longer. In theory a spray should be used in order to prevent any damage to the epithelium. In practice we have found a brush, skilfully used, sufficiently satisfactory. Sprays are indicated in very painful cases. A metal spray of rather large bore should be employed. The spray must be immersed in hot water during use.

A thin layer of cotton-wool, cut the same size as the area of the burn is placed over the wound after the first layer of paraffin has been applied. This layer of wool is covered with a second layer of paraffin. The wool is cut in thin sheets and pressed between layers of paper in order to obtain thin layers of wool. The dressing is completed by applying wool and bandage. The burns are usually dressed daily. In the later stages, when the burn is clean and only a small amount of pus is formed, the dressing is changed every forty-eight hours.

Blisters are not interfered with in any way at the first dressing, the paraffin is applied after washing the burn. At the second dressing the dead layers of skin are cut away. Sloughs usually separate after a few dressings. The separation of sloughs is accelerated by applying a layer of jaconet over the wool and paraffin beneath the wool and bandage dressing.

Formula for No. 7 Paraffin.

Resorcin	1	per cent.
Eucalyptus oil	2	,,
Olive oil	5	,,
Paraffin molle	25	,,
Paraffin durum	67	,,

Melt the paraffin durum, and add paraffin molle and olive oil. Dissolve the resorcin in absolute alcohol (soluble 2 in 1), add the alcoholic resorcin, and lastly add the eucalyptus oil when the wax has cooled to about 55° C.

A smaller amount of resorcin may be used. The whole of the resorcin does not remain in suspension, and we have used a paraffin containing 0.25 per cent. resorcin with good results.

Difficulty having been experienced in obtaining resorcin in large quantity, beta naphthol, which has the additional advantage of being a cheaper antiseptic, has been substituted for resorcin in more recent preparations, as follows:

Beta naphthol	0.25	per cent.
Eucalyptus	2.0	,,
Olive oil	5.0	,,
Paraffin molle	25.0	,,
Paraffin durum	67.75	,,

We have employed No. 7 paraffin in certain stages of the treatment of trench feet. The mode of application of paraffin to the ulceration following frost-bite is in every respect similar to the application of paraffin in the treatment of burns, and the results have been equally satisfactory.

Lectures
ON
THE EARLY DIAGNOSIS AND TREATMENT OF SYPHILIS.

By JAMES H. SEQUEIRA, M.D., F.R.C.P.Lond., F.R.C.S.Eng.,
PHYSICIAN TO THE SKIN DEPARTMENT AND LECTURER ON DERMATOLOGY, LONDON HOSPITAL; HONORARY CONSULTANT IN DISEASES OF THE SKIN TO THE MILITARY HOSPITALS IN LONDON.

(Continued from p. 3.)

[Abstract.]

Although it is not to be expected that many practitioners will be able to carry out personally the rather complicated technique of the "Wassermann" reaction, it is within the power of all to take the necessary specimen of blood, which can be forwarded to a laboratory. As a general rule it will be found easier to remove the blood by a hypodermic syringe. A band should be placed round the upper arm, and the bend of the elbow having been cleansed by ether or painted with iodine, the hypodermic needle should be passed longitudinally into the most prominent vein in front of the elbow, and at least two cubic centimetres of blood withdrawn. In some laboratories five cubic centimetres are demanded, and no doubt, when the arrangements are complete, the necessary capsules sent out from the laboratories will be accompanied by instructions as to the quantity required. Another method is to wind a rubber tube round the patient's thumb, making a puncture with a sterilized needle and drawing off the blood into a capsule of the type devised by Sir Almroth Wright. It is important to see that the ends of the capsule are carefully sealed by heat before posting to the laboratory.

The Examination of Contacts.

It is impossible to investigate contacts in many instances, but valuable work may be done in this direction. It is my practice, whenever possible, in the case of a married man presenting himself for treatment, to see the wife and to examine her and have a blood examination made. Likewise, if a married woman comes to the clinic and is found to be suffering from syphilis, every endeavour is made to induce the husband to come up for examination. Where there are children I have them brought up and they are examined. A boy, aged 6, was shown suffering from acquired syphilis. His mother was attending for secondary syphilis. The fact of the child being infected was discovered at once on his being brought for examination. In one family the following members were affected: The mother suffered from secondary syphilis acquired from her husband, her infant had congenital lues, while two other children in the house, one of them the mother's young sister, aged 12, were suffering from primary lesions due to kissing. In another family four members were infected.

Treatment of Women who have had Repeated Miscarriages.

Another part of the work to which I wish to draw your attention, and which, in my opinion, is an important feature of the present movement, is the treatment of women who have had repeated miscarriages. We are working in collaboration with the Obstetric Department in this matter. I am happy to say that in a number of cases women who have had several premature births have been referred to us, and on the "Wassermann" reaction being found positive, have been treated by intravenous injection of one or other of the arsenical compounds, and by mercury, with the result that the subsequent pregnancies have gone to full term and the children born have been quite healthy. I take it to be the duty of every medical practitioner who knows of such cases to have a blood examination made and to put the patient under treatment should the Wassermann reaction be found positive.

Congenital Syphilis.

At the outset I desire to enter a protest against the exaggerated statements which have been made as to the large mortality of children from congenital syphilis. Syphilitic infection is responsible for the deaths of a very large number of fetuses *in utero*, but I deny that it is the commonest cause of infantile mortality. Many mistakes are made in diagnosis, and I particularly wish to call attention to two or three points in this connexion. Very rarely a child is born with an extensive bleb or bullous eruption of syphilitic origin. I have seen instances in which the whole, or nearly the whole, of the epidermis has been shed in such a case. Occasionally a blister or bullous eruption develops on the palms and soles four or five days after birth. Blisters may develop elsewhere, but the palms and soles are always affected. Such an eruption is syphilitic and the infant rarely survives. A much commoner bullous eruption develops about the eighth or ninth day after birth, usually in association with a septic umbilicus. The blebs most commonly develop on the trunk, and they may be of very wide distribution. Sometimes such cases occur in epidemics, and in some epidemics the mortality is 30 per cent. This affection, known as *pemphigus neonatorum*, is a bullous impetigo, and is of coccal origin. It is not syphilitic.

The common congenital syphilitic eruption appears about a month after birth; the child is described as being quite healthy when born, and it may remain so until the third or fourth week, when an eruption very similar to

that seen in the secondary or generalized stage of the acquired disease appears. This eruption may be widely spread, it affects the face, palms and soles, napkin region, and other parts. It is often accompanied by "snuffles," and there may be mucous patches about the mouth. The spleen is often enlarged. Such cases have a characteristic appearance, the child soon begins to waste, the face becomes shrivelled, and, if untreated, a fatal result may occur. The majority of cases of this type, treated adequately by mercury, do well. In this stage mistakes in diagnosis are usually in the direction of classing other conditions, especially eruptions in the napkin area, as syphilis.

I must digress for a moment to say a few words about these *napkin area eruptions*, for there is a very prevalent idea that affections of this region are of syphilitic origin. The commonest napkin area eruption is a bright, shiny, red inflammation affecting the convex surfaces. It corresponds almost exactly with the area irritated by a soiled napkin—thus, the lower part of the back, the buttocks, the calves, and sometimes the heels are involved. There is good reason to believe that a coccal infection is a factor. This eruption is often diagnosed as syphilis. There are no "snuffles," no eruption elsewhere, and no enlargement of the spleen. In another type the affection is in the flexures of the thighs, groins, etc. This condition is *intertrigo*, and is often met with in the children of careless mothers. There are no general symptoms, and the condition has nothing to do with syphilis. In some instances we meet with a *seborrhoic dermatitis* in young infants, the scalp is scaly, the eruption may be more widely spread, and there are often seborrhoic conditions in one or other parent. There are none of the general signs of congenital syphilis.

Lastly, I must direct your attention to some rather rare but important manifestations of congenital syphilis in children from about 10 to 14 years of age. The eruption usually affects the nose and mouth, but may occur elsewhere. It is rapidly destructive, bone as well as cartilage undergoing necrosis, and causes hideous deformity sometimes in a few weeks. Occasionally the extremities may be affected. These cases are almost invariably believed to be lupus, and in my experience in the Finsen Light Department of this hospital I have had a number of them under my charge.[1] The special points are the rapidity of the destructive process, especially in osseous tissue. Lupus takes years to do the damage which this spirochaetal affection may produce in months. Lupus, also, does not destroy bone. In some of these cases the features known as the syndrome of Hutchinson, Hutchinson's teeth and interstitial keratitis and deafness, are present. In every one of these instances a positive "Wassermann" reaction was found. A patient with Hutchinson's teeth, interstitial keratitis and necrosis of the tibia was shown, also numerous photographs.

If it is impossible, owing to the tender age of the infant, to make a blood examination the blood of the mother should be tested.

TREATMENT.

The present-day treatment of syphilis is by certain combinations of arsenic supplemented by mercury. Let us for the moment consider the evidence which is in favour of this as opposed to the old mercurial treatment.

The best evidence is that which has been afforded us by Gibbard and Harrison in their valuable work in the military hospitals.[2] It is impossible in civilian practice to carry out the continuity of observation which these officers have been able to obtain. I will not quote their figures at length, but I must mention that of 378 cases treated by mercury alone there were clinical relapses during the first year in 83 per cent., while of 152 cases treated by salvarsan and mercury the clinical relapses were only 3.9 per cent. This difference is so striking that it does not need comment. Gibbard and Harrison also showed by statistics the importance of early treatment, for in 70 primary and 130 secondary cases treated by modern methods the proportion of relapses, including both clinical and those only recognized by the blood test, was 11.3 when the treatment was begun in the primary stage, while it reached 33.7 when the treatment was postponed until the secondary stage.

A third point is the fact that the serum of a primary sore or of condylomata may be teeming with spirochaetes, as observed by dark background illumination, and within twelve hours of giving an injection of salvarsan or one of its allies no spirochaetes were found. I beg you, however, not to look upon this as evidence of one dose of salvarsan curing a case. The facts which I have given above show that there may be both clinical and blood test relapses even after several injections. The only way to effect a cure is to treat the patient sufficiently early. There are some cases in which, even after numerous courses of treatment, we are unable to effect a permanent change in the Wassermann reaction.

Preparations Used.

The arsenical preparations for intravenous injection fall into two groups, the types of each group being salvarsan (606) and neo-salvarsan (914). The salvarsan group, to which kharsivan and arsenobenzol belong, are acid in reaction and require careful neutralization by a solution of potassium hydrate.

The neo-salvarsan group includes novarsenobenzol, novarsenobillon, and does not require neutralization. Galyl does not require neutralization. These drugs are dissolved in sterile saline solution.

The most recent introduction is Danysz's luargol, a combination of arsenobenzol with silver, bromine, and antimony. It is given intravenously in alkaline solution, but recently a soluble sodium salt has been made which is more convenient to use. It is too early to say more than that the results, so far, are very promising.

Method.

The next question of importance is, Shall the drug be in dilute or concentrated solution? There are many advocates for the administration of concentrated solutions. The advantage is that the injection can be made with a syringe containing 10 c.cm. of the solution. If the operator is expert the injection of this small quantity of solution with a Record syringe in a simple matter. The needle is introduced into the vein and a little blood is withdrawn, showing that the vein has been entered, and then the solution is slowly introduced. The disadvantage is that without great care it is easy to pass the needle through the wall of the vein and to inject the highly concentrated solution into the connective tissue, a procedure which immediately causes intense pain, and, what is infinitely worse, a necrosis of tissue with ulceration which may take many weeks to heal. I therefore strongly urge that until a man has mastered the technique and feels quite sure of himself, he should use dilute solutions.

The dilute solutions are usually made up to 100 c.cm. They are introduced either by gravity or by a pressure bottle. The gravity apparatus is preferred by many. It consists of two vessels, one containing normal saline and the other the solution. Two rubber tubes governed by stopcocks lead to a single tube to which is attached the needle. It is usual to have a piece of glass tube as a window inserted in the rubber tube near the needle. The needle is introduced with the reservoirs at a low level, and as soon as blood appears in the glass window the apparatus is raised to about 4 ft. above the patient. First a little normal saline is run in and then the solution, and finally a little more normal saline. The needle is then withdrawn, and the puncture covered with a pad and bandage.

In this clinic we employ a convenient apparatus devised by McIntosh and Fildes. The solution is placed in a glass bottle with a rubber stopper through which passes one tube to the needle, while the air pressure in the bottle can be raised by a Higginson syringe, care being taken that the air passes through a tube plugged with cotton-wool. The apparatus, which is made by Messrs. Baird and Tatlock, is small and portable.

A two-way syringe drawing in saline first and then the solution is also in use.

Preparation of the Patient.

The night before an injection is given the patient should take an aperient pill followed by a saline in the morning. He should take no solid food for at least four hours before the injection, and should lie flat on a bed or couch when the operation is performed.

Precautions in Making the Injection.

In all intravenous injections the following precautions must be observed:

1. The urine must be tested before *each* injection.
2. The drugs are sent out sterilized, but the saline or distilled water and all the apparatus must be carefully sterilized.
3. Care must be taken that the drug is completely dissolved.
4. The site of injection must be well washed and then carefully cleansed with ether or painted with iodine.
5. The vein must be made prominent by applying a rubber tourniquet or band round the upper arm. Immediately it is known that the vein is entered the tourniquet or band must be released.

I prefer in all cases to give the patient a rest for a night after the injection.

Immediate Reactions.

Of 1,120 consecutive injections given in my department the temperature rose above 100° F. in 149 instances—namely, 13.3 per cent.; of these, 29 reached 103° F. or over—namely 2.6 per cent. The febrile reactions are met with chiefly after the first injection and mostly in the florid secondary cases. Other symptoms are slight shivering, with occasional vomiting and diarrhoea. In rare instances a scarlatiniform rash occurs, apparently due to the drug.

In very exceptional cases, in the early days of the salvarsan treatment, we saw symptoms of meningitis. In a case under my observation the patient complained of headache on the third day after the second dose. This was followed by convulsions, and the patient died in coma on the fifth day. In these rare cases multiple small haemorrhages have been found in the meninges of the encephalon.

Another reaction is characterized by symptoms of nephritis, uraemia, and suppression of the urine. These phenomena are believed to be due to renal inadequacy. A transitory jaundice may also appear, and in very rare instances toxic hepatic symptoms.

Pulmonary embolism has also been described. It has occurred as a sequel to thrombosis of the vein used for injection.

Much has been written on cranial nerve affections following injections of arsenical compounds. Seventh and eighth nerve paralysis has been observed. It is more probable that the paralysis is due to the syphilis, and cases are recorded in which a further injection has cured the condition. A transitory vasomotor crisis sometimes follows the injection, the face becomes swollen, congested, and sweating, the pulse rapid and dicrotic, and the patient complains of headache.

Selection of Cases.

These considerations suggest the importance of carefully selecting cases. The following general conditions are held to contraindicate the injection of these drugs: (1) Renal disease of non-syphilitic origin. Albuminuria without casts may be due to the syphilitic poison, and I have several times seen it clear up after an intravenous injection. (2) Grave heart disease, and (3) hepatic cirrhosis are also conditions in which it is dangerous to carry out the treatment.

Subsequent Treatment by Mercury.

The subsequent treatment of the patient by mercury demands a few words. The most satisfactory method is intramuscular injection. I use a mercurial oil as follows:

Mercury	...	...	66 grains.
Sterilized anhydrous lanolin	...	...	4 drachms.
Sterilized liquid paraffin	...	...	6 drachms.

One grain of mercury is injected once a week. The oil may require warming, especially in cold weather, to allow it to pass through the needle. The site for injection is the outer third of a line drawn from the anterior superior spine of the ilium to the top of the gluteal cleft. Alternate sides are used for the injections. The needle should be 2 in. in length, and should be carefully sterilized before introduction, the site of the injection also being cleansed with ether or painted with iodine. The needle is plunged vertically to the surface deeply into the muscle and the injection is made slowly. There is some subsequent pain, and the patient should rest for a little while after the operation. Sometimes there is difficulty in getting the patient to come regularly for these injections, and in such cases the inunction of 1 drachm of mercurial ointment daily should be ordered. The inunction is made into a soft part of the skin, for example, the sides of the chest, bends of the elbows, etc. The ointment must be well rubbed in, a quarter of an hour being allowed for each rubbing, and two rubbings should not be made consecutively in the same place. A course of thirty rubbings may usually be given, but if the gums show signs of mercurialism the process should be suspended.

A third method is to give Hutchinson's pill containing

Hydrarg. cum cret.	...	...	1 grain
Pulv. ipecac. co.	...	...	1 grain

three times a day after food.

The First Course of Treatment.

The first course of treatment should consist of three intravenous injections at weekly intervals, followed by eight intramuscular injections of mercury. At the end of two months the "Wassermann" reaction should be examined. In about 70 per cent. of my primary and secondary cases it is negative at this period. The blood test should be made again after three months, and if it is positive, as is not infrequent, especially in secondary cases, the treatment should be repeated. At regular intervals the blood should be again examined, and further treatment given if required.

In all cases the patient receives a paper telling him how to avoid spreading infection, and giving instructions as to diet, especially abstinence from alcohol.

Treatment of Congenital Syphilis.

As a routine I prefer mercurial inunction, and a quarter of a drachm of mercurial ointment is rubbed into the abdomen once daily after bathing. A flannel binder is worn over the ointment. The mother should be treated if possible. The duration of mercurial treatment in the infant should be controlled by the "Wassermann" reaction. Intravenous injection in young babies is so difficult that it is rarely practicable. Treatment through the mother, if suckling, may prove satisfactory. The presence of snuffles sometimes prevents the child from suckling, and in such cases feeding by a spoon must be adopted.

Persistence of the Blood Reaction.

One meets cases in which, in spite of repeated treatments, the "Wassermann" reaction cannot be rendered permanently negative, and the important question arises whether treatment should be continued indefinitely and whether such subjects should be allowed to marry. From the point of view of the public health we may say definitely that so far as our experience goes patients who have had these repeated courses and yet have a positive Wassermann reaction are not a source of infection, and we believe that it is safe for them to marry. Hutchinson's long experience showed that marriage was safe after mercurial pills for two years, when it is known that over 50 per cent. of the cases would have a positive "Wassermann."

Where the patient has a persistently positive reaction I think it is wise to give a short course of mercury at least twice a year.

[After the lectures, Dr. J. McIntosh demonstrated the methods of examination for spirochaetes and the technique of the blood examinations, and Dr. Sanders gave a series of demonstrations of intravenous injections.]

References.

[1] J. H. Sequeira, illustrated article in *Lancet*, January 3rd, 1914.
[2] Gibbard and Harrison, *Brit. Journ. Dermat.*, xxv, p. 318.

Mr. R. W. Doyne, F.R.C.S., of Oxford, left estate valued at £18,374.

Systematic instruction in hygiene is to be given in the schools of New York City by Dr. C. Ward Crampton, director of the department of physical training, hygiene, and athletics of the public schools.

Lectures
ON
DISEASES OF THE MALE URETHRA.

BY
FRANK S. KIDD, B.C., M.B.CANTAB., F.R.C.S.,
ASSISTANT SURGEON, LONDON HOSPITAL, AND SURGEON TO THE GENITO-URINARY DEPARTMENT.

LECTURE II.
DIAGNOSIS.

In the study of urethritis the most important thing of all is accurate diagnosis—first as to whether a patient has the disease or not; secondly, if he has the disease, the stage of the disease—namely, acute anterior, acute posterior, or chronic urethritis; finally, if the disease is in the chronic stage, the accurate diagnosis as to where the disease is lurking, in what glands, or beneath what portion of the mucous membrane.

Why is accurate diagnosis so important? In the first place, many a man comes to me who affirms that he has gonorrhoea and his doctor affirms the same. Yet when I come to examine his urethra by accurate methods, I find he has no signs of disease whatever. Secondly, many a man comes to me passed as cured by his doctor when in reality he is not cured at all. These are the men who spread the disease broadcast. Again, many and varied are the short cuts to cure published every year. Yet if you will analyse carefully the papers written on the subject, you will find that many of those who publish these short cuts have no accurate standard of cure. They publish as "cures" large numbers of cases which are in reality by no means cures. These "cures," fortified by the assurance of their healers, launch forth afresh and infect other women, and so the disease goes round.

Practitioners are persuaded to trust these new methods when in reality the methods may not be curing but merely rendering the disease latent. It is so easy to render the disease latent and to persuade yourself you have obtained "a cure." Again, take the question of marriage. How disastrous to let a man get married to a healthy woman unless you really can say that he is free from disease!

I need labour this point of accurate diagnosis no longer. Enough has been said to show the extreme importance of an accurate standard of diagnosis as to whether the disease is present at all, and if so in what stage and to what extent.

Now I am open to criticism of my treatment. Many may say it takes too long and may wish to shorten it, but I am convinced that my methods of diagnosis as to cure are extremely accurate. When by my methods I say that a man is not cured I am willing to swear to it, and so for the converse. No one, then, should embark on trials of a new treatment until he has first been thoroughly trained in accurate diagnosis, and until he realizes how easy it is to get rid of urethral discharge and obtain an apparent cure.

I propose, therefore, to start this lecture by describing my method of tackling a case of chronic gonorrhoea or gleet and of establishing the diagnosis. I will then describe my method of tackling an early acute purulent case. Note at once that the two methods of approach are poles asunder.

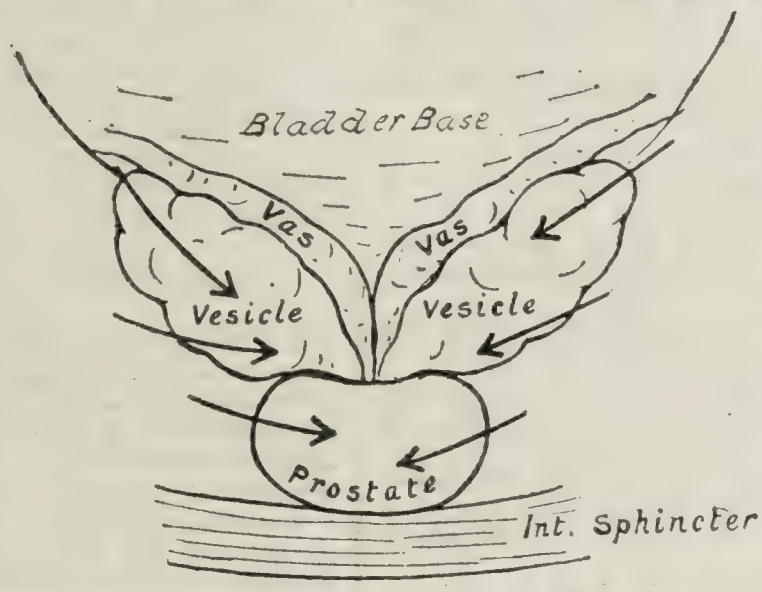


FIG. 2.—Directions in which to massage the prostate.

I. DIAGNOSIS OF A CASE OF CHRONIC GONORRHOEA OR GLEET.

First Step.

We will suppose that the man has held water for some hours. He will probably complain of no discharge, but will state that the lips of the meatus are stuck together, and that he notes threads in the urine, or a gleety discharge on rising from bed. Strip the urethra, collect any discharge that can be obtained, and spread it out on several slides. Note that many a man has gonorrhoea from whom not a trace of discharge can be obtained. Fix and stain the films appropriately, and examine for pus cells and gonococci. If only pus cells are present the man is suspect, though the case is not proven. This is the easiest and simplest proposition. But the man may have no obvious discharge, so that further investigation is needed.

Second Step.

Let the man pass urine into two glasses. The urine may be hazy with pus—that is to say, the haze does not disappear when acetic acid is added to the first glass, and becomes ropy if potassium hydrate is added to the second glass. This proves that a deep urethritis or a cystitis is present. Note here that if a man is taking sandal oil, then his urine may be hazy with fat droplets. This point will be dealt with later. If the urine is clear, but contains threads, the man is suspect. Place a thread under the microscope. If it contains a large number of pus cells the man is almost certainly infectious. The urine may be clear and contain no threads. Even so the man may be infectious, as can be proved by the third step.

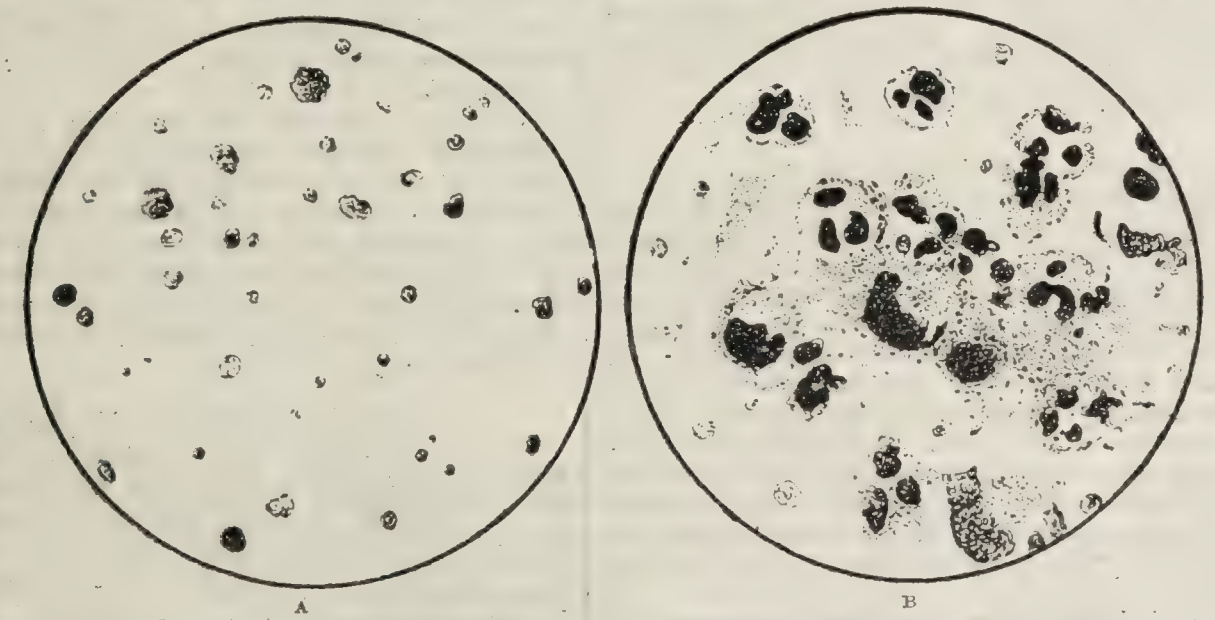


FIG. 3.—Prostatic fluid. A, Healthy; B, purulent.

Third Step.

Ask the patient to kneel on a couch. Cover the right index finger with a rubber finger-stall. Insert the finger into the rectum, and proceed very gently to massage the prostate in the manner to be described later (Fig. 2). After a minute or so several drops of opalescent fluid will drip from the meatus. Collect a drop on a slide, spread out and stain with borax, methylene blue, or carbolthionin. Examine under a microscope. Healthy prostatic fluid consists of masses of amorphous bodies of varying sizes staining a deep blue. These masses are "lecithin bodies" or droplets of fat, prostatic fluid being an emulsion of fat, or, in other words, a lubricating fluid. A few epithelial cells are seen, but no pus cells. If the contents of the vesicles are also expressed, large pale blue discs of

vesicular secretion are seen, and sometimes large numbers of spermatozoa. If pus cells are also detected you can be certain that the man is suffering from prostatitis (Fig. 3). If many pus cells are present, you can be sure the disease is still infective, even though you fail to detect gonococci. If only a few pus cells are present the help of a clinical pathologist is needed, and the fluid should be examined by him on several occasions. Such examinations should include differential stainings and cultural methods. The clinical pathologist will state if gonococci are still present. If so, the man is not cured. If absent on several examinations other bacteria will probably be detected, such as staphylococci, streptococci, or bacilli of the colon group. These are generally caused by secondary infection, and are not contagious to a woman.

Fourth Step.

Suppose the man has passed all these tests satisfactorily, you have still to examine the urethra with the urethroscope.

No man should be passed as cured unless he has undergone this method of examination.

When I note a man writing or teaching that the urethroscope is of no use, then I know that he has not tried sufficiently hard to train himself in the use of this instrument—a task that requires much patient perseverance—and I know that his published results cannot be trusted.

With the urethroscope it is possible to detect the presence of common lesions such as infected glands of Littre, soft submucous infiltrations, fibrous strictures, and rarities such as warts, polypi, pouches, and so forth. In many cases that are constantly relapsing the cause is at once detected as a suppurating gland of Littre which can be destroyed through the urethroscope, and the case is at once cured, or it may be found as a soft stricture which needs dilatation.

Once more I wish to emphasize the fact that it is no good sending a man away labelled "cured" when you have not used the urethroscope, as you may be sending him away with an early soft stricture, which in this early stage can rapidly be cured by dilatation, but which later on may become hard, fibrous, and perhaps incurable. This is one of the most important reasons why it is impossible for a bacteriologist to treat urethritis by vaccines alone in his laboratory. Even if he stops the discharge he has not done his duty by his patient if he has not excluded stricture with the urethroscope.

Fifth Step.

Finally, if there still remains any doubt, all treatment is discontinued and the patient is asked to take alcohol daily for a week or a fortnight. At the end of this time he is again put through the tests. Alcohol increases the signs of inflammation if disease is present.

When Doubt as to Case Still Remains.

After this series of tests we can usually say that the man is or is not cured. But in a small number of cases there is still doubt. These cases occur in men who have ridden hard a horse or a bicycle or who have undergone long treatment at the hands of those who are not versed in the antiseptic ritual of urethral instrumentation. In such cases there is a persistent glycerine-like or milky gleet, not increased by alcohol, and the prostatic fluid shows a fair number of pus cells. Yet prolonged treatment does not appear to benefit the condition but rather to aggravate it. In such cases also the urine may show a most persistent haze consisting of bacteria and a few pus cells, or the urine may be clear and contain light floating threads.

In such cases at least three complete tests must be made, a clinical pathologist being present, who should take cultures and films of all the various secretions above described, the man being on alcohol. If all these tests are negative for gonococci, and show simply the presence of staphylococci or streptococci or bacilli, then the patient can be passed as cured of his gonorrhoea, can be allowed to marry, and should discontinue all treatment. Treatment only seems to irritate such cases, whereas if it is discontinued in a year or less the gleet dies away of itself.

A Note on Threads.

If the threads are a bright yellow colour, and sink at once to the bottom of the glass, you can be certain they are rich in pus, and are infective.

If the threads appear as tiny yellow commas, which sink fairly quickly, you are dealing with little plugs of purulent secretion squeezed out of the prostatic ducts (prostatic or comma threads).

If the threads are small and glycerine-like and rise to the top of the glass, you will find that they consist of epithelial cells and an excess of mucus. The case is probably cured, but the urethral mucosa and glands have been irritated by prolonged treatment into secreting an excess of mucus and epithelium.

If the threads appear as long coils of greyish mucus which neither sink nor float to the top, you are probably dealing with a secondary infection.

Note that the threads simply mean pus or mucus of urethral origin. The secretion lying on the wall of the urethra is swept up into threads by the stream of urine. A large number of healthy men pass threads in their urine, consisting of mucus from the urethral glands and a few spermatozoa. This is especially so for a day or two after a seminal emission. Discourage your patients from inspecting their urine for threads. Many a man passes threads who is quite healthy.

II. Diagnosis in a Case of Acute Purulent Urethritis.

It is most important for you to learn that the diagnosis of an early acute purulent case (a few days to a few weeks after infection) is made in quite a different manner to that of a subacute or chronic gleet case (two months or more after infection). Unless I can get this idea firmly fixed in your minds you will suffer confusion.

The diagnosis in an acute purulent case is usually easy as regards the gonococcus itself. Profuse discharge is present. Take and stain a film, which will show at once the presence of pus cells and gonococci. What further facts do you need to know?

You want to know if the disease is still confined to the anterior urethra or if it has spread to the deep urethra.

This is easily determined by the glass test. Wash out the anterior urethra with $\frac{1}{5000}$ oxycyanide of mercury by Janet's method until the washings come away quite clear, as tested by pouring them into a glass and holding them up to the light; that is to say, till all the pus in the anterior urethra has been washed away. Now ask the patient to pass water into a clean urine glass.

If the urine is clear you have proof that there is no pus coming from the deep urethra. *Diagnosis: Acute anterior urethritis.*

If the urine is hazy or purulent (exclude phosphates and sandal oil), then you have proof that the pus is coming from the deep urethra. *Diagnosis: Acute posterior urethritis.*

Why is it so vital to ascertain these facts? If the disease is still confined to the anterior urethra you can hope for a cure in from one to three weeks (abortive treatment). If it has spread back further, then you cannot by any means hope for a cure in under two or three months at the earliest, especially since you ought not to employ antiseptic washes to the posterior urethra at the outset (five to eight weeks) with the idea of aborting the disease.

The Object of the Test is for Prognosis.

If the diagnosis is acute posterior urethritis, explain the case to your patient, and warn him that though you can soon cause the obvious discharge to disappear, yet he will not then be cured; but that he will have to live carefully and undergo treatment for many weeks before you can promise a real cure.

This is all there is in the glass test. You will read of a two-glass, three-glass, five-glass, and even a seven-glass test. There is no need for all this complication of what is, after all, a very simple matter. One glass alone is required, and one enamel pot and an irrigator.

Place the patient on a couch and wash out the anterior urethra with a clear liquid into the pot until the washings, as seen by pouring them into the glass and holding them up to the light, are seen to be clear of haze and threads. Empty out the glass and then ask the patient to rise and

pass water into it. If the urine is clear, the deep urethra is clear. If the urine is purulent, the deep urethra is purulent.

What could be more simple than this? It tells you if the patient is suffering from anterior urethritis alone, or if he is suffering also from posterior urethritis. This is the vital fact you want to know, as you want to explain matters to your patient.

RECTAL EXAMINATION.

Tactile Diagnosis of Inflammation of the Prostate and Vesiculae Seminales.

In all cases, and especially in cases of acute posterior urethritis, examine the rectum with the right index finger encased in a rubber cot. The prostate may not be swollen at all. Do not, however, massage the prostate, as you will only irritate. (Only in exceptional circumstances is it wise to massage the prostate during the acute stage (five to eight weeks).)

The prostate may be swollen up to the size of a Tangerine orange on one or both sides. This means that there is a prostatic abscess containing several drachms of pus. There is seldom any need to open such an abscess. The exceptions will be considered later. Leave it alone to burst naturally into the deep urethra, unless there is concomitant retention of urine. In that case it is justifiable and often helpful to press gently on the abscess and partially empty it into the deep urethra, with relief of the retention. This is one exception to the rule given above.

In other cases the prostate is not swollen, but one or both vesicles can be felt to be swollen above and outside the prostate. These cases need great care in handling, and should be put to bed. They suggest the likelihood of an approaching epididymitis or of swollen joints and iritis.

I repeat, "Do not as a general rule begin to massage the prostate or the vesicles until at least five to eight weeks from the onset of the disease"—that is to say, only when the chronic and quiescent stage is approaching in the natural course of events.

A gonorrhoeal vesicle is sometimes mistaken for a tuberculous vesicle by the injudicious. The diagnosis is seldom in doubt if a proper history and examination has been made. Do not begin to think of tuberculosis unless there exists no history of exposure to infection or of urethral discharge, but a history of spontaneous epididymitis of a nodular type, the urine remaining clear of pus.

THE DIAGNOSIS OF EPIDIDYMITIS.

Do not forget that by far the commonest cause of epididymitis is gonococcal urethritis, but that at the onset of this complication the urethral discharge in the anterior urethra often suddenly dries up. Ask the man to pass water. You will find it full of pus in a gonorrhoeal case, and, if still in doubt, the urine can be centrifugalized, and specimens of gonococci and pus obtained.

In the absence of venereal history and with a clear urine a sudden epididymitis is probably tuberculous. Suspend and rest the testicle a few days, when the acute hydrocele will subside, and it will be possible to distinguish the nodular craggy epididymis, with perhaps isolated nodules or beadings in the vas, an unfailing sign of tuberculosis. If necessary apply the tuberculin tests, and search the urine or the prostatic fluid for tubercle bacilli.

There is, however, another trap for the unwary not mentioned in the textbooks. It is not uncommon for men who are run down by exposure and fatigue to develop suddenly an acute epididymitis with fever, pyuria, pain at the end of micturition, increased frequency of micturition, possibly pain in the back, and even a slight urethral discharge. The pathology is as follows: Being run down, such persons absorb colon bacilli from their bowel into the blood and throw it out through the kidney and prostate. The bacilli lodge and set up inflammation, and spread to the epididymis. Such cases often suppurate; gonorrhoeal epididymitis never suppurates.

The diagnosis is made by cultural examination of the urine, which reveals the colon bacillus in pure growth. I have many instances in my notes of this trouble. Such patients often have a concomitant stricture or senile enlargement of the prostate.

Finally, if a testicle has suppurated and you detect a sinus then you may be certain you are dealing with the tubercle bacillus or the colon bacillus.

DIFFERENTIAL DIAGNOSIS.

Be on your guard against making a rash diagnosis of urethritis because you see pus issuing from a long foreskin. Many a case of balanitis is wrongfully labelled as urethritis. If there is phimosis and pus is present under the foreskin—

1. Make a film and stain. In balanitis no specific diplococci are seen, only mixed cocci or bacilli.
2. Wash away all the pus from under the foreskin and then ask the patient to pass water. If the water is clear you have proof that there is an absence of acute urethritis.
3. Slit up the foreskin if it cannot be retracted and inspect the parts beneath. Usually soft sores, or a chancre, or septic warts will be found, and occasionally even a cancerous or phagedaenic ulcer. Do not, however, forget that specific urethritis may be present as well as balanitis.
4. Another common lesion of the foreskin or glans penis is herpes. Herpetic sores are usually multiple, a little larger than a pin's head, with well-defined punched-out edges, a yellow or grey floor, and painful and tender to the touch. Once a man has developed herpes he is constantly liable to relapse of the trouble. The exact pathology of herpes of the penis is not known, but I believe these little ulcers are caused by some specific germ which, once contracted, lives on the penis, and from time to time works up its virulence and causes ulceration. Probably mechanical excoriation during coitus plays a part in each relapse. A little urethral discharge with pain on passing water is quite common in herpes, and is due to ulceration inside the meatus. The urine is clear, and the microscope proves the absence of gonococci.
5. Do not forget how common it is to find the burrows of scabies not only in the foreskin, but on the surface of the glans itself.
6. Remember also that ulcers about the fraenum may be simple mechanical tears, not infected by any specific organism.

THE CLINICAL ASPECT AND TREATMENT OF ACUTE BACILLARY DYSENTERY.

BY

CAPTAIN J. B. FISHER, R.A.M.C.

BACILLARY DYSENTERY may exist in an acute or chronic form, but I intend to confine my remarks entirely to the acute variety, and in connexion with it shall omit all reference to the bacteriological and pathological aspect of the disease, as my own experience is purely clinical.

Since January 1st, 1916, I have treated 183 cases of acute bacillary dysentery. They have been drawn from the camps in the vicinity of this hospital, and almost all have been admitted within forty-eight or seventy-two hours of the onset of symptoms. Some, indeed, are admitted during the first five or six hours of their illness, and occasionally I have been fortunate in obtaining the case before blood and mucus have had time to appear in the stools. The cases seem to fall into six groups, which clinically merge insensibly one into another, but all can be recognized as true dysentery by the isolation of dysentery bacilli from the motions.

1. *Catarrhal Cases.*

The onset is sudden, with perhaps ten or more motions in the first twenty-four hours. Afterwards, if untreated, these patients continue to pass frequent diarrhoeic stools containing possibly a trace of clear mucus. Clinically, the cases are distinguishable from simple gastro-enteritis by absence of vomiting and colic, a clean tongue, and preservation of a good appetite. There is also a marked tendency for the bowels to be freely open in the early morning and after a meal. The only absolute proof of the diagnosis is isolation of one of the dysentery bacilli, and this has been done in a number of cases. These patients present no serious symptoms, and generally are easily amenable to dieting and medicinal treatment, though in some of the cases diarrhoea persists until serum is administered.

2. *The Ordinary Ulcerative Type.*

This class is much commoner, and includes the majority of the patients treated. A common history is that of slight diarrhoea a week before admission, apparent cure, and then a sudden onset of true dysentery, but more often the more serious disease has directly followed a little ordinary diarrhoea.

These patients are generally admitted with a temperature varying from 100° F. to 103° F. They are somewhat toxaemic and drowsy, often having a bluish-red flush upon the cheeks. The tongue is furred, and there is a certain amount of abdominal pain. Examination of the abdomen will only reveal tenderness over the colon. The stools may vary from two or three to twenty or thirty in twenty-four hours.

The seriousness of the case must be judged more by the quality than the quantity of the motions, for a patient with extensive infection of the caecum and ascending colon will not have as much diarrhoea or present the same aspect of discomfort as another patient in whom a much less virulent infection is situated near the lower end of the rectum. The bluish, unhealthy flush of the cheeks just mentioned must not be confounded with the healthy red, sunburnt appearance of many patients. In a few cases it is not present, and in others, as in a patient also suffering from nephritis, the anaemia of the latter disease may entirely mask it.

If the condition be untreated, the temperature is usually remittent and the pulse slightly more rapid than normal. In these patients vomiting is extremely rare. If this symptom is present in a patient admitted with a provisional diagnosis of dysentery, it usually means that either he is only suffering from gastro-enteritis, or that his attack of dysentery is going to be of the fulminating type, and is an indication for the immediate injection of a large dose of serum.

I think the first stage of the disease is a toxaemia emanating from the bacilli multiplying in the mucosa of the large intestine. The first effect of this is to inhibit peristalsis, and it is only when the local irritation becomes sufficiently intense that this stage gives place to the passage of blood and mucus. Consequently, except in the fulminating type, the toxaemia is often in inverse proportion to the diarrhoea, and as the latter increases the former becomes less marked. In the majority of patients this stage of inhibition of peristalsis is transient, but sometimes it is so marked that it is necessary to administer aperients. At first the stools are simply diarrhoeic, but within twelve or twenty-four hours the faecal matter gradually gives place to clear and blood-stained mucus; sometimes also there is a fairly copious admixture of pure blood.

Only in the worst cases do the patients pass much blood-stained serous fluid. As the intensity of the symptoms abates the fresh blood becomes less, the mucus thicker and less watery, until finally the stools may consist of greenish and opaque mucus, which in turn is gradually replaced by faecal material. Sometimes sloughs are also present, but if serum is administered early this is exceptional, so I have purposely omitted to describe them as an ordinary constituent of these motions. In some of the cases the mucus is mixed with pus and broken-down blood, so that the stool is rather like the contents of a hepatic abscess. When the infection includes the lower end of the rectum the stools may be small and frequent, as in amoebic dysentery, but I have always found them less tenacious and more copious and watery than in the amoebic disease.

3. *The Toxaemic Type.*

Though in this type the patients may have had slight diarrhoea for one or two days, it is not a prominent symptom on admission, and is quite secondary in importance to the toxaemia, which may be so intense that it is only with difficulty that an accurate history can be obtained from the patient. They have, in addition to the characteristic flushed appearance, a moist furred tongue, a high temperature, and a pulse more rapid than normal. They complain of headache and slight abdominal pain, and, if not disturbed, may sleep continuously for twenty-four or forty-eight hours.

During this stage there may be constipation, and it is not until two or three days later, when blood and mucus appear in the stools, that the true condition is revealed. The local damage is small, and saline aperients are generally all that is required, though, if the case be diagnosed, it is safer to give serum.

One of the cases in this class is interesting in that the first stool, passed forty-eight hours after admission, showed no evidence of dysentery, and it was not till another twenty-four hours had elapsed that blood and mucus began to appear.

4. *The Fulminating Type.*

In this type the patients are generally admitted within twelve or twenty-four hours of the onset of symptoms. The temperature may be raised, but they are often collapsed, toxic, and give a history of vomiting. The diarrhoea is intense, often passing on to incontinence, and there may be either retention or incontinence of urine. The tongue is dry, and covered with fine and sticky fur. Abdominal pain is very severe, the abdomen so tender that they dread being touched; there is no appetite but great thirst is present. The straining and tenesmus cause insomnia, and such restlessness that morphine may be required. There is, in fact, a combination of severe toxaemia and severe local symptoms.

As the case progresses the loss of fluid causes the patient to shrink and appear smaller, his bones become prominent, his eyes sunken, his skin inelastic, and the tongue so dry that there is difficulty in protruding it. Hiccough may also add to his discomfort, and abdominal pain may remain as severe as on admission. The toxic appearance gives place to an ashen, bluish-grey colour, though even when this stage is reached the patient may recover.

When first admitted the stools are frequent and copious, often one or two pints in volume. They consist of blood-stained serous fluid, sometimes looking like the urine of a case of acute nephritis, and at other times like a weak solution of potassium permanganate with lumps of clotted blood and fibrin floating about. At first there is no mucus, and it would seem that the irritation of the mucosa is so severe that there is no opportunity for its secretion. I am told that if a patient dies in this stage *post-mortem* examination reveals only an intense hyperaemia of the mucous membrane of the intestine.

As the body fluids are excreted the stools become less liquid and blood-stained mucus begins to appear. Soon sloughs are also present.

In spite of the administration of serum the patient will continue to pass necrotic products, blood-stained mucus and pus, and it may be three or more weeks before blood entirely disappears and the mucus takes on that greenish opaque appearance which is generally a precursor of ultimate recovery.

The progress of the case is to be judged by the diminution of the blood rather than the sloughs, for those portions of mucosa which have been irrevocably damaged in the first week of the illness must take some time to be completely separated. The only treatment of any avail in these cases is early administration of large doses of anti-dysentery serum, and a delay of twelve hours in deciding whether the case is amoebic or bacillary dysentery may mean the ultimate death of the patient. This is why I lay so much stress on the naked-eye appearance of the stools and the bluish-red unhealthy flushed cheeks of early bacillary cases as diagnostic features. I have never seen this toxic appearance in a pure amoebic case.

The temperature cannot be relied upon, as there may be a rise at the onset of acute amoebic dysentery, and in the worst bacillary cases it may be subnormal; the patient may be so ill that administration of a large dose of serum may not cause any reaction.

It must, however, never be forgotten that acute bacillary dysentery may be superimposed upon a milder amoebic infection. In these "mixed cases" the bacillary element may obscure the amoebic, and it is not until four or five days later, when the serum has taken effect, that the case presents the characteristics of amoebic dysentery. This holds good when both emetine and serum have been given from the first, as the action of emetine on the amoebic element, though just as certain, is not so rapid as that of serum on the bacillary.

5. *The Choleraic Type.*

The onset in these cases is sudden, with collapse, cramps in the arms, legs, and abdomen, and the passage

of rice-water stools. The collapse may necessitate intravenous saline infusion. Lieutenant Willmore tells me that this type was quite common at the quarantine station at El Tor.

I have only had one case, which closely resembled ptomaine poisoning, but was confirmed as dysentery by the bacteriological findings.

The patient had had slight diarrhoea on the Gallipoli Peninsula, but had not been excused duty on account of it. At the time the attack commenced he had been three weeks under treatment for myalgia. He was allowed out of bed, had had no intestinal symptoms, and was upon an ordinary diet. No other case occurred in the same ward. The diagnosis was made upon the following data:

(*a*) Very acute onset, with rice-water stools containing mucus and mucous sloughs, the latter a dirty white colour.

(*b*) Absence of cholera vibrios.

(*c*) Rapid cure following a large dose of antidysentery serum given within six hours of the onset of symptoms.

(*d*) Three weeks later the blood strongly agglutinated Flexner Manilla dysentery bacilli. It did not agglutinate Shiga-Kruse bacilli.

(*e*) The patient was isolated, and the sister looking after him developed a similar but slighter attack, and in her case Flexner's bacillus was isolated.

(*f*) His previous diarrhoea could be accounted for by the presence of *Lamblia intestinalis* and *Trichomonas intestinalis*, which were found in abundance in the stools.

6. *Localized Attack.*

The sixth and last type, in which patients in good health are found to be passing formed stools coated with a little blood and mucus, demonstrates how mild and localized an attack of bacillary dysentery may be, and these cases are interesting as they offer such a contrast to the two preceding types. They sometimes resolve in one or two days, but one patient who refused antidysentery serum was still passing blood and mucus after two months. This particular patient objected to all forms of treatment except emetine, and of this he had 18 grains, from which he received no benefit.

TREATMENT.

Dietetic.

The aim in deciding upon a diet is to find one which will sustain the strength of the patient without leaving much residue to pass into the large bowel. In accordance with this principle, cases admitted to my lines are only allowed albumin water, barley water, and lemon water for the first forty-eight hours. This may seem rather drastic, but I am sure it is the correct treatment. Also this period of abstinence from food combined with an aperient is generally sufficient to cure the simple gastro-enteritis, and such cases can then be discharged to duty two or three days later. Coincidentally with the improvement of the general conditions of the patient with true dysentery, his diet is gradually increased somewhat upon the following lines:

Breakfast (7 a.m.): Two or three eggs and tea.
Lunch (11 a.m.): Jelly or arrowroot and a piece of chocolate.
Dinner (1 p.m.): Beef-tea and milk pudding.
Tea (4 p.m.): Custard and tea.
Supper (7 p.m.): Cocoa or biscuits.
During the night bovril or a little Horlick's malted milk.

Milk is not allowed except in the form of pudding or custard, as it is much too bulky for an acute or chronic dysentery. In addition it passes through the intestines, and by giving the stools an intense green colour tends to mask their character.

Upon this diet many cases increase in weight. No further increase is allowed until the patient has been ten consecutive days without passing more than two stools in any twenty-four hours, after which bread-and-butter is added, and chicken follows in two or three days more. It is very important that this period of abstinence be enforced in order to give the inflamed and damaged intestine time to recover.

I believe that the irritation and secondary infection caused by increasing the diet too soon after cessation of acute symptoms is one of the chief causes of the cases of post-dysenteric colitis which are so resistant to treatment.

The fulminating cases need further consideration. On account of the subsequent griping, beef-tea, bovril, and similar tasty foods are not indicated, but stimulants may be required. I have found the latter to do good, though in most textbooks they are stated to be contraindicated. In these cases also the mucus may persist so long, the patient becomes so emaciated, and the bowels remain so weak and irritable, that it may be advisable, for the purpose of increasing the strength and general resisting powers of the patient, to add to the diet before all signs of active dysentery have disappeared.

Medicinal Treatment.

In view of the frequent complaints that the constant desire to go to stool robs patients of sleep, it may seem at first sight that some theoretically sedative mixture such as bismuth or chlorodyne is indicated in order to ease pain, diminish the diarrhoea, and thus allow of sleep.

In a few of my earlier cases I adopted this line of treatment, in spite of the fact that by so doing I was locking up, in intimate contact with the bowel wall, the noxious matter and organisms which the intestine had been doing its best to expel. I found that the effect on the pain was transitory, and that what little sleep was obtained did not refresh the patient, who, on the contrary, began to complain in addition of headaches, flatulence, and a nasty taste in the mouth. I found further that the diminution of the diarrhoea was only apparent for two or three days, and afterwards became as bad as, if not worse than, before, and the stools from being odourless became foul. It is to be presumed, also, that the damage to the intestinal mucosa was greater in proportion to the length of time during which this pseudo-sedative effect lasted.

The drugs above all others which ease pain and allow of sleep are those which aid rather than oppose the effort of nature to free the host of the poison which is invading him, or to neutralize it *in situ*.

Reliance must therefore be placed on specific treatment—namely, multivalent antidysenteric serum. This receives material assistance from such aperients as the sulphates, castor-oil, and liquid paraffin. The former in particular are said to be absorbed in the first part of the alimentary canal, and to be excreted through the mucosa of the large gut, where they exercise a marked exosmotic effect. They thus conduce to lavage from within outwards of the diseased mucosa, and wash out the morbid material in the process.

My treatment has therefore been magnesium sulphate ʒj thrice a day for the first few days, and then, as the stools diminished in frequency and improved in appearance, the amount was gradually reduced. This applies to practically all cases, and seems to me of such importance that I would again emphasize the fact that these drugs instead of increasing the diarrhoea diminish it, for by washing out noxious material and cleansing the bowel they get rid of much of the irritation. Larger doses than those which I have mentioned are not indicated, as they may nauseate the patient, increase his discomfort, and perhaps, by scouring too completely the intestinal wall, open the door to bacterial infection of the blood by secondary infecting organisms.

Sometimes in bad cases morphine is needed, and for very severe tenesmus a suppository of cocaine gr. ½ and iodoform gr. iij will be found most useful. A hot-water bottle will in the early stages add to a patient's comfort. With the above medicinal treatment, combined with the requisite specific treatment, there is a marked improvement in the majority of cases within forty-eight hours. For those patients, however, in whom a dry, furred tongue persists indefinitely I sometimes prescribe pure water one pint thrice a day, and, so far, have found this very satisfactory. Rectal lavage with 1 in 1,000 solution of copper sulphate and mist. simaruba often benefit more chronic cases.

Specific Treatment.

With regard to multivalent antidysenteric serum, no hard-and-fast rule can be laid down as to the quantity it may be necessary to inject. Each individual case must be judged upon its merits, with the proviso that cases coming under treatment late in the disease require larger doses than those of equal or even greater severity seen at the onset. In the more severe cases I inject 80 c.cm. into the flank within a few hours of admission, but generally leave the milder ones until the following morning, and then may give 40 or 60 c.cm. Some of the latter do not require serum, but I have noticed that a severe case given serum immediately after admission often recovers more rapidly than a mild one treated without it.

One large dose of serum is sufficient to cure some cases;

others, though much improved, require more, and in these patients, after waiting forty-eight hours, I give a further 60 or 80 c.cm.

This amount has been sufficient to cure some very severe cases, but a few of the worst may need a third or even a fourth dose. Some cases of the fulminating variety have been given 140 or 160 c.cm. serum within twenty-four hours of admission, but in these patients the first injection should, if possible, be given intravenously, for every moment saved is of vital importance.

In the majority of patients antidysentery serum acts like magic, but there are a very few in whom it seems only to have a slight beneficial effect. If four doses of 80 c.cm. each, spread over a period of six or seven days, have not brought about the desired result, I do not think further injections are indicated; consequently, I have never yet given more than 320 c.cm.

As a general rule there is a distinct rise of temperature within twelve hours of the injection of the serum, and sometimes this may last forty-eight or seventy-two hours. I look upon this phenomenon as a good prognostic sign, for in all cases in which it has been well marked the patients have recovered rapidly. It is on account of this reaction, which may be rather severe, that I generally allow forty-eight hours to elapse between each injection of serum.

The onset of true serum disease has been most frequent on the seventh and eighth days after the first injection. The severity of the symptoms has varied with the stock of serum in use. The patients have complained of urticarial rashes, headaches, sore throats, arthritis, and oedema of the scrotum. They always have a rise of temperature, and five of them showed signs of cardiac dilatation. These symptoms have occurred in varying degrees of severity in 70 per cent. of the cases to whom serum has been given.

Results.

The results obtained in the cases I have treated along the lines above indicated may now be summarized. I have had altogether 456 definitely diagnosed cases. They are made up as follows:

One Hundred and Sixty Cases between August 30th and December 31st.—During this period the pressure of work was so great that it was impossible to keep notes of them all, and in consequence, although an accurate diagnosis of the type of dysentery present was made at the time, I am not now able to give exact figures.

Two Hundred and Ninety-six Cases admitted from January 1st to May 31st.—Of these 183 were acute bacillary cases and the remaining 113 were either chronic amoebic or bacillary. In this period only one case of acute amoebic dysentery was admitted.

In the first 160 cases two deaths occurred. Both patients came from Gallipoli; one a bacillary case, died the night of admission, and the other, who was a "mixed case," died of a perforated amoebic ulcer.

There were no deaths amongst the 113 chronic cases, but five were invalided to England and one to Cairo on account of persistence of symptoms. Possibly others may have been invalided from the convalescent homes to which they were sent.

The 183 acute cases to which this paper particularly refers were all bacillary, but in eight of these *Entamoeba histolytica* was also present. In this series 69 mild cases did not have serum, 114 had serum. The mixed cases had emetine in addition.

One death only occurred. This was in an emaciated patient aged 39, but who looked twenty years older. The attack was of the fulminating variety, and although he improved a little after large doses of serum, hiccough set in, and he died after being eighteen days in hospital. The diagnosis was verified *post mortem*.

After apparent recovery, 7 cases had a return of diarrhoea before they left the hospital. This, however, cleared up without specific treatment. One case definitely relapsed and required further injections of serum. One other case discharged to duty has since been readmitted. One case who refused serum and continued to pass blood and mucus indefinitely was sent to England. Eight other cases were also sent to England, but they were all convalescent.

They had all been severe cases, and it was thought inadvisable to subject them to an Egyptian summer. Of a total of 183 cases, it will thus be seen that in 173 the recovery was so complete that they were considered fit for duty in Egypt. Apart from serum disease, the symptoms of which have already been described, there have been very few complications worth mentioning. Hiccough has occurred in 2 cases, intense tenesmus in 1, retention of urine in 2, persistent vomiting in 4, herpes in 1, tachycardia in 4, pleurisy in 2, acute rheumatism in 1, enlargement of the liver in 2.

The offending germ has generally been the mannite-fermenting type of dysentery bacillus.

The length of time in hospital varies with the severity of the disease. Mild cases may be discharged at the end of one month, others may require six to eight weeks before being fit for duty, and, finally, patients of the fulminating class may be three or four months, and can then only be considered convalescents.

The length of persistence of the acute symptoms is in inverse proportion to early diagnosis and early administration of antidysentery serum. If an ordinary case be diagnosed soon after admission the injection of serum will generally limit the acute stage to a period of four to nine days. I have had numerous cases in which one dose of 60 c.cm. of serum has reduced, within a period of twenty-four hours after the injection, the number of stools from about twenty to about four. Even although all blood has disappeared from the stools and the case appears convalescent within a few days of his admission, his subsequent complete recovery cannot be hurried, as the diet can only be very gradually increased.

When the patient comes under treatment in the stage in which the bacilli are attacking the intestine, the virulence and intensity of the symptoms are not of much moment, provided that they are accurately gauged and a correspondingly large dose of serum be given.

If, however, the severity of the case is underestimated or the patient be unfavourably situated for early treatment, serious damage may be done to the mucosa before an adequate dose of serum is given.

In these cases, when serum is finally injected, it cannot be expected to give such striking results. By killing all remaining active dysentery bacilli it can prevent further sloughing, but the symptoms due to the ulceration already present will naturally only gradually abate.

ON THE TREATMENT OF DYSENTERY.

BY

G. A. FINLAYSON, M.B.Aberd., M.R.C.P.Lond.,

Government Pathologist, Singapore; late Captain R.A.M.C.(T.).

Though stationed for the past year at a base hospital where the facilities afforded for the treatment of dysentery were excellent, I am fully alive to the difficulties which have to be faced at a field ambulance or casualty clearing station, but I am still of opinion that a more active and vigorous treatment of cases of acute bacillary dysentery is demanded in the early stages of the disease, more particularly by the exhibition of larger doses of antidysenteric serum than have usually been administered in the transferred cases. In the great majority "Mulford's" serum was employed, and it seemed unfortunate that more attention was paid to the dosage prescribed in a "booklet" widely distributed than to the directions printed on the wrapper. A point naturally of great importance in early diagnosis is whether the patient has been infected by the specific amoeba or bacillus. A microscopical examination of the faeces should be made as soon as possible. There is no valid reason why a medical officer attached to a field ambulance and stationed where dysentery is likely to occur should not be supplied with a portable microscope provided with a $\frac{1}{6}$ in. objective and No. 2 ocular; a brief demonstration of the more common intestinal protozoa would, it is needless to add, prove of immense service.

Immediate treatment rests mainly on the microscopic finding, bearing in mind that one is dealing with the early stage of a primary attack. During the past six months only six cases of primary amoebic dysentery were admitted within two to three days of onset; all were discharged cured in less than three weeks. Emetine gr. j hypodermically daily for ten days, or gr. j hypodermically for six days in the morning, with gr. $\frac{3}{4}$ in a keratine-coated pill in the evening. Another case, transferred from Mesopotamia, had been given injections of tannic acid twice daily for seven weeks (the amount of tannic

acid was not stated). On admission, active *E. histolytica* were demonstrated, and the patient was still passing blood and mucus. Within two days the amoebae had disappeared, and within a week the motions had assumed a normal colour and consistence; no cyst was found on examination prior to discharge.

I am well aware that in all cases in which blood and an excess of slime are noted in the stool the inflammatory condition may not be caused by the specific organisms. Having, however, formed the opinion on clinical grounds and from the microscopic appearances of the faeces that the case is one of bacillary dysentery, the question as to the treatment to be adopted arises. Recent results have convinced me that 100 c.cm. antidysenteric serum should be given intravenously without delay, followed, if considered necessary, by a second dose within twenty-four hours. After one intravenous injection of 100 c.cm., subsequent doses may be injected subcutaneously into the axilla, infraclavicular space, or flank. The amount which I usually gave was 40 c.cm. in the morning or evening. In association, a mixture containing magnesium sulphate ʒ j, sodium sulphate ʒ j to ʒ ss of water or mist. alba ʒ j, was exhibited hourly, or even more frequently, until the motions became pale and watery, containing perhaps a few blood-stained shreds; the interval between the doses was then lengthened according to the conditions noted. Disregarding the rigor, which commonly followed the injection of serum, the temperature fell gradually to normal at periods varying from two to six days, the tongue cleaned rapidly, the stools became infrequent, tenesmus was practically absent, and the abdominal pains were alleviated. What was most striking was the intense relief afforded the patient in twenty-four to thirty-six hours after the commencement of the treatment. The diet in the early stage was restricted to albumin water and barley water, with strained chicken tea and Brand's essence. In a series of 9 cases so treated recently:

2 received 200 c.cm. intravenously.
2 received 100 c.cm. intravenously.
1 received 100 c.cm. intravenously and 120 c.cm. subcutaneously.
1 received 100 c.cm. intravenously and 80 c.cm. subcutaneously.
3 received 100 c.cm. intravenously and 40 c.cm. subcutaneously.

Of these, 7 were infections by *B. dysenteriae* "Y," one by a non-agglutinable strain, 2 by *B. dysenteriae* Shiga. Two cases which occurred in the surgical division (Captain C. W. Smith) are of interest in the determination of the incubation period.

CASE I.

Compound fracture of leg. Admitted September 13th, 1916. The onset of the attack of dysentery occurred on September 23rd; the infection was by the "Y" bacillus; Widal positive 1 in 50. On September 24th an injection of antidysenteric serum, 100 c.cm., was given intravenously, followed by a similar dose on September 25th. On September 27th the bowels acted twice and the stool was semiformed and yellow; the temperature was normal. Convalescence was rapid. In this case the incubation period was at least nine clear days.

CASE II.

Admitted on October 2nd, 1916, two days after an operation for radical cure of hernia. The onset of dysentery occurred on October 7th. Non-agglutinable "Y" isolated; Widal positive 1 in 50 Shiga and "Y." On October 9th an injection of 100 c.cm. antidysenteric serum was made intravenously, followed by a second dose on October 11th. On October 12th the bowels acted twice in twenty-four hours, and on October 13th there was no action. On the fifth day after onset no slime or blood noted. Recovery was uninterrupted.

The incubation period in this case was six clear days. Both cases were admitted from out-stations where cases of dysentery had occurred. No further case was noted in the division during the period the patients were in hospital. Neither showed any urticarial eruption.

Rarely was an opportunity afforded of following a case after discharge, but the following case is an exception:

CASE III.

Admitted on July 25th, 1916, with a history of onset twelve hours previously. "Y" bacillus isolated; Widal positive 1 in 50 Shiga. 100 c.cm. antidysenteric serum was given intravenously, and 40 c.cm. subcutaneously on July 26th. By August 5th he was on full diet, and on August 10th he was discharged to duty. He was seen at intervals afterwards, and had no relapse. On November 5th he reported that he had put on 7 lb. during the previous month; he looked fit and well.

When I was relieved of duties on November 8th, 1916, all cases had either returned to duty or were quite convalescent.

Results Obtained by Subcutaneous Injection only.

This series comprises 22 cases admitted to hospital with a primary attack—

3 within twenty-four hours of onset of disease.
6 on the second day after onset of disease.
7 on the third day after onset of disease.
3 on the fourth day after onset of disease.
3 on the fifth day after onset of disease.

Ten others had relapsed or had been transferred from a stationary hospital or elsewhere, where they had been under treatment for some days or perhaps weeks. In the first named group the amount of serum administered was on an average 125 c.cm., varying from 80 c.cm. to 200 c.cm., except in one case, which received 20 c.cm. only; in the other group the dosage was on an average 80 c.cm., varying from 20 c.cm. to 150 c.cm. *B. dysenteriae* Shiga was isolated in 9, the "Y" bacillus in 4. Serum diagnosis was relied upon in 12 other cases, being positive 1 in 50 or over Shiga in 8, positive 1 in 50 or over "Y" in 4. In 6 others the serum reaction was positive to Shiga 1 in 20 only.

Of those patients admitted with a primary attack, 3 were under treatment within three days of the onset, and received 80 c.cm., 100 c.cm., and 160 c.cm. serum respectively. Later it was considered advisable to invalid them to England for further treatment, as a sigmoidoscope examination of the lower gut revealed the presence of numerous indolent ulcers. Blood and slime continued to be passed at irregular intervals, though the general condition of each seemed unaffected by the catarrhal condition, and there was a gradual gain in weight prior to transfer. The remainder were discharged to duty or to a convalescent dépôt, the average duration of stay in hospital being one month.

Treatment by Sulphates.

Occasionally the statement is heard that cases do just as well on saline purgatives alone without the injection of any specific serum. No doubt in a percentage of cases of the bacillary type, perhaps in "Y" infections more particularly, the condition clears up on the administration of the sulphates. What medical officer, however, deems himself so astute that at the outset of an attack he can foretell that the infection will prove of a mild character and that it will not produce ulceration which may become chronic? In a series of eleven patients, transferred as convalescent from a stationary hospital or elsewhere, no serum appeared to have been injected though several had received numerous doses of emetine. A specific bacillus was isolated from the stool in four instances—in three, "Y" bacillus; in one, Shiga's bacillus. The serum reaction was relied upon in a further seven, being positive 1 in 50 "Y" in one, positive 1 in 50 or over Shiga in six. After further treatment all were discharged save one invalided to England.

COMPLICATIONS.

The urticarial rash, which constantly appeared after a subcutaneous injection, was at times most profuse and distressing to the patient. Carbolic acid 1 in 20, calamine lotion, or lead and opium lotion appeared to allay the itching. In one case there was a distinct febrile attack, with marked headache, which readily yielded to aspirin in small doses.

Synovitis was observed in two cases, which had received 130 c.cm. and 200 c.cm. serum respectively into the subcutaneous tissues (on the tenth day after the first injection). In the one the knee-joints, in the other the left shoulder and small joints of the fingers were involved. In the former there was a considerable amount of effusion, with pain and tenderness, and a marked rise in temperature. The condition in each quickly cleared up under the administration of sodium salicylate gr. xv every four hours. One somewhat debilitated patient developed a late abscess following an injection of 40 c.cm. into the infraclavicular region. *Staphylococcus albus* was isolated from the pus in pure culture. The abscess was opened and drained, and the wound healed rather slowly.

BACTERIOLOGICAL RESULTS.

Occasionally it may appear difficult to reconcile a series of negative results reported by the bacteriologist with the clinical opinion. In one instance five successive specimens were plated before a suspicious colony was picked off, and shown to be the specific bacillus. In other cases, in which an organism was isolated in the early stage of the disease, further bacteriological examinations were almost uniformly negative, though the patients, after treatment, still exhibited ulceration of the lower gut attended by the passage of blood-stained mucus. A positive Widal reaction of 1 in 50 or over frequently confirmed me in the opinion that the case was one of bacillary dysentery, though the examination of the stool was negative. On the other hand, on two occasions the "Y" bacillus was isolated when the serum reaction was 1 in 20 only, and in one instance Shiga's bacillus was obtained when the serum of the patient did not agglutinate the organism even in that low dilution. The strains isolated conformed with the usual sugar reactions, etc., and were tested against specific agglutinating serums of high titre. In what position is one to place inagglutinable strains? In one case the serum of the patient produced clumping of his own strain in the dilution of 1 in 20 when with specific "Y" serum no agglutination was observed in the same dilution.

DYSENTERY CARRIERS.

Two convalescent patients, transferred, were admitted, showing no signs or symptoms. Each had been on full diet for some days and the stools were formed and natural. The Widal reaction was positive 1 in 50 Shiga. In the course of the routine bacteriological examination before discharge Shiga's bacillus was isolated, in one from the first specimen sent, in the other from the second. From three subsequent samples, taken after the administration of a saline purge, no bacillus was isolated in either case and the individuals were discharged.

I beg to express my sincere thanks to Captains C. W. Smith, R.A.M.C., and J. D. Graham Stewart, R.A.M.C., for kindly assistance.

THE IMPORTANCE OF THE EARLY PROPHYLACTIC INJECTION OF ANTITETANIC SERUM IN "TRENCH FOOT."

BY

SURGEON-GENERAL SIR DAVID BRUCE, C.B., F.R.S.

CASES of tetanus following on "trench foot" have lately been numerous. On account of the hurt not being of the nature of an ordinary gunshot or shell wound they have not, until quite lately, received the usual prophylactic dose of antitetanic serum at the front. For the same reason, it may be supposed, they have not received the later prophylactic doses which have been so strongly recommended by the Committee of the War Office for the Study of Tetanus in their memorandum published in the BRITISH MEDICAL JOURNAL on November 11th, 1916.

During the last few weeks fifteen cases of tetanus caused by "trench foot" have been reported, but full reports, giving the result, have only been received in eight. The following table gives the outstanding features of these eight cases. A prophylactic injection was not given in any of them.

No.	Incubation.	Duration of Disease.	Died.	Recovered.
1	12 days	2 days	+	
2	12 ,,			+
3	24 ,,	2 ,,	+	
4	?	2 ,,	+	
5	15 days	1 ,,	+	
6	?	1 ,,	+	
7	16 days			+
8	14 ,,	5 ,,	+	

From this table it will be seen that of the eight cases only two recovered, and the average duration of the disease was only 2.5 days. This is a return to the picture of tetanus familiar before prophylactic injections were introduced. The disease wastes no time in local manifestations, but bursts out as generalized tetanus and runs its acute and fatal course in twenty-four to forty-eight hours.

It is to be hoped that no medical officer in charge of a case of "trench foot" will hesitate for a moment in giving a prophylactic injection of antitetanic serum, and repeat the same at intervals of seven days until the wounds are clean. If something is not done speedily, these cases of tetanus following on "trench foot" will run up in a most disastrous way the rate of mortality in tetanus, which every one, by the use of prophylactic and early therapeutic antitetanic serum, is trying to lower.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN OVARIAN CYST COMMUNICATING BY A VALVULAR CANAL WITH THE FALLOPIAN TUBE.

ON August 26th I removed intact, from a patient aged 34, a small cystic tumour, firmly and extensively adherent in the pelvis. The Fallopian tube, like a pyriform pod, dilated at its fimbriated end to the size of the index finger, was seen coursing the surface of the ovarian cyst. The tube looked like an ordinary hydrosalpinx, and on compressing it clear limpid fluid flowed from its cut uterine end. It was then observed that the ovarian cyst was gradually decreasing in size and that the Fallopian tube remained semi-distended. The ovarian cyst was then opened, and at a spot about two inches from the uterine end of the Fallopian tube there was observed in the cyst wall a crescentic fold, guarding, as it were, a canal of about an inch in length, which opened directly into the tube. The fluid in the cyst presented exactly the same appearance as the fluid which flowed at first from the tube.

I have never before seen a tubo-ovarian tumour of this character. I have heard that ovarian or tubal cysts have been known to empty themselves through the uterus. In the case here described there seems to be no reason apparently why fluid did not escape from the tumour by the uterus, for the uterine end of the Fallopian tube seemed to be quite normal and allowed the fluid to pass, in, it is true, an extremely small stream.

London, W. JAMES OLIVER, M.D., F.R.S.Edin.

THE TREATMENT OF CANCER BY CUPRASE.

A WOMAN not long past the menopause had four years previously undergone a radical operation for carcinoma of the right breast, which had evidently been very extensive. There was no local recurrence either in the scar or on the chest wall, but there was some involvement of the mediastinum, causing pressure both on the trachea and oesophagus, and also implicating the vagus and sympathetic nerves on the right side; some enlarged glands were to be felt above the clavicle on both sides. *X* rays had been tried for a time, but without apparent benefit, and the patient had become too weak to undergo the exertion of transport to the radiologist. The prognosis was, of course, hopeless, and alleviation of suffering appeared to be the utmost that medical science or art could offer.

It was at this stage that cuprase suggested itself, if the advertisements and reports supplied by its makers were to be credited, as worthy of trial; at least, according to the reports, and especially to Dr. Herschell's eulogistic statements, it could do no harm. The matter was explained to the patient and her relatives, and although, of course, I would promise nothing in the way of cure, they decided it should be tried. Accordingly I obtained a box of eight ampoules (price 25s.), no less amount being supplied, and no "trial sample" being permitted. I injected the contents of one ampoule according to directions. Not only was the injection immediately painful, but there was very marked local reaction—pain, redness, heat, and swelling—which persisted for nearly a week and caused the patient a large amount of suffering. Not only was there marked local pain, but the patient's general condition was much

worse in every way—there was aggravated sickness with vomiting of greenish bile-stained fluid, no food of any sort could be retained, there was generalized pain, insomnia, weakness; the patient could not even sit up in bed, though previously she had been able to sit out of bed a little, and go to the bathroom each morning. The throat symptoms—hoarseness, dysphagia, and slight stridor—were more marked, and even attempts to swallow a mouthful of water caused excruciating pain. Unfortunately this marked worsening of the patient's condition persisted; she steadily sank, and died about two weeks after the injection of cuprase. Naturally the injection was not repeated. My impression was that the patient, although of course in a hopeless condition, would probably have lasted two or three months.

I think it only right to record this experience, which I do without any comments. No one would have been more delighted than I had the result been otherwise. I would only say to those who may be induced by favourable reports to try this remedy in desperate cases to consider also the other side of the picture.

Bowdon. P. R. COOPER, M.D., F.R.C.S.

Reviews.

"ORGANIC TO HUMAN."

DR. MAUDSLEY, in the preface to his new book, alludes to a dictum of Montaigne on the unfitness of old age for the business of writing or any other business, and remarks that he may be open to Montaigne's censure, for this work was undertaken to occupy the time and ease the burden of the dreary decline from three to four score years. But the author has proved that Montaigne's dictum is too absolute, for it certainly does not apply to Dr. Maudsley's psychological and sociological studies and reflections. The book *Organic to Human*[1] was not born to-day or yesterday; it is the crystallized expression of thoughts and reflections more or less in flux during a lifetime of long and varied experience of human character, individual and collective. The author is a physician, philosopher, and philanthropist endowed with a rare natural intelligence, developed and nourished by study and analysis of the great masters of philosophy. Moreover, the work shows that Dr. Maudsley has read much and well, and thus kept abreast of the times in knowledge of the general principles and facts of the biological sciences and their application to the complete understanding of human psychology; consequently he is able to adduce the most cogent arguments in support of the position he has always maintained of the inseparability of body and mind. The work exhibits throughout a wide knowledge of the classics of literature, which is apparent not only by short quotations but also by numerous references, but he has wisely refrained from long quotations in the text which might have broken the thread of his arguments and reflections. Had the work appeared when it was ready for the press and before the outbreak of war, "when (as the author says) exultant self-adulation was at its height," the book might have been denounced for its materialistic pessimism and sarcastic references to modern ethics and culture. A criticism in the *Times*, which referred to the underlying satire as reminiscent of Dean Swift, is surely a high compliment to Dr. Maudsley. In an essay on literature and life A. C. Benson concludes with a saying of Dr. Johnson's—"A book should show me how to enjoy life or how to endure it." This work of Maudsley's, if it does not show how to enjoy life, does show how to endure it; for its teaching all through is that life does not contradict itself, but that the workings of organic nature, whether they appear to our minds right or wrong, delightful or dreadful, fit into each other in a marvellous way.

The discussion of the theme of the book begins with the thesis that in organic nature "there are gradational ascents of consciousness from the faintest sensible glimmer in low organisms to its full brightness in the highest organism." The hypothesis of a universal mind more subtile than the universal ether which enters into the individual brain to act upon it, and through it on every organ of the body, is criticized, and it is remarked that "mind was not invented by man, nor especially for him."

Every function of the metaphysical entity into which the word has been translated exists in animal germ and rudiment and sometimes in explicit function. Man's distinction is to combine in his mind qualities which are variously scattered rudimentally in the lower animals and to be more conscious directly of their superior workings in himself and inferentially in others like him.

There is not a part of his body which has not participation in the constitution of consciousness and does not by its changes affect fluctuating consciousness.

The author then points out that a change in the quality of the blood may produce an altered state of consciousness, causing melancholia. The appetites and desires essential to self-preservation and propagation are common to the lower as well as the higher organisms, and the highest feelings and consequent conduct of human beings are rooted in the desires incidental to the organic needs. Recent events have made manifest the fact that highest feeling and control of civilized races is but a thin veneer, which, when stripped off by war, reveals the primitive emotions and animal passions in all their nakedness.

One chapter which cannot fail to interest the medical reader is that on the fundamental instincts and social atonement; its keynote is expressed in the following passage:

> The work of social development is to humanize and as far as possible moralize the two fundamental instincts or needs of human nature, from which the primary passions and secondary emotions spring and evolve—namely, hunger and lust—the one urging to maintenance and the other to reproduction of self. Not, certainly, to eradicate them, which would be folly, but to spiritualize them, which is their anticipated end.

It is true, as the author says, "that there is a stubborn disinclination to look the reproductive instinct frankly in the face, and to deal with its functions in a natural way; a scrupulous reserve and reticence concerning it being enjoined and practised, as though it were something of a moral degradation, whereas it is neither moral nor immoral, but simply animal and non-moral."

The author's well-known views regarding genius and insanity are stated, and his criticism of eugenics and Galton's investigations regarding hereditary genius, as illustrated by the descendants of great judges, is in the following scathing terms:

> That the child of a judge is five or fifteen hundred times more likely to inherit mental capacity than the child of a peasant, as the eugenic enthusiast has said, is an assertion which, plausible as it looks, is certainly not warranted by observation and could not be proved by experiment.

Chance, opportunity, and imitation play a great part in the foundation of success.

There is heredity of influence as well as heredity of capacity.

The author discusses in a trenchant manner the instinct of propagation and restrictions of childbirth, and he asserts:

> That mental states physiologically affect and are affected by the delicate and complicated biochemical processes upon which all life depends is not hard to conceive now, as once it was when mind reigned as a separate and supreme entity in its realm, inhabiting and using the body, but owing no evolutional homage to it.

In a chapter on the microbe and man, he says of microbes, even when pathogenic: "Certain it is that in weakened life, its lawful prey, the microbe will always find its sphere of opportune and useful function." Speaking of war and disease, he says: "To do away with these natural processes might possibly be to do great disservice to the human race."

In the second part of his book Dr. Maudsley first deals with the current of social feeling, and this discussion is particularly interesting, seeing that after the war great changes may be anticipated. He says:

> That which in feudal times seemed the natural, necessary, and immutable order of things—that the few should be privileged and rule in luxury and the many toil in subjection and poverty, content to honour and obey their pastors and masters in the humble station in which it pleased Providence to place them—is beginning to excite wonder that the great majority so long and patiently endured it.

There is a valuable chapter on the practical morality of a nation, in which are discussed many social evils arising from specialization of industries and frauds—tacitly sanctioned frauds, legal complexities and delays, the hired

[1] *Organic to Human.* By H. Maudsley, M.D. London: Macmillan and Co., Limited. 1916. (12s. net.)

advocate, petty crimes, newspapers and their advertisements, hypocrisy and self-laudation, extinct nations and Western civilization, British hypocrisy, sexual hypocrisy, and acute mania and adolescent insanity. In connexion with the disease last named Dr. Maudsley says:

> Yet it is certain that a more open dealing with a natural function would dispel much hurtful ignorance, do away with a great deal of enforced hypocrisy, and prevent an incalculable amount of secret and anxious suffering at the critical period of adolescence, when the reproductive instinct enters into the conscious mental life, disquiets it by its obscure stirrings, profoundly revolutionizes it as it develops, wrecks it sometimes in so-called "adolescent insanity"—a signal instance in that case of the occasional sad consequences of one class of approved conventional reticence.

Dr. Maudsley evidently believes in the possibility of transmission of acquired characters to some extent, for he says that although education cannot change a character, and can only educe into being and direct innate potentialities, "it is still possible that its persistent operation in individual nature from generation to generation through prolonged time may occasion and implant *new germinal* potentialities."

Speaking of the pessimistic and optimistic temperaments, he states: "Certainly it is not by the temperaments in which reason rules and pushes to its logical extreme, but by the optimistic temperaments in which the unreflective feeling is joyous and active that the future progress of the race can be effected."

In the last chapter, which deals with Mind and the Universe, the dualistic theory is shown to be wanting: "How make a line of division," the author asks, "between the lowest mental and the highest bodily functions, between simple reflex actions and conscious reflection, which is just reflex action through circuitous intermental channels at a higher remove in the supreme cerebral layers?" In another place he writes:

> To separate essentially the components of mental life in brain as matter and the mind and, having made the absolute separation, to declare mental functions to be the independent function of the latter, is gratuitously metaphysical assumption directly opposed to scientific observation, which would, if true, render a positive mental science impossible.

"Materialism," he says, "neither can nor ought to be got rid of," but the materialistic doctrine, as in the past so in the future, will probably only satisfy the few; indeed Dr. Maudsley's own words support this conclusion when he says:

> For as much as pure reason purged of feeling and applied to the facts of life is dispiriting, the yearning hope is for a Supreme Spiritual Reality, infinitely wise, good, and powerful, with which the human mind can come into communion.
> Always, therefore, have they believed by deep logic of feeling according to custom of time and place that which was rationally incredible.

We make no apology for expressing the views of Dr Maudsley so frequently in his own words, for it is generally recognized that no member of the medical profession has a greater mastery of the English language nor a greater lucidity of expression. We can heartily commend this latest work of Dr. Maudsley to the careful study of all who are interested in psychology and sociology.

OCCUPATIONAL DISEASES.

A large and well documented volume on *Diseases of Occupation and Vocational Hygiene*[2] by many writers has recently been published in America. For the most part it has been written by American authorities, and largely with a view to the special needs of that continent, although it contains chapters by Professor Devoto of Milan, Professor Teleky of Vienna, Dr. T. M. Legge of the Home Office, and Sir Thomas Oliver. The book is divided into three main parts.

The first part, forming nearly half the text, deals with the specific and systemic diseases of occupation, their symptoms and treatment. The second part, some 350 pages in length, deals with the causation and prevention of occupational diseases and accidents in a great variety of trades. This portion of the volume is meant to appeal to a wide circle of readers, not to medical men and lawyers only. The third part is written for the benefit of those who are called on to investigate the relations of occupation to disability or disease in factories and elsewhere. It gives an account of the Milan clinic for occupational diseases, of certain statistical studies, and of the legislation and governmental study required for the prevention of occupational diseases in general.

The book is naturally unequal in its treatment of the many topics with which it deals, but is on the whole very well written, full of facts, and suggestive of the precautions required to be taken in the various dangerous trades it discusses. It is well illustrated and has good indexes.

[2] *Diseases of Occupation and Vocational Hygiene.* Edited by G. M. Kober, M.D., Belmont, Mass., and W. C. Hanson, M.D., Belmont, Mass. Philadelphia: P. Blakiston's Son and Co. 1916. (Roy. 8vo, pp. 918. Illustrated.)

NOTES ON BOOKS.

THE *Catalogue of the Collection of Skulls and Teeth in the Odontological Museum of the University of Birmingham*,[3] illustrated by a number of photographic reproductions, gives a list of the two thousand specimens shown, and exhibits the thoroughness with which the subject has been illuminated by the care of those responsible for the arrangement of this very large collection. It displays the evolution of the dental tissues, and incidentally records the evolution of vertebrate life throughout geological time by means of the teeth. Fossils, fishes, reptiles, and mammals have all contributed to the exhibits shown, and the specimens are arranged in their natural orders and families. There are also examples of mechanical dentistry shown. In so highly specialized a museum as this the student would feel grateful for a *catalogue raisonné* to tell him what he may see in each exhibit; this, however, no doubt is furnished by the labels on the specimens, and to have attempted it would have distended the volume now before us to impracticable dimensions. The University of Birmingham is to be congratulated upon the possession of so valuable and instructive a series of odontological exhibits.

The third volume (twenty-sixth series) of *International Clinics*[4] contains a number of interesting papers, including three on the *x*-ray diagnosis of pulmonary tuberculosis and enlargement of the lymphatic glands at the roots of the lungs, a subject of great interest to all physicians. These papers point out the difficulties in the interpretation of the pictures obtained, and the practical impossibility of drawing from them alone any firm conclusions upon which treatment may be based. A paper by Dr. F. Parkes Weber on certain rare forms of herpes zoster, in which the eruption may be either generalized or associated with muscular paralysis, contains an account of three cases recently observed by himself, and a very thorough analysis of the scattered literature of the subject. The connexion of this eruption with the administration of arsenic is also considered.

[3] *Catalogue of the Collection of Skulls and Teeth in the Odontological Museum of the University of Birmingham.* Compiled by J. Humphreys, M.D.S. Published by the Council of the University. Birmingham: Cornish Brothers. 1916. (Fcap. 4to, pp. 64.; illustrated.)

[4] *International Clinics.* Vol III. Twenty-sixth Series, 1916. Edited by H. R. M. Landis, M.D. Philadelphia. Philadelphia and London: J. B. Lippincott Co. 1916. (Med 8vo, pp. 318, illustrated. 35s. net four quarterly volumes.)

MEDICINAL AND DIETETIC PREPARATIONS.

Products of the Merieux Institute, Lyons.

THE Anglo-French Drug Company have introduced into this country certain biological products made by M. Merieux, formerly of the Pasteur Institute, at the institute he has established at Lyons. Antidiphtherial, antitetanic, and antistreptococcus serums are supplied, and a special feature is the manner in which they are put up. The dried serum is placed in a short test tube, which is enclosed in a small phial. The phial contains 9 c.cm. of carbolized water, and a single india-rubber cork closes both phial and tube. When required for use the cork is withdrawn and the contents of the test tube dissolved in the carbolized water. This system is designed to ensure the serum keeping indefinitely, so that it may be relied upon as being aseptic, active, and of full potency when required. The device is ingenious and appears likely to prove efficient. The Merieux Institute also makes an antidiphtherial preparation for topical application, for suspicious sore throat or coryza, and for use in convalescence from diphtheria. For the same purpose it also makes antidiphtherial tablets, which it is believed may be of use in carriers. It also makes prophylactic antitetanic dusting powder for application to wounds.

British Medical Journal.

SATURDAY, JANUARY 13TH, 1917.

THE MAUDSLEY HOSPITAL.

ON another page there will be found a review of the work, *Organic to Human*, by Dr. Henry Maudsley, the distinguished alienist physician and philosopher, who early in his professional career and subsequently attained a wide celebrity at home and abroad by his contributions to medico-psychological science. Among his previous works most widely read are *Body and Mind*, *Crime and Responsibility*, *Mental Physiology*, and *Pathology of Mind*. This latest work, now completed in the author's eightieth year, shows that he still possesses the keen, vigorous intellect of a great philosopher and master of the English language.

Dr. Maudsley will be remembered in years to come not only for his literary productions concerning the human mind in health and disease, but for his practical and generous sympathy with the mentally afflicted, to whom he had so long and so successfully ministered. Recognizing the importance of the study and early treatment of mental disease, he offered eight years ago to give a large part of his fortune to the London County Council if it would build and keep up a hospital for the study and treatment of early mental disorders with a view to preventing chronic disease necessitating internment in a county asylum. The offer was accepted, but only after much obstruction and delay was the present admirable site at Denmark Hill obtained. The Council, having built the hospital, wisely named it after the generous donor. With the consent of Dr. Maudsley, the Council permitted it to become a section of the 4th London General Base Hospital; at present it is adapted to the treatment of 175 soldiers and eighteen officers suffering with "shell shock," neurasthenia, or acute mental disorder. The Pathological Laboratory at Claybury has been transferred to the Maudsley Hospital, and the director, Major F. W. Mott, continues to carry on the pathological work of the London County Asylums while at the same time he takes an active part in the medical work and general management of the hospital. When the King and Queen recently visited the Maudsley Hospital they expressed themselves as well pleased with the accommodation and general arrangements for the treatment and comfort of the soldiers.

A large hut is now being constructed in the grounds to be equipped for carpentry, cabinet-making, and metal work, under a capable instructor, as a means of treatment by useful diversion of the mind of convalescent cases of shell shock; the whole, together with upkeep, has been generously provided by Lady Henry Bentinck.

After the war is over the hospital will be taken over by the London County Council, and the policy proposed when the gift of £30,000 was accepted is indicated in the nineteenth annual report of the Asylums Committee, where it is said that "the most forcible argument for the provision of the hospital from the point of view of the patient lies, as it seems to us, in the fact that it will provide opportunity for individual treatment and close personal attention, which are all-important in the early stages of mental disorder." The asylum population consists to a large extent of chronic cases, which need detention rather than treatment. The report went on: "But in the proposed hospital only those patients will be detained for whom treatment is necessary, and who respond to it. Hence there will be in the hospital an entirely different atmosphere to that of an asylum, an atmosphere, as Dr. Maudsley has expressed it, of sanity as opposed to insanity. The hospital will be essentially an institution for providing treatment, the direct object of which will be the care and discharge of the patient."

After referring to the advantages of having such a hospital in the London area, the report pointed out the public utility of an out-patient department where persons in the incipient stages of mental disorder can be taken for advice and treatment. "We are hopeful that this provision, by the prevention of insanity, will afford relief to the rates."

We are pleased to note the importance which the report attaches to the value of the hospital and pathological department as a centre of education and research. The expectation is expressed that the hospital will prove of great value in the dissemination of knowledge of mental diseases, and in the provision of systematic instruction in methods of treatment. "At present the study of insanity is to a great extent an isolated branch of medical research, and the general practitioner knows little of what is considered to be the province of the alienist and neurologist. This is not to the advantage of the public, and if this unfortunate isolation were removed and a close acquaintance with nervous and mental diseases were more common, many cases of incipient insanity which now find their way ultimately to the workhouse and the asylum might be recognized at an earlier and more hopeful stage, and by preventive as well as remedial measures might be so dealt with as never to need institutional confinement." "A hospital in close touch with the university, the general hospitals and their medical schools, and with a central pathological laboratory should," the report continues, "do a great deal to bring this about. The teaching of the hospital should also increase the supply of trained medical officers available for service in the asylums." We entirely agree with the principles set forth, and the whole profession, and we are sure the public generally, will endorse them.

The last paragraph of the report places on record the appreciation of the generous spirit in which Dr. Maudsley's gift was made, and we are convinced that the gift and acceptance by the London County Council will confer a great and lasting benefit apon a class of sufferers the effectual assistance of whom has hitherto been the most difficult of social problems. We trust that Dr. Maudsley may yet live many years to see the hospital and pathological laboratory carrying on the beneficent work which has been made possible by his philanthropic act.

THE INCOMPLETE CURE OF THE CONSUMPTIVE.

II.

THE two main objects upon which public expenditure would be justified are the protection of the public from extension of the disease and the restoration to health and working capacity of those patients for whom there may be a reasonable prospect of cure. Both these points would seem to be essentially the concern of the community. In the case of the patient with confirmed disease of the lung the position is somewhat different. He may or may not be a source of danger to the community, but he is certainly not

likely to contribute his share as a worker to the public weal.

If we consider, first, the case of the presumably curable case, we find that the universal testimony of experts goes to prove that the prospect of arrest or so-called cure of the disease can only reasonably be entertained in cases in which the disease has been detected and treated in its earliest stages. Beyond a certain point the prospect rapidly diminishes, and the best that can be obtained can only be classed as improvement, with constant liability to relapse. In the one case the individual may become a useful member of the community while in the other he is more likely to become a charge upon it. But at the present time both classes of case are being treated in sanatoriums. Money is deliberately being spent in patching up a permanently damaged life even more lavishly than upon the restoration to full vigour of the life that is only temporarily impaired.

For proof of this point it is necessary only to examine the statistics of county and other sanatoriums, which afford abundant evidence of the fact that cases in all stages have been under treatment and that beds which, from the economic point of view, should be strictly reserved for early cases have been occupied for prolonged periods by second and third stage cases. Hence it is not difficult to explain the lack of accommodation for early cases under the Insurance Act, which, in spite of the glowing promises held out by its promoters, has not as yet succeeded in checking the progress of consumption.

Again, among the recognized defects of the present system comes the case of the advanced consumptive. Our present knowledge enables us to say with approximate certainty whether any tuberculous person is or is not infective. For lack of any sort of public control a person discharging bacilli is at liberty to mix freely in the community, coughing, if not actually spitting, in crowded places of entertainment, in public conveyances and in churches, his handkerchiefs and body linen sent to laundry without any caution, and his home surroundings arranged with a view to personal warmth and comfort, regardless of the risk to other members of the household.

These three cardinal defects of method—the return of the consumptive to his overcrowded home, the occupation of beds in sanatoriums by unsuitable cases, and the total lack of any sort of control over the main source of infection—are perfectly well recognized by all experts who have written reports, and must be equally well known to the authorities for whose information their reports have been prepared.

It is time that a serious effort should be made to set these matters right. It is futile to hope for eradication of tuberculosis while such obvious errors are persisted in.

During the last two years a very striking object lesson has been afforded as to the invigorating effects of open-air life upon the many thousands of young men, some of them already infected with tubercle, who have so rapidly exchanged the sallow and anaemic complexion of the city clerk for the ruddy tan of the hardy soldier. The vast areas now covered with huts ments in which these changes have been wrought will some day be no longer needed by military occupants. They are for the most part situated in ideal positions for the fullest enjoyment of uncontaminated fresh air, but at the same time within easy access of supplies and communications. The means that have been so effectual in maintaining the health of the soldier are thus ready at hand for the housing of the consumptive, when the military need shall have passed away. The restoration of the incipient consumptive to working capacity is essentially the concern of the municipalities and the State and not a matter of charity. Hence the strictest limitation would have to be applied, and no case admitted to such State-aided establishments until it could reasonably be assumed that the activity of the disease had been arrested, and that the patient would be in a position to return to remunerative work.

The case of the confirmed consumptive stands on a different footing. Although he may derive marked benefit from sanatorium treatment, his capacity for work is usually impaired, and he is liable at any time to suffer relapse. In such a case, the aid of public charity may reasonably be invoked. The experience of chest hospitals goes to prove that a very considerable degree of relief can be afforded to cases in the second stage, and that the average period of immunity from relapse or recrudescence is very much the same after discharge from a hospital as from a sanatorium. In any case the future usefulness of such cases must be a very uncertain quantity.

Turning now to the question of third stage cases, the need for the interference of the State or municipalities again becomes obvious. In the great majority of instances such cases are a danger to the community. They are direct distributors of the germs of the disease. Every educated person is now aware of the fact, and conscientious patients endeavour to render themselves less harmful by careful disposal of their sputum. But among all classes there are a vast number of persons who refuse to brand themselves by the use of the spitting cup and who are subject to no sort of control as to their mode of life or their social surroundings.

The segregation of such persons from the close intimacy of family life is an imperative necessity if the hopes of eradication of tubercle are ever to be realized. Such segregation can only be carried out by a central authority, and the necessary powers are not likely to be obtained until the lamentable waste of effort and of money which prevails at the present time is recognized and acknowledged by those in responsible office.

Under the present system of dealing with tuberculosis the sanatoriums, which should be reserved wholly and solely for early cases, are allowed to admit cases in all stages, as shown by their published statistics.

Returns published by Insurance Act authorities make it evident that more than half the number of cases recommended for sanatorium treatment cannot be accommodated. Assuming that only first stage cases are so recommended, it is probable that most of them would find the needed accommodation if the beds now occupied in sanatoriums by second and third stage cases were set free. In like manner there are in most chest hospitals a considerable number of incipient cases which would be far better treated in sanatoriums, and in turn their beds in the hospitals would be available for the second stage cases from the sanatoriums. Co-ordination is clearly called for, and in order to obtain it there must needs be a central controlling authority.

The introduction of tuberculosis dispensaries has done something in this direction by providing local clearing-houses where individual cases can be dealt with on the lines best suited to their needs, but their powers for good are very limited. They can only advise, and have no power to insist.

Desire for individual freedom has been allowed to override the common welfare, and it is time that the interests of the community should be more fully

considered, even if it involves a certain amount of restraint upon the individual. The perpetuation of such obvious evils as the free distribution of tubercle bacilli, the return of the consumptive to the very same conditions in which his disease developed, and finally the waste of accommodation in hospitals and sanatoriums respectively, should now be vigorously checked.

"If these things are preventable, why are they not prevented?"

THE PATHOLOGY OF GAS GANGRENE.

THE text of the address given by Sir Almroth Wright at a meeting of the Royal Society of Medicine on December 18th has become available through its publication in the *Lancet* of January 6th. Its scope is indicated by its full title—"On the conditions which govern the growth of the bacillus of 'gas gangrene' in artificial culture media, in the blood fluid *in vitro*, and in the dead and living organism." Dealing with the conditions which promote or inhibit the growth of the gas gangrene bacillus of Welch, he controverted the doctrine that the growth of that bacillus pivots upon the presence or absence of oxygen. He pointed out that Tarozzi discovered that when pieces of animal tissue were added to bouillon, cultures of anaërobes could be obtained in open tubes, and that Ori and Wrzosek showed that the same result could be obtained with pieces of either raw or autoclaved potato, and also with other vegetable tissues. Cultures of the bacillus of Welch in the open in bouillon containing a piece of potato grow rapidly and vigorously, with production of gas. So far he, and Professor Dreyer and Dr. Fleming, who have been associated with him in the investigation, have not obtained any anaërobe from a wound which cannot by proper devices be made to grow freely in open tubes. A hypothesis put forward is that the potato furnishes a reducing substance which gives the culture a start, and Sir Almroth Wright finds evidence in favour of it, but the aspect of the matter to which he more particularly directs attention is that full consideration of all the facts renders it necessary to abandon the traditionary view that the growth of anaërobes pivots upon the presence or absence of oxygen.

Sir Almroth Wright recalled the fact that seventeen years ago, in a study of the distribution of agglutinins and bactericidal substances in cases of typhoid and Malta fever, he had called attention to the circumstance that microbes which, if carried into the blood stream would have been killed or impeded in their growth by the bacteriotropic powers of the blood, succeeded in maintaining themselves alive in the internal organs, collected together in what he then called "niduses of lowered bacteriotropic pressure." Experiments were made with the bacillus of Welch to ascertain whether concentration of the infection came into account in connexion also with growth upon artificial media. The earliest results suggested an affirmative answer. Other experiments were made by Dr. Alexander Fleming, by introducing various inorganic substances into open culture tubes of the bacillus of Welch; the substances used were asbestos, cotton-wool, platinum black, and a rust-covered nail; a fifth experiment was to obtain a culture by introducing into the open bouillon a hair-fine capillary tube filled with a minute quantum of a diluted culture. In each case a turbid and vigorous gas-producing culture was obtained. It appeared, therefore, that a common factor in growth of the bacillus in an open tube was almost certainly a mechanical factor, which seemed to be the provision of some hole or cranny to serve as a nidus in which the microbe could get a start by concentrating its chemical effort at first upon a fractional portion of the culture medium.

When these test tube experiments were compared with the clinical facts it was seen that the supervention of gangrene was very frequently correlated with the leaving of infected portions of clothing in the wounds—that is, the same mechanical factor as was operative in the test tube experiment seemed to come into account also in the body. Captain d'Este Emery, working with Sir Almroth Wright at Boulogne, showed that the bactericidal action of the serum was the factor which more than any other came into account in the culture of the bacillus of Welch in the blood fluids, which were at an advantage when the microbes were dispersed and at a disadvantage when they were collected together and afforded an opportunity of making a combined attack. Experiments showed that the more rapidly the concentration of the implanted microbes was effected, and the shorter their exposure to the full bactericidal action of the serum, and the less the bactericidal potency of the serum, the greater became the chance that an implanted microbe would get a start and go on to produce a generalized infection. When the bacillus of Welch grows freely in serum it reduces the antitryptic power of the medium, and it elaborates acid. The antitryptic power may be regarded as the guardian of the blood inhibiting the digestive processes which must precede the conversion of the native albumins of the blood into congenial pabulum for microbes.

Experiments further showed that the addition of acid converted the serum into an eminently favourable medium for the bacillus of Welch, quite apart from any reduction of the antitryptic power, and that the converse also held true, the reduction of antitryptic power, quite apart from any addition of acid, converting the serum into a very favourable culture medium for the micro-organisms. The combination of the two factors accounted for the sudden rapid growth of the bacillus—"the avalanche phenomenon."

Welch stated in his first paper that if a small volume of culture were introduced into the blood stream of a rabbit, and the rabbit killed and put into an incubator, the whole organism was rapidly invaded, gas being generated in the blood, the condition known as "foaming liver" produced, and the peritoneal cavity, after six or more hours, blown out with gas. This showed that the chemical changes which occurred spontaneously in the blood and liver after death transformed the blood fluids into a medium eminently favourable for the cultivation of the bacillus.

In studying the conditions which govern the growth of the bacillus of Welch in the living organism, it was found that the infection produced as a rule both a local and a general acidosis, but the acidosis in the local lesions was more pronounced than in the general blood stream. If the acidaemia became very pronounced the animal succumbed; if there was none it was never seriously ill. In all cases, without exception, the antitryptic power of the blood rose very steeply where the animal dealt successfully with the infection and very little where it made only a feeble fight. Observations on man showed that every microbic infection of wounds was followed by a rise in the antitryptic power, greater or less according to the degree of the severity of the infection; this constituted a non-specific immunizing response. When comparisons were made between the antitryptic power in patients heavily infected, but not suffering from gas

gangrene, and those suffering from that infection, no difference was found, but while the blood alkalinity of the heavily infected patients corresponded exactly with the normal, in a patient with pronounced gas gangrene the blood alkalinity was very markedly reduced, so that it appeared that the toxaemia of gas gangrene was an acidaemia. Measurements of the antitryptic power and alkalinity of the circulating blood and of the lymph from the infected tissues in cases of gas gangrene infection in man showed that the progress of the condition was parallel to that observed in experiments *in vitro* and in animals. There was, to begin with, a high antitryptic response in the circulating blood, and reduced or abolished antitryptic power in the infected tissues or effusions, together with diminished alkalinity in the infected tissues or effusions. There was not only a local acidosis, but an acidaemia, the latter being found when the infection culminated in that gas gangrene toxaemia which was ushered in by vomiting and then showed itself in collapse, with rapid respiration, ashy-grey pallor, feeble and then impalpable pulse, the body becoming stone-cold before death, first the hands and feet, then the whole limbs, finally the nose, ears, and forehead, the patient remaining with clear intellect and without suffering to the last.

Sir Almroth Wright considers that, pending further investigations, it may perhaps be assumed that the production of acid proceeds, not only in the infected tissues in relation with the wound, but also in the liver and other internal organs to which the bacillus of Welch has been conveyed, its metastatic growth being favoured as soon as the alkalinity of the blood begins to be reduced by the influx of lymph charged with acid in the infected tissues. This conclusion has a direct bearing on the therapeutic administration of alkalis in gas gangrene. It gave markedly favourable results in only two cases out of six recorded by Sir Almroth Wright, but in these two the effect was dramatic. In the one case rapid improvement followed the injection of 20 grams of sodium lactate in a patient in a condition of acute toxaemia; in the other a patient in profound toxaemia who received 10 grams of sodium bicarbonate intravenously, improved quickly, and made a good recovery. In the other cases no effect was produced, and it must be left to future experiments to determine whether better results can be obtained by earlier intravenous injection of alkali, and whether the local evolution of gas gangrene can be arrested by the injection into the tissues, or, as the case may be, into an infected haemothorax, of alkali or of an alkalinized strongly antitryptic serum, remembering that such a serum can practically always be obtained, either from the patient himself or from any other heavily infected patient.

COLLECTION AND EXHIBITION OF WAR SPECIMENS.

In March, 1915, the War Office constituted a committee, under the presidency of Sir Alfred Keogh, Director-General A.M.S., to compile a medical history of the war. Dr. W. Morley Fletcher was appointed secretary of the committee. One of its objects is to collect from all military hospitals such specimens as will aid in the understanding and illustration of the nature of the wounds, injuries, and diseases suffered by soldiers during the present war. At the beginning of May, 1915, Dr. Morley Fletcher, on behalf of the committee, approached the Council of the Royal College of Surgeons of England with a view of obtaining its assistance in the collection and preservation of such specimens. The original intention was to make the Royal Army Medical College, Millbank, the centre for collection, but this was found impracticable owing to the staff being engaged on more urgent work. The Council of the Royal College of Surgeons, therefore, decided to place the workrooms and storerooms of the museum at the disposal of the Army Medical Service, and to preserve, classify, and register all specimens forwarded from military hospitals for the use and disposal of the Medical History of the War Committee. The War Office issued a memorandum and circular requesting medical officers attached to military hospitals to forward all specimens which might prove instructive, from either a clinical or a pathological point of view, for temporary preservation in the museum of the Royal College of Surgeons. At the beginning of 1916 Major T. R. Elliott, R.A.M.C., F.R.S., was placed in charge of the collection and transmission of specimens from the pathological laboratories attached to base hospitals in France. He obtained the willing co-operation of the pathologists attached to these hospitals, and the specimens received have increased in number and improved in quality, many being manifestly of great value to both surgeons and pathologists. By the end of 1916 over 1,100 specimens had been received. Under the direction of Professor Arthur Keith, F.R.S., the conservator of the College museum, these have been carefully stored, a card list has been prepared, and any histories furnished by the senders appended. The War Office gave an initial sum of £100 to defray the cost of jars and preservatives, and when that sum was exhausted a second sum of £100 was granted. It has now been decided to select and prepare from this material a national collection of pathological and clinical interest, such as may be of immediate use, and also serve in the future for the study of gunshot injuries and diseases occurring in the war. The selection from the crude material, which naturally contains a very large number of duplicates, has been entrusted to Professor S. G. Shattock, F.R.C.S., the pathological curator of the Royal College of Surgeons, with the assistance of Mr. C. F. Beadles, M.R.C.S., the pathological assistant. In order that the more immediate clinical interest attaching to the material may not be overlooked, Mr. Raymond Johnson has consented to give his assistance. As is inevitable under present conditions, delay in the supply of glass and other material for the adequate display of the collection will somewhat hinder its progress, but the large amount of careful scientific work which has been continuously carried out both in this country and in British laboratories abroad since the commencement of the war, will render any delay due to those causes of less immediate consequence than might otherwise have been the case. Although the College museum is at present closed, there is now on exhibition a collection of all the specimens illustrating gunshot injuries which the College possesses and which include also some of those furnished by the present war. Certain specimens of gunshot injuries on loan from other museums add further interest to the exhibition. We hope next week to indicate in more detail the contents of this exhibition, which will doubtless prove of great interest at the present time. As the specimens furnished by the present war are prepared and mounted they will be added to those now exhibited, and will be accompanied with brief clinical notes.

THE PROPHYLAXIS OF SYPHILIS.

Sir Bryan Donkin has published an outspoken letter in the *Times* of January 6th, which says some things many people have been thinking, but believed to be inadvisable to say in the present state of public opinion in this country. Since the discovery of the specific organism of syphilis in 1905 scientific research has shown conclusively that infection can be prevented more surely than it can be cured by even the best modern methods of proper treatment. This fact, Sir Bryan Donkin considers, was clearly established by the precise experiments of the late Professor

Metchnikoff. The mention of Metchnikoff's name shows hat Sir Bryan Donkin had in mind the experiments of Metchnikoff and Roux on the efficacy of calomel for the destruction of syphilitic virus when exhibited locally within few hours of exposure. Their recommendations were ounded on a series of experiments on the monkey, and one rucial experiment on man. Though the validity of the esults of these experiments was disputed by Neisser in ermany, and also by some French physicians, Metchnikoff as able to show that some of the failures were due to he use of calomel ointment of insufficient strength. He ecommended that the ointment should contain from 25 33 per cent. of calomel, and his final formula was alomel 33 parts, lanoline 67 parts, vaseline 10 parts. t would appear that Neisser's criticisms were in part ounded upon the employment of too weak an appli- ation, and German authorities have stated that calomel intment of the strength of 30 per cent. is prescribed the German navy and army as a prophylactic. Metchnikoff pointed out nearly ten years ago that the pplication was useless unless made within a few hours, nd the extreme limit is said to be eighteen and a half ours. Much, however, must obviously depend on the cal conditions, and the method should not be condemned hen the interval between exposure and the application the ointment approaches the extreme limit mentioned. he hesitation in recommending this prophylactic is, owever, we believe, to be traced not to any apprehension hat when used in insufficient strength or in unpropitious rcumstances it may fail, but to the fear that public inion would not be favourable to the recommendation. ir Bryan Donkin is of opinion "that instructed public inion would be favourable, and especially at this time." the last phrase he may be assumed to refer to the leged great prevalence of the disease among soldiers; no atistics have been published in this country, and perhaps r this reason rumour has been busy. German authorities ve been more frank, and have spoken of the frequency of mereal disease among their soldiers on active service as ving grounds for the anticipation that the civil population ay be extensively infected when the soldiers are discharged ter the war; very stringent regulations are enforced in least some commands of the German army. What, if ything, is done in this direction in our own we are t in a position to say. The principle involved applies, wever, to civilian practice, and the question is how far medical practitioner is justified in recommending pro- ylactic measures to men who have not sufficient self- ntrol to be continent. It is a matter which, in the esent state of opinion, medical and public, must be termined by the exercise of private judgement, but we rtainly think that a medical man who considers it right give such advice ought not to be held open to censure, ; as Sir Bryan Donkin says, "prevention of disease is watchword of modern medicine." His letter and most what is written on the subject has reference almost ely to the share of the male in the dissemination of the ease. If effective measures for prevention are to be ken they must have regard to both sexes, and here the ficulty in the present state of public opinion in this ntry with regard to police measures becomes very at. So far as probabilities go, it is at least as likely t one infected woman will infect many men, as t one infected man will infect many women. e Copenhagen statistics, reproduced in the JOURNAL last tober (p. 589), show a very remarkable increase in the mber of cases of syphilis treated in the communal hos- als of Copenhagen in the seven years following the olition of the regulation of prostitution. At the same e there was a slight decrease in the number of cases ong women; these facts are open to several interpreta- ns, one being that women have refrained from entering spitals, and have continued their unhappy occupation ile in an infected state. It is, however, doubtful ether notification would afford any remedy, and the experiences of Western Australia, given in another part of the JOURNAL this week, are rather striking; whereas 155 cases of syphilis were notified in males during the first fifteen weeks after notification became compulsory, only 26 cases in women were notified, and the official comment on these figures is that it is impossible to believe that this represents the proportional incidence of the disease in the sexes.

THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD (ENGLAND AND WALES).

THE report[1] of the medical officer to the Local Government Board for the year ending March 31st, 1916, recently issued, contains a record which, so far as infectious diseases are concerned, is favourable, with the exception that a large number of cases of measles occurred. Over 10,000 cases were notified in the first week of January, 1916, and the weekly number remained high, reaching a maximum in the first week of May, when nearly 14,000 cases were notified. Thereafter there was a rapid decline, the number notified in the last week of August being 2,491. A certain number of the cases were military, the highest number in any one week being 1,033 in the week ending April 22nd. The figures here given include measles and German measles. Small-pox failed to gain more than a temporary footing in any district. Dysentery, notwithstanding the return to this country of many soldiers recovering from this disease, did not spread, nor did typhus fever. The amount of enteric fever was so small as to inspire Dr. Newsholme with fresh hope that the disease may erelong become extinct. Cerebro-spinal fever showed much activity in February, March, and April, 1915, and again in April and May, 1916, though to a less extent. During 1915, 2,566 cases were notified among the civil population, as compared with 315 cases in 1914, and 279 in 1913; there were 1,146 military cases in 1915, excluding cases originating overseas. These numbers relate to cases as originally notified, but in a number of instances the diagnosis was not subsequently confirmed. When the disease became prevalent the Board issued a revised memorandum upon it and also instituted investigations in its pathological laboratory under the direction of Drs Eastwood and F. Griffith. Dr. Bruce Lowe has contributed an account of the epidemiology of acute anterior poliomyelitis in recent years; it brings out the fact that no country, at any rate in the Northern hemisphere, would seem to be free from it, but the largest epidemics have occurred in the United States of America. The disease became compulsorily notifiable throughout England and Wales on September 1st, 1912, and the number of notifications received was 744 in 1913, 509 in 1914, and 517 in 1915. During the three years 338 cases were notified in London, 499 in county boroughs, 637 in boroughs and urban districts, and 280 in rural districts. So far only isolated cases or small groups of cases have occurred in England and Wales, and where groups of cases have occurred it has been exceptional for more than one case to occur in a single household. The call for medical officers for the military service of the Crown has depleted the local public health service and tuberculosis service, and many members of the medical staff of the Board itself have been engaged on military service in various capacities. The medical officer to the Board states that the absence of so many sanitary officers from their ordinary duties has been rendered comparatively safe only by the assiduity and arduous work of those officers who have remained at their civil posts. In many areas combinations have been made to permit one medical officer of health to undertake the duties of one or more others, and to permit the release of the tuberculosis officers whose duties were taken over by the medical officer or general practitioner; or, conversely, to permit

[1] Forty-fifth Annual Report of the Local Government Board, 1915-16. Published by His Majesty's Stationery Office. [Cd. 8423.] Price 9d. net.

the tuberculosis officer to undertake also the duties of medical officer of health. In other instances the county medical officer has undertaken district work, and in many areas the medical officer of health has undertaken the charge of a fever hospital to enable the resident medical officer to undertake military service. In addition, many women doctors have been acting as medical officers of health or assistant medical officers, tuberculosis officers, or resident medical officers in sanatoriums and fever hospitals, and their services have been invaluable.

HONORARY DEGREES AT MALTA.

IT was announced in a recent number of the BRITISH MEDICAL JOURNAL that the University of Malta had conferred the honorary degree of M.D. on Colonels C. A. Ballance, C.B., M.V.O., W. Thorburn, C.B., A. E. Garrod, C.M.G., and H. H. Tooth, C.M.G. Dr. Thomas Agius, Professor of Physic, has kindly sent us a full account of the ceremony, which took place in the Aula Magna of the University on December 16th, 1916. It was the first statutory function of the kind held in the island. The Governor, Lord Methuen, and the Lieutenant-Governor, the Hon. E. Bonavia, were present, and members of the Executive and Legislative Councils, judges, members of the General and Special Councils of the University, and professors in their robes, occupied the space on either side of the daïs. The body of the hall was thronged with naval and military officers and prominent members of Maltese society. The proceedings were opened with a Latin address by Professor A. Bartoli, who said that in the struggle now raging there was a growing determination that henceforth nothing with the taint of Germanism should be tolerated in the training of youth nor be suffered to influence our methods of instruction. With the object of emancipating literature and science once for all from Teutonic influence the leading men of learning in the nations now warring against Germany's ambitious struggle for world dominion proposed that all the higher educational institutions should form a closer alliance so as to secure unity of purpose and action. In this way literary and scientific workers would, by community of effort, always have the benefit of researches made in countries outside their own without having recourse to the so-called *Kultur* of Germany. The orator rejoiced that the University of Malta, the records of which dated back more than three hundred years, had never ceased to follow Latin methods of education, and that all the nations now opposed to German aims and culture had, with full accord, resolved to deliver their schools from a barbarous influence. Professor Bartoli concluded with a graceful reference to the good work done in the war by the men whom the University of Malta was honouring that day. "It was not," he said, "by chance that the ancients, practical in all things, gave Hercules also the name of Musagetes, and that they made Pallas, the mother of arts and sciences, also the goddess of war." After the address the Rector, the Hon. Professor E. Magro, proceeded with the ceremony of capping, robing, and presentation of the doctoral ring. The candidates took the prescribed oath and signed the Liber Aureus. The Rector then delivered an address in which he expressed the admiration with which he and the members of the university regarded the new honorary graduates for their exceptional attainments. All the faculties felt greatly honoured by the association of the names of such distinguished men with that of the University of Malta, small and modest, but of venerable age. The appropriateness of the degrees conferred in this instance was shown by the fact that one of the numerous hospitals which had risen in Malta as if by magic under their energetic Governor was that at present known by the name of the Valetta Hospital. The premises of that hospital had once been the Grand Hospital of the Order of Knights Hospitallers, which boasted that each one of the six or seven hundred patients cared for in it was served on massive silver plate, specimens of which might still be seen in the museum. That claim to excellence was surpassed in the present hospitals by the perfection of the sanitary and other arrangements, by the skill of the medical staff, and by the sympathy and care with which the patients were tended by the nurses. The Rector stated that the old hospital was the home of the first training school for barbers and nurses established in Malta, a school which in course of time developed into a regular medical school which was founded in it by Grand Master Nicholas Cottoner, a great many years before the present university came into being. The ceremony was brought to a close by the Governor, who, in a brief speech, recited the work done by the new graduates and referred to the services of Colonels Gulland, Charters Symonds, and Purves Stewart during their stay in Malta. He mentioned also the good work done by Colonel Barker, who, to the deep regret of all, gave his life for his country in Salonica. He thanked Sir Alfred Keogh on behalf of all engaged in hospital work in the island for sending men among the ablest in his profession to Malta.

TREATMENT BY ULTRA-VIOLET RADIATION.

A DISCUSSION took place at the meeting of the Röntgen Society on January 2nd on the subject of ultra-violet radiation in treatment. It was introduced by Mr. C. A. Schunck, F.C.S., who has conducted a number of spectroscopic investigations into some sources of radiation in the ultra-violet region (from 3,934 to 1,850 Angström units). The result of his researches has been to establish the tungsten arc as the most intense and efficient of all sources, judged by the erythema effect. Major W. Turrell, R.A.M.C.(T.), with whom Mr. Schunck has collaborated at Oxford, said that the difficulty at the present time was in the supply of tungsten. For military purposes tungsten was available at a cost of 6s. a pound or little more, but when he desired to secure a supply for civil hospitals all he could obtain was a pure tungsten costing four guineas a pound. It was hopeless for the individual to try to obtain tungsten for general medical purposes at present, and he suggested that something might be done to relax the stringency if representations were made to the authorities by medical bodies. As to the results of treatment in general by ultra-violet radiation, Major Turrell thought it desirable to preserve a mean between excessive enthusiasm on the one hand and scientific scepticism on the other. He had found it of use in eczema; in the treatment of Raynaud's disease it had proved distinctly superior to other forms of electrical treatment, such as ionization and the static breeze, and he had also used it successfully in cleaning up wounds. He considered that two kinds of lamps were needed in ultra-violet therapeutics—the ordinary arc lamp, unenclosed, used with a director or condenser, and taking ten or twelve ampères, and an enclosed lamp with a small opening into which the condenser could be fitted or not as required, and taking four or five ampères; the second type would have a considerable value in the wards of the ordinary hospital and in the treatment of superficial wounds. Major Robert Wilson, of the Canadian Army Medical Service, who has designed a lamp consisting of a positive of tungsten and a negative of cored carbon, said that in certain types of foul suppurating wounds ultra-violet treatment was very effective. It was not a panacea, but it might find a useful place in the armamentarium of the surgeon, and occasionally perhaps in that of the physician. The cored lamp did not cost more than £10 to make, took about 4½ ampères of current, and furnished all the ultra-violet rays which were required. Dr. Sidney Russ expressed scepticism as to Mr. Schunck's suggestion that the therapeutic action should be judged by the surface effect. Although the radiation within a certain narrow range might be cut off by the very thinnest layer of skin, 0.1 mm. in thickness, this did not necessarily prove that the effects stopped at this distance, for some

physiological action might be proceeding in the depths owing to the stimulus on the surface; nor did it follow that if the radiation within these narrower limits were not allowed to enter, other radiation had no physiological effect.

CASANOVA.

AT a recent meeting of the Section of History of Medicine of the Royal Society of Medicine Dr. J. D. Rolleston read a paper on the medical interest of Casanova's *Mémoires*, which, he said, was one of the most important literary documents of the eighteenth century, and contained much that was of interest to the medical reader. Casanova, as a child, suffered from adenoids and small-pox. His sanguine temperament predisposed him to epistaxis, to which he was subject from childhood, and to piles, which he first developed during his imprisonment in the "Piombi" of Venice. From early adult life onwards he had frequent attacks of ephemeral fever, probably malarial in origin. At the age of 45 he had a severe attack of lobar pneumonia. A typical example of a sexual athlete, without any homosexual taint, he had numerous attacks of venereal disease—gonorrhœa and soft chancre undoubtedly, and possibly syphilis as well. He apparently sought medical advice on each occasion, and no sequelæ resulted. In old age he suffered from gout, and his death was probably due to septic absorption secondary to enlargement of the prostate. Originally intended for the medical profession, he retained throughout his life his interest in medicine, as was shown by his descriptions of disease, his criticism of doctors, his dogmatic opinions on medical subjects, his successful simulation of various maladies, and his incursions into the field of therapeutics. In the course of his travels he was brought into relation, in a professional or social respect, with representatives of all ranks of the medical profession, including such celebrities as Haller and Tronchin, fashionable physicians like Herrenschwand, and humble practitioners like the doctor at Orsera of whose sudden influence he was the indirect and unconscious cause. The *Mémoires* showed that venereal diseases were widely spread in the eighteenth century, and went with prostitution. The use of the condom, both as a prophylactic against infection and as a contraconceptive, was well known. Homosexuality was prevalent, especially in Italy. Bleeding was in vogue for almost every disease. Mercurial intoxication was frequent. Charlatans of every rank flourished, and belief in magic and witchcraft was life not only in the south of Europe, but also in Paris and London.

PIGS IN TOWN.

THE Board of Agriculture, considering that much can be done to add to the food production of the country by increasing the number of pigs kept, and also by the development of poultry and rabbit rearing, has approached the Local Government Board to take steps to relax restrictions on pig-keeping contained in by-laws of local authorities. The latter Board has now issued a circular to sanitary authorities in which it states that though in most rural districts there are no by-laws on the subject, and in others the by-laws only require that pig-sties shall be maintained in a cleanly and wholesome condition, a by-law is in force in a few rural and in a number of urban districts, providing that pigs shall not be kept within a prescribed distance of dwelling-houses. The Local Government Board, in order to meet the present emergency, is about to issue a regulation enabling any local authority to give permission for the keeping of pigs, either generally or in particular cases, notwithstanding the provisions of any such by-law. If the local authority is in a position to give a general dispensation from the restrictions it may yet find it desirable to impose conditions as to cleanly maintenance of sties, and it is to be understood that action under the regulation is not intended to interfere with the ordinary law in regard to nuisances. The object of the Board of Agriculture is to develop the keeping of pigs in places where there is likely to be a supply of food refuse available for their feeding, and though it is not contemplated that pigs should be kept in closely aggregated areas, it is believed that in many urban districts there are areas of a rural character where pigs could be kept without risk of nuisance. It is suggested that groups of persons might be formed to keep a number of pigs jointly and to make a systematic collection of sorted waste from shops, hotels, and boarding-houses, as well as from private houses. Upon this point the Board of Agriculture is prepared to advise, but in the meantime Lord Rhondda suggests that, subject to any advice which may be given to them by their medical officer of health on grounds of public health, a sanitary authority should not hesitate to consent to the waiving of restrictive by-laws in suitable cases, or to give a general dispensation, and at the same time to facilitate co-operative effort for the keeping of pigs and the collection of waste for their food. The announcement of this action of the Local Government Board will not be very pleasant news for dwellers in suburbs and the more thickly populated rural areas. It is not an easy matter to keep pig-sties clean; it is almost impossible without properly constructed sties, and even with these good bedding and constant attention are requisite. There is, no doubt, a great deal to be said for bringing the pigs to the food rather than the food to the pigs, but unless sanitary inspection is carried out more systematically than has been the rule in the majority of rural areas nuisance is almost certain to arise near the confines of towns. We therefore suggest that it would be well for the Local Government Board to advise the sanitary authority to co-operate with the pig-keepers not only in the collection of waste for the animals' food, but also for the removal of the manure produced. The keeping of poultry is on quite a different footing, for a moderate amount of care and expenditure of labour would prevent the creation of a nuisance.

SUPPLY AND REPAIR OF MOTOR CARS.

WE are indebted to Mr. Massac Buist for the following note on the new regulations as to supply and repair of motor cars: The new regulations issued by the Ministry of Munitions concerning motor enterprise scarcely affect the medical profession, save so far as they confirm the belief that henceforth no new cars will be built, no cars assembled from parts already made, and that no spare parts will be manufactured for the duration of the war. Hence the need to emphasize the advice given lately in these columns to the effect that medical men should obtain at once any spare parts already manufactured which they are likely to need. Delay in this matter will be fatal, because stocks of spare parts are already nearly depleted. On the other hand, the medical profession has additional cause to expect the most intelligent treatment possible in respect of its motoring requirements, because the wise appointment of Dr. Addison to be Minister of Munitions has been followed now by the special appointment of Mr. Percy Martin, Managing Director of the Birmingham Small Arms and the Daimler Companies, to to be in sole charge of motor production of all sorts throughout the country for the period of the war. He has got to work already with excellent results, but is, of course, at present only concerned with co-ordinating war production. This work must be completed before the problem of attending to the needs of individual motorists can be tackled. Mr. Martin, however, has had over fourteen years' experience in this country of businesses almost wholly concerned with satisfying the needs of certain classes of private users. Hence no man could be better qualified than he to devise the best ways and means of assisting medical men as the first civilian class requiring attention after the actual needs of the war areas shall have been satisfied.

THE WAR.

WINTER CATARRHS AND BRONCHITIS.

ACUTE affections of the respiratory organs have been very prevalent in London and some other parts of England during the last month or six weeks. They have been commonly spoken of as influenza, but it is doubtful whether the majority have been true examples of that disease. In some instances, at any rate, bacteriological examination has revealed the presence of the pneumococcus or some other organism frequently associated with acute catarrhal disorders. It was hardly to be expected that the British Army in France should altogether escape, though men who live so much in the open air as soldiers may be more resistant than home-dwelling civilians. Yet it must be admitted that the atmospheric conditions have recently been very favourable to the development of the diseases commonly associated with, if not truly attributable to, damp ground and a moisture-laden atmosphere of low temperature. As a matter of fact the military hospitals in France have recently, we believe, received a considerable number of cases of the common early winter disorders, such as sore throat, bronchial catarrh, and rheumatism.

The bronchial troubles seen have been, we understand, for the most part of a familiar type and mild in character, but every now and then cases of much greater severity are observed. The initial pathology of these exceptional cases is, we believe, considered to be more or less identical in all cases, but two distinct clinical forms are met with. In the less rare a patient who, when he first reports sick, is probably deemed to be merely commencing an attack of ordinary bronchitis, begins within a few days to exhibit a somewhat higher temperature than that usually accompanying that disorder, and rapidly develops a clinical picture strongly suggestive of fulminant miliary tuberculosis of the lungs. Physical examination reveals little beyond rhonchi and râles, but the patient's colour tends to be grey and he is constantly coughing up green, purulent, non-aërated sputum. Death may occur in ten days or a fortnight, and the suggestion of miliary tuberculosis may persist to the end; but in the majority, after a week or so of rather severe illness, the temperature subsides with some abruptness, the cough and expectoration lessen, the patient's colour improves, and uneventful convalescence ensues.

In the rarer class the outstanding feature is the sudden development of acute dyspnoea, coupled with extreme lividity, in a patient previously regarded as suffering from only a slight chill or a feverish cold, or at most an unimportant degree of bronchial catarrh. Besides being dyspnoeic and livid, the patient is more or less profoundly unconscious, and as the heart's action is found to be strong though rapid, and nothing abnormal is audible beyond very prolonged expiration and perhaps a few râles, the only thing really clear is that the condition is one of impending death. On the whole, however, and especially in view of the condition having developed so rapidly, the various causes of laryngeal obstruction are likely to come into mind. In fact, at least in one instance the suggestion of laryngeal obstruction was sufficiently strong for a tracheotomy to be undertaken in the vain hope of affording relief; in other cases venesection and the administration of oxygen have been tried, with apparent temporary benefit. In some cases the excessively threatening symptoms may subside, but usually death supervenes. When this is the case *post-mortem* examination reveals purulent inflammation of the smaller bronchi, and affords grounds for the supposition that the immediate cause of death was a sudden blockage of a main bronchus by the thick pus in a patient who, had he survived, would have presented the clinical picture previously mentioned. Reflex spasmodic contraction of the bronchioles may also be a contributory cause.

Cases of these two types have been given the name suppurative capillary bronchitis; and, whatever their precise pathology and etiology may be, it is certain that they present a symptom-complex which, though easily recognized by any one who has once had the opportunity of studying a case to the end, is otherwise exceedingly likely to be misinterpreted. The textbooks are silent as to the occurrence of cases of bronchitis of this peculiarly dangerous type, and nothing seems as yet to have been published regarding them in medical war literature.

We understand that cases of the kind were observed in the winter of 1914–15, but vanished with the advent of spring. Last winter very few cases were seen, but it appears to be more prevalent again now. Fresh arrivals from warmer climates are probably most prone to suffer from it.

Bacteriological study has shown that a variety of micro-organisms, including the influenza bacillus, may be found in cases of this acute suppurative infection; sometimes one variety and sometimes another predominates. One curious point is that though the organisms may pass into the blood and be recognized there, the local effect seems to remain limited to the bronchioles.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Lost at Sea.

THE transport *Ivernia*, 14,278 tons, formerly a Cunard liner, was torpedoed and sunk by a submarine in the Mediterranean on January 1st. The loss of life was at first stated as 4 military officers and 146 men, 2 of the ship's officers and 33 of the crew. A later report reduced the number to 85. One of the two ship's officers reported lost was the surgeon, Dr. J. T. E. Parker.

Drowned.

SURGEON PROBATIONER W. S. ALLARDYCE, R.N.V.R.

Surgeon Probationer William Swirles Allardyce, R.N.V.R., whose death from drowning as the result of a collision in the North Sea on December 21st, 1916, we announced last week, was the son of Mr. George Allardyce of Dublin. He was 19 years of age and was a third year student in the School of Physic, Trinity College, Dublin. He joined the service at the beginning of the present winter.

ARMY.

Died on Service.

MAJOR J. HEPPLE, R.A.M.C.(T.F.).

Major John Hepple, R.A.M.C.(T.F.), was drowned in the harbour at Bridlington, Yorkshire, late on the evening of December 30th, 1916, aged 47. He appears to have taken a wrong turning in the dark, and to have walked into the harbour. He was educated at Leeds Medical School, and took the diploma of L.S.A. in 1895 and that of L.M.S.S.A. in 1908. He had been for many years superintendent and medical officer of the Calder Farm Reformatory School, Mirfield, Yorkshire; and was Major and also Commandant of the 2/1st Yorkshire Mounted Brigade Field Ambulance since February 5th, 1915.

Lieutenant-Colonel R. C. McLeod, Canadian A.M.C.

Wounded.

Captain J. H. Askins, R.A.M.C. (temporary).
Captain T. P. Cole, R.A.M.C. (temporary).
Captain F. Griffith, R.A.M.C.(S.R.).
Captain V. M. Rich, R.A.M.C. (temporary).
Captain C. E. Whitehead, R.A.M.C.(T.F.).
Lieutenant D. Campbell, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Macdonald, Angus, Corporal Royal Scots, the Lothian Regiment, second son of the late Dr. A. D. Macdonald, Dumfries, posted as missing on July 1st, now reported killed on that date, aged 36.

Nason, J. W. W., Captain Royal Sussex Regiment, and Flight Commander, Royal Flying Corps, youngest son of the late Dr. C. St S. R. Nason, of Gloucester and St. Leonards, killed in an air action on December 26th, aged 27. He was a well-known cricketer, and played for Sussex at the age of 17. He got his blue at Cambridge, playing against Oxford in 1909 and 1910, and also played for Gloucestershire for two seasons.

MENTIONED IN DISPATCHES.

A SUPPLEMENT to the *London Gazette*, dated January 4th, contains a dispatch from General (now Field Marshal) Sir Douglas Haig, submitting a list of officers, ladies, non-commissioned officers, and men serving, or who have served, under his command, whose distinguished and gallant services and devotion to duty he consider

leserving of special mention. The following are the names of the medical officers contained in the list:

STAFF.

Lieutenant-General Sir A. T. Sloggett, K.C.B., C.M.G., Honorary Surgeon to the King.
Surgeon-General W. G. Macpherson, C.B., C.M.G., M.B., Honorary Physician to the King.
Colonel C. H. Burtchaell, C.M.G., M.B.
Major R. B. Black, M.B., R.A.M.C.(Reserve of Officers).

ARMY MEDICAL SERVICE.

Surgeon-General M. W. O'Keefe, C.B., M.D.

Colonels (temporary Surgeon-Generals).

J. Murray Irwin, M.B.
W. W. Pike, C.M.G., D.S.O., F.R.C.S.I.

Colonels.

H. Barefoot, C.M.G.
W. Bewley.
W. N. Bowen (temp. Colonel).
G. Browne, C.B.
Cree, C.M.G.
Daly.
J. Garrard, M.B.
L. Gray, M.B.
J. Luther.
Macdonald, C.M.G., M.B.
L. R. MacLeod, M.B.
F. J. Morgan.
F. R. Newland, M.B.
H. I. Pocock.
B. H. Scott.
B. M. Skinner, C.M.G., M.V.O.
J. Thomson, M.B.
H. S. Thurston, C.M.G., R.A.M.C.
T. du B. Whaite, M.B.
R. W. Wright, M.B.

Brevet-Colonel and Lieutenant-Colonel (temporary Colonel).

Ensor, D.S.O., M.B., R.A.M.C.

Lieutenant-Colonels (temporary Colonels).

D. Alexander, M.B., R.A.M.C.
J. Blackham, C.I.E., F.F.P.S., R.A.M.C.
W. Bliss, R.A.M.C.
W. Brazier-Creagh, C.M.G., (ret. pay).
R. Buswell, R.A.M.C.
B. Dowsett, R.A.M.C.
Evans, C.M.G., M.B., R.A.M.C.
D. Ferguson, D.S.O.
J. Greig, R. of O.
A. Hinge, C.M.G., R.A.M.C.
A. W. Hooper, C.M.G., D.S.O.
J. Poe, D.S.O., M.B., R.A.M.C.
C. E. Pollock, R.A.M.C.
C. W. Profeit, M.B., R.A.M.C.
H. V. Prynne, F.R.C.S., R.A.M.C.
D. D. Shanahan, R.A.M.C.
J. P. Silver, M.B., R.A.M.C.
E. W. Slayter, C.M.G., M.B., R.A.M.C.
F. A. Symons, D.S.O., M.B., R.A.M.C.

Lieutenant-Colonels.

Chopping, C.M.G., R.A.M.C.
B. Fawcus, C.M.G., M.B., R.A.M.C.
H. C. R. Hime, M.B., R.A.M.C.
H. S. Roch, R.A.M.C.

Majors (temporary Lieutenant-Colonels).

T. E. Harty, R.A.M.C.
E. Ryan, D.S.O.

Majors.

G. Browne, D.S.O., R.A.M.C.
M. H. Conway, F.R.C.S.I., R.A.M.C.
H. A. Emerson, M.B., R.A.M.C.
H. Furnivall, R.A.M.C.
Ievers, M.B., R.A.M.C.
J. Martin, M.B., R.A.M.C.
F. Martin, C.M.G., M.B., R.A.M.C.
J. St. A. Maughan, R.A.M.C.
C. R. Millar, R.A.M.C.
L. M. Purser, M.B.
G. F. Sheehan, R.A.M.C.
H. G. Sherren, R.A.M.C.
C. G. Thomson.
L. V. Thurston, R.A.M.C.
R. N. Woodley, R.A.M.C.

Captains.

D. D. Logan, R.A.M.C.
T. H. Scott, M.C., M.B., R.A.M.C.

Temporary Captains.

L. V. De Wesselow, M.B.
E. Scott, M.B., R.A.M.C.

CONSULTANTS.

Lieutenant-Colonel (temporary Surgeon-General) Sir A. A. Bowlby, K.C.M.G., K.C.V.O., F.R.C.S.
Lieutenant-Colonel (temporary Colonel) Sir J. K. Fowler, C.V.O., M.D., F.R.C.P.
Major (temporary Colonel) J. Galloway, M.D., F.R.C.P., R.C.S.
Major (temporary Colonel) H. M. W. Gray, C.B., M.B., R.C.S.Edin.
Lieutenant-Colonel (temporary Colonel) Sir W. P. Herringham, C.B., M.D.
Temporary Lieutenant-Colonel Gordon M. Holmes, M.D.
Captain (temporary Colonel) H. M. Rigby, M.B., F.R.C.S.
Temporary Colonel P. W. G. Sargent, M.B., F.R.C.S.
Temporary Colonel T. Sinclair, M.D., F.R.C.S.
Captain (temporary Colonel) S. Maynard Smith, M.B., R.C.S.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonels (temporary Colonels).

H. N. Dunn, M.B.
A. D. Sharp, F.R.C.S., C.M.G.
B. Watts.

Lieutenant-Colonels.

M. H. Babington.
W. K. Clayton.
R. W. Clements, M.B.
W. B. Cockill, M.D., T.D.,
H. Collinson, M.B., F.R.C.S.
O. W. A. Elsner.
R. S. H. Fuhr, D.S.O.
J. G. Gill.
G. H. Goddard.
T. H. J. C. Goodwin, C.M.G., D.S.O.
F. Hawthorn, M.D.
H. Hewetson.
W. E. Hudleston.
E. T. Inkson, V.C.
J. W. Langstaff.
C. W. Mainpraise.
E. M. Morphew.
H. H. Norman, M.B.
W. Ranson, F.R.C.S.E.
A. G. Thompson, M.B.
A. A. Watson, M.B. (S.R.).

Brevet Lieutenant-Colonel: F. G. Fitzgerald.

Temporary Lieutenant-Colonels.

W. A. Benson.
B. H. V. Dunbar, M.D.

Majors (temporary Lieutenant-Colonels).

W. Bennett, M.B.
E. B. Bird.
J. H. Brunskill, M.B.
R. A. Bryden.
R. H. L. Cordner.
H. A. Davidson, M.B.
L. P. Demetriadi, M.D., F.R.C.S.
N. E. Dunkerton.
H. H. J. Fawcett.
W. R. P. Goodwin.
D. L. Harding, D.S.O., F.R.C.S.I.
W. J. S. Harvey.
A. E. Hodder, M.B.
R. N. Hunt, M.B.
D. O. Hyde, M.B.
A. E. S. Irvine, D.S.O.
H. B. Kelly, M.B.
E. B. Knox, M.D.
J. Mackinnon.
E. C. Montgomery-Smith.
E. H. M. Moore.
A. C. Osburn, D.S.O.
M. B. Ray, M.D.
T. F. Ritchie, M.B.
A. M. Rose, M.B.
A. W. F. Sayres.
H. G. Smeeth, M.D.
H. Stewart, M.C., M.B.
R. J. C. Thompson, D.S.O.
P. Turner, M.D.
M. G. Winder.
B. F. Wingate.
J. Wood.

Surgeon Major: A. W. Shea.

Majors.

W. B. Armstrong, M.B.
B. R. Dennis, M.B.
G. E. Gask, F.R.C.S.
W. Haig, M.B.
M. J. Mahoney, D.S.O., M.D., T.D.
S. M. W. Meadows.
T. B. Moriarty.
T. J. Potter.
J. O. Summerhayes.
W. Wiley, M.B.
R. C. Wilmot.

Temporary Majors (temporary Lieutenant-Colonels).

C. E. Ligertwood, M.D.
A. N. Walker, M.B. (killed).

Temporary Major: R. Magill, M.B.

Captains (temporary Majors).

W. K. Beaman.
F. L. Bradish.
C. S. Brebner, M.D.
G. H. Dive.
G. B. Edwards.
T. A. Green, M.D.
D. F. Mackenzie, M.B.
G. Mackie.
K. D. Murchison, M.B.
W. B. Purdon, M.C., M.B.
T. T. H. Robinson, M.B.
W. G. Wright.

Captains.

H. S. A. Alexander, M.B. (S.R.).
F. R. Armitage, M.B.
D. C. Barron (temporary Major, commanding Field Ambulance).
J. H. Bayley (S.R.).
F. A. Bearn, M.C., M.B. (S.R.).
K. Biggs (S.R.).
W. W. Boyce.
C. D. M. Buckley M.B. (S.R.).
H. M. Calder, M.B.
W. K. Campbell, D.S.O., M.B. (S.R.).
W. D. Carruthers, M.B.
H. M. Clarke, M.B.
J. Clayton.
S. J. Clegg.
W. H. Davison, M.B.
A. W. Dennis, M.B.
M. Dixon, M.D.
C. O. Donovan, M.B.
F. Ellis.
G. D. Ferguson, M.B.
N. M. Fergusson, M.B.
F. G. Foster, M.B. (S.R.).
W. Fotheringham, M.B. (S.R.).
P. A. Galpin, M.D.
E. C. Gimson, D.S.O., M.B.
N. F. Graham, M.B.
C. F. Hacker, M.B. (S.R.).
D. A. R. Haddon, M.B.
F. D. G. Howell, M.C.
L. E. Hughes.
C. Jacobs, M.B.
D. W. John (S.R.).
E. J. Kavanagh, M.C., M.B.
A. J. Kendrew, M.C., M.B.
H. D. Lane.
J. Lawson, M.B. (S.R.).
H. Lightstone, M.C.
C. H. Lilley, M.B.
H. A. Lucas.
D. Macfadyen, M.B. (S.R.).
A. G. Maitland-Jones.
J. S. Manford, M.B.
J. D. Marshall, M.B.
R. M. Miller.
T. M. Miller, M.C. (S.R.).
W. A. Miller, D.S.O., M.B. (S.R.).
J. E. Milne, D.S.O., M.D.
H. Moore.
C. R. M. Morris, M.B.
H. G. Mulholland, M.B.
T. P. Noble, M.D.
E. Percival, D.S.O., M.B.
A. Picken, M.B.
E. B. Pike.
J. P. Quinn, M.B. (S.R.).
J. Rafter, M.B.
D. O. Riddel.
W. L. Robertson, M.B., F.R.C.S.E.
G. Scott, M.B.
R. L. Scott, M.B., F.R.C.S.E.
R. S. Scott.
E. J. Selby.
B. C. O. Sheridan, M.B.
G. C. E. Simpson, M.B., F.R.C.S.
A. A. Smalley, M.B. (S.R.).
C. N. Smith, M.B.
G. F. R. Smith, M.B.
J. Stephenson.
G. V. Stockdale, M.B. (S.R.).
L. W. Taylor (S.R.).
J. H. Thomas.
J. E. G. Thompson.
D. C. Vey.
J. R. N. Warburton (S.R.).
J. B. A. Wigmore, M.B.
A. Wilson, M.B.
G. R. C. Wilson.
W. H. Young.

Temporary Captains.

E. C. Abraham, M.B.
C. Aldis, M.D.
J. Anderson, M.B.
G. A. Barss, M.D.
L. G. Bourdillon, D.S.O., M.C.
N. W. Broughton, D.S.O., M.B. (killed).
F. Carson, M.B.
W. D. Chambers, M.D.
R. Charles, F.R.C.S.I.
J. A. Conway, M.D.
M. Coplans, M.D.
J. Craig, M.B.
E. C. Cunnington.
H. B. Day, M.D.
H. Emerson, M.B.
M. FitzMaurice-Kelly, M.B., F.R.C.S.
J. C. B. Grant, M.B., F.R.C.S.E.
H. E. Griffiths, F.R.C.S.E.
G. F. Hardy.
R. McC. Hill, D.S.O., M.B.
A. Hunter, M.B.
D. W. Hunter, D.S.O., M.B.
J. T. Hurst, M.B.
T. L. Ingram, D.S.O., M.C. (killed).
J. G. Johnston, M.B.
A. C. Keay, M.B.
J. T. MacKenzie (since relinquished his commission).
H. R. Macintyre, M.D.
A. F. Mavety, M.B.
R. W. Michell, M.D., F.R.C.S.
W. G. Mumford, M.B., F.R.C.S.
W. N. Parker, M.D.
W. H. Parry, M.B.
A. F. Readdie.
G. D. Robertson.
H. H. Robinson, D.S.O.
T. A. Rothwell, M.D.
G. W. R. Rudkin.
E. Seelly, M.B.
J. C. T. Teggart.
L. H. Terry.
H. Upcott, F.R.C.S.
H. Walker.
P. L. Watkin-Williams, D.S.O., F.R.C.S.
H. B. Wilson, M.D.
G. D. Yates, M.B.

Lieutenants.

W. N. Gilmour, M.D.
R. Svensson, M.B.
M. J. T. Wallis.

Temporary Lieutenants.

A. P. Hart, M.B.
H. L. G. Hughes, D.S.O.
D. S. Jones.
E. M. Litchfield.
N. McFarlane, M.B. (since relinquished his commission).
J. A. Pierse, M.B.
S. Potter.
L. M. Rowlette.
W. J. E. Stuttaford.

ROYAL NAVAL DIVISION MEDICAL UNIT.

Staff Surgeon C. E. C. Stanford, M.B.

AUSTRALIAN ARMY MEDICAL CORPS.

STAFF.

Colonels.

G. W. Barber.
A. Sutton.

Lieutenant-Colonels (temporary Colonels).

C. H. W. Hardy, V.D.
A. H. Sturdee, C.M.G., V.D.

Majors.

A. G. Butler, D.S.O.
J. E. Dods, M.C.
H. K. Fry.
A. H. Marks.

Lieutenant-Colonels.

H. N. Butler.
W. W. Hearne.
A. Horn.
R. B. Huxtable.
A. J. Meikle.
J. H. Phipps.
T. G. Ross.
C. G. Shaw.

Majors.

J. H. Anderson.
G. C. Byrne.
L. W. Jeffries.
H. B. Lewers.
R. S. McGregor.
C. Mattei.
J. B. St. V. Welch.

Captain (temporary Major).

H. W. Woollard.

Captains.

G. B. Bailey.
H. R. Catford.
D. Embleton.
R. L. Henderson.
S. McLennan.
H. F. H. Plant.
A. H. Powell.
V. W. Savage.
A. C. Smith.
F. L. Wall.

CANADIAN ARMY MEDICAL CORPS.

STAFF.

Colonels.

G. La F. Foster, C.B.
A. E. Ross, C.M.G.

Major (temporary Colonel).

A. E. Snell.

Colonel.

H. S. Birkett.

Lieutenant-Colonels.

R. J. Blanchard.
E. H. Hardy.
H. M. Jacques.
C. A. Peters.
W. Webster.
R. P. Wright.
T. W. H. Young.

Majors.

E. H. Blaylock.
P. Burnett.
L. C. Harris.

Captains.

N. J. Barton.
R. H. M. Hardisty.
H. Hart.
R. St. J. Macdonald.
D. E. Robertson.
S. G. Ross.
W. H. Scott.
J. P. Walsh.

NEW ZEALAND MEDICAL CORPS.

STAFF.

Colonel: C. M. Begg, C.M.G.
Major: A. R. D. Carbery.

Lieutenant-Colonel: D. N. W. Murray.
Major: A. A. Martin (killed).
Captain: G. V. Bogle (killed).

SOUTH AFRICAN MEDICAL CORPS.

Temporary Majors.

R. N. Pringle, M.B.
M. S. Power.

Temporary Captains.

M. B. Lawrie, M.B.
T. Welsh, M.B.

INDIAN MEDICAL SERVICE.

Colonel: C. C. Manifold, C.B., M.B.

The dispatch also contains, in addition to non-commissioned officers and men of the R.A.M.C., and the colonial medical services, the names of nineteen members of the British Red Cross Society and Order of St. John of Jerusalem, eleven of Queen Alexandra's Imperial Military Nursing Service, sixteen of Queen Alexandra's Imperial Military Nursing Service Reserve, fourteen of the Territorial Force Nursing Service, fifteen of the Civil Hospital Reserve, twenty-five of the Women's Voluntary Aid Detachment, four special military probationers, seven members of Voluntary Aid Detachments, and five lady workers.

NOTES.

HONOURS FOR MEMBERS OF THE NURSING SERVICES.

THE supplement to the *London Gazette* dated January 1st contains a list of 182 ladies awarded the decoration of the Royal Red Cross in recognition of their valuable services with the armies in the fields. The Royal Red Cross of the 1st Class is awarded to 22 members of Queen Alexandra's Imperial Military Nursing Service, 9 members of Queen Alexandra's Military Nursing Service Reserve, 6 members of the Territorial Force Nursing Service, 2 members of Queen Alexandra's Military Nursing Service for India, 3 members of the Australian Army Nursing Service, 5 members of the Canadian Army Nursing Service, 1 member of each of the New Zealand, South African and American Nursing Services, and 1 member of the Nursing Staff of Civil Hospitals. The Royal Red Cross of the 2nd Class is awarded to 19 members of Queen Alexandra's Imperial Military Nursing Service, 42 members of Queen Alexandra's Imperial Military Nursing Service Reserve, 25 members of the Territorial Force Nursing Service, 1 member each of Queen Alexandra's Military Nursing Service for India, and the American Nursing Service, 6 members each of the Australian Army and Canadian Army Nursing Services, 4 members of the New Zealand Nursing Service, 23 members of the Nursing Staff of Civil Hospitals, and 4 members of the British Red Cross Society.

Military Cross.

Second Lieutenant R. A. Green, 14th Hampshire Regiment, who recently received the Military Cross for conspicuous gallantry and good leading displayed during the attack on the German front line opposite the Schwaben Redoubt on October 21st last, is the son of Mr. James Green, honorary secretary and treasurer of the Southern Branch of the British Medical Association and a member of the Central Council of the Association. Lieutenant Green commanded the bombers in the attack on the German trenches. Going in front of the first wave he first of all bombed the Germans in their front line; he then proceeded up a communication trench and killed or captured all the Germans in a bombing post. When wounded he remained in command of his men, who had formed stops in the German communication trenches, until he fainted from loss of blood.

England and Wales.

AT the meeting of the General Council of King Edward's Hospital Fund for London on January 8th resolutions providing for the work of the Fund for 1917, as reported in the JOURNAL of December 23rd, p. 883, were formally adopted. Mr. W. J. H. Whittall was added to the General Council, and Sir Edward Hope, K.C.B., to the Executive Committee.

THE LONDON SCHOOL OF ECONOMICS.

Some idea of the amount of work done by the London School of Economics and Political Science (University of London), and of the opportunities afforded for obtaining instruction in the subjects the school teaches, may be gathered from the time-table of courses of lectures and special lectures for the Lent term, which begins on Monday next, January 15th, and ends on March 30th. Of the special public lectures, the first—on the organization

des—will be given by Mr. Ernest J. P. Benn on Thurs- y next, when Sir William M'Cormick will take the chair 5 p.m. This will serve as an introduction to a course of public lectures on the staple trades of the empire anged in furtherance of the aims of the Imperial Studies mmittee of the University, to be given on Fridays, ginning on February 2nd, when Mr. Arthur Steel- itland, M.P., Under Secretary of State for the Colonies, l give a lecture on oils and fats in the British empire. composite course of ten lectures on new forms of social ort will begin on January 18th at 5 p.m., and will deal h such subjects as mental deficiency, subnormal ldren, the Children Act of 1908, schools for mothers, antituberculosis campaign in London, and the relations the Insurance Act to social work. The fee for this rse is 12s. 6d.

DWIVES, MATERNITY CENTRES, AND CHILD WELFARE IN MANCHESTER.

The annual report of the Manchester Midwives Super- ing Committee, while omitting for the sake of economy st of the usual tables of statistics, gives the main facts connexion with the working of the Midwives Act in nchester during 1915. The number of midwives prac- ng was 155, and they attended 9,012 births out of the l notified for the year, which was 16,604. The report cially notes that "in Manchester the older type of ducated women, the 'Sarah Gamps,' has been prac- lly eliminated; the present midwives are, on the whole, uch better type of woman in every respect, and are ter trained." The records of sending for medical aid nbered 2,313, as compared with 2,606 in the previous r; arising out of them there were 696 applications from lical practitioners for the payment of fees. After careful estigation the committee decided to pay the fees in cases, the total sum thus paid being £452 as compared h £568 in 1914. In the majority of cases in which an lication was rejected this was due to the income limit g above the scale. The committee has continued to the fees of midwives for attendance at the confine- nts of the wives and widows of soldiers and sailors, and other women in need of assistance as a result of the ; 964 applications were received, and in 882 of these were paid, the total amounting to £566. The total nber of stillbirths known was 640, of which 219 occurred the practice of midwives and 421 in the practice of tors, the latter being ascertained from the cemeteries' rns. During the year 93 cases of puerperal infection e notified with 25 deaths, as compared with an average .08 with 24 deaths for the last ten years; 22 of the s occurred after abortion or premature labour. The s in which a midwife only had been present at the linement numbered 36 with 5 deaths, the doctors' s 40 with 13 deaths; the remaining 17 cases with aths had been attended by both doctor and midwife. considering the revision of the rules of the Central wives Board, the committee has suggested that the "puerperal fever" should be replaced by the term erperal pelvic infection," and that the explanation of term in the rules should be "puerperal pelvic infection, peral sepsis, blood poisoning of pelvic origin."

he Supervising Committee has also taken charge of the ernity section of the maternity and child welfare me. The scheme as originally proposed was con- red to be too costly, and in its final shape consisted of e parts—(1) the provision of four new centres for con- ations and clinics; (2) taking over the medical and ing work carried out at the six centres established by School for Mothers, the social work being left under School for Mothers; (3) the opening of two centres for ance and aid to pregnant women. Treatment at the cs is given only when the total family income falls w a fixed scale, the circumstances of each case being stigated by the Charity Organization Society. A ble feature of the arrangement is the close co-ordina- between the work of the health visitors and of the res. Lists are prepared of infants found by the th visitors not to be thriving and of young children iring medical attention, and the mothers are asked to their children to the proper centres, care being taken o interfere with any medical attendant. The corpora- has also arranged to secure the exclusive use of teen beds at the Babies' Hospital at Levenshulme for cases recommended by the Infant Life Preservation Sub- committee, and will pay half the cost at the rate of 30s. a week. The number of consultations held during the last six months of the year was 4,046, and 3,260 visits were paid to houses. The Midwives Supervising Committee is engaged in framing a scheme for the maternity section to ensure closer association with the hospitals for diseases of women, and has received deputations from the medical board of the St. Mary's Hospitals and from the Manchester Division of the British Medical Association.

Scotland.

THE head quarters of the Scottish Women's Hospitals, Edinburgh, has received a communication stating that Calcutta is sending a donation of £13,000, the result of a number of meetings held there by Mrs. Abbott. The first subscription list was opened by the Caledonian Society, and one lady gave £1,000.

EDINBURGH ROYAL INFIRMARY.

The annual general meeting of the Edinburgh Royal Infirmary was held on January 3rd under the chairman- ship of the Lord Provost. The report stated that the total number of patients treated to a conclusion was 11,558 (3,320 medical and 8,238 surgical). The percentage of deaths was 6.7, but if those which occurred within forty- eight hours of admission were deducted the percentage was 5.4, the same as in the preceding year. The number of out-patients was 37,649. During the year three wards, in addition to a number of extra beds in the side rooms of ordinary rooms, had been in use for men in the army and navy (633 soldiers and 270 sailors). Of the latter 68 were from the battle of Jutland. The number of patients admitted to the convalescent house, Murrayfield, was 1,216, the daily average number of inmates being 64.65. The majority were kept for three weeks or more, but 23 had to be returned to the infirmary for further treatment. It has been arranged to add five workers' representatives to the Board, raising its number to 26. Two will represent the Miners' Associations of Fife and Kinross, and Mid and East Lothian respectively, one the Coal and Shale Miners' Association of West Lothian, and the two others the Trades Council, as representing all workers other than the miners and including an increasing number employed at Rosyth. Effect cannot be given to this at present, as it will be necessary to obtain an Act of Parliament. In consequence of the serious depletion of the honorary staff, owing to so many members being on military service, it has been determined to suspend for the duration of the war the rule which requires all physicians and surgeons to retire on attaining the age of 65 years. Special thanks were given to two members of the consulting staff who have given valuable service in the special departments to which they were formerly attached. The Lord Provost said that the financial results for the year were satisfactory, as the total ordinary and extraordinary income had not only been sufficient to meet expenditure, but there was a credit balance of a little over £5,000. The employees at the coal and shale mines and oil works throughout the Lothians and Fifeshire had agreed to double their systematic con- tributions, with the result that a sum of over £6,000 had been contributed by them in the year. Owing to the in- creased cost of articles of maintenance and of furnace coals the cost per occupied bed had risen to £75 15s. 9d. for the year. It was highly gratifying that, notwithstanding the difficulties of the present position, owing to the shortage of staff, which had entailed increased pressure upon the physicians and surgeons carrying on the work of the insti- tution, the whole of its work had been most fully and adequately maintained in accordance with the splendid record of the past.

BEQUESTS TO HOSPITALS.

The trustees of the late Miss Marjory Shanks Schaw of Glasgow have now allocated sums amounting to £311,500 to various charities in the west of Scotland, mostly of a medical nature. The Royal Infirmary and the Western Infirmary, Glasgow, each received £60,000, and the Royal Infirmary in addition £40,000 for a Schaw Convalescent

Home; the Victoria Infirmary receives £40,000; the Royal Samaritan Hospital for Women, the Royal Hospital for Sick Children, and the Glasgow Royal Maternity and Women's Hospital each receive £10,000; the Higginbotham Sick Poor Nursing Association £3,000; the Lock Hospital, Ophthalmic Institution, and the Infirmary of the Royal Cancer Hospital in Glasgow each £2,000; and the same amount is received by the Royal Alexandra Infirmary, Paisley, the Greenock Hospital, the Helensburgh Victoria Infirmary, and the convalescent homes at Dunoon and Kilmun; the Glasgow Hospital for Women and the Women's Private Hospital each receive £1,500; the Glasgow Central Dispensary, the Glasgow Hospital for Diseases of the Ear, Nose, and Throat, the Johnstone and District Cottage Hospital, and the Dumbarton Cottage Hospital each receive £1,000. Among the institutions which receive £500 are several local nursing associations, the Royal Victoria Eye Infirmary, Paisley, the Kilsyth and Blantyre Cottage Hospitals, and the Glasgow Dental Hospital.

Ireland.

LOCAL GOVERNMENT BOARD (IRELAND).

THE annual report of the Local Government Board (Ireland) for the year ending March 31st, 1916, has been issued, as the result of departmental economy, in a somewhat abridged form as compared with the annual reports previous to the outbreak of the war.

Statistics of Pauperism.

In previous reports, under this heading, attention was called to the great decrease in the number of persons in receipt of relief since 1910. In the year under review there was a further decrease of 1,360, as compared with the preceding year, in the number maintained in workhouses; the decrease in the number of sick was 384; in the aged and infirm, 364; in the children, 213; in the lunatics and idiots (excluding those in hospital), 90; and in all other classes (including the able-bodied), 373. The number in receipt of outdoor relief was 3,150 less than in the preceding year, the decrease in the average number for the whole year being 1,199. The reduction in the number obtaining poor relief is to some extent due to the migration of labourers to Great Britain and the consequent opening for employment for the less fit, but perhaps in a larger measure to the fact that a number of the classes chargeable to the rates are now in receipt of separation and dependants' allowances. The total average number in receipt of both forms of relief during the year was 68,753, and represented a pauperism of 1 in every 63 of the estimated population of the country, as compared with 1 in every 43 ten years ago.

The total number of deaths in workhouses during the year was 9,981. The deaths included sixteen centenarians. There were 1,567 deaths from tuberculosis, as compared with 1,734 in the preceding year. It is satisfactory to note the decrease in deaths from this cause during the past five years. In 1912 there were 1,945 deaths from tuberculosis.

In the past year 436,878 cases were attended at the dispensaries and 154,217 at the patients' own houses, as compared with 476,775 at the dispensaries and 173,380 at the patients' houses in the previous year.

Royal Army Medical Corps.

The report states that the proportion of Poor Law medical officers who have joined the Royal Army Medical Corps and are now on active service is high. The Local Government Board commends their action in volunteering, as showing that the praiseworthy spirit of self-sacrifice is met with in every branch of the medical profession. The report adds that in consequence of the enormous staff of doctors now required by the navy and army to attend the wounded there is naturally a very great dearth of candidates for employment under the Poor Law, and guardians have experienced difficulties in making temporary arrangements for the care of the sick poor in districts where the post of medical officer has become vacant, as well as during the sick leave or vacation of medical officers.

Small-pox and Vaccination.

Five cases of small-pox were reported from the town of Lisnaskea, co. Fermanagh. The disease was confined to one family, and the type was of a particularly mild character. The total number of primary vaccinations performed by the Poor Law medical officers during the past year was 73,453, as compared with 62,688 in the year ended March, 1915, and 59,049 in the preceding year. There are still large numbers of unvaccinated children in Ireland, but the guardians are now, under pressure from the Local Government Board, taking vigorous steps to bring in the defaulters.

Typhus Fever.

The cases of typhus fever notified numbered 112, as compared with 189 in the preceding year. These figures, however, do not fully disclose the incidence of the disease, partly beca notification of infectious diseases has not been univers adopted.

Cerebro-spinal Fever.

Sporadic cases of cerebro-spinal meningitis have occurred various districts throughout the country, but have given ground for apprehension.

Tuberculosis Officers.

In twenty-seven counties and three county boroughs appo ments of tuberculosis officers have been made. These offic in addition to their ordinary duties, have been engaged organizing a system of administration, assisting in the se tion and arrangement of central tuberculosis dispensaries, in discharging the functions of medical advisers to the cou Insurance Committees for the purposes of sanatorium bene

Canada.

THE CANADIAN MEDICAL ASSOCIATION.

IT has been decided to hold a general meeting of Canadian Medical Association at Montreal on June 1 14th, and 15th, 1917, and Dr. A. D. Blackader, Act Dean of the Medical Faculty of McGill University, been unanimously chosen as president. Dr. W. S. Morr President of the Montreal Medico-Chirurgical Society, been elected Vice-President, and the General Secretar Dr. J. W. Scane, Registrar of the McGill Medical Facu The Address in Medicine will be delivered by Theodore C. Janeway of Baltimore. The last meetin the Association was held in St. John, New Brunswick 1914, under the presidency of Colonel Murray MacLa C.M.G. A meeting was to have been held in Vancou in 1915, under the presidency of Dr. R. E. McKech but was postponed on account of the war. It has b decided that in all cases in which the *Journal of Canadian Medical Association* was still being delive membership in the Association should be retained u payment of the sum of two dollars a year, which repres the cost of the *Journal* to the Association.

THE ANTITOXIN LABORATORY OF THE UNIVERSITY OF TORONTO.

The first Canadian laboratory for the preparation public health biological products was established at University of Toronto in May, 1914, by Dr. J. G. F gerald, the present director of the laboratory, with co-operation of Sir Edmund Osler, chairman of the Med Section of the Commission of Conservation and a gover of the University of Toronto. The establishment of laboratory was followed by an immediate decrease in price of antitoxins and serums; for instance, a dos 5,000 units of diphtheria antitoxin, which formerly from 3 to 5 dollars, became available for 1 dollar 50 cents. The enterprise received the cordial suppor the Ontario Board of Health, and arrangements were m for the distribution of serums prepared in the labora through all the local health boards in the provinc Ontario. Similar arrangements were made by Dr. M Seymour, Commissioner of Health for the province Saskatchewan, and Dr. W. H. Hattie, Provincial He Officer of Nova Scotia, and for Newfoundland.

The outbreak of the war gave a great impetus to work of the laboratory and made it important that preparation of tetanus antitoxin should be underta This was rendered possible by the generosity of Col A. E. Gooderham, a member of the board of governo the university, who offered to equip a laboratory for preparation of this serum. At the same time the Dep ment of Militia and Defence agreed to make a gra 5,000 dollars on condition that the entire output of antitoxin should be available for the use of the departm should it be required. Arrangements were made to su to the Militia Department tetanus antitoxin at cost p The special laboratory was established under the direc of Dr. R. D. Defries, who has been able to supply all tetanus antitoxin required for the use of the Cana Expeditionary Force; over 50,000 packages have sent overseas.

In addition to vaccines required for war work, l quantities of diphtheria antitoxin, antimeningitis se antirabic vaccine, small-pox vaccine, etc., have supplied by the laboratory free of charge or at a pu nominal cost.

Western Australia.

NOTIFICATION OF VENEREAL DISEASE.

the JOURNAL of August 5th, 1916, an account was given the new Health Act Amendment Act providing for the atment of venereal diseases. That Act provided for tification. No names of patients were to be disclosed, d to prevent double counting of cases the doctor certi- ng had to state whether the patient had or had not eviously been under treatment for the present infection. may be added that unqualified practice in venereal ease is prohibited by this Act under penalty of a fine of 0 or six months' hard labour; also that the failure of a ferer to secure treatment within three days of his coming aware of his state renders him liable to a penalty £50.

Notification came into force in June, 1916, and the mmissioner of Public Health has issued a statement of first fifteen weeks' working. The number of doctors ding notifications indicates that the profession is operating in the administration of the Act. The alysis of the returns gives no indication of the prevalence the diseases in the absence of population figures. But re are some points of interest.

n the last complete month the number of new cases ified was—Syphilis 20, gonorrhoea 77, a proportion of a le over 1 to 4. An aspect of the notification which ses concern is the disproportion between the figures for two sexes. In the fifteen weeks 155 cases of syphilis l 333 of gonorrhoea were notified in males, whereas y 26 and 29 cases respectively were notified in females. is impossible to believe that this represents the pro- tional incidence of these diseases in the sexes, and the y conclusion is that females are much less inclined to k medical advice."

Of all the cases one-half occurred in patients aged 20 to years, and one-third in soldiers, the majority of whom tracted the disease at home and not abroad.

Correspondence.

MOBILIZATION OF THE PROFESSION.

SIR,—Whether mobilization of the nation for national vice becomes necessary or not, what the medical pro- sion require now is, in the words of your leading article January 6th last, an organization which will secure the hest efficiency with the least dislocation of civil work. n living in a town of about 50,000 inhabitants. During past year five or six of our younger doctors have been en from us to serve in France, three others who had y large practices among the poor have died, and no comers have replaced them. Nearly every other prac- ner in the town is engaged on military service. The lt is that for months past the majority of us are wing marked signs of the very heavy strain thrown on by doing both military and civil work—this at a period he year when our military hospitals are having a quiet e.

nless the work is better organized than it is at present el sure that the strain will be further increased by e of our senior members falling out from sheer over- k. We could, with proper organization, get a great l of the tedious writing which we are called upon to do en off our shoulders by voluntary helpers if necessary. rsonally know of one case in which the doctor has had ive up his practice in the town, and has on an average than an hour and a half's military work to do in a n 100 miles away which could be equally well done by ctor in practice in that town.

is quite certain that if our organization is not im- ved the civil population is going to suffer a good deal e from the lack of medical and surgical help than it done at present.—I am, etc.,

nuary 9th. M.D.

IR,—Many temporary officers of the R.A.M.C., whose ies have been broken up or whose practices have been roved without corresponding advantage to the army, t have read with sympathy the letter by "F.R.C.S.E." our issue of December 30th, 1916.

All know well that it is necessary to maintain a large reserve of medical officers for the army, but how easy it would be, for a small retaining fee, to keep such a reserve of medical men in their own homes under pledge of immediate service within a few hours of being called up.

There must be very few temporary officers of the R.A.M.C. who are not conscious of that real and basic administrative defect in their corps which is causing the waste of medical men, but, wearing the King's uniform, their lips are sealed. You, Sir, will do but an ill service to our profession and to our country if you fail to proclaim the true and manifest cause of this waste which is constantly present in all our minds. Surely the country has suffered enough from a false sense of security, for such a policy to commend itself to your JOURNAL or to the noble calling which its readers follow.—I am, etc.,

January 1st. M.D., TEMP. CAPT. R.A.M.C.

SIR,—I can endorse every word written by F.R.C.S.E. under the above heading in the BRITISH MEDICAL JOURNAL of December 30th, 1916. I have done nearly two years in the R.A.M.C. on a great variety of jobs. Even with the best intentions and the greatest keenness — sanitation, lectures to men and officers—it is difficult to spin the work out for more than an hour or two each day. Loafing about and trying to be amused is our usual lot day after day. Only during a push for the short time that one's own regiment is engaged does our work ever approach the amount done by an average general practitioner in busy practice every day.—I am, etc.,

January 7th. REGIMENTAL M.O.

SIR,—I find your correspondents "F.R.C.S.E." and "M.Ch." rather amusing writers, and request your permission to state why this is the case.

"F.R.C.S.E." joined the R.A.M.C. "nearly a year ago," but says he has spent most of the intervening period "loafing." None of the units to which he has been assigned has welcomed his arrival with joy, and some have indicated a difficulty in finding him a job. Therefore the service is overmanned. His opinion on the point can hardly be disputed, as he has served nearly as long as twelve months, and during that time has passed through as many as eight different units.

As for "M.Ch.," he, too, has served for a year, and during that period has done no more work than he could compress into a month, yet without depriving himself of "recreation and study." His opinion, therefore, precisely coincides with that of "F.R.C.S.E.," and is equally incontestable, for during his twelve months' service he has done practically "every sort of job, both at home and in France," except duty at a casualty clearing station.

I myself happen to have served a little more than twice as long as both these gentlemen, so, despite being merely a humble M.R.C.S., I venture to say that their opinions are wrong, and their reasons self-damnatory.

Individuals who serve in so many units as these writers have probably proved to be square pegs in round holes. When a unit is short handed it much prefers to get along as it is than to have its work impeded by the introduction of an individual who seems to have neither the necessary knowledge nor initiative to make a useful cogwheel without a great deal of driving and teaching. Consequently every newcomer is put through his paces on his arrival, and if his action does not prove attractive he is not given a full load but passed on. I am told that individuals of the same type are to be found in the combatant branches of the service, and that the remedy adopted is usually somewhat harsher than that here indicated.

The subject raised in this correspondence is one with which none but experienced administrators are competent to deal. Administration on a large scale is as distinct a study as medicine, and military administration of all kinds is one of the most complicated of its branches; as long as we are subjected to it the best thing to do is to recognize this fact and not grouse.—I am, etc.,

January 9th. M.R.C.S.

THE CIVIL SURGEONS IN OUR WAR HOSPITALS.

SIR,—There are to-day many medical men working in our war hospitals as civil surgeons. These men have for various reasons been refused commissions, yet they have

found employment, and are working side by side with men who have received commissions and are doing the same work. They have not cost the country expensive outfits, their salary is less, and their privileges *nil*. Many have left their practices to the untender mercies of the men at home. Their service is not distinguished by the honourable decorations of H.M. commission, but it is nevertheless a purer form of patriotism. Some recognition should be made of the services of these men.—I am, etc.,

A. B.

January 4th.

PSYCHO-ANALYSIS.

SIR,—It is not quite clear, either from Dr. Mercier's paper in your issue of December 30th, 1916, or from the letter of Dr. D. G. Thomson, which follows, whether their object is to discredit the main conception of Freud along with the whole system of treatment based upon it, or merely certain of its later and inessential developments. But I think Dr. Mercier's intention is to impugn the whole thesis of Freud, and, if so, he will have to bring to the task better weapons than ridicule and misrepresentation. This hypothesis, consisting of a few simple general notions, quite probable in themselves, and which succeeds in reducing to order and unity a whole chaotic tangle of data, has every aspect of a solid advance. Its weak point, as some of us foresaw, is that its agreement with the facts can, from the experimental side, only be shown by a method (psycho-analysis) which readily lends itself to fallacy. Already one reads fancied proofs by the use of this method which prove nothing more than the mental incompetence of the observer; but, in spite of the inherent difficulties of proof, and the mishandling and degradation so often suffered by new hypotheses after their promulgation, there can be no doubt that the main doctrine of Freud has come to stay. If Dr. Mercier thinks otherwise, then let him put a weight on his pen and tell us quite dispassionately what facts and arguments he considers fatal to its acceptance.—I am, etc.,

EDMUND HUGHES.

Liverpool, Jan. 7th.

SIR,—Permit me to express my grateful thanks to you for publishing, and to Dr. Mercier for writing his most masterly exposition of psycho-analysis. Apropos of the attempt to undermine the innate sense of decency in our children alluded to by Dr. Mercier, is it known that psycho-analysts (some have been given commissions) are at their pernicious work in the lunacy wards of our great war hospitals?—I am, etc.,

DECENCY.

January 4th.

SIR,—Dr. Mercier in his treatise upon psycho-analysis in the BRITISH MEDICAL JOURNAL of December 30th, 1916, is hardly just to the supposed reality of the "unconscious" mind.

He states correctly, and everybody would agree, that "in investigating the unconscious we are altogether outside the realms of evidential knowledge," but earlier in his study he states that "I am not sure that it is possible to understand it. I am not sure that it has any substantial meaning at all."

One of the canons in regard to evidence is that a summation of probabilities approaches to certainty, and whatever deductions the psycho-analyst may arrive at do not dispose of the existence of the unconscious. I do not wish to misquote Dr. Mercier nor to attribute to him a meaning that he himself does not imply, but my interpretation is clear from the quotation—namely, that he not only censures the conclusions of the psycho-analyst, but he also doubts the existence of the territory in which he delves. As to the former, with very few exceptions, all physicians who practise in mental diseases cordially support Dr. Mercier, and as to the latter, the unconscious activity of the mind is something *with* us but apparently not *of* us. Lecky in his *History of Rationalism* pointed out many years ago as to events so completely forgotten that no conscious effort of the will could revive them, and the recital of them by others could call up no reminiscences, it was yet possible under certain conditions to recall them into consciousness, and this by a chance association such as that used by the psycho-analyst. Lecky suggested that these ideas were located in the unconscious mind. Yet they could reappear, when the will was suspended, through cerebral automatism. Sir Walter Scott relates that the plots of his own romances often came out of his unconscious mind, and without volitional effort presented themselves to his conscious mind. Oliver Wendell Holmes says the unconscious mind is an independent creative and informing spirit, which "tells us what to believe, frames our sentences, lends a sudden gleam of sense or of eloquence to the dullest of us all, and we wonder that this Divine visitor should choose our brain as its dwelling place, and invest our naked thought with speech and song." Although it is often suggested that the unconscious mind is the recent discovery of the Freudians Sir William Hamilton scores of years ago referred to its influence upon normal thought. He stated that consciousness cannot exist independently of some peculiar modification of mind, yet some modification of mind is possible without actual consciousness. The experience of those such as distinguished preachers, and public speakers, who habitually exercise the mind, confirm this view that there seems to be an undercurrent of mind which arranges thoughts without their ever coming into the field of awareness. We may go to bed full of anxiety and perplexity about some troublesome problem relating to one's self or to one's family, and no solution seems possible, but in the late hours of the night or in the early hours of the morning the doubts have been removed and the anxiety and confusion have disappeared. The solution has occurred, and the unconscious mind has successfully found the answer. The experience of inventors, writers, and many other busy persons can relate flashes of the unconscious mind which suddenly illumine the conscious, but which, unless recorded at the time, suddenly fade back again and are beyond recall in the unconscious mind.

The unconscious mind is admitted by all, not the least teacher alone, to be of incalculable influence in the education of the young, and in this respect it is often of more importance than the sensible conscious influence of the teacher, because it is acting continuously and is yet out of the mind. It consists especially of the influence of example, and this can be exerted insensibly upon others in fact, it goes out from every individual into his own environment, and is passive rather than active. Eventually in later life it evolves self-revealed in the personal character. It is this influence upon the young which is exercised by the unconscious mind. It forms the "mental bias," and an old judicial friend and counsellor used to say what we all needed when exercising the critical faculty was to cultivate the bias of anti-bias. Although we may be quite unaware of it, this stored-up memory of the unconscious mind contributes to form the basis of our social life and customs, of our beliefs and of our conduct both singly and in groups. Conceptions acquired in childhood remain latent in the mind, but ready to reappear when the mental associations are sufficiently powerful to call them out. The organ of the mind in the young is "wax to receive and marble to retain." It is because of this impressionability in the young that teachers realize the importance of the unconscious. A moral atmosphere for youth is the guiding principle of the unconscious exercising over the conscious, and it will help to form the motive force in conduct, so that the unconscious influence of example becomes an "atmosphere" of the greatest practical importance in the education of the young; it helps to determine the direction of thought and feeling without being actually in consciousness.

I have demonstrated the territory of the unconscious at such great length in order to show its real existence, and to point out its importance in educational life, as well as to support Dr. Mercier in his trenchant criticisms of Freudian psychologists. In this I may have laid myself open to the taunt that I have only elaborated the obvious, but of one thing I am certain, the evil effects of psycho-analysis have not been overstated.

We have known the influence upon conduct of many of the instinctive passions and selfish sentiments, and we see them now in uncultured and untutored man; but these natural instincts are many and varied; they are not, as the Freudians suggest, limited to sex only. They are as numerous as the emotions which are their outward expressions; sex, hunger, disgust, pugnacity, flight, pride, the search for warmth, and any of these, may become deranged through disease; yet, all perversion of whatever kind is held by this school to be dependent upon some perversion of sex feeling, and a symbolic code based upon sexual suggestion has been invented to afford a key

terpretation to the symptoms. The sexual suggestions ade by Freudian psycho-analysts to pure innocent minds a solution of their illness is a loathsome practice and serves the utmost censure. In another place I urged the icial interference of the "high authorities" with this actice, and fortunately, and in no small degree owing to e untiring exposure made by Dr. Mercier, the repre-ntatives of this school, in this country at any rate, are a rindling minority, and their methods are now regarded reprehensible.

I note a letter upon this subject in your issue of January 1 from Dr. D. G. Thomson, which is somewhat difficult understand, but I gather that he objects to the teaching "Jung and Co." and "Bloch and Co." and "to the weak-ned Britishers who, knowing no prophets of their own, il those from Germany *in excelsis*," whatever this may an. He refers to "the Mind and its predominant rtner, the Intellect," but I have generally understood, on the doctrine of psycho-physical parallelism, that the dominant partner of the mind is the body! He appears imply that the instincts and the emotions have received s attention than the intellect, and he is evidently not quainted with the works of Lloyd Morgan, A. F. Shand, B. Cannon, J. Loeb, C. S. Sherrington, H. S. Jenkins, d a host of others who have worked in the field of com-ative psychology.

f Dr. Thomson's letter represents the considered opinion the Medico-Psychological Association upon the practice psycho-analysis, as appears to be implied, it seems to a somewhat indequate indictment; but if, on the other nd, he is merely expressing his own views I have no ther criticism.—I am, etc.,

ondon, S.W., Jan. 9th. ROBERT ARMSTRONG-JONES.

IR,—I have the misfortune to be haunted by a devil, o subjects me to innumerable small annoyances, parently with the purpose, which he ought by this time know is unattainable, of making me lose my temper. favourite device is to hide my things, especially papers t I wish to refer to; but when he is not hiding my ngs he hovers round my pen and guides it into directions ntended by me. He is cunning enough to blind me to se inaccuracies as long as there is time and opportunity correct them, but as soon as they are irrevocable he moves the bandage from my eyes, and lets me see them ming at me with the fiendish mockery of their author. There are no fewer than three such devilries in my cle on Psycho-analysis; and no doubt my familiar ed that some psycho-analyst would have the intelli-ce to detect them and score off me, but he has credited psycho-analysts with more acumen than they possess. said at the outset that the two principles of psycho-lysis are the principle of Sexuality and the principle Conflict; but in examining the second principle I call he existence and activity of the Unconscious. What ould have said, but for my familiar, is the existence activity of the conflict in the Unconscious.

he second blunder has been exposed by Dr. Moon. I uld no more of my own accord attribute a doctrine of tullian, the Father of the Church, to Quintilian, the an rhetorician, than I should attribute a doctrine of Helmont, the Dutch physician, to Van Buren, the erican President. It is my familiar that is responsible. ater I was made to speak of the superstition that many is pre-eminent in mental disease. This is no rstition. Germany is pre-eminent in mental disease. t I should have written if my familiar had not inter-l is the superstition that Germany is pre-eminent in tal science.

olonel Thomson's appreciation, coming as it does from President of the Medico-Psychological Association, is t grateful to me; but if it is true that British medicine ignored the influence of the sex instinct, the fault is redly not mine. In every one of my books on *Psycho-* on Mental Diseases, and on *Conduct*, I have given due minence, but not undue prominence, to the important this instinct plays in our mental constitution and our ; and in the last-mentioned book, on Conduct, I have ribed carefully, and at length, the conflicts that occur our minds—not in the Unconscious—between the ary instincts, which I regard not as two but as three e sex instinct, the instinct of self-preservation, and the racial instinct. Let the galled jade wince: my withers are unwrung.—I am, etc.,

Parkstone, Dorset, Jan. 8th. CHAS. A. MERCIER.

SAFE ANAESTHESIA.

SIR,—Dr. Barton has performed a commendable and public-spirited act in avowing his list of casualties under chloroform, in his letter to the BRITISH MEDICAL JOURNAL, December 23rd, 1916. The list is a small one, but on that very account it accentuates the relative frequency of death under the lighter degrees of anaesthesia.

I note that Dr. Barton presumes that some "other factors" may have been operative as the cause of one of the deaths he reports. Now I find it frequently happens that, when the evidence of light anaesthesia is incontestable, some more or less indefinite "other factor" is saddled with the responsibility for the death of the patient instead of the chloroform. This attitude is excusable in individual cases, bearing in mind the prevailing teaching that death from chloroform is always the result of overdosage, but it is quite inexcusable in an aggregate of cases of which a common feature is an obviously underdosed condition, or at least an obvious absence of overdosage.

It is extraordinary how difficult it is to obtain recognition of clinical facts such as those Dr. Barton has related, facts which actually stare one in the face. The truth of the matter is that most of these cases are prejudged, and I venture to predict that any unbiassed common jury would give a verdict in favour of death under light anaesthesia and not from overdosage, on the common-sense evidence afforded by such records as already exist.

I will not trespass on your space, Sir, by arguing the minutiae of these cases afresh, nor will I waste words in the endeavour to elicit a response from the exponents of the overdose theory, for they appear to have wrapped themselves in the comforting mantle of dogma. I wish to urge that this question is capable of solution if only the profession will combine to thresh the matter out once for all. Thousands of pounds have been expended upon the experimental investigation of death under chloroform, and many of our most eminent scientists have spent a great deal of time and energy working at the subject, yet we are still at the crossways! And all this time the clinical evidence exists, I am persuaded, for founding a sure judgement; there must be a wealth of clinical evidence of the nature required locked away in private notebooks, a material that will never be available for scientific annotation unless an effort be made to recover it.

Ever since the administration of anaesthetics has become a speciality reports on fatalities have become increasingly infrequent, and this is quite understandable, for such reports may entail heavy financial losses to the reporters. I am firmly of the opinion that a great deal of this valuable material might be gleaned and future reports collected by an authoritative body, proceeding on lines calculated to ensure concealment of identities. The Royal College of Surgeons and the Anaesthetics Section of the Royal Society of Medicine are both closely interested in the safe administration of anaesthetics; will one or both of these bodies, acting conjointly, render a public service by the endeavour to clear up this vexed question on the lines I have suggested?—I am, etc.,

London, W., Dec. 31st, 1916. A. G. LEVY.

X-RAY DIAGNOSIS OF GAS IN THE TISSUES.

SIR,—It is interesting to note how many independent observers have during the past three months drawn attention to the appearances of gas gangrene in skiagrams. At the October meeting of the Electro-Therapeutic Section of the Royal Society of Medicine, two papers on this subject were contributed. Mr. Martin Berry described the appearances seen at the Herbert Hospital, Woolwich, and I analysed 100 plates of gas gangrene which we had taken at the Scottish Women's Hospital, Royaumont, France, during the summer of 1916. Both papers are published in the December number of the *Archives of the Röntgen Rays*, and in the current issue of the *Proceedings* of the Royal Society of Medicine. Dr. Pech, the original radiologist at the Creil Military Hospital, France, has just published his observations in the French journal of radiology. It was Dr. Pech who first taught me the importance of these skiagrams, which can not only demonstrate the presence of gas, but in many cases also

the variety of invading anaërobe. At Royaumont we could latterly distinguish (before the bacteriological report) whether *B. perfringens*, *B. sporogenes*, or the more dangerous germs, *Vibrion septique* and *B. oedematiens*, were present. Warning of danger could thus frequently be given from an examination of the skiagram, even when the clinical signs at the time gave no cause for anxiety. It will be of great use to the wounded if these observations are confirmed by other radiologists. I had not read any paper on the subject when I prepared my analysis, but I had seen several gloomy prognoses made by Dr. Pech, only too soon confirmed.—I am, etc.,

AGNES SAVILL.

London, W., Jan. 6th.

COMPULSORY LATIN.

SIR,—My objection to Dr. Cow's letter was not that compulsory Latin does not ensure—or, if he prefers the phrase, make it more likely—that a medical man will spell correctly, but that the principle he seemed to be supporting was unsound.

I think it is true that a pharmaceutical chemist will criticize the practitioner who misspells prescriptions or deviates in any other way from what the chemist believes to be the proper conduct of a "gentleman." Many people do really think that the chief use of teaching the humaner letters is to indicate a class distinction.

I suggest that people who reason in this way do not deserve to be encouraged, as they might be by Dr. Cow's letter.—I am, etc.,

M. GREENWOOD, JUN.

Loughton, Jan. 7th.

SIR,—Although simply a general practitioner I should like to be allowed to tender my humble, though hearty, support to the views expressed by such eminent men, within the profession, as Sir John Moore, Dr. William Gordon, and Dr. Douglas Cow, and outside the profession, by Viscount Bryce and Professor Gilbert Murray.

I have always had to deplore my defective knowledge of the classic languages, a knowledge which, like that attributed to Shakespeare by his friend Ben Jonson, consists in "small Latin and less Greek." With the aid of the dictionary, however, I have been able to surmount most of my difficulties. I grumbled at the time I had to give to the study of these languages, but am now grateful for the benefit I feel from having done so, and wish I had been compelled to learn more.

How is it possible for a man to understand the many new terms, expressive either of disease or the treatment of disease (which are constantly being evolved from the classic tongues), without a knowledge of the tongues from which these terms are derived? I know nothing more painful than to hear a teacher misinterpret the terms he uses. I recently heard a teacher at one of the London hospitals explain to his hearers that orthopaedics was so called because it dealt with club-foot.—I am, etc.,

S. D. CLIPPINGDALE, M.D., F.R.C.S.

London, W., Dec. 16th, 1916.

SIR,—I think it will be admitted that in scientific nomenclature there are more words drawn from Greek than from Latin sources, and the student who is ignorant of the classics, and who is not cramming, must spend as much time in the mere mechanical search for the meaning of such words, even though he rely upon a condensed dictionary of derivations, as would go a long way towards the acquisition of the essential parts of both languages. And even in the study of the languages themselves an incredible amount of time is lost in looking up individual words in a dictionary. In studying Greek a man would save time who had sufficient courage to boldly attack a small lexicon from Α to Ω. The constant repetition of the root words as they recur in their combinations would impress his memory if he merely read on without any effort at memorizing.

Dr. Giles's translation of the classical authors in Cornish's series, where every sentence is translated literally and word for word, would facilitate a rapid acquisition of the requisite knowledge of both languages in those who have not had the advantage of a school or college training in these subjects; and such introductions as Dr. Wm. Smith's *Initia Graeca* and the *Principia Latina* (John Murray), to which keys are published, would enable any intelligent student in the short space of one year, and without a master, to pass easily, in conjunction with the other subjects, any of the preliminary examinations insisted on by the older universities. Such a student, should he never open a classical author from the day he passes his examination, would be sufficiently equipped with a knowledge of Greek and Latin words to facilitate the whole course of his medical curriculum. The power to read any Greek or Latin author at sight should not be the object aimed at, for, requiring long and arduous training even in the especially gifted, it is of no importance whatever as an equipment for scientific study.

I think it was the late W. E. Gladstone who said that a single hour a day devoted to some one subject of study for one year would result in an accumulation of knowledge that would astonish any one who tried it. Hence, when so much can be accomplished in so short a time and with so little sacrifice of other subjects, it is incredible that educated men could consider for a single moment the expurgation of so incalculable an advantage as either the Greek or the Latin language as essential precursors to medical studies. Ignorance of Latin must set medical men at a lower intellectual level than chemists, who for many years to come must be able at a moment's notice to dispense Latin prescriptions from physicians of the older school, who will not set aside their prejudices to meet present day innovations.—I am, etc.,

WILLIAM BRAMWELL.

Liverpool, Dec. 30th, 1916.

THE PATHOLOGY OF CANCER.

SIR,—The letter of Mr. McAdam Eccles interests me, as his experience and opinion agree with mine. I have "never wavered in my belief" in the contagiousness of cancer, and I think every medical man in general practice could, if he pleased, produce abundant clinical evidence to confirm the belief.

I wish to cite a few cases from my own experience. Those of husband and wife, mother and daughter successive tenants of the same house, are common enough. I know of one family whose members died from cancer as follows: Father, mother, daughter-in-law, mother-in-law, daughter-in-law, son-in-law, unmarried daughter living with married daughter who subsequently died, but whose husband, when last heard of, remained well. I knew also the housekeeper, aged 60 years, addicted to eating raw oatmeal when preparing the porridge of the widower whose servant she was. She died from cancer. Shortly afterwards the widower died from an undiagnosed affection of the liver, suspected to be malignant. The house was greatly infested by mice.

A miller, the owner of a flour mill, who described himself to me as being a specialist in oatmeal, died from cancer of the rectum. He also was addicted to eating raw meal. I have known oatmeal, when brought to the table, give forth a mouse odour, which has pervaded the whole room. On examination numerous pieces of mouse excreta were found in the porridge. There is a considerable field for the activities of the food and drug inspectors in the large and small grain stores of this country.

The amount of mouse excreta in the loose oatmeal of this country is almost equalled by the amount of grub in the boxed oatmeals which come from oversea. The mouse-infested house in relation to cancer requires further investigation.—I am, etc.,

JOHN BIRC

Luton, Jan. 8th.

THE SOLDIER'S FOOT.

SIR,—In cases of metatarsalgia and of mild hallux valgus Colonel Robert Jones recommends the weight to be taken off the heads of the metatarsal bones by a bar across the sole like a football bar, but worked into the thickness of the sole. I wish to point out that the same effect can be produced with the minimum of trouble by sticking on one or more layers of ordinary Wood's bicycle tyre patches on the top of the sole. In fact, the building up of a boot sole which may be required can be done by means of overlapping patches of this material in a minute or two. Nobody ought, of course, to attempt to do this without a thorough understanding of the principle laid down by Colonel Robert Jones in the JOURNAL, May and June, 1916.—I am, etc.,

W. C. GREIG, M.

Palmerston North, New Zealand.

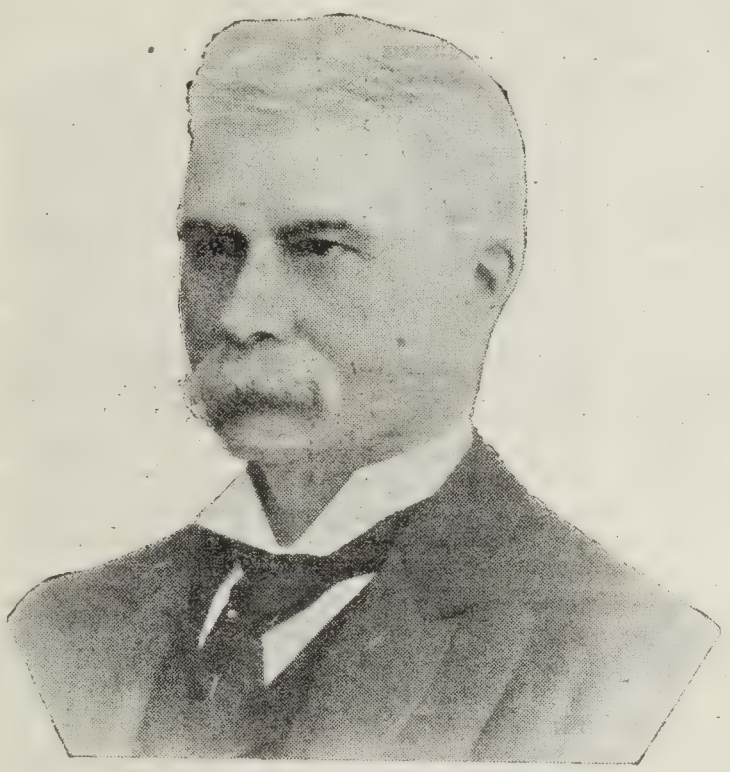
Obituary.

WILLIAM ORANGE, C.B., M.D., F.R.C.P.,

FORMERLY MEDICAL SUPERINTENDENT, BROADMOOR CRIMINAL LUNATIC ASYLUM.

OFFICIAL AND PERSONAL: AN APPRECIATION.

WILLIAM ORANGE, whose death on December 31st, 1916, at the age of 83, was announced last week, was of Huguenot extraction, an ancestor having settled in Derbyshire early in the seventeenth century, not so very long after the massacre on St. Bartholomew's Day in 1572. His father, the Rev. John Orange—a man of studious and philanthropic character—was an Independent Baptist minister who "preached the word" first at Newcastle and afterwards at Torquay, where the subject of this notice was born on October 24th, 1833, and where he showed much promise as a youngster at school and gained quite a number of silver medals. When about 15 years of age Orange was apprenticed, as the custom then was, to a doctor at Swallowfield in Berkshire for the purpose of entering the medical profession. He prosecuted his studies at St. Thomas's Hospital in London, and became M.R.C.S. and L.S.A. in 1856. On leaving the medical school he took a prolonged tour on the Continent in charge of a gentleman whose health had broken down, a trip which enabled him to furnish himself with a passable linguistic equipment in French, German, and Italian, which he found very useful in after years. After some dispensary practice and a spell of three years' work as assistant medical officer at Tooting he was appointed Deputy Superintendent of the Criminal Lunatic Asylum at Broadmoor at its opening in 1862, under his old chief Dr. Meyer, who was the first Superintendent. Together they got the place into working order, and laid the foundation of much public work in connexion with this particular department. One Sunday in 1866, while kneeling at the Communion service, Dr. Meyer was struck a violent blow on the head by a patient with a stone slung in a handkerchief; on his death in 1870 Dr. Orange, who then succeeded him, thus writes of him:



DR. WILLIAM ORANGE, C.B.

Photograph by] [*A. J. Melhuish, London.*

> To the injury which he received from a patient and to the constant mental strain occasioned by the responsibilities of his office, must, I believe, be chiefly ascribed the loss which the asylum has had to deplore.

In 1868 Orange took the degree of M.D. of Heidelberg, and became a Member of the Royal College of Physicians of London, of which he was elected a Fellow in 1878. In 1883–84 he was President of the Medico-Psychological Society of Great Britain and Ireland, and in that capacity delivered an admirable address on criminal lunacy, pointing out the relations of mental derangement to offences against the law of the land, and explaining the efforts that were then being made by Parliament and the legal authorities to bring the procedure of the Courts, with regard to trials in criminal mental cases, into some sort of uniformity as a development of the practical experience of medical men in these cases.

The Home Office was well advised in promoting Dr. Orange to be head of Broadmoor, although such excellent and capable candidates as Dr. Lockhart Robertson, Superintendent of the Sussex Asylum, and Dr. Gover, the Medical Inspector of Prisons, were being "run" for the post. I knew Dr. Orange at this time, but I did not become officially connected with Broadmoor until 1876, when I was appointed Deputy Superintendent. Since that date it has been my privilege to preserve a close and unbroken friendship with him up to his death.

Orange's work as Superintendent of Broadmoor, as a pioneer in systematizing the complicated details of management and treatment of criminal lunatics generally, and in formulating and adjusting the multitudinous array of questions bearing upon insanity in its relation to crime, made him a world-wide authority of the highest repute on these and allied subjects. Amongst the many privileges that I had as his deputy was that of meeting the many eminent authorities on insanity and crime, both British and foreign, who came to seek his counsel and to visit the asylum and its inmates. Dr. Motet, a French physician of great eminence and experience, wrote to his Government after a visit in 1881: "We have returned from Broadmoor satisfied at having found the realization of an idea that has always appeared to us to be right." And two years later the French Senate received the following report:

> The delegates of the Commission of the Senate who visited Broadmoor on October 10th, 1883, were satisfied that, despite the fine exterior appearance, the liberality of the accommodation, and the exceptional care bestowed upon the dietary, there is no unnecessary extravagance. It is true that one might at first sight imagine some extravagance in the personnel of the attendants as regards their number, their selection with regard to height and physique, and their admirable appearance; in their bearing, in the taste bestowed upon their private dwellings, which form an avenue of charming cottages outside the asylum; but one recognizes at once that the great importance given to this question of the personnel of the attendants affords the explanation, not only of the small number of escapes and other casualties at Broadmoor, but also of the unexpected spectacle of good order, tranquillity, and perfect discipline which strikes strangers who visit it.

It was a source of much gratification and encouragement to Dr. Orange to have such testimony to the success of his efforts in wearing down the officiously adverse criticisms which were at times levelled against the *raison d'être* of Broadmoor and the "extravagance" which attended the safe and proper treatment and management of this special class of asylum inmate.

In appreciation of his work the Medico-Psychological Society of Paris made him a Foreign Associate, and other societies abroad paid him a similar compliment.

Most of Orange's work as medical adviser to the Home Office in criminal mental cases was of necessity confidential. But among the many cases of individuals sentenced to death for murder in which, with a colleague, he held a statutory medical inquiry on behalf of the Home Secretary may be mentioned that of Christiana Edmunds (1872) the notorious Brighton poisoner. In this complicated and difficult case Dr. Gull and Dr. Orange, after a long examination of the prisoner, found sufficient grounds to justify them in certifying her to be insane. Another important case was that of the Walthamstow murder in 1883 where William Gouldstone took the lives of his five children. Here Drs. Orange and Gover found distinct evidence of insanity. In both these cases a considerable amount of feeling and of conflict of opinion amongst medical men and the public was engendered, the value of the Home Office reference under circumstances of the sort was demonstrated, and whatever excitement or irritation may have been displayed was allayed. Orange's capacity for making patient and searching investigation and of, as it were, penetrating the intimate workings of the mind of accused persons, and his wide experience in dealing with cases of the sort, made him invaluable in the administration of justice at this angle, where evidence has to be weighed in combination with personal examination, and where the issues of life and death may be said to be

involved. In the case of Lamson, the Wimbledon murderer, who was hanged, no insanity could be found.

In March, 1878, the Reverend Henry J. Dodwell was tried for shooting at the Master of the Rolls (Sir George Jessel) and found "guilty but insane," and sent to Broadmoor. The Master of the Rolls was not hit on the discharge of the pistol, which contained no bullet but only (as Dodwell himself told me) a wad made up of a marginal strip from the *Morning Advertiser*, upon which he had written "Unfaithfulness to the true interests of the Crown of England," Dodwell's real object being to secure a criminal trial at which he might have an opportunity of making his grievances public. On June 6th, 1882, Dodwell made a murderous assault upon Dr. Orange, and as the mental schemings of such a mind as his are ever of interest I quote the victim's own account of the circumstances:

A determined assault was made upon me, on June 6th, by one of the inmates, who, whilst I was occupied in reading some letters with respect to which he had requested my advice, suddenly, and without warning, struck me a violent blow on the head with a heavy stone slung in a handkerchief. The perpetrator of this act was the same man who fired at the Master of the Rolls four years ago; and the act was prompted by a precisely similar motive on both occasions—namely, in order to attract public attention to a conspiracy of which he believed himself the victim. He afterwards stated that he had made up his mind to commit an act that would lead to a coroner's inquest, more than a year ago, but that no sufficiently favourable occasion had then presented itself. Being, however, cool and determined and cunning, although labouring under a dangerous delusion, he was, like insane persons of this description, able to exercise sufficient self-control to wait until the circumstances were such as he deemed favourable to the full accomplishment of the object that he had in view.

It so happened that some two months previously Dr. Orange had, at the instance of the Treasury, given evidence of insanity at the trial of Roderick Maclean who fired a pistol at Queen Victoria; and in the course of his examination he stated, as a matter of illustration, that some points in the case resembled those in the case of "the man who shot at the Master of the Rolls. He maintains he is right and always has maintained he is right. He knew beforehand that he would have to go through a criminal court, *but he is insane and irresponsible*." This statement was read by Dodwell in the newspaper account of the trial, and it proved to be the factor in his mind which determined him to wait no longer but to commit the assault on Dr. Orange at the earliest opportunity, which he himself created by asking the superintendent to advise him on a family matter of some importance.

Although he had leave of absence for a year, Orange never recovered from the effects of this assault; and the strain of the work made it a great struggle for him to keep on in his weakened condition, because he felt that his confidence in his own powers had been reduced. This to a man whose leading mental attribute had been decision in action was fatal to his *amour propre*, and led to his retirement on pension four years after the date of the injury. He did no active official work after this, except that after prolonged rest he became a member of the Council of Supervision of Broadmoor from 1892 till 1904, and was usefully employed. On his retirement Queen Victoria conferred on him the honour of the Companionship of the Bath.

In its issue of June 5th, 1886, the BRITISH MEDICAL JOURNAL referred to Dr. Orange in the following terms:

His eminently successful administration of this post has been testified to over and over again in our columns and elsewhere; and when we recollect the dangerous and intractable character of the lunatics sent to Broadmoor its superintendent cannot be said to hold an office which is either a sinecure or free from constant risks of all sorts. Dr. Orange's management of Broadmoor has been characterized by a judicious firmness, combined with a most kindly consideration for the interests of the unfortunate patients who came under his care. He will be greatly missed by them; while as an evidence of the estimation in which he was held by the officers and staff of the establishment, he was, last Monday, presented by them with a handsome and substantial silver salver and many expressions of regret at his departure and cordial good wishes for his future. When referred to, as he frequently was, in cases of capital offences where the mental condition of the offender came into question, his investigations were thorough, his decisions clear and sound; and his recommendations were, we believe, invariably carried out, and never failed to be satisfactory not only to the authorities but also to the general public, in whose estimation he deservedly stood high.

And the *Lancet* of the same date congratulates Dr. Orange upon the successful results of his labours in the public service and of his most efficient administration of a grave and responsible public trust. Referring to the "trying duties devolving upon him as one of the advisers of the Home Office authorities in cases where capital crimes had been committed, and where the question of insanity arose," the *Lancet* went on to say that

The general public have to be especially grateful to Dr. Orange, for, with an exceptional experience on the subject, his scientific penetration, his sound judgement, and his shrewd common sense never failed to secure universal approval for his decisions on these momentous issues.

After much that was in praise of Dr. Orange, the *Journal of Mental Science* for July, 1886, thus speaks:

After hard and anxious work, Dr. Orange succeeded in reducing the complicated details of the asylum administration and of questions which thereafter arose as to the best methods of dealing with the criminal lunatics of the country, to a complete system, such as has earned the unqualified praise of visitors from all parts of the world.

Dr. Orange's contributions to the medical press contained expressions of opinion which were always practical and well thought out. His article on "Criminal Responsibility," in *Tuke's Dictionary of Psychological Medicine*, deals with the rules by which Courts have been and are guided, and the cases cited by him are useful for reference. He concludes by saying: "It must be remembered that in a criminal court the term responsibility means liability to legal punishment." He adds: "In a general sense, a person may be said to be insane so as not to be liable to legal punishment: (1) When his mental condition is such as to render him unfit for penal discipline; or (2) when, in the words of Lord Blackburn, disease of the mind was the cause of the crime; or when, in the words of Mr. Justice Stephen, the accused 'was deprived by disease affecting the mind of the power of passing a rational judgement on the moral character of the act which he meant to do.'" In an address at Reading in 1877, on "The present relation of insanity to the criminal law of England," Dr. Orange made the following remark, which ought to be borne in mind: "Moral depravity must be carefully distinguished from actual mental disease. The term 'moral insanity' is, I think, better avoided in a criminal court of law" (BRITISH MEDICAL JOURNAL, October 20th, 1877).

Of an attractive personality, Orange was essentially the official, and he devoted himself unsparingly to the work of his life, for which he was well fitted by a good physique, a sound judgement, an equable temperament, and a strong will. He had many friends, and was himself a staunch friend. He did not, however, readily make friends; his mind was formal in its activities, and a certain mannerism, referable, perchance, to his Huguenot (French) descent, together with a searching but not unkindly look from his clear eye, rather gave strangers the impression that they were "psychologized." In this way he no doubt did himself less than justice, for he was ever sympathetic with those in trouble, and ready to help when appealed to. His was a fine intellect which led him to sound decisions by a process of rapid intuition; but he was occasionally apt to spoil the effect by harking back and entering into minute details which occupied time, but which had the effect of satisfying him, as it were, that he had not failed to form a correct judgement at first.

He read much in scientific and general literature, was well informed, and could hold his own in controversy. He took little or no interest in outdoor games. He was keen on the asylum farming operations and fond of riding exercise on the Bagshot Heath or in the Swinley Forest, while nothing gave him more thorough enjoyment than a day with Garth's hounds. He could play a good rubber of whist, and was musical and capable of taking his part in glees and light operettas.

Orange had as a lifelong friend Dr. Charlton Bastian; and of close friends he had also Henry Weston Eve and Osmund Airy, and other masters at Wellington College which was in the immediate neighbourhood. In this relation I must not omit to mention his good friend the late Sir Warwick Morshead, Bt., the chairman of the Council of Supervision, who was Orange's steadfast collaborator in all that was done for the good of Broadmoor and its inmates.

Two years after he went to Broadmoor Dr. Orange married Miss Florence Elizabeth Hart, a lady of much charm and attractiveness. He had, I am told, fallen in

ve with her when she was a child, and married her when e was 17. They were an ideally happy and domesticated uple, given to hospitality and the cheerful entertainment friends and neighbours. She died three years before n, and they both lie at rest in the cemetery at Bexhill. ey had five children—four daughters and one son—all ll gifted with intellectuality and working capacity. The n, Mr. Hugh W. Orange, C.B., C.I.E., is the Accountant-neral of the Board of Education.

In conclusion, I am glad to have been afforded the portunity of writing this memoir of a courteous gentle-n, a high-minded public official, and, especially to me rsonally, an esteemed friend.

DAV. NICOLSON.

JOHN MOORHEAD, M.A., M.D., M.R.C.S., J.P.,

LATE PHYSICIAN TO THE WEYMOUTH ROYAL HOSPITAL.

is with regret we record the death of Dr. Moorhead, of ymouth, from cerebral haemorrhage on December 29th, his eighty-second year.

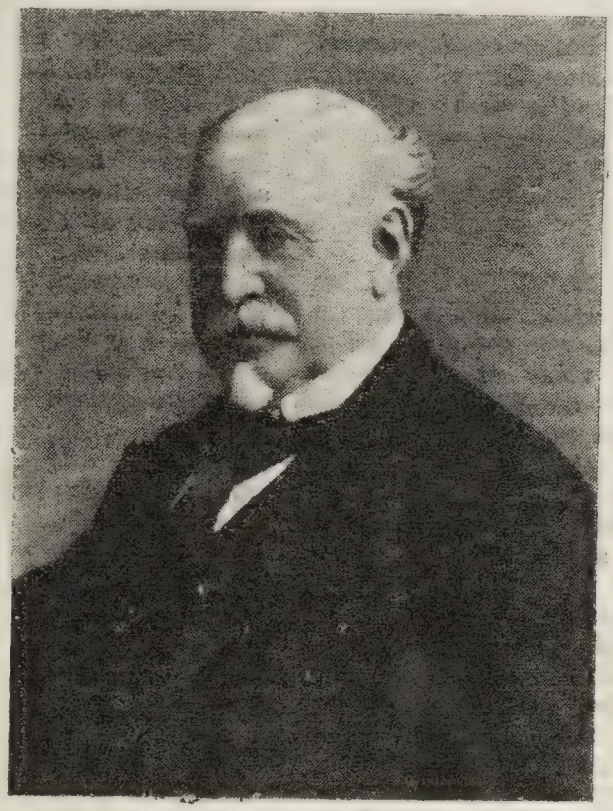
Dr. Moorhead was the senior member of the Dorset and st Hants Branch of the British Medical Association. was a most ardent supporter of the Association, re-ding it as the only organized force wherewith to shield honour and interests of the dical profession.

He was an Ulsterman, and was n in 1835; he was the son Mr. Thomas Moorhead, of lykeragh, County Monaghan, was one of five brothers, all n of high scholastic attainments. s early arts and medical studies gan at Queen's College, Galway, l at the age of 21 he was in session of the M.A. and M.D. rees of the Queen's University. ring his student career he sessed robust health, was a id worker, and had an almost fect memory. He was the re-ient of numerous gold medals l scholarships in science, sics, and medicine. Soon after duation he studied in Paris er Professors Bouillaud and aton, and afterwards spent a siderable period at Edinburgh versity, where he came under influence of Sir James Simpson, fessors Christison, Syme, and cock. Dr. Moorhead placed a high value on his Edinburgh lies and opportunities. On ing Edinburgh he settled down ractice in Weymouth. He soon became physician to the al Infirmary there, an appointment he held for forty-e years. He was physician also to the Weymouth atorium for Women, and for many years was the bined colleague of the founder, Dr. W. Johnson Smith. r. Moorhead had the rare privilege of attaining his fiftieth of active professional life. The event was celebrated Weymouth by a public meeting at which the Mayor ided, and presented him with a valuable silver service ommemoration of his public services as citizen and sician.

r. Moorhead rarely missed the meetings of the Dorset West Hants Branch of the British Medical Association, was its president in 1903. He attended the meeting ne Branch last summer, and those of us who were ent well remember his genial presence, his fluency of ch, and the manifest happiness, always at its height e found himself amongst the members of the profession oved.

his younger days he contributed freely to medical ature; two papers, on the physiology of hearing, and esophagismus, appeared in the *Lancet*, and he recorded ique case of fatal haematemesis in the *Transactions of Pathological Society*.

. Moorhead had many interests outside medicine. historical knowledge was profound, and he was liar with the whole circle of the natural sciences.



DR. JOHN MOORHEAD.

Photograph by [*Maull and Fox, London.*

He travelled much, and was a member of several learned societies. He was J.P. for Weymouth, and for thirty years he was a member of the Diocesan Synod of Salisbury. He was a churchman of the Evangelical school and a strong Protestant by conviction and inheritance. His declining years were spent in Bournemouth, where he took a keen interest in the Natural Science Society.

There are but few men living whose intimate knowledge of Dr. Moorhead enables them to measure his mental stature. The writer of this appreciation has been for many years his intimate friend and has often been amazed at the width and accuracy of his learning, for up to the end this extended over most of the fields of human knowledge—classics, philosophy, theology, European history, and the natural sciences. Always adding to his store of learning, it gave him sincere pleasure to find the open ear of the seeker after knowledge.

His end came precisely as he told the writer it would—by cerebral haemorrhage. He passed away without pain, conscious of a life well spent and profoundly hopeful of immortality.

The funeral, which took place at Bournemouth Cemetery, was attended by Sir Daniel Morris and other representatives of the Bournemouth Natural Science Society, by Dr. W. Johnson Smyth, and many others.

JOHN GRIFFITH OWEN of Kingston-on-Thames, who died on December 6th, 1916, was born on February 10th, 1862, near Ammanford, Carmarthen, where his father had a small woollen mill. He entered as a medical student at Charing Cross Hospital in 1886. For a time he acted as unqualified assistant to Dr. Shirtliff, who had a large, mainly working class, practice at Kingston-on-Thames, but in 1892 Owen was able to return to London, and took the diploma of M.R.C.S. in 1894. He returned to Kingston, and became a partner in the then firm of Goodman, Daldy, and Owen in 1899. He was a man of great kindness of heart, and was a favourite both with his patients and with his associates at the Kingston Club and later the Surbiton Golf Club. Probably few men have left such a record for hard and unremitting work and play combined, but about two years ago influenza and resulting pneumonia caused a rather acute emphysema and consequent heart strain. His recovery was never complete, and the demands of war time made him refuse to take a complete rest, but he was able to take a place on the Surrey Panel Medical Committee. He died of heart failure after about a week of acute illness following a chill. In Kingston, where he had spent almost the whole of his working life, he will be much missed, especially among the working classes, to whom he was unfailingly kind and sympathetic. He leaves a widow and three children.

DR. J. WHITFIELD BLANDFORD died at his residence at Norton, Stockton-on-Tees, on December 23rd, at the age of 69. He received his medical education at the Newcastle-on-Tyne school of medicine, and took the diploma of M.R.C.S.Eng. in 1868, and that of L.R.C.P.Edin. in the following year. He had practised for the greater part of his life at Stockton, where he was very highly esteemed both as a doctor and as a man. He was honorary surgeon to the Stockton Hospital, medical officer of health for the Stockton Rural District, and J.P. for the county of Durham. He had also served the offices of president of the North of England Branch of the British Medical Association and of the Stockton Medical Association. He was an active officer of the Volunteer Force, and transferred to the Territorial Force when it was constituted. He attained

to the rank of Colonel A.M.S., and received the Volunteer Decoration. At the time of his death he was honorary colonel of the Northumberland Division of the Royal Army Medical Corps, and was a military member of the Territorial Association for the county of Durham. During his active service he had held the position of assistant director of medical services, and had received the distinction of being appointed honorary physician to the King. The funeral, which took place on December 26th at Norton-on-Tees, was attended by a large gathering representative of public life of the county and Stockton district.

SIR FREDERICK WILLIAM BORDEN, Canadian Minister of Militia Defence from 1906 to 1911, who died at Canning, Nova Scotia, on January 6th in his seventieth year, was educated for the medical profession, and took the degree of M.D. at Harvard. He began practice as a doctor in 1868, and was appointed assistant surgeon to the 68th Battalion of the King's County Regiment of Militia in 1869. He rose to the rank of surgeon lieutenant-colonel and honorary colonel in the Canadian A.M.C. In 1911 he was appointed honorary surgeon-general in the imperial army. He was first elected a member of the Canadian House of Commons in 1874, and sat as representative of King's County, Nova Scotia, the "Acadie" of Longfellow's *Evangeline*, till 1911. He held the honorary degrees of D.C.L. and LL.D., and was a Privy Councillor of Canada. He was created K.C.M.G. in 1902. On the death of Lord Strathcona he was offered, but declined, the office of High Commissioner for Canada in this country.

RICHARD LOWTHER, M.D.Edin., M.R.C.S.Eng., died on December 2nd, 1916, at Grange-over-Sands, after an operation for strangulated hernia. He was the only son of the late Rev. Richard Lowther, vicar of Muker-in-Swaledale, Yorkshire, and was born on May 8th, 1846. He was educated at Lancaster Grammar School and at Edinburgh University, where he had a distinguished career and graduated M.B., C.M. in 1868 and M.D. in 1870; he took the diploma of M.R.C.S. in 1868, and after a period at the Middlesex Hospital and as house-surgeon at Lancaster Old Infirmary, he started practice at Cartmel, Lancashire, where he remained for twelve years; he then settled in the neighbouring town of Grange-over-Sands, where he worked for another thirty-three years. He had a very extensive practice, and when the news of his sudden death came to the district there was universal grief, for he had made himself almost indispensable to several generations of patients, and on account of his quiet charm and kindliness was beloved by one and all. He was working hard up to the very morning of the operation. He took a great interest in the affairs of the small town in which he had worked for so long, and was a member of the urban council almost continuously from 1895 to the time of his death. Being a great lover of gardening, he was able to help very largely in the laying out of the town parks and pleasure grounds, giving valuable advice concerning the purchase of trees and plants. His own garden was a perpetual delight to him, and there he spent much of his spare time amongst his fruit trees and choice pines. As a young man, and until comparatively recently, one of his great pleasures was fishing; but lately it had never been possible to get the necessary holiday at suitable times. For over thirty years he carried out his practice with horses, and his coachman, Thomas Goode, was known to most people as "Dr. Goode." He was a great character, a servant of the old school, now living in retirement, for the coming of motor cars was too much for men such as he. For the past five or six years Dr. Lowther was assisted by his only son, Dr. Richard Charles Lowther, who also underwent his medical training at Edinburgh University. The funeral on December 5th was very fully attended, the members of the council preceding the coffin into the church. Afterwards, in brilliant sunshine, the procession wound its way to the beautiful cemetery lying 500 feet above the town, in a hollow of the fells, where another very large gathering of sorrowing friends, many of them the grandchildren of patients whom he had attended in his early years in the district, paid their last respects to "the old doctor."

SURGEON-GENERAL THOMAS BARKLY BEATTY, Bomb Medical Service (retired), died at his residence, Monl town, Ireland, in the last days of November, aged 89. was born on November 4th, 1827, the youngest son of t Rev. John Beatty, Rector of Waringstown, near Lurg and was a cousin of General John Nicholson. He w educated at Trinity College, Dublin, and took the diplo of L.R.C.S.I. in 1850; subsequently he took the F.R.C.S and graduated M.D. Trinity College in 1861. Entering t I.M.S. as assistant surgeon on May 20th, 1851, he becar surgeon on June 15th, 1864, surgeon-major on May 20 1871, deputy surgeon-general on October 21st, 1876, a surgeon-general with the Government of Bombay on Ap 1st, 1880. He retired on March 31st, 1885. He served principal medical officer of the expeditionary force se from India to Malta by Lord Beaconsfield in 1878 duri the Russo-Turkish war. Surgeon-General Beatty w twice married. He leaves a widow, a daughter, and fo sons who are serving in the war. Since the death of t centenarian, Surgeon-Major H. B. Hinton, on May 14 last, he had been the senior officer on the retired list the I.M.S. That honour now falls to Surgeon-General Alexander Christison, Bt., who was some five months junior.

LIEUTENANT-COLONEL C. M. THOMPSON, I.M.S., who d on December 24th, was the son of the late He Thompson, F.R.C.S.I., of Omagh. Colonel Thompson w educated at the Royal School, Raphoe, and took medical and surgical degrees at the University of Dubl He entered the Indian Medical Service in October, 18 and was allocated to Madras, but was shortly afterwa nominated to the Bombay Mint. He served in the Ti expedition, and was present at the actions of Cha Kotal, Dargai, and of the Samagha Pass. He took p in the operations in the Waran Valley in November, 18 and in the Bara Valley in December of the same ye After the conclusion of the campaign he was thanked the excellent work done by the field hospital, and recei the medal and two clasps. Subsequently he was appoin staff surgeon at Ootacamund, and later at Secunderab where he worked for nine years, and successfu reorganized the civil hospital there. In 1909 Colo Thompson was appointed senior medical officer in cha of the General Hospital, Madras, and acted also as Profes of Surgery in the Madras University until 1911. Dur the last twelve years of his service he was in bad heal owing partly to the results of a motor accident. After retirement he served in the P. and O. Company fo couple of years. On the outbreak of war he was appoin to the convalescent home for Indian soldiers at Barton Sea, near Bournemouth. Last March he was compel by failing health to relinquish this appointment, and h since lived with his brother, Dr. E. C. Thompson, Omagh, until severe illness necessitated his removal Tyrone County Hospital, where his death occurred. T funeral took place at Clanabogan with military honours

The Services.

EXCHANGES.

OFFICER serving with Field Ambulance in Egypt wishes to exch with officer at present at home. Hospital if possible. Lieutenan Captain. Address, No. 100, BRITISH MEDICAL JOURNAL Office, Strand, W.C.

Captain R.A.M.C.(T.), M.O. Battalion R.E., one year in Fra desires exchange to Ambulance Train (in England preferre Address, No. 4993, BRITISH MEDICAL JOURNAL Office, 429, Strand, W

Medical officer on hospital ship wishes to exchange with me officer over 45 in a military hospital in England. State duti Address, No. 200, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.

Captain, R.A.M.C.(T.), serving with Field Ambulance, Eas Command, with experience of civil and military hygiene, an lecturer, desires exchange with sanitary officer abroad. Has D. Camb.—Address, No. 199, BRITISH MEDICAL JOURNAL Office, Strand, W.C.

THE anniversary of the opening of the first statio Russia for the manufacture of iodine from the seawee the Black Sea was celebrated recently at Yecaterinos The amount produced—360 lb.—was used for the tr ment of wounded soldiers. Iodoform and iodides h also been made, and the quality of the products more than fulfilled the requirements of the milit pharmacopoeia.

Medico-Legal.

OPINION OF MEDICAL ASSESSOR.

xample of a somewhat "thin" case under the Workmen's pensation Act came before the First Division of the Scottish t of Session on December 19th, 1916, in the form of a case d by the Sheriff Substitute of Glasgow. The respondent the widow of Joseph Connelly, who had been employed as ourer by Messrs. Alexander Cross and Sons, Limited. On ary 13th, 1916, a slate had fallen from a building in the Hants' works on to Connelly's foot. He attended work on two following days, but on the third was brought home ell, and the foot was then observed to be swollen. No nal wound was, however, visible. After being treated for al days at home Connelly was removed to an infirmary, e he died on January 23rd from blood poisoning. The iff Substitute, fortified by the opinion of a medical assessor h he embodied in his statement of facts, held that elly's death was caused by an accident which arose out of in the course of his employment, and awarded £250 pensation.

e Court of Session held that the Sheriff Substitute had operly included the opinion of his medical assessor in the stated by him to that Court, but that there was, nevertss, evidence on which he could properly find that the poisoning and resulting death was caused by the accident e foot.

A CASE OF LEPROSY.

ppeal was recently heard in the Court of Appeal, composed ords Justices Swinfen Eady and Bankes and Mr. Justice rence, from the decision of Mr. Justice Darling, in the s Bench Division, in the case of Humphreys *v.* Miller and s. The facts, as already reported in the issue of this NAL, dated June 10th, 1916, were shortly these. The tiff was a lodging-house keeper in Bayswater. The defen- Miller was the daughter of a gentleman who was afflicted leprosy. Father and daughter took rooms from the tiff, and shortly after they took up their residence Mr. r was attended by a Dr. Harbord, by whom he continued attended until his death, and who was also a defendant to ction. On the occasion of one of Dr. Harbord's early the plaintiff's manageress inquired of the doctor whether Miller was suffering from any complaint from which there be any risk of contagion or infection. The doctor had d that the risk was "practically *nil*"; he did not tell her ature of Mr. Miller's complaint, and, indeed, Mr. Miller's ter had no more than a suspicion of it. Finally, Mr. died, and the plaintiff, becoming aware for the first time e had suffered from leprosy, was put to expense in con- n with the disinfection of the rooms which had been ied by the patient, and brought his action for conspiracy aud.

he court below the judge left questions to the jury, which, he jury's answers, were as follows:

Vas Mr. Miller, when he took the rooms, liable to infect s or the furniture with leprosy, and did Mr. Miller or Miller know this?—Yes.

s leprosy infectious or contagious so as to be, in England, unicable from the leper to another?—Yes.

id Miss Miller and Dr. Harbord fraudulently misrepresent Mr. Miller was a fit and proper person to occupy the iff's rooms?—Yes.

id Miss Miller and Dr. Harbord conceal from the plaintiff Mr. Miller was a leper, which made him unfit to occupy dgings?—Yes.

id Dr. Harbord, acting as agent for Miss Miller and Mr. , state to Mrs. Humphreys that Mr. Miller was not suffering ny infectious or contagious disease?—Yes.

ere these statements untrue to the knowledge of Mr. , Miss Miller, and Dr. Harbord?—Yes.

id Mr. Miller, Miss Miller, and Dr. Harbord conspire to l the state of Mr. Miller from the plaintiff, and make tatements to him for that purpose?—Yes.

amages?—£250.

n these findings, Mr. Justice Darling, after hearing legal ent, gave judgement for the defendants, and from this aintiff appealed.

l Justice Swinfen Eady, in giving judgement, said that st question was as to whether a person taking a furnished or apartments gave by implication of law any warranty e was not suffering from any infectious or contagious e. There was no authority in law for that proposition, gh a person letting apartments did warrant by implica- nat the apartments were reasonably fit for occupation. ards the alleged concealment and misrepresentation, he d out that there was no evidence to support the jury's that Miss Miller was aware, when she took the rooms, er father was suffering from leprosy, or that he was ng from any contagious or infectious disease. Then, as Harbord, he did not see the patient until he had been in oms about a fortnight. The doctor's view had been that gland the risk of infection from leprosy was infinitesimal. pinion he had quite honestly expressed when speaking plaintiff's manageress on the subject. There was g to support on the evidence the jury's finding against ctor.

Lord Justice Bankes, in giving judgement to the same effect, said: "I see no evidence whatever on which it can be suggested as against this medical man that he did not honestly believe that, practically speaking, there was no danger of infection or contagion from this particular disease. Then, when he is asked—and, of course, he was placed in a very difficult position towards his patient and towards this good lady when she put to him the direct question whether it was an infectious disease—he was not obliged to answer, and all he was obliged to do, if he did answer, was to give what his honest belief was."

Mr. Justice Lawrence agreed with the above, and the plaintiff's appeal was accordingly dismissed, with costs.

Universities and Colleges.

CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examination indicated:

FINAL PROFESSIONAL.—Elizabeth Budd, E. C. H. Ewart, W. O'C. Hunt, G. W. Jackson, D. C. Kelleher, J. McDonagh, J. T. McDonnell, E. T. McElligott, J. McGuire, P. O'Connell, M. F. Murphy.

Medical News.

DR. W. AWUNOR-RENNER of Freetown, Sierra Leone, was among the mayors elected on November 9th, 1916.

DR. H. FIELDEN BRIGGS has been elected direct dental representative on the Transvaal Medical Council as from January 1st, 1917.

THE Chelsea Hospital for Women has received from the trustees of the Zunz Bequest £5,000, being the balance of £10,000 promised by the trustees towards the rebuilding of the hospital.

A SUPPLEMENT to the *London Gazette*, issued on January 10th, contains a list of awards for gallantry in the field. The list includes the names of twelve medical officers who have received the Military Cross, which will be printed in our next issue, together with particulars of the services for which the awards have been granted.

IT is reported from Washington, under date December 2nd, 1916, that a resolution has been drafted for immediate presentation to Congress, calling for an appropriation of 250,000 dollars (£50,000) to be expended by the United States Public Health Service on an intensive study of poliomyelitis.

A MEETING of the British Hospitals Association will be held at St. Bartholomew's Hospital on Friday, January 26th, when Dr. W. J. Haworth, M.O.H. for the City of London, will read a paper on the treatment and control of venereal diseases, with special reference to the voluntary hospitals. The chair will be taken by Lord Sandhurst at 3.30 p.m.

ON December 19th, 1916, the Paris Académie de Médecine passed a resolution proposed by M. Chantemesse, expressing anxiety as to the fate of Greek doctors, former pupils of the French medical faculties, who have been imprisoned during the recent disturbances at Athens on account of their Francophile sympathies, and urging the French Government to take measures for their protection.

AT the request of Sir Edward Ward, Director-General of Voluntary Associations, Mr. John Penoyre is appealing for mufflers, which have a short life, as well as for sweaters for men on active service. The muffler should measure 58 in. by 10 in. and be made on two No. 7 needles, taking 10 oz. of fairly thick drab or khaki wool. The sweater pattern can be obtained on application to him at 8, King's Bench Walk, Inner Temple, E.C., and the finished articles should be sent either to the Voluntary Associations' dépôts throughout the country or to the D.G.V.O.'s dépôt at 45, Horseferry Road, S.W.

WE learn from *Nature* that the secretary of the U.S.A. Department of Agriculture has decided to erect on the coast of Southern California a Government plant for the production of potash from kelp. It is the intention not only to produce potash at the minimum cost, but also to conserve nitrogen, iodine, and other by-products. The kelp will first be dried in a series of rotary driers, and will then be distilled in a moderate coke-oven in such a way as to prevent loss of the by-products mentioned. The potash salts will be dissolved with water out of the resulting charcoal, which may afterwards be used as fuel, as may also the combustible gas obtained by the distillation. The experts consulted believe that by such economical methods the process can be made to pay even in times when the price of potash is at its ordinary level.

A COURSE of lectures on public health problems under war and after war conditions has been arranged by Professor E. W. Hope of Liverpool, and Dr. T. N. Kelynack, for the Royal Institute of Public Health, and will be given in the lecture hall of the Institute, 37, Russell Square, London, W.C., on Wednesdays in January, February, and March, at 4 p.m. on each day. There is no fee for the course, and full particulars can be obtained on application to the secretary of the Institute. The first lecture, on the principles of organization and administration in child welfare work, will be given on Wednesday next by Dr. Janet Lane-Claypon. The chair will be taken by Sir Robert Morant, and among the speakers will be Lieut.-General Sir Robert Baden-Powell, and Mr. F. J. Willis, assistant secretary, Local Government Board. The second lecture, on the prevention and arrest of venereal disease in women, will be given by Dr. Mary Scharlieb, on January 24th, when Dr. Newsholme will be in the chair; and the third lecture, on the prevention and arrest of venereal disease in men, on January 31st, by Dr. C. J. Macalister of Liverpool, when Lord Sydenham, late chairman of the Royal Commission on Venereal Diseases, will be in the chair.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

LETTERS, NOTES, ETC.

Garlic in Whooping-cough.

DR. EDWARD KNIGHT (Gravesend) writes: It is curious to note that more than a century ago garlic was commonly administered through the skin of the soles of the feet as a cure for whooping-cough. Thus, in Buchan's *Domestic Medicine*, 1788, it is stated, "The garlic ointment is a well-known remedy in North Britain for the chin-cough. It is made by beating in a mortar garlic with an equal quantity of hog's lard. With this the soles of the feet may be rubbed twice or thrice a day; but the best method is to spread it upon a rag, and apply it in the form of plaster. It should be renewed every night and morning at least, as the garlic soon loses its virtue. This is an exceeding good medicine both in the chin-cough and in most other coughs of an obstinate nature." Now, apparently, garlic is not so much used in the treatment of whooping-cough (or chin-cough) as in times past. A chemist, however, tells me that he usually keeps some syrup of garlic in stock, as his customers now and then require it as an internal remedy for the complaint.

Two Pictures of Malaria.

DR. J. BEARD (Edinburgh) writes: "Although malaria has still been the prevailing disease, yet I feel certain that these careful precautionary measures have been greatly instrumental in lessening its intensity. The move to the valley of the Struma in June tested all the preparations made, and severely tried the medical resources. The area occupied was found to be highly malarious."—General Milne's dispatch on the operations of the British army in Salonica. *The Times*, December 7th, 1916.

"The 'Prevision,' to use Pasteur's word, of the mode of treating scientifically, not to add easily, and of curing tuberculosis and relapse malaria. Clinically, the truth of these forecasts has been established abundantly by Dr. W. Baetzner (tuberculosis) and by an officer of the Royal Army Medical Corps in Burma (malaria). As over one million persons die of malaria annually in India alone, and as it has been found that even the worst relapse cases of malignant malaria are cured by but one to at most three injections of *genuine* trypsin and amylopsin, and as the treatment, besides being highly efficacious, is very cheap, it is perhaps not necessary to dilate upon the importance of this, almost my latest, work."—Abstracted from a pamphlet by the writer, dated March 26th, 1915.

Nor, be it added, is it necessary to dilate upon the fact, that all the various attempts made to bring these finds to the notice of the War Office have resulted solely in the receipt of two official replies upon "Form 1," to the effect, that the matter "shall receive attention."

Abdominal Symptoms produced by Medicinal Doses of Opium.

DR. H. P. WINSBURY WHITE (House-Surgeon, Royal Infirmary, Edinburgh) writes: Four cases of severe abdominal pain following large medicinal doses of opium or drugs containing its derivatives have recently come under my observation. In each instance the symptoms were such as might easily lead the observer to believe at first sight that he was confronted with an abdominal condition requiring surgical interference.

Case 1 was a man, aged 25, suffering from toothache, who took 1 grain of morphine hydrochloride by the mouth. Two hours after the administration he woke with violent abdominal pains coming on in spasms. He was sent to hospital as possibly a case of perforated duodenal ulcer.

Case 2 was a man, aged 37, suffering from influenza. During the course of an evening he took five tablets of 5 grains each of Dover's powder, which contains 10 per cent. of opium. The patient woke about two hours after the last dose with violent abdominal pain.

Case 3, a man, aged 23, admitted to hospital suffering from an injury to the lower part of one thigh; he complained of great pain, and was given a hypodermic injection of heroin grain $\frac{1}{6}$. A quarter of an hour afterwards he began to cry out with intense pain in the upper part of the abdomen. He was apparently suffering very much, as he began to writhe about forgetting for the time being the injury to his thigh. He continued thus for half an hour, when he was given another dose of heroin, grain $\frac{1}{6}$, which apparently afforded no relief, and the dose was repeated; after this he became quiet, and ceased to complain.

Case 4, a man aged 24, suffering from nasal catarrh and bronchitis, who took 2 oz. of Brompton mixture, which contains liquor morphinae hydrochlor. Between two and three hours later he was awakened by severe cramp-like pains in the region of the stomach.

These cases resembled each other very closely in their symptoms. Spasms of gripping pain in the epigastric and left hypochondriac regions, coming on at intervals of a few minutes, lasting about a quarter of an hour, and so severe as to double the patient up, and cause him to groan. The symptoms in the first two cases lasted for about an hour, and then passed off completely without treatment other than hot bottles. The third case at the end of an hour was also free from pain, but by that time he had received in all $\frac{1}{2}$ grain of heroin hypodermically, and it is likely that the last injection placed him so deeply under the influence of the drug as to relieve him of the consciousness of pain. Case 4 suffered for about half an hour, when he was given $\frac{1}{120}$ grain of atropine hypodermically, after which he got almost immediate relief. In none of the cases was there any vomiting or nausea. The pupils in each instance indicated by their contraction that probably opium had been taken, and on inspecting the abdominal wall the upper part was distinctly rigid and respirations were short.

In one case both recti stood out very prominently. The patients resented palpation of the abdomen, as it appeared to tend to start the spasms. On inquiring into the histories of the individual cases, none of them had had previously any condition resembling that described, and subsequent to the attacks passing off all seemed perfectly well.

It would be interesting to know if other practitioners have had cases of this kind, as these seem to demonstrate an action of the drug which is not generally recognized. Inquiry amongst my medical friends reveals only one instance of acquaintance with this peculiarity of the action of opium, and in this case a well-known surgeon had a personal experience of these unpleasant symptoms. Opium causes convulsions in cats and amphibians, and a veterinary friend informs me that a severe colic is known on occasion to follow in horses after an administration of morphine.

*** In the late Sir Lauder Brunton's *Textbook of Pharmacology, Therapeutics, and Materia Medica* the fact that opium in certain conditions stimulates intestinal peristalsis is noted. He seems to have used it occasionally, in very small doses, one drop or even half a drop of tincture of opium, in certain forms of constipation—for example, that caused reflexly by ovarian irritation.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

FLAVINE AND BRILLIANT GREEN,

POWERFUL ANTISEPTICS WITH LOW TOXICITY TO THE TISSUES:

*THEIR USE IN THE TREATMENT OF INFECTED WOUNDS.**

BY

C. H. BROWNING, R. GULBRANSEN,
E. L. KENNAWAY, AND L. H. D. THORNTON.

(From the Bland-Sutton Institute of Pathology, the Middlesex Hospital.)

(A Report to the Medical Research Committee.)

THE great majority of chemical substances at present employed as antiseptics exhibit other properties which militate against efficient action in the living body. So much is this the case that many observers have come to regard antiseptic power as almost indissolubly associated with a series of objectionable characteristics, which confine the justifiable application of such bodies to within extremely narrow limits. Cushny seems to sum up justly the state of knowledge up to the present regarding these agents in the following statements: "They have no specific action on the microbes, however, but act as general protoplasm poisons, destroying living tissue of all kinds whenever they come in contact with it." "It is important to note that the ordinary antiseptics do not act more strongly on microbes than on the tissues in which they are embedded." "Their action as irritants arises from the same qualities as their disinfectant power—namely, from their general toxicity to living matter—and it is impossible to dissociate the one from the other and to produce non-irritant effective disinfectants." The defects and vices of the antiseptics in common use have been so clearly emphasized of late that it is necessary here only to enumerate the outstanding points, namely:

1. Antiseptics are fixed by protein material in general; hence, when bacteria are suspended in a fluid containing abundant protein, such as serum, very little of the substance is free to act on the organisms. This explains the well-known fact that the antiseptics in common use, almost without exception, show a reduced potency when tested in serum—that is, under conditions resembling those in which they would be used in the treatment of wounds. For instance, the efficiency of corrosive sublimate is reduced one hundred times by serum.

2. By destroying the life of cells and inhibiting phagocytosis, antiseptics deprive the body of one of its most important weapons in combating local infection.

3. By producing layers of dead tissue they supply a nidus for the proliferation of organisms.

4. Owing to their deficient penetrating power they fail to reach organisms situated in the tissues, even supposing that they act efficiently on those disposed on the free surfaces.

With regard to the last point, the question of penetration seems to us to be extremely complicated, and in the present state of knowledge scarcely able to be completely analysed. Speaking generally, two main factors are of practical importance in hindering effective penetration; one is purely physical, depending on the fact that a wound is often divided into loculi, so that even if a solution is poured into the main cavity there is great probability that it will not reach the surface of the remote crevices. The second factor is the fixation of the antiseptic compound by constituents of the tissues, so that at a short distance below the surface a sufficiency of the substance does not remain available to act on the microbes. Beyond these aspects it is scarcely profitable to carry the discussion further at present.

PROPERTIES OF AN IDEAL ANTISEPTIC.

Important properties of an ideal antiseptic would thus appear to be:

1. Great potency against all micro-organisms in the presence of protein material—for example, serum.

2. No deleterious effect on phagocytosis.

3. Absence of irritant action on living tissues in general, so that it may be applied to delicate surfaces such as mucous membranes.

4. A suitable stimulating effect on connective tissue cells, so as to promote growth of healthy granulation tissue.

5. The compound, when absorbed, must not be highly toxic for any specialized tissue; thus, even if strychnine were the most potent antiseptic known, its effect on the central nervous system would probably entirely preclude its therapeutic use.

We have, in the course of the past year and a half, examined an extensive series of substances, comprising the principal antiseptics in common use and also other compounds, some of which have not hitherto been recognized as antiseptics or applied as such. The series includes carbolic acid, mercury perchloride, iodine, hypochlorites (in the form of "eusol" and also Daufresne's modification of Dakin's solution), chlorine water, malachite green, brilliant green, crystal violet, ethyl violet, and flavine. In this work we have directed attention to the following points, which seem to possess special importance in regard to the use of any substance as an antiseptic for therapeutic purposes, when it must act in the presence of living tissues, as in the treatment of wounds.

Bactericidal Potency in Undiluted Serum as Compared with that in Watery Solution.

If serum produces a marked reduction in efficiency, then this indicates that the antiseptic power will be lowered far out of proportion to the degree of mere dilution which must inevitably occur in a wound. On the other hand, should serum fail to diminish the action of the antiseptic or should it actually enhance its effect, then, other things being equal, this will be a valuable advantage of such a substance.

From the results obtained (see table) it will be seen that we have found a compound, flavine, which is distinctly increased in its effectiveness as an antiseptic by the presence of serum, and further, this among the substances tested is the only one of *high* antiseptic potency which more than maintains its efficiency in serum. Under these conditions, when tested on staphylococci, flavine is about twenty times more powerful than mercury perchloride, and 800 times more powerful than carbolic acid or chloramine-T as a bactericide.

Effect on Phagocytosis.

Many factors operate in order to bring about the healing of a septic wound, in addition to the killing of such organisms as the antiseptic may come into contact with. A chief place in the earlier processes must be assigned to the action of the phagocytes. After making allowance for reduction in potency in the presence of serum and for dilution by the exudate of the wound, any substance which, in order to restrain or kill organisms, requires to be used in such concentration as to seriously damage phagocytic action must be of very doubtful therapeutic value. Accordingly, phagocytic experiments were performed in which leucocytes, normal serum, and staphylococci were mixed with varying concentrations of the antiseptics. From the results (see table) there emerges the fact that germicidal potency and inhibition of phagocytosis do not necessarily run parallel. In the case of each substance we have determined the strength of antiseptic which is required in order to reduce the phagocytic count to 50 per cent. of the control with serum alone; this has been called the *concentration which inhibits phagocytosis.* A comparison between the bactericidal power in serum and the effect on phagocytosis shows that in the case of all the antiseptics in common use a concentration which is sufficient to cause death of the organisms is also detrimental to phagocytosis. The measurement of antiphagocytic action is obviously an important point, since it enables "general toxicity to living matter" to be estimated to some extent by test tube experiments.† Thus carbolic acid both kills organisms and inhibits phagocytosis at a concentration of 1 : 250 to 1 : 500, and mercury perchloride exerts both effects at 1 : 7,000 to 1 : 10,000. On the other hand, brilliant green kills cocci at 1 : 30,000 and only inhibits phagocytosis at 1 : 2,000. Finally, flavine kills both cocci and *B. coli* at a concentration of 1 : 100,000, whereas in order to affect

* We have much pleasure in acknowledging our indebtedness to the Royal Society's Scientific Grants Committee and to the Medical Research Committee for grants towards the expenses of this work.

† Inman has also recently determined the effect of ethylhydrocuprein hydrochloride on phagocytosis as a factor in relation to its employment as an antiseptic.—*Journal of the Royal Army Medical Corps*, vol. xxvii, p. 500, 1916.

Antiseptic.		Staphylococcus Aureus.						Bacillus Coli Communis.				
		In Water + 0.7 per Cent. Peptone.		In Serum.		Concentration which Inhibits Phagocytosis.	Therapeutic Coefficient.	In Water + 0 7 per Cent. Peptone.		In Serum.		Therapeutic Coefficient.
		Lethal Concentration.	*Antiseptic Potency.*	Lethal Concentration.	*Antiseptic Potency.*			Lethal Concentration.	*Antiseptic Potency.*	Lethal Concentration.	*Antiseptic Potency.*	
Chloramine-T (content in "available" Cl = 25 per cent.)	Concentration of substance	1 : 2000	*8*	1 : 250	*1*	1 : 625	0.4	1 : 2000	*8*	1 : 250	*1*	0.4
	Concentration of "available" Cl	1 : 8000	*32*	1 : 1000	*4*	1 : 2500		1 : 8000	*32*	1 : 1000	*4*	
Eusol (content in "available" Cl = 0.34 per cent.)	Dilution of standard solution	1 : 13	*0.05*	1 : 3.25	*0.0125*	1 : 13	0.25	1 : 13	*0.05*	1 : 3.25	*0.0125*	0.25
	Concentration of "available" Cl	1 : 4000	*16*	1 : 1000	*4*	1 : 4000		1 : 4000	*16*	1 : 1000	*4*	
Dakin's Solution (modified by Daufresne). (Content in "available" Cl = 0.22 per cent.)	Dilution of standard solution	1 : 9	*0.036*	1 : 2.25	*0.01*	1 : 9	0.25	1 : 9	*0.036*	1 : 2.25	*0.01*	0.25
	Concentration of "available" Cl	1 : 4000	*16*	1 : 1000	*4*	1 : 4000		1 : 4000	*16*	1 : 1000	*4*	
Chlorine Water	Concentration of Chlorine	1 : 2500	*10*	(1 : 1000 not sufficient)	—	1 : 1500	—	1 : 2500	*10*	(1 : 1000 not sufficient)	—	—
Carbolic Acid		1 : 250	*1*	1 : 250	*1*	1 : 500	0.5	1 : 500	*2*	1 : 500	*2*	1
Mercury Perchloride		1 : 1,000,000	*4000*	1 : 10,000	*40*	1 : 7000	1.4	1 : 1,000,000	*4000*	1 : 10,000	*40*	1.4
Iodine (in KI)*		1 : 10,000	*40*	1 : 700	*2.8*	1 : 3500	0.2	1 : 5000	*20*	1 : 800	*3.2*	0.2
Brilliant Green Sulphate		1 : 10 000,000	*40,000*	1 : 30,000	*120*	1 : 2000	15	1 : 130,000	*520*	1 : 3500	*14*	1.7
Brilliant Green Oxalate		1 : 10,000,000	*40,000*	1 : 100,000	*400*	1 : 7000	14	1 : 200,000	*800*	1 : 3500	*14*	0.5
Malachite Green, Oxalate and Sulphate		1 : 10,000,000	*40,000*	1 : 40,000	*160*	1 : 7000	6	1 : 20,000	*80*	1 : 1000	*4*	0.15
Crystal Violet		1 : 4,000,000	*16,000*	1 : 400,000	*1600*	1 : 7000	57	1 : 8000	*32*	1 : 8000	*32*	1.1
Ethylhydrocuprein Hydrochloride		1 : 660	*2.6*	1 : 2000	*8*	—	—	1 : 660	*2.6*	1 : 660	*2.6*	—
Flavine		1 : 20,000	*80*	1 : 200,000	*800*	1 : 500	400	1 : 1300	*5.2*	1 : 100,000	*400*	200

Lethal Concentration = that which just suffices to kill organisms—as tested by subculture.

Therapeutic Coefficient = Ratio $\frac{\text{Concentration which reduces Phagocytosis by 50 per cent.}}{\text{Lethal Concentration in Serum.}}$

Antiseptic Potency ... = *Ratio* $\frac{\textit{Lethal Concentration of Substance in question.}}{\textit{Lethal Concentration of Chloramine-T in Serum (taken as 1).}}$

Potassium iodide in the concentration employed in the solution of iodine by itself produced no bactericidal action.

"Available" chlorine was estimated by titration with sodium thiosulphate.

Explanation of Table.

The figures shown in the table give the general results of many repeated tests of each substance.

The method of the tests was as follows: The substance to be tested, in a volume usually not exceeding 0.1 c.cm., was added to 1 c.cm. of the culture medium, which consisted in one series of 0.7 per cent. of peptone water and in the other of undiluted serum, and then 0.1 c.cm. of a 1 : 20,000 dilution in saline of a twenty-four hour peptone water culture was added. A control was made with peptone water or serum without antiseptic; one loopful of this mixture when stroked immediately on agar yielded twenty or more colonies of staphylococcus or *B. coli*. The tubes were then placed at 37° C., and were examined at the end of twenty four to forty-eight hours in order to determine the concentration of antiseptic which killed the organisms introduced; for this purpose subcultures were made on agar and also in peptone water. The results of both methods of subculture corresponded in general; but it was sometimes found that cultures containing antiseptic, which showed no turbidity after incubation and in which, therefore, little or no multiplication of organisms had occurred, still contained living bacteria.

Ox serum heated at 57° C. was used throughout; experiments were also performed with human serum and rabbit serum. A certain amount of variation was obtained with different specimens of serum; but the results corresponded in general with those quoted in the table. Fresh rabbit serum gave practically the same result as serum heated at 57° C.

B. coli frequently grew very poorly in serum; this difficulty was overcome by adding 0.25 c.cm. of 10 per cent. peptone water to each 1 c.cm. of serum.

In a number of experiments *the time rate of sterilization* was ascertained by making subcultures from the antiseptic mixtures at intervals of two, five, and twenty-four hours. Mercury perchloride, carbolic acid, chloramine-T, and flavine were compared in this way, and it was found that the maximum action of the first three substances was exerted within a shorter time than was the case with flavine; thus after two hours' exposure the results with mercury perchloride and with flavine were practically equal, and the effect of flavine became enhanced subsequently.

The effect of the presence of red blood corpuscles in the mixture with antiseptic and serum was tested as Emery has suggested. Thus, defibrinated rabbit's blood was employed as the medium, and it was found that staphylococci were killed in defibrinated blood by flavine 1 : 40,000, whereas mercuric chloride 1 : 2,000 failed to sterilize the mixture.

Pus from an empyema, which on centrifuging yielded half its volume of sediment and in culture gave a growth of staphylococci and streptococci, was just sterilized in twenty-four hours by the addition of mercury perchloride to a concentration of 1 : 1,000; carbolic acid 1 : 500; brilliant green 1 : 10,000, and flavine 1 : 2,000.

The result obtained with chloramine-T indicates a much weaker action than that found by Dakin, Cohen, Daufresne, and Kenyon (*Proc. Roy. Soc.*); the explanation of this lies in the fact that the medium used by us contained a small amount of peptone. We adopted this procedure advisedly, since we found by plating that in the absence of peptone a proportion even of staphylococci might cease to be viable when suspended in salt solution or water for several hours. In control experiments with *Staphylococcus aureus* suspended in water we obtained precisely the same results as Dakin, Cohen, Daufresne, and Kenyon—namely, sterilization after exposure for two hours to chloramine-T in 1 : 500,000 and survival in 1 : 1,000,000.

In addition, *Streptococcus faecalis (enterococcus)* and *Streptococcus pyogenes* were tested with mercury perchloride, brilliant green, and flavine; the enterococcus proved the more resistant, and with it the following results were obtained:

	Lethal concentration in Peptone water.	Serum.
Mercury perchloride ...	1 : 200,000	1 : 10,000
Brilliant green	1 : 150,000	1 : 10,000
Flavine	1 : 10,000	1 : 40,000

Do Organisms Develop Resistance to Flavine and Brilliant Green?—Were such resistance to develop to an appreciable extent, as described in the case of trypanosomes by Ehrlich and Browning, and, as Richet suggests, may occur in the case of the organisms in wounds treated by other substances, the value of the antiseptics would be seriously limited. Variations obtained in the sterilizing dose of these substances with the same organism at different times suggested that a certain degree of variation in resistance did exist; but prolonged attempts to produce highly resistant strains by growth in media containing flavine or brilliant green over six months have not led to any remarkable elevation of resistance. Thus, the development of insuscepti

EXPLANATION OF TABLE (*continued*).

bility to the antiseptics is not to be feared under practical conditions of wound treatment.

Phagocytic Experiments.—Equal quantities of human serum, washed human "leucocyte cream," emulsion of organisms and appropriate dilutions of antiseptic were mixed together, and then incubated in capillary tubes for twenty minutes at 37° C. At the end of this time the mixtures were spread on slides, stained, and the number of organisms ingested by fifty leucocytes estimated in each case; the control contained normal saline in place of the antiseptic. The serum and corpuscles were on every occasion obtained from the same subject. The organism employed was a twenty-four hour agar slope culture of *Staphylococcus aureus* emulsified in normal saline to give an homogeneous emulsion of about two thousand million organisms per cubic centimetre; the control then gave an average of twenty-five cocci per leucocyte. The dilutions of the various antiseptics were in all cases made with normal saline. The figures given in the table were confirmed by the results of at least three experiments with each antiseptic; a number of antiseptics were investigated simultaneously so as to avoid attaching importance to any differences in the results due merely to individual variations.

phagocytosis a concentration greater than 1 : 500 is required. Clearly, the higher the germicidal power and the lower the point of phagocytic inhibition the more valuable the antiseptic becomes. In order to furnish a numerical representation of the relationship existing between bactericidal power and interference with phagocytosis in the case of each antiseptic, we have, therefore, calculated the ratio of the one value to the other, which we may call the Therapeutic Coefficient (TC), and by means of this figure we may compare the actual value of different antiseptics as judged from both the above standpoints.* Thus—

$$TC = \frac{\text{concentration of antiseptic which reduces phagocytosis to 50 per cent. of control}}{\text{concentration of antiseptic just sufficient to kill staphylococcus } \textit{in serum}}$$

If TC is 1, then this means that a concentration of antiseptic which just suffices to kill off the organisms exerts a distinctly harmful effect on phagocytosis. On the other hand, a high value of TC shows that the lethal concentration of the antiseptic has little or no inhibitory action on phagocytosis; therefore, if we find an antiseptic which possesses a high TC value and which at the same time is powerfully bactericidal in the presence of serum, then we know that, as compared with another compound yielding a low TC value, the former substance can be employed in a much higher concentration *qua* bactericidal efficiency, without at the same time damaging the natural defensive mechanism of phagocytosis. As has been seen, flavine satisfies these conditions to a degree far exceeding any of the common antiseptics; brilliant green and crystal violet also surpass these as regards their effect on cocci.

Effect on Tissues.

It must be recognized, however, that the susceptibility of different tissues toward any given chemical compound may vary greatly, just as the susceptibility of different types of organisms toward an antiseptic may show wide variations. The susceptibility of different tissues requires much more investigation, but we considered that a further valuable indication would be afforded by the behaviour of a delicate epithelial membrane, such as the conjunctiva, toward different dilutions of the antiseptics. The results were as follows:

Three or four drops of solution applied to the conjunctiva (rabbit) for three minutes.

Mercury perchloride	1 : 500	−
	1 : 250	+
Carbolic acid	1 : 50	±
Chloramine-T	1 : 25	−
Iodine	1 : 500	±
Brilliant green	1 : 1,000	±
Flavine	1 : 200	−
	1 : 100	+

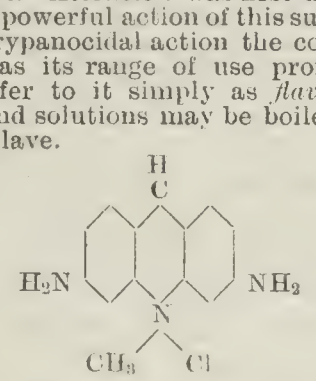
\+ Indicates production of definite irritation.
− Indicates production of no irritation.
± Indicates production of irritation in about half the cases.

Clinical observations on the effect of brilliant green and flavine on other tissues are recorded in the section headed Clinical Observations.

Summary of Results.

Taking the whole of the results in conjunction, the following points emerge: Of all the substances examined, the compound *flavine* stands out as possessing the highest sum of desirable properties for therapeutic purposes—that is, great antiseptic power, along with relative non-toxicity toward phagocytosis and lack of irritating effect on epithelium. The triphenylmethane compounds, especially brilliant green and crystal violet, are extremely active in the case of cocci, but toward *B. coli* their bactericidal value is considerably lower. On the other hand, flavine is much the most potent of all substances investigated toward both groups of organisms. In the case of *B. coli* suspended in serum, flavine is approached only by mercuric chloride (although the latter is about ten times weaker); but the disadvantage of the mercury salt lies in the serious effect which it has in interfering with phagocytosis. This action of mercuric chloride *in vitro* affords a striking parallel to its well-known toxic effect on living tissues. Thus, as compared with the other substances under examination, a much higher effective concentration of flavine can be brought safely into contact with the tissues; in this way, allowing for dilution in the wound, there is the best prospect of dealing efficiently with organisms which may be present.

Flavine is diamino-methyl-acridinium chloride (see formula), which was originally prepared by Benda at the desire of Ehrlich, and was found to have a very marked therapeutic effect in trypanosome infections. Attention was first drawn by Browning and Gilmour to the powerful action of this substance on bacteria. On account of its trypanocidal action the compound was called trypaflavine, but, as its range of use promises to be much wider, we shall refer to it simply as *flavine*. It is a fairly stable substance, and solutions may be boiled or heated up to 120° C. in the autoclave.



The property of exerting a more powerful bactericidal action in serum than in watery solutions has been found by us to reside in a number of acridine dyes analogous to flavine. Colonel Pilcher, D.S.O., has reported that a mixture of such compounds has given very favourable results in the treatment of septic wounds under his care at the Queen Alexandra Military Hospital, Millbank, and this has also been the experience of Mr. Ligat and others in the Middlesex Hospital; the results obtained by one of us (L. H. D. T.), along with Dr. J. Leeming Walker, in the treatment of over two thousand casualty cases in the outpatient department of the Middlesex Hospital are summarized in an appendix. Hitherto the pure flavine has not been available in sufficient amount for extended clinical trial, but while of approximately equal antiseptic power to the other acridine compounds, it is much less harmful to phagocytosis than the latter.† This fact corresponds well with the statement that it is also less toxic than the other acridine compounds in the animal body (see Benda). It can be administered intravenously, and does not exert toxic action on any special organ. Solutions more concentrated than 1 in 1,000 should not be administered, however, owing to the danger of causing agglutination of the red blood corpuscles.

The triphenylmethane group also contains extremely potent bactericidal substances, as Dreyer, Kriegler, and Walker have pointed out in the case of the triamino-triphenylmethane compound methyl violet; the members of this series, *hexamethylviolet* ("*crystal violet*"), and *hexaethylviolet* are especially active toward staphylococci. Of the diamino-triphenylmethane group *brilliant green*

* This represents an estimation, under quantitative conditions *in vitro*, of certain of the functions of leucocytes, which Colonel Bond has investigated by new and highly ingenious methods *in vivo*.

† The preparation of flavine has been worked out by Drs. Barger and Ewins in the chemical laboratory of the Department of Biochemistry and Pharmacology of the Medical Research Committee, to whom we are indebted for the products. Arrangements have been made for the commercial production of the substance on a larger scale. The products will be tested biologically at the Bland-Sutton Institute of the Middlesex Hospital, and will be available for trial on application to Dr. Browning on behalf of the Medical Research Committee.

satisfies best the desiderata for therapeutic use; malachite green is more inhibitory toward phagocytosis.

Commercial malachite green is commonly the oxalate, and we have found that oxalic acid also when combined with the brilliant green base leads to a compound which is much more harmful to phagocytosis than is the sulphate (commercial brilliant green).

The results show that *iodine* in the presence of serum is an antiseptic of only moderate potency; at the same time, it is markedly inhibitory to phagocytosis and highly irritating.

In this connexion we would note also that the great value of the *chloramine* and *hypochlorite* group of antiseptics in the case of wounds appears to rest to a considerable extent on their action as solvents of necrotic tissue (Dakin, Cohen, Daufresne, and Kenyon), and on their property of destroying toxic substances, as emphasized by Lumière, rather than on their high bactericidal potency, since, as Dakin has also shown, their bactericidal action in the presence of serum is comparatively weak (for example, chloramine-T is 800 times weaker than flavine for staphylococci and 400 times weaker for *B. coli*); at the same time they interfere seriously with phagocytosis.

THERAPEUTIC APPLICATIONS.

One of the foremost necessities of the present time is the furtherance of wound healing by procedures which shall combat or prevent septic infection. It is not proposed to discuss here the general question of wound treatment; there is a great measure of agreement that the removal of dead tissue and the conversion of the wounded area into a free surface by incision and excision are essential factors. Under actual conditions, however, it is seldom practicable or expedient by these means to remove the whole site of bacterial infection; the problem then remains how to overcome as rapidly as possible the persisting bacterial contamination. For the attainment of this object the mechanical detergent action of a more or less continuous flow of fluid plays an important part; this can be accomplished by irrigation with some antiseptic solution, as in Carrel's procedure, or by the lymphagogue action of hypertonic saline solution according to Wright. The advantages which would be gained by the employment, in addition, of an efficient antiseptic are admitted practically by all; but to the mind of many the substances available are so deficient in antiseptic effect and so abounding in harmful action on the tissues that any benefit attending on their use is more than counterbalanced by the harm which they do. Hence appears further the *rationale* of the hypertonic method, which, by inducing a continuous flow of lymph from the vessels, should maintain a supply of substances important for the natural defensive mechanisms of the tissues, while at the same time avoiding the action of chemicals inimical to these processes. Our observations have shown how the manifold effects of chemical antiseptics may to a considerable extent be standardized by experimental methods, and how a basis may be established for comparing the local therapeutic properties of different bactericidal substances. The comparative inefficiency of the common antiseptics under practical conditions has been paralleled by their behaviour in these tests; on the other hand, the acridine compound flavine has exhibited outstanding characters, especially high bactericidal power, which is enhanced rather than diminished by the presence of serum, combined with very little inhibitory effect on phagocytosis. The recommendation of this substance for clinical use, based on the results of the laboratory tests, has appeared to be well justified; a 1 : 1,000 solution (equivalent on the basis of bactericidal concentration to an 80 per cent. solution of carbolic acid in the case of staphylococci) has been applied to the surface of wounds without causing pain or local irritation, and the skin has not been harmed by its use. In addition, there have been no local or general toxic effects, even when quantities of the solution have been kept in contact with the tissues for a considerable time, or when it has been injected into the tissues. The granulations which form in the presence of the acridine compounds are both of good colour and texture, and the whole process of healing advances rapidly. Especially significant in regard to the action of these substances has been the retrogression observed in wounds when applications of acridine compounds have been temporarily replaced by some other agent; on reverting to their use the wounds have again become markedly less septic and the advance of healing has been resumed. Leitch has recorded highly satisfactory results from the use of brilliant green in septic wounds, and Captain C. H. S. Webb reports that from his experience at a casualty clearing station he regards brilliant green as greatly superior to any of the antiseptics in common use. A striking feature of this substance is the abundant formation of bright red granulations which follows its use.

Prevention of Sepsis.

We would especially emphasize the possibilities in the direction of prevention of sepsis which would be likely to attend the use of flavine or brilliant green in recent wounds applied during that dangerous period between the infliction of the wound and the establishment of an adequate local defensive mechanism (granulation tissue, etc.). It is precisely at this period that the employment of an efficient antiseptic will prove of value by leading to the destruction of virulent organisms before they have obtained a foothold and have multiplied extensively. The stimulation of tissue cells is a highly important factor at this stage, and there is reason to believe that such stimulation can be attained by the application of flavine or brilliant green. Of course, such treatment is to be used in addition to operative procedures necessary for obtaining free access. It has become the custom at the out-patient department of the Middlesex Hospital to treat all casualty cases by washing out with a 1 : 1,000 solution of flavine, and the conclusion has been justified that a wound so treated will in all probability heal by first intention (see Appendix). Of course there is a wide difference between such cases and many of the wounds of war, but the results of an extensive series are sufficiently noteworthy to merit their being placed on record. It is not too much to hope that even in severe cases of injury, with extensive and highly contaminated wounds, the onset of the phenomena of sepsis and anaërobe infection may be aborted to a great extent, provided that energetic treatment is begun at the earliest possible moment. We would suggest that in such cases, after suitable surgical procedure and before packing with gauze soaked in flavine, the solution might also be injected into the ends of the injured muscles and into the intramuscular planes and subcutaneous tissues. Such treatment could be best initiated in the casualty clearing station zone.

Flavine in a concentration of 1 : 1,000 is not precipitated by the addition of NaCl to 5 per cent. strength or 0.5 per cent. sodium citrate, nor by a mixture of hypertonic salt and citrate. Thus this substance is available as an addition to the "physiological" method of treatment.

Antiseptics with the properties of those now described open up many therapeutic prospects, such as the problems of the treatment of intestinal and urinary infections, which are already in course of investigation. We hope also to be able later to offer an explanation of the remarkable effect of serum in enhancing the bactericidal action of compounds of the acridine group.

SUMMARY.

1. A substance belonging to the acridine group, *flavine*, has been found to possess extremely powerful bactericidal and antiseptic properties, which are enhanced rather than diminished by admixture with serum. In this respect flavine differs from all the powerful antiseptics in common use.

2. In the presence of serum flavine is the most potent bactericide of all those investigated for both staphylococcus and *B. coli*, and it is equally efficient for the enterococcus and for anaërobes such as *B. oedematis maligni*.

3. Flavine, in relation to its bactericidal power, is very much less detrimental to the process of phagocytosis and less harmful to the tissues than the other substances; hence much higher effective concentrations can be employed without damaging the tissues or interfering with the natural defensive mechanisms. Brilliant green also compares most favourably with the other antiseptics in these respects.

We are indebted to the Imperial College of Science for the preparation of a series of salts of the brilliant green base—namely, hydrochloride, nitrate, oxalate, tartrate.

4. Clinical results have substantiated the estimate of e therapeutic value of flavine and brilliant green based the characters above noted.

APPENDIX ON CLINICAL OBSERVATIONS.

During the past fourteen months brilliant green and vine have been used on a considerable scale as anti-ptics in the casualty department of the Middlesex Hos-al, and also in a certain number of cases in the wards. tween two and three thousand patients have been ated, approximately half with each substance; there s been no selection of cases.

The cases fall into two main categories—those which eady exhibit manifest infection with more or less undant pus formation; and those which have come up r treatment within a few hours of receiving an injury d before suppuration has had time to occur.

Cases with Suppuration.

These belong to the group of minor affections, such as cal abscesses and infections of the hand, which although t menacing to life are often the source of considerable onomic loss. Especially in the cases of hand injuries, a ethod of treatment which preserves the part and hastens the healing confers a great advantage on the patient. uch conditions appear to respond especially well to these ntiseptics.

After free incision, the affected parts have always been ringed or swabbed out with a 1 : 1,000 concentration of illiant green or flavine in 0.8 per cent. NaCl solution; e injured area has then been covered with gauze soaked the solution and a piece of "protective" placed over the hole to prevent evaporation; swabbing or syringing with e antiseptic has been carried out once or twice daily, cording to the acuteness of the condition. Between two nd three hundred cases of septic hand and finger affec-ons have been so treated, and on the average marked nprovement as regards both reduction of inflammatory velling and discharge of pus has been evident in two ays; even in the most severe cases healing has been mplete in fourteen days.

Two cases are especially noteworthy as illustrating the fficiency of the treatment, since in both of them the condition as most unpromising, and it appeared inevitable that death of considerable portion of tissue must ensue. The first was of vo weeks' duration, and had been under medical care during hat time. The third finger was at least twice its normal dia-meter, livid, the skin shiny, and with two sinuses on dorsal and almar aspects. It appeared to us certain that the finger would e lost. Treatment by free incisions and thorough irrigation ith flavine reduced the condition, and within fourteen days here was no trace of suppuration, and the finger had resumed s normal size.

In the second case, septic infection of the hand had been nder other treatment for three weeks. The hand was as thick s it was broad, and there was a sinus in the palm; this was nlarged, incisions were made on the back of the hand, and avine was syringed in twice a day, followed by boric fomenta-ons. Within three days the hand resumed its normal size; ithin ten days all pus had disappeared, and the infected areas ad granulated up.

Results of treatment of large superficial infected wounds ave been highly satisfactory, the noteworthy points being he very rapid formation of healthy granulations and also he great rapidity with which the epidermis covered the rea. Thus, a large raw surface left after removal of a reast became infected, the whole surface discharged bundant pus and showed much sloughy tissue. The area vas swabbed with brilliant green 1 : 1,000, and kept overed with gauze soaked in this solution. Six days' pplication led to a clean surface, covered with bright red ranulations. The green was then no longer applied and ry dressing was used. Within three days the surface vas as septic as before. Creolin fomentations were then sed for four days, but no improvement resulted. Green vas again applied, and one week's treatment sufficed to gain clean the wound, which subsequently healed satis-actorily.

Where brilliant green or flavine is used the granulations which form are of healthy appearance and very rapid growth, the former producing granulations of an ex-remely exuberant bright red type, while with flavine they re not so bulky and of a pale pink colour. This contrasts with the grey sodden character of the granulation tissue which has often been observed to follow prolonged use of he hypochlorite solutions. With both flavine and brilliant green healing is very rapid, and in our opinion requires only about half the time which might be expected with other methods of treatment.

Four infected amputation stumps have been treated with brilliant green. In these some infection of the bone has always been present. With one exception, all the cases have granulated up within a month, separation of sequestra being notably rapid. The exception was an old man whose feeble state made it unlikely that any marked tissue reaction would be obtained. He eventually died after further operative procedures had failed.

We have seen no marked benefit in localized peritonitis following appendix abscess, and in tuberculous infections of joints and cold abscesses which had become secondarily infected. In both of these conditions we have washed out once daily, in some cases with brilliant green, in others with flavine, but although the discharge has usually been greatly lessened for a few days, there has on the whole been no very definite permanent improvement. There is always the doubt as to whether the antiseptic obtains free access to all the crevices of such abscess cavities, and it is evident that more continuous application of the antiseptics will be required before coming to a conclusion as to their action in this type of case.

As regards toxicity, we have never observed any ill effects following the use of these substances. A boy with subperiosteal abscess of the femur was treated with brilliant green after incision had been made down to the bone and pus evacuated. For four weeks about four ounces of brilliant green 1 : 1,000 were poured daily into the wound, and left in contact with the soft tissues. No harmful effect of this procedure was observed either generally or locally, and eventually the sinus granulated up completely. Unfortunately the medullary cavity of the bone had not been laid open at the operation, and the infection spreading along within the bone led to death.

In the case of flavine, its low toxicity is well shown by the fact that 300 c.cm. of a 1 : 1,000 solution have been injected intravenously into a man without any ill effect. It has commonly happened that 5 or 10 c.cm. of 1 : 1,000 flavine have been injected directly into the tissues—subcutaneous tissue, muscle, etc.—for prophylactic purposes in cases of recent injury. We should not at present, however, recommend the introduction of brilliant green into closed spaces.

Cases Treated before Suppuration had Occurred.

Neither of these antiseptics causes pain when applied to cut surfaces. In the case of brilliant green, some slight irritation of the skin around a wound has been observed after use over a period of fourteen days or more. This has never occurred in the case of flavine. As regards prophylactic use, we have made it our custom to swab out every recently inflicted wound brought into the casualty department with flavine or brilliant green. Many of the injuries thus treated were heavily contaminated with road dirt, hair, clothing, etc. We have observed that, almost without exception, wounds so treated may be closed by suture and confidently expected to heal by first intention.

Especially noticeable has been the success obtained with scalp wounds, of which we have now treated some thirty without any septic infection resulting, healing always taking place by first intention. One such case stands out as worthy of mention. It was that of a man injured in a street accident; a piece of scalp the size of the palm of a man's hand being stripped up and the wound heavily contaminated with mud and hair. It was thoroughly swabbed out with flavine, about an ounce being left in the cavity, and sutured by eighteen horsehair sutures, no drainage being allowed for, and a pad of gauze soaked in flavine applied. After the third day all inflammatory swelling had subsided, no signs of suppuration were present and the edges of the wound were in firm apposition. On the fifth day all eighteen sutures were removed; firm union had taken place, and the patient was discharged.

These results are quite in line with those obtained by treatment of similar conditions in other parts of the body. We consider that less than 1 per cent. of the minor cuts and wounds sufficiently severe to necessitate suture proceed to suppuration when treated promptly in this manner. During the past six months we have seen some half-dozen cases of minor wounds, such as those above described, which

have suppurated after receiving similar prophylactic treatment with iodine. The number of cases in which iodine has been used has been small, considerably less than one hundred.

Several more severe cases, such as compound fractures, have been similarly treated with brilliant green or flavine, and the results have in all cases been equally satisfactory. Of course, free access of the antiseptic to the injured parts is essential.

From the above considerations it is our definite opinion that the results of treatment of septic conditions with flavine and brilliant green show a marked superiority over those obtained by other methods in common use. We consider that the duration of such infections is in general reduced to at least a half, that the stimulus to connective tissue to form granulations is a very outstanding feature, and that these antiseptics can be applied in considerable amounts with the minimum of interference with the normal tissue functions.

We would most particularly emphasize the important advantages to be gained by the prophylactic use of flavine in all injuries of recent origin before there has been time for the evidence of infection to appear, and we believe that almost all such injuries will heal by first intention provided thorough cleansing on these lines be employed.

As regards the comparative merits of brilliant green and flavine, we consider that the latter is both the more efficient and the more rapid in its action. Especially is this the case in infections accompanied by considerable inflammatory swelling; it is not uncommon to find that the part has resumed its normal shape and size after twenty-four hours' treatment with flavine, whereas with brilliant green the process is more gradual. Flavine has the added merit of being highly antiseptic toward all the common pyogenic organisms, whereas we have seen cases of *B. coli* infection which have proved intractable to brilliant green. Brilliant green stimulates the formation of exuberant but well vascularized granulation. This is a useful property, and suggests that brilliant green might be advantageously employed in order to promote the filling up of large cavities: but we have found that the final result is as satisfactorily and as rapidly attained by the use of flavine.

REFERENCES.

Benda: *Berichte d. deutsch. chem. Gesell.*, 1912, vol. xlv, p. 1787.
Bond: BRITISH MEDICAL JOURNAL, vol. i, 1916, p. 777, and vol. ii, p. 861.
Browning and Gilmour: *Journ. Path. and Bact.*, vol. xviii, 1913, p. 144.
Carrel: See Sherman, *Proc. Roy Soc. Med.*, 1916, x (Sect. Surg.), p. 1.
Cushny: *Pharmacology and Therapeutics*, London, 1915.
Dakin, Cohen, Daufresne, and Kenyon: *Proc. Roy Soc.*, B, vol. lxxxix, 1916, p. 232. See also BRITISH MEDICAL JOURNAL, 1916, vol. i, p. 852.
Dreyer, Kriegler, and Walker: *Journ. Path. and Bact.*, 1910, vol. xv, p. 133.
Emery: *Lancet*, vol. i, 1916, p. 817.
Leitch: BRITISH MEDICAL JOURNAL, February 12th, 1916.
Lumière; *Compt. rend. Acad. d. Sciences*, 1916, T. 162, p. 365, and T. 163, p. 309.
Richet: *Compt. rend. Acad. d. Sciences*, T. 163, 1916, p. 589.
Wright: A Lecture on Wound Infections and their Treatment, *Proc. Roy. Soc. Med.*, October 8th, 1915.

FLAVINE AND BRILLIANT GREEN IN THE TREATMENT OF INFECTED WOUNDS.

BY

D. LIGAT, F.R.C.S.,

ACTING ASSISTANT SURGEON TO THE MIDDLESEX HOSPITAL.

THE sharp division of opinion which exists as to the advisability of employing antiseptics in the treatment of infected wounds is probably to be explained by the fact that most of the substances in general use fall far short of the ideal in their therapeutic action. Either they are highly irritating to the tissues, or they are rendered practically inert owing to admixture with the secretions of the wound. Any substance which would act as a powerful bactericidal agent in wounds, and which at the same time would neither damage the reparative powers of the fixed tissue nor inhibit normal protective functions, such as phagocytosis, would satisfy a felt want in wound treatment.

The recent investigations carried out in the Bland-Sutton Institute of the Middlesex Hospital by Browning, Gulbransen, Kennaway and Thornton have indicated that there are chemical compounds with powerful antiseptic action which possess the qualifications for therapeutic use in a degree greatly exceeding those commonly employe Thus, the acridine compound flavine and also brilliant gre are very strong antiseptics; at the same time, concentr tions which are powerfully bactericidal, do not harm t tissues or interfere with phagocytosis. A special featu of flavine is that its action suffers no weakening in t presence of serum, and it is powerfully bactericidal agai all the common pathogenic organisms—for example, staph lococci, streptococci, both of the *pyogenes* and ente coccus types, and *B. coli*.

For over a year I have employed flavine compounds a brilliant green in septic cases under my care in the Midd sex Hospital. Upwards of 150 cases have been treate about 50 per cent. of these being war wounds. They m be divided into the following groups: (1) Wounds alrea thoroughly septic, showing an abundant discharge of pu (2) Injuries newly inflicted which have not yet had tim to suppurate.

In the case of suppurating wounds the procedu followed has been to secure adequate drainage by fr incision when necessary, and then to irrigate with 1 : 1,000 solution of the antiseptic in normal salin finally the wound is covered with gauze soaked in t solution, and protective applied to prevent evaporatio Where there has been a cavity it has been packed ligh with gauze soaked in the solution.

As to the results seen by this method of treatment, considerable diminution in the discharge of pus may b expected at the end of twenty-four hours. In wounds moderate severity in which no foreign body is present an in which free drainage is secured, the suppurative proce may be expected to come to an end after four or five day treatment. Any difficulty in obtaining free access for t antiseptic to the infected area was overcome as far possible by syringing the solution into the wound cavit under slight pressure, and in some cases flavine 1 : 1,0 was injected into the tissues and muscle planes by cannula; no subsequent damage to the parts was observe

A noticeable feature in the use of these antiseptics is th stimulus to early formation of granulation tissue. Withi forty-eight hours the more superficial parts of the woun begin to show small firm granulations, and by the end of week the whole wound may be expected to be lined b granulations. In the case of brilliant green these a large, nodular, and bright red in colour, while after th use of flavine they are small and of a healthy pink colou In both cases they are firm, do not bleed readily, and gro very rapidly. Concurrently with this the epithelium grow over the raw area, and almost from the first day may b seen creeping in from the edges of the wound. It is m experience that actual healing of the wound is markedl expedited under this treatment, the majority of case requiring only about half the time to be anticipated b other methods.

This was well illustrated by a case of nephrectomy. A infected kidney was removed, a large drainage tub inserted, and the wound left open; secondary infection o the wound cavity followed, with very copious discharge o pus. Creolin fomentations were applied for four days, bu no improvement resulted. Treatment was then carried ou with brilliant green, the wound being washed out an packed with gauze soaked in the antiseptic twice a day In four days all discharge had ceased and bright re granulations were visible covering the infected surface The cavity, which was originally large enough to contai a man's fist, completely filled in by granulation withi three weeks.

On several occasions I have been able, after treatmen with flavine, to undertake successfully secondary operation on infected wounds.

A case of gunshot wound of the arm necessitated opera tion in France, a circular amputation being performed, an no skin flaps provided. When the case came under m care the stump was heavily infected. Treatment wit flavine for one week sufficed to remove all discharge; then reamputated immediately above the old stump cutting skin flaps from tissues which had previously bee infected; the stump has since healed healthily withou suppuration.

In another case the leg had been removed elsewhere and the patient came under my care with a very sepu stump. It had been treated with cusol for three weeks but showed no definite improvement in the suppurativ condition; a few granulations were present at the edges

they were soft and flabby and bled readily on dressing. er four days' treatment with flavine the wound had irely ceased to discharge pus, and in the same time granulations had altogether changed in character, ng now firm and allowing of free swabbing without morrhage.

nother noteworthy case was that of a woman with perable carcinoma of the breast. The growth broke vn and became very septic. An incision was made and rge quantity of pus evacuated. An attempt was made cleanse the condition with creolin fomentations, but days' treatment yielded no appreciable results. Treatnt with brilliant green was then instituted, and, in lition to thorough irrigation, about one ounce of the iseptic was poured into the wound cavity daily and left re. After fourteen days all signs of suppuration were ent, and no toxic symptoms had manifested themselves m absorption.

My best results have not unnaturally been obtained in erficial injuries, in which free application of the antitic to all parts of the infected surface was possible. I ve treated a number of shrapnel wounds of such type, ne of them large areas of six inches square, with iversally successful results with flavine. A clean surface y always be expected in such cases in four or five days, l the rapidity with which the epithelium grows in from edges is a very noticeable feature. The absence of y deterrent effect exerted by flavine on the process of ling and growth of epithelium was strikingly demonated in one case in which treatment with flavine had four days freed a large superficial area from pus and vered it with small pink granulations; at the end of this ne the epithelium had grown in for a considerable disnce. The wound was thereafter dressed with red lotion nc sulphate 1 gr. to water 1 oz.) and the immediate wing up of the epithelial ingrowth was remarkable.

Mention must be made of a case under my care in which antiseptic was applied before suppuration had time to velop. The patient, a man, had all the structures on the terior surface of the arm just above the elbow-joint vered by a pane of glass. The wound was very dirty, d in it were portions of clothing. Within three hours of e infliction of the injury the foreign bodies were removed der a general anaesthetic, and the whole wound broughly washed out with brilliant green; the various uctures were then carefully sutured, the muscles with en and the nerves with fine catgut. A gauze drain was serted but soon removed. The wound healed by first ention, and the man has now a good arm, the result of e nerve suture being equal to that obtained after primary rve suture under the best conditions.

My opportunities for this early application of the antiptic before the evidence of sepsis has appeared have, so , been few, but from such cases as that cited and others similar nature which I have observed, I consider that sults of the highest value are to be anticipated in the ture by what one may term the "prophylactic" use of ese antiseptics.

I have used considerable quantities both of brilliant een and flavine over prolonged periods; in some cases I d no hesitation in injecting the latter antiseptic into the sues, and have never observed any toxic phenomena llowing their use. In one case, of an amputation stump eated with brilliant green, a considerable rise of temperare occurred, and was thought at first to be perhaps due absorption of the antiseptic, but blood culture yielded a re growth of *Staphylococcus aureus;* meanwhile the mp itself showed very definite improvement. Of the o antiseptics investigated I have found flavine to be the ore efficient, especially in heavily infected wounds with ee discharge of pus, and I now use this antiseptic exusively for septic cases. I regard these substances as tisfying therapeutic requirements for the treatment of ounds in a manner superior to any of the antiseptics therto employed.

THE late Dr. Alexander Ballantyne, of Dalkeith, left tate valued at £20,993.

YALE UNIVERSITY has established a board of health for ie sanitary supervision of students. The conditions nder which they live and work will be investigated, and, here necessary, improved. All students taking part in hletics are to be submitted to careful examination.

Lectures
ON
DISEASES OF THE MALE URETHRA.

BY
FRANK S. KIDD, B.C., M.B.CANTAB., F.R.C.S.,
ASSISTANT SURGEON, LONDON HOSPITAL, AND SURGEON TO THE GENITO-URINARY DEPARTMENT.

LECTURE III.—COMMON METHODS OF EXAMINATION AND TREATMENT.

FILMS FOR MICROSCOPIC INVESTIGATION.

1. *To Prepare a Film of Meatal Pus.*

TAKE a platinum loop and dip one corner in the secretion that can be squeezed from the meatus. Spread this out with a circular movement on a slide so as to make a thin even film. Fix by heat, stain for a few seconds with borax methylene-blue, wash under the tap, dry by heat, and examine under a drop of cedar oil with a $\frac{1}{12}$ in. oil immersion lens.

2. *To Prepare a Film of Prostatic Fluid.*

Ask the patient to pass water, and shake the urethra free of drops. Massage the prostate of the kneeling patient until several drops of secretion drip from the meatus. Collect a drop on a slide, make a film and stain as above. Look especially for pus cells (evidence of inflammation). Do not be disappointed if you cannot find bacteria. Pus cells are of far more moment than bacteria.

3. *To Prepare Films of Threads.*

Fish the threads out of the urine by means of a platinum loop and spread them out with a circular movement on to a slide. Blot away superfluous moisture. Dry by heat, stain, cover with Canada balsam and a cover-glass and examine as before.

THE IRRIGATION METHODS OF JANET.

One of the most notable advances in diagnosis and treatment is the method evolved by Janet of irrigation of the urethra. Practice in this method is one of the first essentials for a man who wishes to study diseases of the urethra.

Apparatus Required.

A glass, metal, or rubber receptacle capable of holding two or more pints of fluid, which can be raised or lowered at will to a height of at least five feet above the level of the patient's urethra. The advantage of glass is that the fall of the fluid can be observed, especially if the glass is graduated. To the lower end of the receptacle should be fitted six to nine feet of rubber tubing provided with a simple clip or, better, a spring clip. To the free end of the rubber tubing is attached a urethral nozzle of some kind. I employ nickel nozzles made to my design by Montague and Co. (69, New Bond Street). Failing a special nozzle, a simple piece of tapered glass tubing with a smooth opening will suffice. The ideal irrigator for large clinics is made in the form of a lift let into the wall, which can be raised by means of a handle. This has been designed for my private use by the Titan Lift Company, and I cannot too warmly recommend it. Failing this it is an easy matter to rig up a system of pulleys; or the irrigator can be hung on to a nail or picture-hanger on the wall. I have designed a portable irrigating apparatus for the use of patients, which is supplied with printed directions by Montague. In the army, I believe, a pail is used, raised on a shelf, the rubber tubing being attached to a bit of glass tubing bent and used siphon-wise. This is a useful plan where no special materials are to hand.

The Method of Anterior Irrigation.

The patient lies on a couch with a pot between his legs, or he can sit over a sink or in a bath, or he can stand or sit wearing a mackintosh apron with the penis projecting through a small hole cut in the mackintosh and the lower end of the mackintosh folded gutter-wise into a pail.

The irrigator is filled and raised three to four feet only, so as to get a fair head of fluid, yet one not sufficient to force the sphincter and penetrate to the deep urethra. The operator grasps the rubber tubing just above the stem of the nozzle with the fingers and thumb of his right hand,

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

releases the clip, and controls the fluid with fingers and thumb only. With his left hand he takes the penis between the middle and ring finger, the back of his hand being towards the abdomen, and with the first finger and thumb he opens out the meatus. He then inserts the mouth of the nozzle just inside the meatus and allows the fluid to flow into the urethra. The fluid flows as far as the bulb, when it meets the resistance of the compressor urethrae muscle ("cut off muscle"). It then flows back and flows round the mouth of the nozzle and falls into the pot or pail.

By pressing the nozzle to and fro quickly a little more into the urethra and then withdrawing it slightly the operator endeavours very gently alternately to balloon and collapse the urethra. In this way the folds of the urethra are ballooned out every other second so that the fluid gets at the whole mucous membrane. This trick is hard to describe, but is soon learnt at a practical demonstration. Especially when dealing with acutely inflamed urethras the very utmost gentleness must be used.

The washing goes on till two or three pints of fluid have been used if treatment is being carried out, or until the washings come away clear of pus and threads if the method is being used for diagnosis. For diagnosis sterile water can be used, or better still 1 in 4,000 mercury oxycyanide. For treatment of acute cases of urethritis you should generally employ a solution of potassium permanganate in varying strength—1 in 4,000 in acute cases, 1 in 2,000 in subacute cases, 1 in 1,500 or even 1 in 1,000 in chronic cases.

The Method of Posterior Irrigation.

The irrigator is raised to a height of 5 ft. The operator first washes out the anterior urethra with half a pint or so of wash. He then gently advances the nozzle so as to block the urethra completely. The patient is told to relax his muscles, to turn his attention to other things, or to imagine he is passing water with the idea of relaxing the "cut off muscle." (To aid in this for the first few sittings it is advisable to inject before the treatment a drachm of 2 per cent. novocain or stovaine solution into the urethra with a hand syringe or a boiled stylo filler, and ask the patient to hold this in the urethra for some minutes with the finger and thumb. This desensitizes the urethra, and the compressor reflex is lessened or abolished.) If the patient can be got to relax his muscle, a trick which he may not learn till after several sittings, then the fluid flows past the muscle into the deep urethra and fills the bladder. At the end of the sitting the patient rises and passes out the wash. In this way a thorough flushing of the deep urethra and bladder is obtained, without the need of passing any catheter, with its attendant complications and difficulties of passage and sterilization. The deep urethra and bladder can thus be given antiseptic washes in the most simple and effective manner.

I cannot too carefully warn my hearers against using roughness and force in their manipulations. The process is one that requires patience and tact, not force. Do not worry if you cannot get the wash through at the first few sittings. Use these as lessons to train the patient in learning the trick of relaxing the sphincter. Once he learns the trick, the fluid passes through with the greatest ease and can then do no harm. But if an attempt is made to force the fluid through in the first sitting against an unwilling sphincter, it may cause severe pain, and may make the trouble worse, and even set up epididymitis. It is better to desist than to employ force. Sooner or later the patient will let the fluid in quite easily.

Again, do not try at the first few sittings to press more than a few ounces into the bladder. Later on the patient will take half a pint easily, but at first he will usually only take an ounce or two. This is quite sufficient to diminish the inflammation of the deeper parts. Again, do not try to use too strong washes at first; begin with quite weak ones, such as potassium permanganate 1 in 5,000, and only work up gradually to stronger ones such as 1 in 2,000 at the strongest. On no pretence whatever employ a height of more than five feet. In Germany I have often seen them raise the irrigator to as much as ten or eleven feet so as to overcome the sphincter by force rather than persuasion. This is the greatest mistake that can be made; it is brutal and unnecessary, and defeats its own object.

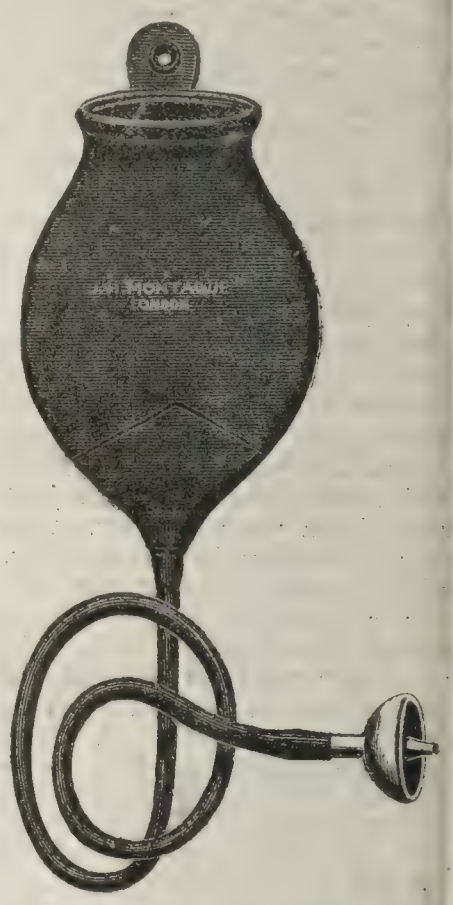
Indications for Janet's Irrigations.

1. *Anterior irrigations* are used for treating urethritis, both anterior and posterior, from the earliest stages; for washing the anterior urethra free of pus in the diagnosis of acute early cases; and invariably before the passage of any urethral instrument, except the urethroscopic tube. If used before this they spoil the picture.

2. *Posterior irrigations* are used chiefly in subacute or chronic cases, at least five or six weeks after the onset of the discharge, and when the deep disease is dying down by natural resolution. They should never be used in early acute posterior cases unless the patient is lying up in bed, and unless the doctor is an expert, and then only under exceptional circumstances—for instance, in joint cases, and then only in weak dilutions, such as 1 in 8,000 to 1 in 5,000 potassium permanganate. Posterior irrigations are also most useful in cases of *chronic* cystitis, and should always be employed (mercury oxycyanide 1 in 4,000) before a bougie or catheter is passed into the bladder.

Urethral Nozzles.

The most primitive form consists in some inches of glass tubing tapered at one end into a cone, so as to be able to enter and block the urethra. The objection to this is the splashing. A development is seen in the provision of a mushroom-like shield on the wall of the nozzle made of glass, as in the Ryan or Wyndham Powell nozzle. For use in large clinics Montague has made me a modification of the Wyndham Powell nozzle. The shield is of rubber, so cannot break. The stem is of non-rusting metal. The nozzles are of non-rusting metal, and are detachable. The shield and stem are kept in weak lysol solution, and the nozzles are detached and boiled after each wash. For the use of patients in small clinics I have designed a smaller nozzle and shield, all in one piece, made of unrustable metal, which can be boiled, and which cannot break.



INJECTIONS.

If the patient cannot attend daily for irrigations, or if for any reason it is not possible for him to use the portable irrigating apparatus himself (which is true of most hospital patients) then it is necessary to employ injections with a hand syringe. The danger of such injections is that the patient may not sterilize the syringe before use, so that he develops secondary infections which are more difficult to cure than pure gonococcal infections. This is the real danger of injections. There is an old bogey widely taught in the schools that there is danger of forcing the injections too far back. I cannot too emphatically repudiate this absurd idea. The sphincter muscle sees to it that the patient does not push the injection into the deep urethra, and even if it does let the injection back it can only do good and no possible harm. This idea ought to be laughed out of court. If a urethra is so little inflamed, and consequently so insensitive, that the sphincter lets an injection through into the bladder and deep urethra, then the injection can only do good and no possible harm.

For out-patients I am accustomed to order a cheap glass syringe, and the patient is given exact printed directions, first how to sterilize it, secondly how to use it.

They are as follows:

Directions for Injecting (Out-patient Practice).

1. Buy a glass syringe at the hospital dispensary, where you will also obtain the bottle of injecting fluid ordered by the doctor on your book

2. Buy a small saucepan with a cover, and a small cheap cup. fter you finish injecting (and also before you inject for the rst time)—

3. Place the syringe and the cup in the saucepan and cover ith a little water; raise the water to boiling point, holding the aucepan over a fire or spirit lamp.

4. Place the cover on the saucepan and put it aside to cool in safe place.

To inject—

5. First pass water. Then take the cup out of the saucepan nd empty it. Pour into it a little of the injecting fluid out of our bottle. Pick the syringe out of the saucepan and suck p the injecting fluid into the syringe. Place the nozzle of the yringe very gently inside the mouth of the canal. Fill the canal ith injecting fluid, withdraw the syringe, and by means of the nger and thumb hold the fluid inside the canal for two inutes; then let it out.

6. Inject at least twice a day, and if you can possibly manage , you will get well quicker if you inject three, or even four, mes a day.

For private patients I have devised an injecting outfit nown as my outfit A, and to be obtained at Wallas and o., 36, New Cavendish Street. The box contains a glass ube with a rubber stopper. The syringe is placed in this nd the tube filled with water. Tablets of corrosive sub-imate are provided, one of which is also dropped into the ube and makes a solution of 1 in 1,000. This ensures hat the syringe is always kept germ-free. Another space n the box contains a 4 oz. bottle of injecting fluid.

When the patient syringes he washes his hands and hen passes water. He then removes the syringe from the ube, pulls back the piston and unscrews the nozzle of the yringe. He then fills the open barrel of the syringe from he bottle of injecting fluid, and screws on the nozzle. He hen fills the urethra from the syringe, and holds the in-ection in for two minutes. He then drops the empty yringe back into the tube, corks the tube, and the sitting s over.

He should inject at least three times and better four imes a day. Potassium permanganate is used in strengths of 1 in 3,000 for acute cases, 1 in 2,000 for subacute cases, nd 1 in 1,500 and 1 in 1,000 for chronic cases. The yringe is of four-drachm capacity and has a smooth conical ulcanite nozzle which fits the urethra snugly and cannot lamage it.

I cannot too strongly condemn those forms of syringe which re often recommended and sold especially by chemists where a catheter or long tube is attached to the syringe for passing down the urethra. These damage the inflamed urethra, and may lead to severe secondary infections. Syringes with a screw piston are unnecessarily complicated nd expensive. I find the syringes in my outfit A were all made in Germany, so that it is not possible to obtain them now. Wallas and Co. are now making for me a two-drachm syringe with a rubber tip. This has to be inserted into the mouth of the bottle containing the injecting fluid, the bottle inverted, and the syringe filled by suction, not altogether an ideal method.

FLUIDS FOR INJECTIONS.

One recent book recommended something like fifty different injecting fluids. A man who needs to recommend a lot of fancy injections is a man who does not understand how to drive the lurking coccus out of its special lairs, such as the prostate, the glands of Littre, and submucous infiltrations. If your injections are not curing the disease do not blame the injections. Blame your lack of urethral knowledge. Try increased strengths of the old injections, and, above all, examine the prostate and use the urethro-scope. If a man understands his job he will find that only a few different kinds of injecting fluid are required.

1. For acute cases and for most chronic cases there is nothing to be compared to potassium permanganate in strengths from 1 in 4,000 to 1 in 1,000, varying with the acuteness of the inflammation.

2. In the later stages an astringent injection may be used. The best is zinc permanganate in strengths of 1 in 8,000 up to 1 in 2,000.

3. In a few chronic cases silver nitrate may prove helpful as an astringent in strengths of 1 in 5,000 to 1 in 1,000.

4. In cases of secondary infection nothing is better than mercury oxycyanide in strengths of 1 in 2,000.

With these four injecting fluids I will undertake to cure almost any case of urethritis. Failure with these means failure to detect a soft stricture, an infected gland of Littre, or latent prostatic or vesicular collection.

I do not deny that there are many antiseptics that are useful, but what I strongly maintain is that these four are excellent antiseptics for urethral use, and that it is far better to familiarize yourself with a few simple formulae of proved utility rather than to be always changing your formula in the hopes of stopping a discharge. I repeat, if a discharge persists, it is not the fault of the antiseptic; it is due to your failure to detect a lurking cause of relapse.

My experience in practice is that preparations of colloid silver and iodine are not needed, and are sometimes harmful, especially as they are often prescribed in too great strengths. Protargol, for instance, stops the discharge, it is true; but I find that when prescribed, as it usually is, in excessive strengths it leads to soft strictures which are very troublesome to cure. For this reason I advise you not to prescribe injections of protargol, argyrol, iodargol, and so forth. I am sure they are often harmful, as they are usually prescribed in excessive strengths, and are rather expensive.

While on the subject of injections I want to warn you against another practice, and that is the use of medicated bougies. It is so easy to prescribe these, and the patient takes to the idea of shoving strongly medicated substances up into his urethra. I quite agree that they may appear to diminish the discharge, but I find that they often lead to most troublesome soft strictures. But worse than that, I find that they may lead to severe forms of secondary infection, as it is not always possible to secure that their surface is kept clean before being thrust into the urethra. The point is that these patent antiseptics and medicated bougies are not needed at all in the cure of urethritis if a man understands his job. If a man knows how to use the simple injecting fluids I have mentioned, and if he knows how to control his results by observations on the prostate and urethra, then he will find no need for these makeshifts of the inexpert.

(To be continued.)

TWO CASES OF REMOVAL OF FOREIGN BODIES FROM THE EYE.

BY HENRY T. KELSALL, M.D., B.S.LOND., M.R.C.S., L.R.C.P.,

HONORARY OPHTHALMIC SURGEON, PERTH PUBLIC HOSPITAL, WESTERN AUSTRALIA.

THE following notes concerning the removal of foreign bodies from the vitreous chamber of the eye will, I trust, prove of interest:

1. L., aged 32, an Italian employed in machinery work on the goldfields, came to the Perth Hospital stating that he was struck on the left eye three days previously by a piece of metal, probably steel. The eye was comparatively quiet, but on careful inspection a small scar was seen towards the outer part of the left cornea (the wound of entry), and behind and slightly outwards from it another wound of the iris. Vision was only slightly impaired, and after dilatation no foreign body or other disturbance could be observed by the ophthalmoscope except a slight haemorrhage on the outer side.

A skiagram gave a positive result, showing the presence of a piece of metal. After localization by the aid of the *x* rays and having regard to the oblique direction in which the steel had evidently passed, it was determined to perform a posterior sclerotomy behind the dangerous area through the insertion of the external rectus muscle. A preliminary trial with Haab's magnet gave no result at all. Under cocaine and adrenalin, after dissecting off the superficial structures, an antero-posterior incision was made through the sclerotic for one-third of an inch. The sterilized small point of an electro-magnet then introduced into the wound attracted the foreign body at the first attempt, and it was removed. It proved to be a scale of iron 2 mm. by 1 mm. There was no escape of vitreous.

The eye made an uninterrupted recovery, and the patient, when seen about two months after the operation, had vision $\frac{6}{9}$ and J. 1, with no untoward symptoms whatever.

The second case I saw in consultation with my friend and colleague Dr. Paton, who asked me to admit the patient to the Perth Public Hospital. Dr. Paton was present at the operation and kindly assisted me.

2. W. L., aged 36, a machinist, married, was struck on the right eye by a piece of steel on November 1st, 1915. The left eye was blind owing to an injury received several years previously.

The foreign body had penetrated the upper eyelid at the junction of the middle and outer thirds, and about half an inch from the palpebral border. It could be seen after dilatation of the pupil by atropine as a long black object lying in the vitreous obliquely, there being very little haemorrhage to obscure the view. A skiagram showed a large piece of metal

as being present. Vision was obscured to about $\frac{2}{24}$, and the eye was quiet. When Haab's magnet was in close approximation to the eye a sudden pain was manifested.

Any procedure with the big magnet being out of the question, on November 8th, under cocaine and adrenalin, an antero-posterior incision was made in the sclerotic, about half an inch in length, well behind the ciliary region, midway between the insertions of the outer and inferior recti muscles, and the small sterilized point of the electro-magnet inserted right into the vitreous. Considerable difficulty being experienced, the incision through the sclerotic was slightly enlarged backwards. After several trials the magnet brought out the foreign body, which proved to be a cylindrical piece of steel $\frac{1}{8}$ in. in length and 2 mm. in diameter. There was no escape of vitreous.

A couple of sutures in the superficial structures closed the wound, which healed quite satisfactorily, and he went out of hospital within three weeks with no untoward symptoms.

Dr. Paton sent him to see me on May 18th, 1916—that is, over six months from the time of the operation, and his vision was $\frac{6}{9}$ and J. 2. He was able to work. The media were clear, the pupil reacted to light, and tension was normal.

The result in this second case was eminently satisfactory when it is borne in mind that this was the patient's only good eye, and taking into consideration the relative magnitude of the injury itself and that caused by the surgical procedure. The future may naturally involve degenerative and other changes.

A CASE OF ACTINOMYCOSIS SUCCESSFULLY TREATED BY VACCINE.

BY

C. W. DEAN, F.R.C.S.E.,

HONORARY MEDICAL OFFICER, THE ROYAL LANCASTER INFIRMARY.

THE case of actinomycosis reported by Dr. Malcolm in the BRITISH MEDICAL JOURNAL of October 7th, 1916, and the remarks he there made as to the importance of recording even a single case which has been treated by vaccine prompt me to give my own experience.

A boy aged 18 years, a farm labourer, was admitted under my care into the Royal Lancaster Infirmary on August 2nd, 1916, suffering from a swelling in the left parotid region. No history was given except that the swelling had commenced six weeks previously, had gradually increased, and was supposed to be an abscess due to a decayed tooth. The bones did not seem to be involved, the swelling being fairly movable over their surface; pus was oozing from two sinuses on the outside of the cheek, which on being explored led into pockets containing thick pus and débris. After I had opened these cavities the swelling decreased somewhat, but shortly afterwards fresh swellings appeared, and I then began to be suspicious of actinomycosis.

The pus and débris were examined by Dr. Gough of Leeds, and the ray fungus was found. Two carious lower molars were extracted, but they seemed to have no connexion with the growth. I put the patient on large doses of potassium iodide (gr. 15 thrice daily), and although he took it continuously during the whole of the treatment it produced no symptoms of iodism. I may say there was not the slightest reason to suspect syphilis, the patient being a particularly healthy, robust, and intelligent country boy.

I then wrote to Dr. Leonard Colebrook of St. Mary's Hospital, who gave me many valuable suggestions as to treatment. He has very kindly allowed me to quote from his letter. He says:

> I have had very satisfactory results with vaccine in a number of cases, particularly those of the jaw, but only if combined with efficient drainage. And may I add a point that seems to me of great value in the surgical treatment—namely, the advantage of curetting with a dry swab as opposed to a sharp instrument, and I advise it for this reason—the infected tissues in this disease seem to be sharply defined, and with a dry swab they can frequently be removed entirely if the focus is small, leaving a clean boundary of apparently uninfected tissue, which heals straight away. With a sharp instrument there is, I think, more chance of spreading the infection. It is a point that is not sufficiently recognized. I use the vaccine in doses of 3 to 10 million fragments about once a week.

I carried out Dr. Colebrook's suggestions as to surgical treatment, but I am afraid I gave the vaccine in much larger amount than he advised. I gave 25 million fragments as an initial dose on September 18th—inadvertently, I will admit, but as nothing happened beyond a rise of temperature to 100° the following night (it fell to normal in twenty-four hours), I continued the same dose once a week for a month with absolutely no ill effect to the patient, and the temperature did not go up again. The boy is, as far as I can tell, now perfectly well, the wounds are healed and the swelling has quite gone down; the only thing left is a slight oedema of the cheek, as if from some obstruction to the lymphatic return, due to very firm contraction of the healed tissues. The seventh nerve does not seem to be at all involved.

Dr. Colebrook suggests that in this particular case the tissues above the parotid were the parts affected and not the gland itself. He is probably right, as there were no signs of the gland tissue being implicated. He tells me that he has not himself met with a definite involvement of either lymphatics or salivary glands in this disease.

What I have written contains nothing new beyond the fact that in some cases, at any rate, the initial and subsequent doses of vaccine can be very largely increased beyond those usually given with apparently the best results. The last dose of 25 million fragments was given on October 9th. It had no effect upon the well-being of the patient, and I am sure was really superfluous, but I gave it to make assurance doubly sure. I think the potassium iodide had little or no effect, but improvement was most marked on giving the first dose of vaccine.

I would emphasize the following points: that the patient had only four injections of vaccine in all, each of 25 million fragments; that the treatment by this method only lasted from September 18th to October 9th; and that I am convinced the last dose was unnecessary.

I have carefully examined the boy several times and can find no involvement of other parts.

HOME-MADE BREAD SUBSTITUTES FOR DIABETIC PATIENTS.

BY FRANK NICHOLSON, M.D.LOND.,

SENIOR PHYSICIAN, HULL ROYAL INFIRMARY.

I HAVE read the article by Dr. Williamson of Manchester, in the JOURNAL of December 23rd, 1916, with much interest. Most of the diabetic and gluten flours sold to the public give a reaction with iodine almost as dark as ordinary flour. They are sold at all prices from 9s. to 40s. or more a stone; and I do not now order them. Gluten bread even from the best houses is not palatable, and cannot be cut in slices and buttered. Prolacto bread and casoid bread are satisfactory, but they are not very nice to eat, and are very expensive.

For some two years or so I have given up all these flours and breads, and I order a bread made of pea-nut flour and casein. This is made for me quite easily in the kitchen of the Hull Royal Infirmary, and my private patients make it quite well at home. It has the advantage of being very nice to the taste, and can be cut readily in slices even as thin bread-and-butter. I have now several private cases that have made the bread twice a week and eaten it regularly for a year or two, and they like it.

Receipt:

Pea-nut flour eight ounces.
Casein two ounces.
A pinch of salt.
White of egg twelve ounces.

The white of egg is beaten to a snow, and then the other ingredients (previously lightly mixed) are slowly added. The bread is baked in a sound oven in a tin.

Pea-nut flour is not expensive, and was offered to me a few months ago at 1s. 2d. for 3 lb. The pea-nuts, which are sometimes called monkey nuts, can also be bought. They should be placed on the top of the oven for a short time, when the husk can be rubbed off with the hand and the nuts ground in a small mill which can be bought for 2s. 6d. Casein can be bought anywhere. The whites of eight or nine eggs measure about 12 oz.; though they are just now dear, most good housekeepers have put down a number in waterglass when they could be obtained at sixteen a shilling, and these will do very well. The yolks come in for the patient, fried or in any other way, or they can be used in the kitchen for other things.

This bread when tested with iodine gives only the faintest blue reaction. If preferred, the yolks also can be used in making the bread, and then only half the number

f eggs is needed; but the bread is yellow, and I do not ink it is so nice. The pea-nut flour can be replaced by lmond flour, but it costs more, and my hospital cases o not like it so much.

I may add that casein and cream, as suggested by)r. Williamson in the JOURNAL a year ago, have been very atisfactory in my hands.

I have lately treated several cases on the alimentary rest cheme with very good results. It is sometimes called the tarvation scheme, but this is a bad name, and one that oes not commend itself (under that name) to private atients. I give four half-pints of black coffee in twenty-our hours, and nothing else; this I have found patients vill take for three, four, or five days without complaint. By that time the sugar has disappeared entirely from the rine. I then gradually add cabbage 5 oz., and in a day or wo an egg, and then half a pint of beef-tea, increasing each lay or two (if no sugar appears), so that in ten or fifteen lays the patient is getting meat 2 oz., casein 2 oz., cream oz., beef-tea 1 pint, cabbage 10 oz. (or other green egetable), eggs three, tea or coffee 2 pints, with cream, nd some pea-nut bread with butter.

Reviews.

PARATYPHOID B FEVER.

An elaborate study of paratyphoid B fever has recently been published by Drs. RATHERY, AMBARD, VANSTEENBERGHE, and MICHEL.[1] It is based on fifteen months' experience of the disease at Zuydcoote Hospital, where they dealt with 1,088 cases of the disease; 74 of the patients died—a mortality of 6.8 per cent. The *Bacillus paratyphosus* B was cultivated from the patient's blood in 314 instances; in the other 774 the diagnosis was made by agglutination tests. The chief symptoms and signs noted in the course of the disease are loss of appetite (which is constant), occasionally vomiting, diarrhoea succeeded by obstinate constipation, furring of the tongue with fibrillary twitching of its muscular bundles, some distension of the abdomen, swelling of the spleen (which is often also painful), headache, and pain in the back. Bronchitis often occurs, thrombosis of veins is common, renal complications are rare. The authors describe many varieties of fever charts in the disease. The fever may last for days or weeks, and may be continuous, remittent (this is the commonest type), or intermittent; in some cases there is no elevation of the temperature. Relapse after a week or two is not rare, and irregular rises or falls in the temperature are fairly often met with. The fever ends by lysis in most cases. Abortive forms of paratyphoid B fever are frequent, especially towards the end of epidemics of the disease; the case may undergo relapses of considerable severity. Asthenia rather than the classical typhoid state is characteristic of paratyphoid B fever, and also frequently is seen during convalescence from it.

Describing the skin eruptions observed, the authors state that they have met with a number of cases in which the characteristic rose spots came out in great numbers all over the body and limbs; in other instances the spots became purpuric, being the seat of haemorrhages; in others, again, they were morbilliform. In a few instances a scarlatiniform erythema appeared, either generally or locally—a sign of very serious import.

Thrush, Vincent's angina, diphtheria, facial erysipelas, all occurred as important complications of the disease, and malaria was not rare; special emphasis is laid on the severity of a secondary diphtherial infection. Otitis media occurred as a fairly frequent complication; and colitis, whether of the muco-membranous or of the dysenteric variety, is mentioned as occurring far more frequently in paratyphoid B fever than in typhoid. Peritonitis occurred fairly frequently, but jaundice was unexpectedly rare. As for the kidneys, no case of acute nephritis was met with; the urine was examined for *B. paratyphosus* B in 406 patients, with a positive result in no more than 8. Pulmonary complications were frequent and often serious; pleurisy was rare. Cardiac complications were frequent and often serious, though the cause of sudden death only in one instance: myocarditis and cardiac irritability were frequent. Cutaneous suppuration in the form of boils was often seen during convalescence.

In their chapter on diagnosis the authors insist on the supreme importance of laboratory methods, particularly blood cultures; they give full details of the methods to be adopted here. As has been stated above, 74 of their patients died; the cause of death was cardiac failure in 30, pneumonia or bronchopneumonia in 11, intestinal perforation in 9, colitis in 3, pulmonary tuberculosis in 3, diphtheria in 3, parotitis in 3, tuberculous meningitis in 2, purpura and multiple haemorrhages in 2, otitis in 2. A good account of the pathological anatomy of the disease is given, with several illustrations; the lesions observed were very similar to those met with in fatal cases of typhoid fever.

As regards treatment, the authors pin their faith to hydrotherapy, cleansing the mouth, the administration of castor oil or sodium sulphate in constipation, and a copious fluid diet. A full discussion of the vaccine treatment in 147 cases is given, with details of its employment. The conclusion reached is that the treatment is useful and worth trying, for it almost always improves the general condition of the patient, often appears to shorten the duration of the fever, and never had any harmful results.

[1] *Les Fièvres paratyphoïdes B à l'hôpital mixte de Zuydcoote.* Par F. Rathery, L. Ambard, P. Vansteenberghe, R. Michel. Paris: F. Alcan. 1916. (Méd. 8vo, pp. 248; 16 figures, 52 charts. Fr. 9.)

SURGERY.

UNDER the title of *The Student's Textbook of Surgery*[2] a new manual by Mr. H. N. BARNETT has recently made its appearance. The author claims that this is the first textbook in which the chapters dealing with special subjects have been written by specialists in those branches of surgery, and that all academic discussions and padding have been omitted, each subject being treated as briefly as possible. The general plan of the book seems excellent, and there is no doubt that at the present day it is difficult for a general surgeon to be equally well conversant with all the branches of surgery. A chapter on the surgical aspect of infective fevers brings into prominence the intimate connexion of enteric fever, diphtheria, and scarlet fever with surgical conditions, and should serve a useful purpose. The general production of the book is good, and there are many excellent illustrations. When the book is studied more closely it is found to be somewhat unequal, and it seems to have suffered in parts from the attempt at condensation. This compression has been attained by practically omitting surgical anatomy, and cutting down the description of operative treatment to a minimum. The author points out that operative surgery should be learnt from a special textbook. That may be so, but without doubt this process of division of labour can be carried to an extreme. There is sometimes a lack of clearness in the statements; for example, under the heading of intussusception we read that this condition is most common in "young males," but is it not a fact that intussusception seldom occurs save in infants under two years of age? If so, "young male" is rather too elastic a term. Whereas much of the book is good, in parts it is hardly sufficient to meet the requirements of a student for most examinations.

Emergency Surgery,[3] by Dr. J. W. SLUSS, is written primarily with the idea of being useful to the general practitioner who is suddenly faced with some case requiring immediate operative treatment in circumstances where a hospital or other skilled assistance is not available. At the present day, when, in many cases, the need for immediate operation is recognized not only by the practitioner but also by the patient's relatives and friends, it becomes incumbent on the medical attendant, often in spite of adverse surroundings, to give his patient a chance. This does not mean that the general practitioner should lightly undertake the major operations of surgery; on the other hand, if need arise, either from the isolation of the patient or any other cause, there is no question as to what should be done. Considered from this standpoint, the book appears fully to carry out what is intended. The various surgical operations and manipulations are clearly

[2] *The Student's Textbook of Surgery.* By H. N. Barnett, F.R.C.S., Major Commanding 3/2 South-Western Mounted Brigade Field Ambulance. London: W. Heinemann. 1916. (Roy. 8vo, pp. 813; 79 plates, 143 figures. 21s. net.)

[3] *Emergency Surgery.* By J. W. Sluss, A.M., M.D. Third edition, revised and enlarged. London: W. Heinemann. 1916. (Post 8vo, pp. 847; 670 figures. 17s. 6d. net.)

described, and the text is well illustrated. Most useful suggestions are offered as to how the modern technique of surgery may be attained in a private house where none of the conveniences of a hospital or nursing home are to be found. As Lejars points out, everywhere one finds water, fire, and linen, and with these much can be accomplished. In the present edition the chapter on military surgery has been rewritten in conformity with the surgical experience of the present war. This, however, is rather a large subject to be efficiently dealt with in a book of this character.

Pye's Surgical Handicraft[4] has recently made its appearance in a seventh edition, edited by W. H. CLAYTON-GREENE. It is unnecessary to say much of this already well-known and popular book. In the present edition the volume has been brought throughly up to date and a chapter on *x* rays added by Dr. Harrison Orton. The book deals with all the contingencies that a house-surgeon may have to face. There are chapters on bandaging, setting of fractures, arrest of haemorrhage, the modern treatment of syphilis with kharsivan and galyl, minor surgery, and treatment after operation. Further, the special branches, including eye, ear, nose, throat, and dental surgery, are dealt with, and there are also articles on the administration of anaestheties and cases of poisoning. In the past many of us have turned to *Surgical Handicraft* in cases of difficulty, and the dresser and house-surgeon could have no better friend. At the present time, where in many cases the senior student is called upon to do the work of a house-surgeon in his hospital, the book should prove especially useful.

SEXUAL DISABILITIES OF THE MALE.

MR. ARTHUR COOPER'S excellent little book upon the important and difficult subject of *The Sexual Disabilities of Man*[5] has now reached its third edition. It is divided into three parts. The first of these deals with sterility so far as it may be due to defects in the male partner, a condition of affairs that is not nearly so rare as is often supposed. The second part contains an account of impotence in its various aspects, and of the ways in which it may be treated. Part three, which is new, gives a brief account of the prevention of sexual disability. Mr. Cooper has clearly had a great experience in dealing with the subjects on which he writes, and his book may be regarded as a model to be imitated by many of those who publish works dealing with these matters. Nowadays there is a tendency to discuss sexual diseases and the abnormalities of sexual appetite with an unnecessary insistence on detail and a Freudian salacity that do nothing to assist the comprehension or direct the treatment required by such disorders. To all medical men and others who are in search of a sound and trustworthy account of sexual disabilities in the male and their treatment Mr. Cooper's little book may be recommended with confidence.

NOTES ON BOOKS.

BALE'S *Dental Surgeon's Daily Diary and Appointment Book*[6] is a large and luxurious publication, showing entries for a week when open, and replete with all the special advertisements and information a dentist is likely to require. It may be recommended to all practitioners of dentistry in search of a day-book for their professional work.

The *Transactions and the Annual Report of the London Dermatological Society*,[7] October, 1915, to June, 1916, form a slender volume containing a number of interesting papers, cases, and discussions. Dr. Prosser White describes several new occupational skin diseases, including forms due to trinitrotoluene poisoning; and there is an account of the use of the wolfram arc lamp in the treatment of venereal disease.

Initis,[8] by Dr. A. RABAGLIATI, is an enthusiastic account of the virtues of simple forms of self-administered massage and movements. These are said to be sovereign remedies in the case of countless aches and pains; indeed, Dr. Rabagliati claims that they will put off for many years the onset of so grave a disorder as angina pectoris, in which, he says, there may occur "sudden death with rheumatic cramp of the heart."

Defining diabetes as "that form of glycosuria which is consequent on alimentary toxaemia," Major B. D. BASU, I.M.S., has written an account of *The Dietetic Treatment of Diabetes*[9] that should be of much service to inhabitants of India afflicted with that disease. It contains a quantity of advice, which, if somewhat heterogeneous, is very practical. The author mentions the fasting cure, and also recommends the coconut cure—in which the patient lives on the water, oil, and meal derived from the coconut. Many quotations from the literature of the subject are given.

The Flight of Mariette,[10] by GERTRUDE E. M. VAUGHAN, gives an admirable account of the siege of Antwerp by the Germans in October, 1914. The book takes the form of a diary written by a Belgian girl, aged 18 when the diary begins in 1912; five-sixths of its contents, however, are devoted to the early days of the war. It gives a most life-like picture of the changing states of mind, the hopes, the fears, the crushing anxieties, of a family of Anversois driven out at the last moment and taking refuge in England. The story of the flight itself is told with the utmost poignancy and verisimilitude; the diary ends with the Brabançonne, upon a hopeful note, early in 1915. We recommend this book strongly; it is a human document of the greatest interest, and should do something towards bringing home to even so highly protected a community as our own the horrors of modern warfare as waged by the Germans.

The third American edition and translation of Professor L. KREHL'S *Pathologische Physiologie*, taken from the seventh edition of the German original, contains a certain amount of new matter added since the appearance of the second American edition. This was reviewed in the BRITISH MEDICAL JOURNAL of September 11th, 1909, p. 705, and we have nothing to add to the general estimate of the value of Professor Krehl's work there set out. The new American edition, entitled *The Basis of Symptoms*,[11] contains new matter in the pages devoted to such subjects as irregularity of the heart's action, certain blood diseases, anaphylaxis, chemiotherapy, the endocrine glands, and the functional tests of the activity of the kidneys. A new chapter on "Constitutional diseases and diatheses" has been added. The translator has brought the numerous references to the literature up to date and has done his work well, producing a text easy to read. The book covers a great deal of ground, and gives a general survey of modern views of the connexion between physiology and pathology, the normal and the diseased, from a clinical point of view. The sections on treatment are, perhaps necessarily, impressionist. Details, figures, exact analyses, the bases of the deductions and general statements made find no place in the book. For the competent pathologist and physician this is, perhaps, an advantage. For the student it is not so, for it cultivates the fancy and conceals the groundwork of solid facts upon which such theories and speculations as Professor Krehl's rest. In a general way students require a diet of facts in clinical medicine; of theories they are sure to hear more than enough during their medical education, without having them forced upon their attention wholesale and to the exclusion of saner and less windy fare in the books they read.

---

[4] *Pye's Surgical Handicraft: A Manual of Surgical Manipulations, Minor Surgery, and other Matters Connected with the Work of House-Surgeons and Surgical Dressers.* Edited and largely rewritten by W. H. Clayton-Greene, B.A., M.B., B.C.Camb., F.R.C.S Eng. Seventh edition, fully revised. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd; Toronto: The Macmillan Co. of Canada, Ltd. 1916. (Demy 8vo, pp. 630; 11 plates, 336 figures. 15s. net.)

[5] *The Sexual Disabilities of Man and Their Treatment and Prevention.* By A. Cooper. Third edition, revised and enlarged. London: H. K. Lewis and Co., Ltd 1916. (Cr. 8vo, pp. 235. 6s. net.)

[6] *Bale's Dental Surgeon's Daily Diary and Appointment Book, 1917.* London: J. Bale, Sons, and Danielsson, Ltd., and C. Ash, Sons, and Co., Ltd. 1917. (Cr. 4to, pp 161. Plain, 5s; interleaved with blotting paper, 6s. 6d.; interleaved with ruled paper, 6s. 6d.)

[7] *Transactions and the Fifth Annual Report of the London Dermatological Society, with List of Officers and Members.* London: J. Bale, Sons, and Danielsson, Ltd. 1916. (Demy 8vo, pp. 85; 4 plates, 4 figures. 2s. 6d.)

[8] *Initis, or Nutrition and Exercises.* By A. Rabagliati, M.A., M.D., F.R.C.S.Edin. London: C. W Daniel, Ltd. 1916. (Demy 8vo, pp. 194; 28 figures. 10s. 6d. net.)

[9] *Dietetic Treatment of Diabetes.* By B. D. Basu, Major I.M.S. (retired). Seventh edition, revised and enlarged. Bahadurganj, Allahabad: The Panini Office, Bhuvaneshvari Ashram. 1916 (Cr. 8vo, pp. 107. Rs.1.8.)

[10] *The Flight of Mariette: A Story of the Siege of Antwerp.* By Gertrude E. M Vaughan. With an introduction by John Galsworthy. London: Chapman and Hall, Ltd. 1916. (Post 8vo, pp. 163. 3s. 6d. net.)

[11] *The Basis of Symptoms: The Principles of Clinical Pathology.* By Dr. L Krehl. Authorized translation from the seventh German edition by A. F. Beifeld, Ph.B., M.D. Third American edition. With an introduction by A. W. Howlett, M.D. Philadelphia and London: J. B. Lippincott. 1916. (Med. 8vo, pp. 526. 21s. net.)

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

Causes and Remedies of Starting Difficulties.

art from one's own recent experiences, those of readers regard to starting the engines of their cars, or motor les, suggest that it may be useful to give some brief ts on the matter at the present juncture. The idea that ains is that difficulty is wholly due to the poor quality the petrol available. Inasmuch as the bulk of related perience goes to indicate that the trouble has occurred ring the last two months, and seems to have been grow- worse, it is plain that it does not lie wholly with the ality of the petrol, but that it is in part due to the ather. The rapid changes from frost to thaw, from dry rain or snow, from strong drying wind to saturating fog, ises penetration into most houses, with the result that nporarily damp walls have been a common experience ring the last two months. This is in part an explanation the difficulties being experienced as well in starting as running motor-car engines. Sometimes when a motor quite hot after a run, still there is considerable reluctance it to fire.

When the engine is standing overnight in the motor use in such weather as we have experienced, as well when it is in use in the daytime, the amount of con- nsation from moisture, combined with the falling off of e quality of the petrol, has resulted in a vast number of ses, including my own, in a gradual accumulation of ter either in the lowermost portion of the petrol supply pe to the carburettor, if at any point that pipe falls lower an any part of the carburettor into which the petrol has flow, or, if the carburettor details themselves are lower an the piping, in the float-chamber itself. In my own se investigation reveals that a quarter of an inch of ter has accumulated in, and has had to be drained out the carburettor.

Water in Petrol Pipe or Carburettor.

The remedy for this, perhaps the greatest cause of rting trouble, is simple. A drain tap should be fitted her to the petrol supply pipe, whereby any water can be awn off immediately, as has been the standard Sunbeam actice for years past; or some similar draining con- vance should be supplied to the bottom of the car- rettor so that before turning on the petrol prior to rting up the engine the tap can be opened, whereupon y water that may have accumulated will run off. In is connexion it should be pointed out that whatever m of tap is employed its closed position should be such at its handle then hangs down vertically; in other rds, to open it you should have to turn it up into the rizontal position. By arranging matters thus any wear at might occur as the result of vibration, or what not, d so loosen the tap, would nevertheless not cause petrol escape, because, when loose, the tap handle would hang wn by the action of gravity, and therefore remain ways in the closed position.

It is well nowadays to put plenty of rugs over the diator, also over the bonnet of the car, even when it is used in a brick building. In the event of frost obtaining is will both keep cold out of the vehicle and maintain e motor-house warm as well as the engine for many urs even where there is no artificial heating. Indeed, if e car is run into the motor-house bonnet foremost, with e back of the vehicle to the door, and there is no window other aperture facing the radiator, in such climatic con- tions as are experienced in this country there should be xt to no occasion for any artificial heating, providing e car is wrapped up with rags that are dried daily if ere is any cause for them to accumulate damp.

Of course there are circumstances in which no amount wrapping can protect the engine from the effects of ndensation or moist atmosphere. Thus, after housing wet car run over rain-soaked roads all day, or more less slushy snow, without opportunity to clean the axles, e under parts of the mudguards, and other details before tting the car away, the slush or snow will gradually melt f the under portions of the vehicle and so make the whole r of the garage moist. Sometimes, but not often, this oisture can be communicated even to the points of the arking plugs, and so render ignition faulty.

Sparking Plugs, Cranking, and Switching Off.

In any case, in these days of fewness of qualified motor- men magneto adjustment is likely to be neglected until something unmistakably faulty occurs. It will be found of great assistance, therefore, to see to it now and again that the points of the sparking plugs are closed up to the minimum gap advised by the makers of the engine.

Care should always be taken not to overflood the carburettor when starting the engine, while when testing the running of a motor no one cylinder should be cut off for any appreciable period, as that leads to deposit of an oily nature getting on the points of the plug. Oil and damp are the two great enemies of efficient sparking, hence bad starting of an engine is not entirely dependent on the prevalence of cold atmospheric conditions. Some engines are most difficult to start on thawy, foggy mornings.

Another point to have in mind is that no amount of winding an engine will ensure a good start. This is par- ticularly necessary for medical men to realize, in that cranking is a very exhausting business, and all their energies are now needed for the pursuit of their profession. As long as the driver makes sure, by touching the needle in the float chamber, that there is petrol in the carburettor, and shuts off the air either wholly or in part while the crank is turned from four to eight revolutions when the engine is cold in the morning so as to ensure that petrol has been sucked into the cylinders, especially if no doping plugs are provided, then the engine ought to start by an easy down thrust accelerating so that the upstroke is very "snappy." Of course, where dual ignition is fur- nished, so that there are accumulators furnishing a constant spark to the cylinder under compression and ready for firing, starting is a very much easier business than with a magneto alone, and can usually be effected by upstrokes only.

Medical men would, besides, be well advised when stopping an engine on arriving at the residence of a patient to open the throttle fully, either by means of the hand control lever or by pressing the accelerator pedal to the maximum, while switching off the ignition. By this means, when the engine has ceased to work, nevertheless it will be left with a fully compressed charge in the cylinder due to be fired; hence, if a rug is cast over the radiator and so forth, a single "snappy" upstroke ought to suffice for the engine to start firing again.

Warming up the Engine.

It is impossible that notes of this character can go into the matter of magneto adjustments, particularly as there was never so wide a variety of magnetos in service as to-day, and because in the actual affecting of adjustments, what is right in regard to one machine would be quite wrong in the case of another. Apart from the differences between various makes of magnetos, too, is the fact that makers get their ignition differently one from another according to what suits the particular type of engine in question. One useful hint, however, may be given to the novice, namely: Do not treat the magneto as you would any other part of the car by rather over than under lubricating it "to make sure of being on the safe side." Magnetos need scarcely any lubrication. If they receive a drop too much often they cease to work on no other account.

Another point to bear in mind nowadays concerns both fuel wastefulness and the riskiness of racing your engine on starting out on a cold morning with the idea of warming it up quickly. This does not pay, for, altogether apart from wasting petrol, often it may lead to a seizure, because, until the oil gets sufficiently warm, it is apt to be very stiff, so that it does not flow easily enough adequately to lubricate a cold engine when it is being raced. It is far better to do these things gradually.

This racing an engine to warm it is often the explana- tion of an engine getting hot after it has been run for ten or fifteen minutes, some people thinking that the fuel must be of the consistency of paraffin. Of course, present day fuel is heavier than were pre-war supplies.

It should be had in mind that until the intake pipes, and so forth, are warmed up to normal temperature, gas of the proper consistency is not being made. This is why mere depression of the accelerator pedal, or opening of the throttle by hand control, causes the engine to choke instead of to accelerate. The mixture is too rich. When getting away in the morning it is best to keep in a lower gear for a few minutes, and so to employ the controls that

as thin a gas as possible is supplied until the engine gradually attains to faster and faster revolutions. That is the most economical way of warming up in the least time. It is no use choking an engine by supplying too much petrol and too little air. That is bad for the engine, as well as wasteful.

THE FUTURE OF MEDICAL SERVICE.

I.—By GORDON WARD, M.D.

THERE is a tendency to-day to suppose that by providing a solution for as many of our problems as we can now see we have made adequate provision for all future difficulties. A noteworthy example of this is the provision made for "specialist" advice and panel treatment for those whose health has been injured by the war. The success of this scheme depends on a sufficiency of practitioners, but whether this sufficiency is likely to be forthcoming does not seem to have been discussed. It is comparatively easy to show that it is not by any means assured; indeed, it is common knowledge that even in peace time many areas had not a sufficiency of panel doctors.

Other examples of the hand-to-mouth method of solving war problems will readily come to mind. It is the aim of this article to consider as briefly as possible certain wider aspects of national health problems which are being lost sight of, to the great prejudice of their ultimate solution.

It will be necessary to consider (1) the work to be required of doctors after the war; (2) the supply and capabilities of doctors to do the work; and (3) the most economical way of utilizing them and organizing their service.

The Work Required.

So far as I can gather from conversations, many doctors consider that their only national duty after the war is to get back to pre-war conditions as fast as possible. Their horizons are bounded by thoughts of their own incomes, and, since this prepossession is shared by 99 per cent. of the remainder of humanity, they cannot be blamed. But they are wrong in supposing that pre-war conditions are of necessity the most advantageous for the profession. Perhaps this is more an instinctive feeling than a definite supposition on their part, but, however that may be, it does very definitely prevent them facing questions of national needs. Even such views and thoughts as have recently obtained publication in the medical press have been far more concerned with the welfare of the profession than the good of the public. Yet, since the public is not in a position to understand the problems raised in attempting to provide for its future health, it follows that the medical profession, which alone is qualified to do so, ought to propound a solution of future problems in the light of some more exalted view-point than is provided by mere self-interest.

It is true that to do so effectually requires also the gifts of a statesman, but these gifts are not the prerogative of lawyers, and have over and over again in the past found their highest expression in the persons of medical men.

Let me, then, attempt some comprehensive view of what ought to be required of the profession after the war.

In the first place, let it be said that man power is important now, but will certainly not be less important when peace is declared. Then we shall be a stronger nation morally but a weaker physically and financially. The work of every man will be required to enable us to compete with those who have grown rich while we fought the cause of morality against materialism. Taking, then, the population existing at the conclusion of peace, it will be of the first importance to safeguard the worker from preventable disease. An enormous amount of disability is now due to industrial disease. Those who work in factory districts will realize this. Here, then, is one sphere in which the work of medical men ought to be increased. There is, again, a very heavy mortality from infective disease—for example, tuberculosis and infantile diarrhoea. That much can be done by adequate research is shown by the examples of small-pox, diphtheria, enteric, and tetanus. A great deal is also to be done by earlier diagnosis and institutional treatment. All of these can only add to the burden of the medical profession.

We have also to consider the supply of workers; and here we are at once faced with the problem of child mortality. Every medical man knows that this is largely a question of ignorance, bad housing, and inherited disease. The bad housing is the concern of the State, the inherited disease is often the fault of the parents, but the ignorance is very largely due to the medical profession. In part this is because the profession has not known what practical advice to give, and in part because we have been constrained by pressing personal interests from rebuking ignorance in those quarters—for example, landlords—where it is most dangerous. The giving of advice should entail a far more practical acquaintance with problems of ventilation, drainage, food supply and values, etc., than is commonly possessed by the average medical man of to-day.

Add to these the problems of antenatal hygiene and maternity and we have an enormous and practically untouched field for the activities of medical men after the war. And all these problems are, be it noted, of long proven urgency, and only the more insistent because of the weakening of our man power by the war.

Problems of treatment have not yet been touched on, but these are scarcely less urgent. We know that venereal disease is seriously on the increase and that actual war wounds themselves provide a vast number of men who will require treatment for years to come. Nor is the end of the war yet in sight, and meanwhile disability from wounds increases daily. It is obvious to medical men, but not to the public, who demand a scar before they are convinced that a man is disabled by war, that the medical casualties will be at least as serious a problem as the surgical. In particular, the results of long stress are far less easy to deal with than those of long suppuration. The after-effects of dysentery or pleurisy are not less disabling than those of a stiff joint. Herein is another increase in the burden to be borne by the profession.

Lastly, a much higher level of attainment in treatment, and perhaps especially of diagnosis, might be reached had medical men the time and opportunity for post-graduate study. There can be no doubt that the benefit to public health from this alone would be of quite inestimable value.

Having briefly outlined some of the spheres in which speeding up will be most required, I may pass to the question of supply of medical men and of their abilities.

The Supply of Doctors.

After the war we may expect to find the supply of medical men depleted by (*a*) the return to retirement of many now assisting in practice; (*b*) a number of retirements only postponed now because of the war; (*c*) actual war casualties; (*d*) cessation of entries.

Retirements may be expected to be more than one would have expected in normal times in proportion to the extra stress of the war years (which will certainly number three, and may very well number at least five). On the other hand, the increased cost of living may hinder a few retirements otherwise due. The latter, however, will not make much difference, as men in this position will be almost "non-effective" as practitioners.

War casualties are a dead loss to the profession, and are constantly increasing. It must be remembered, too, that these affect almost always the younger and more vigorous men, from whom the nation in the ordinary course might expect most work.

Cessation of entries is very serious, and has been much aggravated by deaths of partially qualified medical students, and is by no means compensated for by increased numbers of women doctors. It also is a progressive drain on our ranks.

The capabilities of doctors will also be different. The days in which a doctor could squat and make a living wage in a few years have been altogether banished by the Insurance Acts. A practice has to be bought now, and capital will be increasingly difficult to obtain. A particularly serious matter is the death of so many doctor sons of country doctors, for these had normally every prospect of finding a practice ready made in a locality in which they had many social ties. These practices will now be much harder to dispose of; in other words, local needs will be much more difficult to meet.

A further very important factor is the loss of vested

interests which (were his colleagues never so loyal) must inevitably be suffered by the man who will have been absent from three to five years. I venture to suggest that even a partner cannot keep his partner's interests alive for this time. Inasmuch as these "war doctors" will have to slowly pick up practice again, their capabilities must be largely wasted for some years if they return to medical general practice as we now know it. It is quite improbable that they will even desire to so return, for a few years in the R.A.M.C. (with regular hours, regular pay, and promotion, etc.) are bound to leave a very strong bias in favour of public medical services as against the uncertainties of general practice. It is also a fact that the functions exercised by, say, a captain of the R.A.M.C. and the routine in which they are performed are very different from those of a general practitioner.

The Use of Doctors' Services.

The problem to be faced is now more apparent—always keeping in mind the fact that the end of the war is probably a great way off. If the State succeeds in taking a wide view of its responsibilities in the matter of maintaining man power after the war, there must be a great increase of public services. From such services I exclude for the moment domiciliary treatment (that is, ordinary general practice). We may hope for an increase in hospital accommodation, and especially of special hospitals. These will require resident officers. There should also be an increase of personnel in such services as factory inspection, school children inspection and treatment, sanatorium treatment, and the present public health services—to mention only a few. It is also to be hoped that some definite attempt will be made to organize research. The cry will always be for more doctors, and more opportunities for these to become efficient.

As already suggested, it is probable that the war doctors will tend very largely to gravitate to these services rather than to general practice, even if for no other reason than that they require no motor cars, houses in main streets, etc.

We shall be left, then, with a very deficient number of private practitioners, and yet with more work and a demand for greater efficiency in private practice. Under greater efficiency I include a readiness to act as active workers in the field of public health. Except the medical profession enlighten it, the State cannot obtain enlightenment, and will accordingly not see the problem, far less be aware that it is not being met.

Yet it is certain that the medical profession engaged in general practice is not in a position to increase its efficiency or to act as altruistically as the interests of public health demand. I have in mind a particular example which illustrates this view of the question.

In a certain locality (and there are hundreds comparable) are large fruit and hop farms. The pickers are the same year after year, and the huts in which they dwell, provided by the farmer, are beyond all description inadequate. You cannot make a person clean by law, but you can provide windows for light, if not for ventilation, and adequate floor space. These huts have no windows and are so small that a ledge, misnamed a bed, occupies half of them. Many medical men have visited these huts in the course of their duties, but they are the same as they have always been, full of vermin and unfitted for animals. Here the children of the pickers are born. The owner of the huts is in a position to make things unpleasant and to cause financial loss to any one who should raise complaints. Therefore since even doctors must live and support their families, no complaint is made, or, if made, is not carried to any higher court than the owner, who does nothing. This case is exactly paralleled by certain cottages in the nearest town, and it is common knowledge that this state of affairs is in no way exceptional.

I maintain that you cannot expect or compel a general practitioner to ruin his own interests for the sake of public health (and public contumely). But I also maintain that you can pay a State medical officer to point out these things and worry on until they are dealt with and yet not jeopardize but rather improve his own interests.

But, it may be argued, the public health officer has not that intimate relation to the public which the general practitioner has and would probably fail as wholly, although for a different reason. I allow the strength of this argument (it is a commonplace of our present experience), and it is for this very reason that I would see the general practitioner engaged on his present duties and yet independent of the opinion of the public.

There is only one way to do this, and this is to replace the present system of capitation or by-work-done payment for one of salaries. A salary paid by some central health board guaranteeing security of tenure during good behaviour, and a salary capable of increase where merit established a claim, would not only render the practitioner free to act fearlessly as a health officer, but would also make it worth his while to do so, while it would also be possible for the State to secure a more even distribution of medical men than the present.

In the sphere outside general practice we can certainly look forward to a closer co-ordination of the many existing health services, and co-ordination between these and the general practitioner would be much more easy to ensure if the latter were a salaried official.

It should not surpass the wit of man to weld the whole into a system with potentialities for public good which are actually not inherent in the present systems. Of course, this would be a "public medical service," and the Association is supposed to be opposed to such. Unfortunately, the Association did not provide a definition of what it was opposed to, and there are so many public medical services in existence, some managed by the State and others by doctors, that it is impossible to know what really was objected to. Moreover, the recent endorsement of this objection cannot be held to be of any weight unless it can be shown that it was given by instructed delegates after proper discussion of the many new factors introduced or to be introduced by the war. It is notorious that this discussion has not taken place.

There are other objections to salaried general practice, and many of them. I should be only too pleased to deal with them did space permit, but this essay is only meant to point out that such a service is possibly the only way of meeting at all adequately difficulties which must arise, and also that, even as a measure of justice only, it will be welcomed by many war doctors. Whatever our views a few years ago, it is most certainly the duty of the profession to consider the interests of the country, the question of man power, at once, and provide the necessarily ignorant politician (there are so few statesmen) with a groundwork of correct ideas on which may be slowly erected a useful superstructure. And prejudice, however often endorsed, should have no place in our discussions.

The Essentials of a Public Medical Service.

Treatment.

1. Treatment should be provided for a large class of the population corresponding roughly to the present insured classes, including their dependants. Hospital, research, and laboratory services should be obtained first by a scheme of co-operation, and later by their becoming subdivisions of the service. All Poor Law medical work and institutions should be included forthwith. Medical institutions under the control of county councils would be included as soon as convenient.

2. All important officials of the service should be medical men; after a few years occupied in absorbing the majority of existing general practitioners, no doctor would be allowed to specialize in purely administrative services without actual experience of medical practice in grades equivalent to those of house-surgeon and general practitioner.

3. After a few years the general procedure would be for all newly qualified medical men (for choice through a "one portal" system) who desired to enter the service to commence with two years' experience of institutional work. During this time they would be paid a definite salary, but board and lodging would as a rule be found. Such salary would be founded on a consideration of the present rates of remuneration for such posts.

4. Following this period they would pass by examination to Grade II. According to the results of this examination they would have a certain choice of speciality and station. The great majority would perforce go into general practice. The salary for a general practitioner would be a uniform rate starting at £300 per annum and rising by decreasing increments of £50 to £10 per annum, but these would be

capable of augmentation for special and extra services—for example, in a rural district, for proficiency as an anaesthetist, an obstetrician, or in any other capacity, for operations, etc. If by fluctuations in population a locality should become overstaffed, as a general rule only the unmarried men would be liable to be moved.

Increments of income should also be obtainable for research work by the general practitioner and where, in rural districts, he was also local health officer.

It should also be made possible for men to transfer to other branches of the service, and a large number of the hospital posts would be held by men of the general practitioner grade.

5. The local organization of medical services would be by counties, urban and rural districts. The doctor would not see patients at his own house but at a central or branch consulting-room, which would be provided with adequate means of diagnosis. A great deal of the material of existing military hospitals should be set apart for this purpose, including temporary buildings and ambulances.

As far as it at present exists, free choice of doctor would be unaltered, except that on his day or half-day off duty no individual doctor would be available for any one. Night work would also fall to the particular doctor on duty for the night. Generally speaking, no consultation would be allowed after 11 a.m., when the several doctors would be occupied with visits, but one doctor would remain at the centre all day, as one officer remains for orderly duty at a military hospital. In large towns more than one might be required. This would be the general plan in urban districts or in any reasonably compact area in which there were seven or more general practitioners.

General practice among non-State patients would not be allowed until practitioners had reached Grade III (equivalent to "major" in military service, which alone provides any parallels). Advance to this grade would depend largely on the number of years spent in general practice.

In rural areas practice among all classes of the community would be allowed, but a definite salary would be given for the State-insured classes, and this would be increased according to population and the difficulties of practice compared with urban areas. The country practitioner would, generally speaking, probably receive more than his colleague in the towns; his method of working would be the same as now.

A definite annual holiday would be assured and a locum provided by the County Committee.

Generally speaking the County Committee would have a great deal of power in arranging the services, but would not pay, and would be subordinate to the Central Board of Health. Each county should be left to work out its own salvation, and central schemes ready cut and dried such as now emanate from civilians at Buckingham Gate should not be thought of.

6. The County Committee would be elected and would be predominantly medical in complexion. It is contemplated that the patients should have the same share in deciding the shape of the system or the fate of an individual doctor as they now have in the case of the Metropolitan Asylums Board, or the Government medical services.

7. In order to mobilize the profession for war purposes the general outlines set forth above would be kept in mind and it would be made clear that all war doctors would be able to find a place in the scheme when peace is declared as well as all civilian doctors.

Practitioners required would be graded, and salary and augmentations fixed according to the vested interests sacrificed, and also with regard to family responsibilities already entailed. If required to move from their present position, that fact would also be considered.

A scheme would also be required for the termination of partnerships on terms equitable to both parties.

8. Finally, it may be noted that specialists should be produced in adequate numbers by the general practitioner grade, and that too early specialization should be discouraged. Specialists of the very first class would be developed at urban centres of consultation, in which, for example, a doctor particularly interested in dermatology would be given a special afternoon, on which such cases could be sent him by others; he would take proportionately less of other duties. This is known as "team work" in American journals.

II.—By H. B. BRACKENBURY, M.R.C.S., L.R.C.P.

"State medical service" is one of those catch phrases so common in the political and administrative spheres which are sometimes convenient means of expressing shortly an idea the more adequate exposition of which would be lengthy, but which more often, for lack of definition, are but means to lead us into a mental fog. Dr. Gordon Ward, in his article which by the courtesy of the Editor I have been permitted to see, somewhat adds to the confusion by failing to distinguish between the phrases "State medical service" and "Public medical service." He says that the British Medical Association is "supposed to be opposed" to a public medical service. So far as I am aware, the Association has expressed no disapproval of a "public medical service"; there are, indeed, in existence a number of such services established as the result of action initiated by Divisions of the Association. The Association has expressed its strong opposition to a "State medical service"; and it is important to remember that a considerable number of meetings or conferences of medical practitioners, not composed of Association members, have been equally emphatic in the same sense. What have they meant? There has certainly been no intention to express any opposition to the State taking an interest in the health of the community as a whole, or in the health of the individual persons who compose that community. The State has done this, and will continue to do it in an increasing degree, with the full approval of the medical profession. Further, no opposition was intended to the appointment of salaried medical officers of health, paid and controlled by public health authorities, central or local. Indeed, the multiplication of such officers, to be concerned with the investigation and prevention of conditions injurious to the health of the community as such (even in some cases with the *discovery* of the existence of disease in the individual), but not with the giving of professional advice and treatment to the individual, has been repeatedly urged by the medical profession.

It is when we come to consider the method by which the State shall provide in suitable cases (or in all cases) for the giving of advice as to personal hygiene and for the curing, if possible, of persons actually ill that a sharp division of opinion occurs. There are, broadly, only two methods by which this can be done—the "salaried official" method and the "panel" method; not, I hasten to add, by the machinery established under the Insurance Acts in all, or any, of its details, but by some method on similar lines which will allow of any practitioner volunteering to do his appropriate work (general or special), which will permit such freedom of choice on both sides as the exigencies of the case allow, and which will provide for payment either according to the actual work done or on the basis of the number of persons for whose health responsibility is undertaken. The fundamental difference between these two methods is this—that in the former the prime relationship is between the doctor and the committee or department which appoints him, while in the latter the prime relationship is between the doctor and the individual patients whom he advises. It is, I think, because the profession by a healthy instinct has felt the latter relationship to be the only right one, though it has not in every case clearly visualized the distinction, that it has so emphatically declared against a "State medical service" of salaried officials for giving advice and treatment to individual patients.

The value of Dr. Gordon Ward's article is that it is an attempt to set out the reasons why the method of the "salaried official" should be adopted, and the essential details of an administrative scheme for putting it into operation. The attempt is valiant, but can scarcely be considered successful. The light illuminates the fog somewhat but does not penetrate far; indeed the more the details are examined the denser do patches of the fog appear. The premisses of Dr. Ward's argument are for the most part mere assumptions, some of them demonstrably false. His conclusions do not follow from them. The main details of his scheme are incompatible with justice to practitioner and to patient alike, and some of them are administratively impossible. An examination may serve to make clear the distinction between the two methods I have named and to point the superiority in dealing with the individual of private or panel practice over State service methods.

he first of Dr. Ward's reasons is that a large number nedical officers now serving in the army and navy, ecially the younger ones, would prefer to come back to laried post with definite hours of work and an adequate ual holiday rather than submit themselves to the con- ons necessary for the building up of a successful ctice in competition with their fellows. This may well the case, though my own correspondence with such ers rather leads me to believe that their attitude is not of definite approval of a State medical service, but of est inquiry as to whether, after all, it might not offer e advantages. It is easy enough to point out the ertainties, worries, and ties of private practice, whether eral or special. Such practice is, indeed, largely a culation on the personal health of the practitioner, and cess comes in most cases only after a good deal of self- rifice and struggle. But it has its compensations. For found human interest, for the development of character, the formation of intimate friendships, there is probably walk in life equal to it; and I have known salaried dical officers in appointments of various kinds who have hed for what they regarded as the greater freedom, the der scope, the more varied interests, and the less re- icted financial possibilities of private practice; for, in mere monetary aspects, there is no doubt that private ctice offers to a larger number of practitioners a greater portunity of reaching comparative affluence than does y scheme of salaried posts at such rates of remunera- n as can be contemplated now or in the foreseeable ure. But Dr. Ward quite rightly demands "some re exalted view-point than is provided by mere self- terest"; and from the public point of view more impor- nt than the alleged wish of many service doctors to cape the struggles of private practice is the fact that ores of thousands of men are coming back, and will come ck, from the army determined that, as far as their usual edical attendance and that of their families is concerned, ey will insist on personal relationship with their own osen doctor, and will not submit to any compulsion to ply to this or that particular practitioner provided for em by some public authority at a fixed salary. Their cent experiences seem to have created or confirmed in em a very thorough belief in the superior merits for such rposes of the family doctor over the State official. From e national point of view, too, I am convinced that one our greatest needs in the future will be the encourage- ent of initiative, of individuality, of a willingness to cept full personal responsibility; and that, in the medical orld, as in others, these will be much more fully developed y individual dealing than by the most perfect of systems which the individual is but a unit of an elaborate rganization, where initiative and individuality tend to e deadened by routine, and where responsibility is either ecessarily shared with colleagues or can easily be shifted a superior officer by merely filling up a form.

Dr. Ward's main line of argument is not quite logically lear, but it appears to be as follows: (1) There is more to e done in various ways than is at present being undertaken o conserve the man power of the nation, especially by ombating industrial diseases and child mortality, in ddition to the actual treatment of war wounds and iseases; (2) this will be the more necessary as after the war we shall be "a stronger nation morally, but a weaker hysically"; (3) there will be a dearth of doctors, especially f capable doctors; (4) therefore it will be necessary to lace doctors almost completely at the disposal of the State by making them salaried officials whose work can e co-ordinated, apportioned, and distributed according to he needs of each locality.

With the first of these statements we may all agree, ut it leads us nowhere in the direction of Dr. Ward's conclusion. About the second I am by no means so sure, for though, of course, for some years here will be a greatly increased number of men suffering from disablement to a greater or less degree, evidence accumulating in the hands of education autho- rities and others seems to show that in many places the physique of the poorest children has improved owing to better feeding and clothing, while it certainly proves an alarming deterioration in morals among school children, due probably to the lack of discipline consequent upon the absence of parents and male teachers and to the prevailing character of the popular cinematograph show. As to the dearth of doctors, Dr. Ward is not convincing, and some of his inferences seem contrary to common sense and to one another. There were certainly in most areas an unnecessary number of doctors before the war began, and I cannot believe that competition will be a negligible quantity when those who are now in the services return to civil life. But if the contention be correct that practices must now be bought and that the dearth of applicants will make them harder to dispose of, surely the terms of purchase will become moderate and the conditions easy—this to the advantage and not to the disadvantage of the returning doctor. And if there are not enough doctors to go round, surely the "war doctors" will not "have slowly to pick up practice again," nor need their "capabilities be largely wasted for some years." Incidentally, Dr. Ward's standard of capability appears to be curious, for he regards men who but for the war would have been in a position to retire—that is, men who have had much experience and have shown the most capacity to profit by it—as "almost non-effective as practitioners."

The one real point in the contention, however, appears to be not the dearth of doctors, but the irregularity of their distribution. It may be admitted that in the poorer parts of London and of some other great towns and industrial areas there has been a deficiency, sometimes a great deficiency, in the number of doctors, but it by no means follows that the only, or the best, way of meeting this difficulty is to pay practitioners a salary and send them compulsorily to these places, whether they want to go or not. The causes of this deficiency are in the main (1) that the bulk of the population were too poor to pay proper fees, and so usually had no treatment at all, or received it through charitable agencies; (2) that the conditions of practice, owing to the nature of the homes, were disagreeable or unsatisfactory. Now, the former of these is largely met by the machinery of national insurance, and would be more adequately met if that machinery were improved so as to make the doctor's remuneration more easily calculable, prompt, and regular. Already, in 1914, the new conditions were beginning to attract to such localities additional practitioners when war needs interrupted the tendency. The second cause would be almost wholly removed by the provision of an adequate public nursing service, of pathological opportunities, and of easy and sufficient institutional accommodation for cases which the home surroundings made it impossible to treat there even with the help of a skilled nurse. All these things would by this time have been provided, or been well on their way to provision, had the war not intervened; and under the better conditions not only would there be men willing to practise in these places on the ordinary lines, but there are many practitioners who would prefer such practice to that among the middle or wealthy classes. So even in the poorest localities the poorest people might be provided with a "family doctor" without any State service of salaried whole-time officers.

I know that this provision of "family doctors" by State aid or otherwise, on the lines of general practice, with such public help towards nursing, towards pathological investigation, towards consultations, and towards institutional treatment as may be necessary, is not the ideal at which most advocates of a State medical service are aiming. They take as an axiom that since the body has many organs and many functions, so there should be a class of practitioner set apart at least for every organ, if not for every function. The persistent paragraphist, for example, whom the *Times* calls "Our Medical Correspondent," says: "If in any area all the doctors were paid salaries, a specialist medical service would at once spring into existence. One man would undertake the maternity work, another the surgery, another the heart work, and so on. The value of each man would be increased from that hour, for he would add daily to his experience as a specialist, and his mind would no longer be distracted by a hundred cares."

This is specialism gone mad. I am convinced that, in the case stated, the value of each man would be sadly diminished rather than increased, and that the results to the patient would be lamentable. One can see her, perhaps making her own diagnosis before venturing to apply to the appropriate doctor, or perhaps undergoing a preliminary examination by some unspecialized official to determine into whose hands she should be delivered. One can see her, as the

main stress of her disorder is felt first by one organ and then by another, being shuttlecocked from Dr. X. on Tuesday to Dr. Y. on Tuesday week. One can see her, if she is so unfortunate as to have enough the matter with her, gradually ceasing to be regarded as a person, but more and more as a perambulating pathological museum. After all, the human body is a unit, and there is such a thing as human personality. What is needed is not this absurd multiplication of specialists, but that every encouragement should be given to those well-educated highly skilled general practitioners who, either alone or in harmonious co-operation with colleagues of their own type, are everywhere doing work of a very high character with great success, and who, though they may in some directions be somewhat less learned than others with a narrower outlook, bring vastly more help and comfort to the men and women who apply to them in doubt or in distress.

I do not suggest that Dr. Gordon Ward intends his scheme to lead to this extreme specialism; indeed, he says that he wishes to "see the general practitioner engaged on his present duties." But, however benevolent the intention, the organization of a salaried service would inevitably, whether for good or ill, revolutionize both the practitioner and his duties. Consider Dr. Ward's own "essentials" of such a service. No private practice at all is to be allowed to anybody until after years of work in the service, during the later period of which his success is to be measured by his specialization. The only exception to this is to be in certain rural areas. No patient would ever be seen at a doctor's house. After consultations at a central room up to 11 a.m. patients would be visited at their own homes, but as one practitioner is always to be on duty at the central consulting-room, his patients must necessarily be visited by another doctor while he is there. Similarly, at night no patient could seek the services of his "own" (?) doctor, but must accept those of the practitioner on duty for the night. This may be convenient for the official's comfort, but it abolishes for ever the helpful confidential relations between patient and doctor, and is far removed from "the general practitioner engaged on his present duties." Once more, the salary of the general practitioners is to be, in the main, uniform—and small. Such variations as there may be will be dependent upon proficiency in some special service and not at all upon the number of patients a particular practitioner is responsible for or who desire his services. This means either that the patients must be compulsorily uniformly distributed without much regard to their own wishes, or that the doctor who, by misfortune or design, does not engender confidence will be paid equal money for much less work than his colleagues. In the latter case the only solution of the difficulty is to dump him successively in various parts of the country until one is found in which he is less relatively unsuccessful than in the rest. Lastly, these complicated matters of duty and salary and station are to be decided by a "County Committee" which, though Dr. Ward desires that it should be "predominantly medical in complexion," would be elected, and would certainly have to be representative of the people who, either as taxpayers or ratepayers, found the money, and of those for whose benefit the service was established. Some of these alarming features (I consider them defects) are inherent in any scheme for a "State medical service," and if other schemes should be propounded which avoid some of them by differing in detail from Dr. Ward's, there is a certainty that they will be found to contain others no less terrifying.

Dr. Ward in his article sets out one additional argument which is worthy of consideration. He says that "the medical profession engaged in general practice is not in a position to act as altruistically as the interests of public health demand," and he instances the case of fruit pickers lodged in insanitary huts who are attended by a practitioner who makes no complaint because he is also the owner's doctor. This is a peculiarly ineffective example for Dr. Ward's purpose, because the remedy is obvious, and it is not his. The insanitary dwellings should be dealt with by the medical officer of health, whose tenure of office should be secure, and who should have nothing to do with the giving of advice and treatment to individual patients as a means of livelihood. I thought we had all got as far as realizing this division of function, and wishing to establish or maintain it. But if Dr. Ward really means that the stress of competition in practice, whether general or special, necessitates for success such pandering to the wishes of patients as is detrimental to their health, then I can only assure him, after more than twenty-five years' experience, that he is wrong. There may be some practitioners who do so pander to that extent, but their success must obviously from the very nature of the case, be short-lived. And I can assure him, too, that of late years there has grown up a spirit of friendly co-operation among practitioners which is gradually conquering that old feeling of rivalry and even antagonism that once was much more prevalent. It is not clear, either, that a State medical service would eliminate unworthy competition. Has one never heard of jealousies in the Civil Service? Is the attempt to curry favour with a superior officer, or with a department or committee, or with some outside person who is supposed to have influence with such officer or with such committee, any less unworthy than an attempt to please and attract ordinary members of the public who may need the services of a doctor? I trow not.

In whatever way the future of medical service may develop, whatever administrative changes there may be, whatever additional public health appointments may be made, the essential thing for the good of the public and of the profession alike is to maintain, in the giving of actual advice and treatment to individual persons, a relation of continued and continuous confidence and friendship, of mutual dependence even, which must be subject to the ordinary accidents of life and death, but which need not be interrupted or spoiled by the promotions, the migrations, the fixed hours, and the separated duties of different departments, which seem to be the unavoidable accompaniments of a State medical service.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee, held on January 9th, twelve cases were considered, and £112 voted to ten of the applicants. The following is a summary of some of the cases relieved:

Widow, aged 63, of M.R.C.S.Eng. who practised in Suffolk and Cambridge and died in 1904. Left quite unprovided for, and until recently earned a bare income by acting as nurse companion. About four months ago became ill, and is now suffering from paralysis, and the small amount of money saved is almost exhausted. Voted £12 in twelve instalments.

L.R.C.P. and S.Edin., aged 59, a widower, who practised in Dumbartonshire, and is now suffering from spastic paralysis. Only income a pension from the National Hospital of £20. Has one son who is training for a dentist, and whose fees have been provided by the Fund and Guild. Relieved twelve times, £144. Voted £12 in twelve instalments.

Widow, aged 60, of L.R.C.P.Irel. who practised at Buckley and died in 1905. Applicant was totally unprovided for, and had been an invalid for many years, and unable to work. One daughter married and unable to help. Only income a pension from another society of £25. Relieved nine times, £108. Voted £12 in twelve instalments.

Widow, aged 54, of M.R.C.S.Eng. who practised in Devonshire and died in 1914, and was an annuitant of the Fund. Applicant was left without means, and finds it very difficult to obtain suitable work on account of ill health and age. One daughter, aged 22, who is in domestic service. Relieved four times, £28. Voted £12 in twelve instalments.

Widow, aged 63, of L.R.C.S.Edin. who practised on the West Coast of Africa and died in 1907. Was left unprovided for, and has recently had an operation for gall stones and gastric ulcer. Has three children, all abroad and unable to help. Relieved five times, £60. Voted £12 in twelve instalments.

Subscriptions may be sent to the Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

THE New York State Health Department has appointed Dr. Robert W. Lovett, professor of orthopaedic surgery at Harvard, to organize, in co-operation with local authorities throughout the State, a scheme for the after-care of patients who have suffered from anterior poliomyelitis.

British Medical Journal.

SATURDAY, JANUARY 20TH, 1917.

NEW ANTISEPTICS.

WHATEVER the views held as to the treatment of ordinary wounds by antiseptics, it will probably generally be admitted that such antiseptics as were in common use previously have not proved satisfactory in the septic wounds so often met with in this war. The conditions are different. The great destruction of tissue and the lodgement at a depth of foreign bodies, shrapnel fragments and fragments of clothing, contaminated with germ-laden soil, have complicated the problem of treatment. Apart from the surgical procedures of free incision of wounds, removal of foreign bodies, and excision of necrotic tissue, on which all are agreed, the question remains whether to trust to the reparative processes of Nature, assisted perhaps by chemico-physical means, or to introduce into the tissues antiseptic substances capable of destroying the bacteria. Unfortunately the two methods have sometimes been held to be conflicting.

In pre-war days the worth of an antiseptic was apt to be computed by the results of test-tube experiments, which did not pretend to reproduce the conditions found in wounds. The antiseptic was judged almost solely by its power of destroying bacteria in a given time without relation to the modifying factors of living body cells and body fluids. To those who fixed their mind on the defensive action of the latter, the common antiseptics had a malign character. They were all protoplasmic poisons indifferent in their destructive effect on microbes and tissues; they were fixed by proteins, and in the presence of serum they lost their potency against germs, and destroyed the protective power of the serum; they killed the tissues exposed to their direct influence and left it as a breeding ground for bacteria; and they prevented or minimized the natural defence of the phagocytes.

Recently Lambert[1] published observations on the comparative resistance of bacteria and human tissue cells to such antiseptics as phenol, potassium cyanide, alcohol, Dakin's solution, hydrogen peroxide, and iodine, by subjecting mixtures of living tissue cells and staphylococci to various dilutions of these substances and then attempting to cultivate the cells by his modified plasma method. In all cases, with the exception of those in which aqueous solutions of iodine were used, it was found that when the bacteria were killed the cells were killed also. The cells were more resistant to iodine than the bacteria, for a good cell growth was seen after an exposure for one hour to a 1 in 2,000 solution of iodine—a strength which was sufficient in most instances to sterilize the tissue. Unfortunately, amongst other drawbacks, iodine solutions rapidly dissolve fibrin—a property which is not conducive to wound healing. This defect is shared by the hypochlorites.

Much labour has been spent on the elimination of the bad effects of antiseptics and eager search has been directed towards the ideal bactericide. Very many factors have to be considered in wound treatment that cannot be reproduced in laboratory experiments. The antiseptic which will emerge successfully from a set of test conditions by one laboratory investigator may fail miserably under a different test by another examiner. In their communication on antiseptics in wound treatment, published in this issue (p. 73), Browning and his co-workers at the Bland-Sutton Institute lay down what they regard as the essential qualifications of a useful antiseptic. The bactericidal substance must have a great potency against all organisms in the presence of protein material such as serum; it must be stimulating to granulations; it should have no deleterious effect on phagocytosis, no irritant action on tissues and no toxic effect on the more highly specialized cells. They directed special attention to the study of antiseptics as regards their bactericidal power in undiluted serum, their effect on phagocytosis, and their toxic action on living tissue.

With practically all known antiseptics the bactericidal potency in watery solutions is very frankly diminished when the media carrying the bacteria are composed wholly or partially of serum. This is a most important point, and one often neglected. In practice, the less the lowering of the antiseptic potency by serum the more efficacious the substance should be. The striking fact has emerged that a number of acridine dyes have an enhanced bactericidal power in the presence of serum, and amongst these the compound, diamino-methyl-acridinium chloride—which the authors, for the sake of convenience, call "flavine"—stands out foremost. This substance has been found to be 20 times more powerful than corrosive sublimate, and 800 times more so than carbolic acid or chloramine under these conditions.

With regard to the second point, they support the contention that any antiseptic which destroys or restrains the action of phagocytes in a septic wound is of doubtful value. There may even be such a thing as "laudable pus." The action of the hypochlorites in clearing the wound discharge has been held by some surgeons to be a very mixed blessing, for the free phagocytes are destroyed. The germicidal potency of an antiseptic and the inhibition of phagocytosis do not necessarily run parallel, though experiments have shown that, in the case of all antiseptics in common use, a concentration which is sufficient to kill micro-organisms is also detrimental to phagocytosis. In the paper referred to, the technique is described whereby the effect on phagocytosis may be more or less accurately determined. Such a method enables one to estimate by test-tube experiments, roughly it is true, the general toxicity of the antiseptic substance to living matter. It follows that the higher the germicidal power of a substance in the presence of serum, and the lower the effect in inhibiting phagocytosis, the more valuable that substance is as an antiseptic. Thus a practical formula for estimating the value of wound antiseptics, of arriving at their "therapeutical coefficient," as the authors put it, may be obtained by taking the ratio between (1) the highest concentration of the substance which does not reduce the phagocytic count below half that of the control, and (2) the weakest concentration of the substance which is sufficient to kill staphylococci in the presence of serum. Obviously, the higher this ratio the better is the antiseptic. Flavine and brilliant green are the two substances which hitherto have given the highest therapeutic coefficients. The former beats the latter in being more active against the colon bacillus; in not being weakened in the presence of serum; and in being less irritating when applied to such a delicate

[1] *Journ. of Exper. Med.*, December, 1916.

structure as conjunctival epithelium. Both are excellent in stimulating granulation tissue in wounds.

There are many other points to be considered before pronouncing a final verdict on the results of these experiments, but the criteria of measurement are not apparent. A good case, as far as laboratory experiments go, has been made out for their practical use. The best proof of the efficiency of any antiseptic substance is the result of its use in the treatment of septic wounds. The authors have given a reasonably long clinical trial both to flavine and to brilliant green, an antiseptic which was strongly advocated by Leitch in the BRITISH MEDICAL JOURNAL, February 12th, 1916, and the results certainly seem to bear out the laboratory experiments. These substances are now manufactured on a sufficient scale in this country to enable a more extensive trial of their claims to be made.

MOBILIZATION OF THE PROFESSION.

AMONG the letters on the proposal for the general mobilization of the profession—a proposal which has deeply moved all its members—have been some from medical officers who have served with temporary commissions in the R.A.M.C., stating that their personal experience has been that they had not enough work to do while so employed. They found thereon the conclusion that the existing needs of the medical service of the army might be met by better organization and distribution of work; the suggestion, as we understand it, is that the surplusage exists chiefly in the British armies in France and in the medical units in this country. We have felt bound to publish these letters and certain others this week, which are in the nature of replies to our correspondent "M.R.C.S." last week, because we conceive that it would be most mischievous that opinions formed by men who have themselves been through the mill should not find public expression. At the same time we are bound to say that the tenor of these letters is not in accord with the bulk of the information which reaches us. We are advised by medical officers of similar or greater experience to those who have written in a contrary sense that the medical service of the British armies in France is not, generally speaking, overstaffed, although there are certain directions in which economics might be effected. They believe that the largeness of the medical staff provided for an army in the field may easily give the impression of excess, but they hold such a staff to be necessary to preserve the physical efficiency of the troops and to safeguard them from preventable diseases. This duty has been carried out with such conspicuous success that there are people who ask whether the punctilious attention given to sanitary details is necessary. Such an argument needs no refutation; it is refuted by the whole history of previous wars and by some incidents in this war. As to the other main duty—the care and treatment of the wounded—the amount of work to be done depends, of course, upon the nature and extent of the military operations, which again depend not merely on the plans of the Allies but on the enterprise of the enemy. This work is often light, it is sometimes onerous, and, judging from opinions of military experts published in the press of this and other countries, it is likely to become more rather than less onerous before many months are over.

In the SUPPLEMENT for this week we give some particulars as to the opinions formed by the London Panel Committee and the Manchester Medical War Committee. A consideration of the constitution of the London Panel Committee does not suggest that it is a body likely to state that it is convinced that a large number of additional medical officers will be required for service in the Royal Army Medical Corps unless the information before it provided very cogent reasons for expressing this opinion. The conviction expressed by the London Panel Committee is shared by others who feel bound to accept it as true in general, even subject to the opinion that certain economies in personnel might be carried out without detriment to the service, especially perhaps at home. We come then to the proposal for the mobilization of the profession, so that the army may be fully supplied and the civil population suffer as little as possible. Granted that mobilization is necessary the question at once arises whether it should be voluntary or compulsory; upon this point the Manchester Medical War Committee expresses a very definite opinion, founded upon experience. It states that by a system it started over a year ago it has succeeded in making available 80 per cent., and although this is 5 per cent. above ordinary expectation, and in its opinion a larger proportion than could be obtained throughout the country at large, it has come to the conclusion that even 80 per cent. is insufficient to meet the national need, and that the secret of success can only lie in compelling the laggards to do what the majority of the profession is eager to do on its own initiative. It considers that every registered medical practitioner should be deemed to be a member of the medical military forces of the United Kingdom as from a given date, that the control of the medical profession for war purposes should be vested in a central professional committee attached to the Department of National Service, and that any scheme for regulating medical service at home would be impossible of success if based on the voluntary principle. It points out incidentally that voluntary mobilization could not remove the deadlock created on the one hand by the demands of the Insurance Commissions for the panel service and on the other by the refusal of Government departments to release eligible young doctors.

The meeting of the Central Medical War Committee on January 17th was largely concerned with this question of mobilization. In the letter it addressed to the Prime Minister on December 6th, the Committee informed him that it "approved the general principle of mobilization of the medical profession, apart from any question of the general mobilization of the whole community, so that any individual whose name is on the *Medical Register* shall give such service, whether in a military or civil capacity, as he or she is competent to give when required to do so by the State." At its meeting on January 17th the Committee resolved to inform the Joint Committee of the Royal Colleges of Physicians and Surgeons in London, and the Scottish Medical Service Emergency Committee that it was prepared to join with them in asking the Director-General of National Service to receive a joint deputation from the three committees. It also intends to send to him a memorandum indicating in general the nature of the proposal it desires to lay before him.

THE NEW WAR LOAN.

ALTHOUGH the terms of the new war loan have been definitely known for hardly more than a week, the general concurrence of opinion is that its success is assured; but there are many degrees of success, and the Government is very properly pressing the publicity campaign on behalf of the loan with unabated vigour. While, therefore, we propose to discuss here some

pects of the loan from the point of view of a ospective investor, it does not appear necessary to apitulate the details of the scheme, and it must ffice to state in general terms that the loan falls o two distinct classes, the first bearing interest at per cent. per annum and issued at £95 per £100 of an, and the second bearing 4 per cent. interest on ich no income tax, as distinct from super-tax, will payable, and issued at £100 per cent. Applications ay be made on or before February 16th, and pay-ent of the instalment allotments extends over the riod from March 2nd to May 30th. The 5 per cent. d 4 per cent. loans, if not previously redeemed, will repaid at par in 1947 and 1942 respectively, but the option of the Government may be so repaid in, at any time after, 1929 on three months' notice.

A good deal of discussion is still going on as to the lative advantages of the ordinary 5 per cent. loan compared with the 4 per cent. "tax-compounded" an. Bearing in mind that the 5 per cent. loan sts £5 less per £100 than the 4 per cent. loan, it ill be found that the difference in the net yield is ry small, provided that the present rates of tax old good throughout the life of the loan. A large oportion of intending investors may be saved the ouble of estimating the probability of this by re-embering that at present the 5s. rate of income tax not paid—ultimately at least—by persons whose tal incomes are less than £2,000, for if a man whose come-tax rate is now 5s. in the pound hesitates to ompound at that rate for the future, another whose te is 4s. 6d. or less need be in little doubt as to the advisability of compounding at the 5s. rate, which therwise he would not pay unless and until the esent scale of income-tax rates is raised. But r the investor whose income exceeds, or is kely to exceed, £2,000 per annum, the matter somewhat perplexing. The obvious difficulty is forecast the average rate of income tax for ne next twenty or thirty years, and the optimist nd the pessimist will find in the problem fresh round on which to debate once more that thread-are and sterile discussion; "the duration of the ar." While it must be recognized that the pos-bility that a prolongation of the war might ecessitate a higher rate of taxation, coupled, for nstance, with a further reduction in the exemption mit as part of a scheme for bringing the pressure of axation to bear directly on all spending power, still ere is much to be said for the view that the average f the next twenty-five years will be below 5s. In his connexion two other observations may be offered. n view of the fact that there will be a large number f people to whom the 4 per cent. loan will be clearly isadvantageous, there will necessarily be a more re-tricted market for that stock, which may have an dverse influence on its price in future years, and this ay be of importance should it be necessary to realize t any time. For instance, suppose A. invests £5,000 the special 4 per cent. loan and in five years' time ies, leaving the stock to his widow; she will appa-ently be faced with the alternatives either of olding the stock and so continuing to pay in ffect income tax at 5s. in the £, or of being put to he expense of realizing the 4 per cent. stock, and nvesting the proceeds in, for instance, the 5 per cent. war loan. As against this view it is to be noted that tock for bonds of either loan will be accepted at their espective issue prices on payment of death duties. The other consideration arises out of the redemption ights, which give a premium of £5 per £95 to the per cent. stock only. This is of course taken into ccount in stating that the yield is not substantially different, on the assumption that the 5 per cent. loan runs its full period to 1947. If the loan should in fact be paid off earlier the premium of £5 will be spread over a shorter period than the full thirty years, and the yield per annum correspondingly increased. What the future tendency of the standard rate of interest will be is a problem that cannot be discussed here; we can only offer the suggestion that the answer will to a large extent depend on the adaptability of new munition factories and machinery to the task of repairing the damage and making good the waste which the war has entailed on the world's industrial equipment. It is clear that the fall in the rate of interest will have to be fairly well marked to justify a Government in launching a scheme for redemption and conversion of a loan now being issued at £5 discount per cent. All the indications point to the assumption that the special 4 per cent. loan is not expected by the authors of the scheme to be a serious competitor in general favour to the 5 per cent. loan, and that it was introduced, possibly by way of experiment, to see how far it would appeal to large investors, but more probably for the benefit of the nervous taxpayer anxious to know the worst.

A novel feature of the loan, and one very welcome in these days of capital depreciation, is the establishment of a sinking fund. Briefly, the idea is to build up by monthly allocations a maximum fund of £10,000,000 which will be employed in the purchase for cancellation of stock or bonds whenever the market price falls below the issue price. It is hoped that this will have a steadying effect on the price of the loan if it should show any tendency to depreciate.

An important point in connexion with the 5 per cent. loan is the option to pay tax either by deduction at the source or direct. If the investor wishes to account for his liability by direct payment, he should take inscribed or registered stock instead of bonds, and will receive his dividends without deduction of tax being made. In the case of holdings in bonds, the full current rate of tax will be taken off in the usual way. The advantage of the stock to persons who are not liable to the full rate of tax is clear, as, by leaving a portion of their income untaxed, the arrangement will in many cases enable them to strike a sort of contra-account balance with the revenue authorities and diminish, or cancel altogether, the repayment which they would otherwise have to claim. Investors may be the more ready to adopt this form of the loan in view of the statement contained in the prospectus that "Stock will be convertible into bonds to bearer at any time by means of transfer."

Mr. Bonar Law has very wisely emphasized the fact that what the Government desire is "new money," especially savings, and the banks have undertaken to assist individual investors to pay the instalments as they become due, in order that, within reasonable limits, the savings of the near future may be brought in to swell the subscriptions to the present issue.

With a total borrowing for war purposes of £3,000,000,000, of which more than one-half is at present held in the form of short-dated securities, it is greatly to be desired that the new scheme shall be a complete success and put our national finances on that firm footing the absence of which in recent months has been so generally regretted. Fortunately the country is awake to the needs of the situation and that success can be confidently expected. Certainly those responsible for the loan have done their part, for though the terms of the issue are not unduly

onerous to the taxpayer, who will have to pay the interest, they provide an adequate reward for the performance of a patriotic duty.

THE NEW FOOD ORDERS.

THE first orders issued by Lord Devonport in his capacity of Food Controller are certainly not unduly drastic, but they are such as may fairly be expected to cause a more economical use of our resources in several important respects. Sugar is naturally one of the first substances to receive attention; it has for some time been a matter for criticism that while the domestic manager has had considerable difficulty in obtaining sugar in sufficient quantity, no limitation was being placed on the sale of expensive sweetmeats, the consumption of which is a mere luxury. The most expensive forms of confectionery will soon now begin to disappear, through the operation of the Order prohibiting from February 1st the manufacture or sale by wholesale of sweetmeats retailing at more than threepence an ounce for chocolates or twopence an ounce for other kinds, though retail sale will be allowed up to May 1st, to clear stocks. What is likely to be a far more effective provision is that no manufacturer will be allowed to use for confectionery during 1917 more than half the amount of sugar so used by him in 1915. "Icing" of cakes with sugar or chocolate is prohibited from February 1st as to manufacture, and March 1st as to sale. There can be no doubt that a large proportion, at least, of the sugar which has been consumed in the ways now being restricted has not been needed for nutrition, but has been largely an indulgence of the palate which we can well do without. The use of milk in the form of "milk" chocolate is also uneconomical, such chocolate being more often consumed as a sweetmeat than as a food; in future the use of milk during the winter months for adding to chocolate is prohibited. It is not quite apparent whether the reason for limiting the prohibition to "winter milk" is to be found in the fact that in winter cow's milk is, on an average, richer both in fat and solids not fat than in summer, or whether it lies in some difference in the demand at the different seasons. As regards flour and bread, orders previously issued by the Board of Trade required not less than 76 per cent. of wheat grain to be obtained as flour in milling, and this percentage is now raised to 81; the additional yield of 5 per cent., however, need not be obtained by grinding a further portion of the rejected part of the grain, but may, at the option of the miller, be produced by adding flour derived from barley, maize, rice, or oats, and such addition is permitted, if desired, to be sufficient in quantity to bring the total of flour to 86 for each 100 of wheat. Wheat is no longer to be used for any purpose other than that of making flour or as seed, while the feeding of game birds with any kind of grain required for food or feeding stuffs is prohibited. What must perhaps be regarded as an experiment in the fixing of maximum prices is made with potatoes, for which the grower is not to receive more than £8 a ton in January and February, or £9 in later months. It is understood that further Orders will shortly be issued, dealing with other staple foods.

THE TREATMENT AND TRAINING OF DISABLED SOLDIERS.

AT a meeting of the West Lancashire Branch of the British Red Cross Society at Preston on January 13th, to approve a scheme for Red Cross work in the district, the Hon. Arthur Stanley, M.P., chairman of the Joint Committee of the British Red Cross Society and the Order of St. John, made a speech of some importance. He said that he had recently discussed with the Minister for War (Lord Derby) and the Minister for Pensions (Mr. Barnes) the question of continued treatment in hospital for such discharged and disabled men as needed it. Mr. Stanley expressed the opinion that a mistake had been made at the outset in reference to the pensions scheme, when it was proposed that the Treasury should find a certain part of the money, and that voluntary effort should supply the rest, for there was no more certain way of killing voluntary effort than a Government subsidy. If the Government recognized it to be the duty of the State to give a pension to disabled men, it ought to take over that part of the work altogether, and give an adequate irreducible pension; he believed that a scheme would eventually be accepted whereby the War Office would make a contribution of 3s. a day towards the maintenance of disabled men in hospital, so that voluntary associations would not have to bear the whole burden. He expressed the view that the actual care of these men would be better left in the hands of voluntary societies than given over to Government departments. It is, we understand, the intention of the Pensions Department that the pension paid to a disabled man shall not be liable to diminution by the fact that he voluntarily undergoes treatment and training. There is and has been a good deal of difference of opinion as to the organization of the treatment and training of disabled men. The pre-war military doctrine was that, if a soldier became physically unfit and could not be made fit within a reasonable time, he must be discharged from the army and return to civil life to be dealt with by civil organizations. So far as medical or surgical treatment were concerned, this meant treatment by the voluntary hospitals, supplemented nowadays by the Insurance scheme. The raising of a great citizen army increased the magnitude of the question enormously, and made it necessary to look at it from a somewhat different point of view. An impression gained ground that the War Office had resolved to retain under its control disabled men who, though they would never be fit to return to military service, were yet capable of manual education. This impression seemed to find confirmation in two statements made by Sir Alfred Keogh towards the end of October. In one of them he said that the Secretary of State for War had relegated to him the solution of the problem of the disabled soldier; in the other, made at a meeting of the Association of Technical Institutions, he said that the two great problems were continuous treatment and training, and the provision of employment. Many discharged soldiers would require prolonged treatment, extending, perhaps, to a couple of years, and treatment and training should go together. While appealing to the technical institutions to give their aid, he said that he felt sure that the resources of the army, which were very large, would all be placed at the disposal of the discharged soldier for as long as might be necessary, just as if he were a serving soldier. The experts of the country were, he said, at the hospitals already, and the men would there get the best care and attention that could be given. Finally, he said that the opportunity would be taken at the military hospitals for starting the training of the men in certain industries, but the primary object of military hospitals was to get men back to the ranks. It is not quite clear what meaning is to be attached to Mr. Stanley's statement last week, but we take it to be that the idea of retaining the men under military discipline has been abandoned, that they are to be discharged from the army, that they are to receive an inalienable and irreducible pension, and that the local Red Cross branches are to persuade them voluntarily to undergo physical treatment and manual education. The inducement to the men will be that since their pension is sure, any earnings they can make after their manual education is complete will be in addition to it. We have, however, to recognize that at the present time voluntary hospitals do not possess workshops for manual curative training or the staffs to supervise them; moreover, so far as the staffs are concerned, the handing over of these men to voluntary

institutions would be an additional burden on the medical profession. So long as men are admitted as out-patients to the military orthopaedic hospitals this burden may not be severely felt, but if the Red Cross is to organize similar institutions on a voluntary basis, it seems to us that it should proceed at once to deal with two matters: First of all, there is the question of the training of medical officers for this special orthopaedic work, which at present can be obtained only through the military orthopaedic hospitals; and, secondly, the remuneration of medical men who have fitted themselves to superintend the work. It is of a very time-consuming nature, and it is not equitable that the State should shovel off any part of its responsibility towards men disabled in the war on to the shoulders of the long-suffering medical profession.

WOMEN DOCTORS IN THE VIKING AGE.

AT a meeting of the Viking Society for Northern Research on January 6th Mrs. A. W. Johnston read a paper on the women doctors of the Viking age—that is to say, the eighth, ninth, and tenth centuries. The sources of information are very limited, and the practice of medicine must have been of the rudest description. A diligent study of the old Norse sagas, however, yielded a number of references to women who acted as leeches, though in many cases the functions exercised by them were more those of the nurse and midwife than those of the doctor. A good deal of the doctoring of the time was connected with a belief in witchcraft, and a remarkable figure in one of the sagas is Brynhilr, the valkyr or handmaiden of Odin, who dwells on a mountain, and is said to be a wise woman, skilled in magic, pharmacy, herbalism, and the binding of wounds. A hint as to the character of the pharmacy is to be obtained from the "Song of Laws," where various specifics are mentioned, such as oak against binding of the bowels, spur of rye against hernia, and heather against biting sickness. Many of the women who practised as leeches received merely a passing mention in the tales. There are some vague references to midwifery and leechdom in the great Icelandic prose *Edda;* and in the *Vassorfirdinga Saga* the leech Thorvardr makes her appearance to heal the men's wounds after battles; and, again, in the saga of *Olaf Tryggvason* it is told how Olaf I of Norway (969–1000), having received two serious wounds—one from a stone and the other from an arrow—at the disastrous sea battle of Svöld, sought the help of Astrid, the woman leech, and remained with her until he was cured. But the most vivid of all the narratives is that contained in the saga of *St. Olaf the Holy*, where the woman leech is introduced cleansing the wounds of the fighting men with warm water. To her comes Thormod, the warrior poet, who explains his lack of ruddiness by the arrow which has lodged in his side:

> It was the darksome metal,
> Driven by main, flew through me;
> The perilous sharp iron
> Bit nigh the heart, ween I.

Thormod having cast off his clothes, the leech examines the wound, and finds iron standing therein. There was already in the stone kettle a mass of leeks and other herbs, which, sodden together, were given wounded men to eat, in order that the leech might divine the extent of the internal mischief by discovering whether the leek smelled out through the wound or not. But Thormod refuses to take the concoction, preferring immediate recourse to some primitive surgery. The leech takes the gripping tongs in the attempt to draw out the iron, but it is too deeply embedded to stir, and she cannot get sufficient purchase owing to the swelling of the part. Then Thormod bids her shear close up to the iron so that it be well caught by the tongs, and he will pull it out himself. This the leech does, and Thormod, having first thoughtfully paid his fee in the shape of a gold bracelet which he detaches from his arm, takes the tongs and pulls out the arrow, on the barbs of which lie sinews from the heart, some red, some white; after which exertion he sinks back and is dead. A derivative of the Old Icelandic *læknir*, meaning leech, is said to be still the only word in Iceland for doctor. Etymologically the word in this sense is not, we believe, derived from the name of the animal, but is related to a Norse verb meaning to heal, and it has been suggested that the animal got its name because it was used by healers, "leeches." However this may be, we would like some evidence for the statement, made by Mr. James Gray, the president of the society, in the discussion following the paper, that many practitioners in this country would prefer still to be known by the ancient name of leech.

INFECTION OF THE BILE IN TYPHOID FEVER.

DURING the last few years epidemiological studies have thrown much light on the ways in which typhoid fever and its congeners, paratyphoid fevers A and B, are disseminated. One result is that attention is now paid to typhoid and paratyphoid carriers more than ever before. These carriers are habitually persons who have had an attack of one or other of these fevers, and who remain, it is supposed, with a chronic infection of the gall bladder or bile ducts due to the appropriate bacillus. The extent to which a typhoid carrier can be a danger to others on board ship is illustrated by Surgeon S. F. Dudley's account[1] of a ship's cooper who had typhoid fever in 1898, and in the course of his next sixteen years of service appears to have conveyed the disease to no fewer than fifty-three of his shipmates, with a fatal result in eleven cases. This man's work brought him into contact with articles of food in opening casks and cases to assist the ship's steward in serving out rations to the crew; bacteriological examinations of his stools in the year 1914 showed that he was an intermittent typhoid carrier. From the naval point of view, as Surgeon Dudley says, such a carrier was not a safe man to have in any ship where any number up to nine hundred men live in cramped conditions. No practicable method of ridding him of the typhoid infection being available, the only course was to invalid him out of the service, after it had been explained to him how dangerous he was to others and notifying the medical officer of health of the district in which he lived. A recent paper[2] by Major H. J. Nichols of the Medical Corps, U.S. Army, describes experiments made in the investigation and treatment of gall-bladder infections with the bacilli of typhoid, cholera, and dysentery, in rabbits. It has been shown that in the human carriers of these three diseases the infection may lie in the gall bladder, and it is argued that what is true of the rabbit carrier may well be true of the human carrier also. In the case of typhoid fever Major Nichols concludes from his experiments that the infection takes the form of a descending cholangitis in the rabbit. In the cases of cholera and dysentery he suggests that the mechanism of infection is the same, with the additional factor of a septicaemia of the portal system. He finds that after the appearance of the bacilli in the bile of rabbits that have received intravenous injections of these micro-organisms, the infection of the bile will disappear spontaneously in many cases. This is because the rabbit's bile has an antiseptic action, and the antiseptic action is due largely to the alkalinity of the bile. In fact, it is apparently possible to protect the rabbit to some extent against infection of the gall bladder by intravenous injections of sodium bicarbonate, which render the bile secreted more alkaline for a time. Major Nichols finds that rabbit bile is more antiseptic than human in the case of the bacilli of typhoid, paratyphoid, dysentery, and some cholera vibrios. He concludes that alkaline therapy deserves a trial for the prevention and cure of human carriers of these microbes, adding the suggestion that Einhorn's duodenal tube seems to be

[1] *Journal of the Royal Naval Medical Service*, London, 1915, i, 63.
[2] *Journal of Experimental Medicine*, Baltimore, 1916, xxiv, 497.

LIBRARY U. OF I. URBANA-CHAMPAIGN

a valuable aid in determining the sterility or infectiousness of the bile in patients who have had one or other of these infections.

FAT NECROSIS.

DR. PAOLO RUSCA has recently published an elaborate account of fat necrosis[1] as it occurs in human beings and in experimental animals, with abundant references to the extensive literature of the subject. It occurs, as is well known, in acute pancreatic disease; and it may be produced experimentally by interference with the functions of the pancreas such as is brought about by ligature of the pancreatic duct or by the injection of irritating or septic material into it. Dr. Rusca finds no connexion between the occurrence of fat necrosis in any case of pancreatic disease and the condition of the pancreatic islands of Langerhans as determined by microscopic examination. The necrosis is brought about by the action of the pancreatic juice upon the fatty tissues in the abdominal cavity; very possibly the resistance of these tissues to the fat-splitting ferment of the juice is reduced. The necrotic fatty tissue is said to contain calcium soaps, for the most part, in place of the original fat. As it occurs in human beings, fat necrosis is really a part of acute pancreatitis. This is a lesion that can often be diagnosed—Körte in 1911 said he had diagnosed it correctly in eighteen out of the twenty-four cases he had met with—and it should be treated by operation without delay. The prognosis is not hopeless; in 1914 Körte recorded forty-one cases in which operation was performed, with cure in eighteen instances. Recovery is most frequent when the operative treatment is undertaken as soon as the condition has been diagnosed.

AMBULANCE DOGS.

THE value of ambulance dogs is still somewhat uncertain. They have been a good deal used by the French in certain districts in this war; they were tried by the Germans in the war of 1870, but do not appear to have been found very useful, as nothing more was done for some twenty years. Major Richardson, and a few others in this country, have always believed that they could be trained to be of real service. The interest in the subject was revived in Germany about 1892 by the animal painter Bungartz. A society called the Deutsche Verein für Sanitätshunde was formed, and it was reported that three dogs lent to the Russian army in 1904 proved useful. In the spring of 1914 the Prussian Minister of the Interior sanctioned the training of police dogs in ambulance work, and at the beginning of the present war the society was able to provide the German army with twenty-four dogs and trainers. Their services seem to have been appreciated, for by December, 1915, the number of ambulance dogs had been raised to 2,500. From reports[2] it has collected the society mentioned believes that at least 8,000 wounded soldiers have been found by dogs searching in districts where the wounded would probably have been overlooked by human beings. The dogs can easily be trained to distinguish between the dead and the wounded; they are taught when they have found a wounded soldier to seize in their mouths a leather "sausage" which hangs from the collar. When the dog comes back with the "sausage" still hanging from his collar the trainer knows it has failed to find any living wounded person. On the Eastern front wounded Russians, who did not understand the duties of the dogs, were apt to strike them, with the result that some dogs learnt to distinguish between the Russians and the Germans, and to ignore the former. Threatening gestures and even clumsy attempts to coax them occasionally caused a dog to bite. Though in trench warfare there is comparatively little scope for the services of these dogs, the Germans continue to train the dogs behind the trenches in anticipation of the day when the resumption of mobile warfare may give the ambulance dogs their chance. The breed most favoured for this purpose is the German sheep dog. Major Richardson, we believe, prefers the Airedale terrier, and rough-haired terriers related to that strain have been used by the Germans.

[1] *La Clinica Chirurgica*, 1915, No. 11.
[2] *Deut. méd. Woch.*, September 14th, 1916.

THE HISTORY OF PROSTHESIS.

DR. FIELDING H. GARRISON, of the Surgeon-General's Office at Washington, has published in the *Military Surgeon*, a periodical published by the Association of Military Surgeons of the United States, an historical review of prosthetic appliances for the relief of mutilations suffered in war. Amputation, he believes, was seldom done in antiquity, and he notes that among the two hundred and fifty wounds mentioned by Homer with a mortality of 75 per cent. there was not a single instance of loss of limb. There are no pictures of artificial limbs on the walls or painted vases of Pompeii. Ceres figures as the founder of prosthesis in Virgil. In the third book of the *Georgics* she is said to have made an ivory substitute for the shoulder of Pelops, the son of Tantalus. Hegesistratus of Elis, when captured by the Spartans, is said by Herodotus to have cut off the foot by which he was chained and replaced it with a wooden one. The elder Pliny tells of the great grandfather of Catiline, Marcus Sergius, who lost a hand in the second Punic war and made himself an iron one in its place. Lucian, who lived in the second century of the Christian era, tells of a rich man in Asia who had lost both feet from walking a long distance through snow and who had them replaced by substitutes made of wood. In the Middle Ages enormous loss of limbs was caused by leprosy and ergotism, by the torturer and the executioner, and by artillery, which was first used at Crecy in 1346. For a long time there were no crutches or artificial limbs, stumps being bound up in wooden splints, while cripples propelled themselves on movable benches. The first appearance of the iron hand is said to be in a picture of falconry, dated about 1400. The most celebrated is that of Götz von Berlichingen, the hero of Goethe's drama, who lost his right hand at the siege of Landshut in 1504. Several of these iron hands are still in existence; they have pressure buttons with movable joints and fingers, allowing closure of the hand. About 1540 Ambroise Paré made a wooden leg for a locksmith of Lorraine. In 1755 Hugues Raventon, a French army surgeon, made for a dragoon a sort of leather boot with metal shafts, which enabled the soldier to serve through the last three of the Seven Years' War. In 1761 a mechanic named Laurent made for a soldier an artificial arm with which the man could eat, drink, take snuff, doff his hat, and even write to the king for a pension. Benjamin Bell gives illustrations of leather arms and hands with metal jointings and appliances for holding table appliances and pens, made by Gavin Wilson, an Edinburgh mechanic. The Napoleonic wars, in which there was much amputating—Larrey alone lopped off two hundred limbs in a day—gave a great stimulus to the devising and improvement of artificial apparatus. The war of 1870–71 supplied inspiration to many inventors, and the developments in prosthesis of all kinds brought by the present war would already furnish material for a large volume.

AT a meeting of the New York Neurological Society held on November 15th a resolution was passed that sufferers from anterior poliomyelitis and polioencephalitis should come at an early period under the care of neurologists, with the co-operation of orthopaedists and such other specialists as might be required. It was also resolved to ask the New York Academy of Medicine to appoint a commission on poliomyelitis to consider the means of meeting and combating future epidemics. The commission should, it is suggested, consist of four subcommittees, dealing respectively with communicability and quarantine; the criteria of diagnosis and clinical management; pathology and serology; treatment and immunization.

THE WAR.

EXHIBITION OF WAR SPECIMENS AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

IN a note published last week we gave some account of the organization adopted for the collection and preservation of pathological specimens furnished by the present war, and announced that an exhibition was being arranged in the Museum of the Royal College of Surgeons of England. The work of classification and mounting the new specimens is far from complete, but a number of those which have been prepared are now on view, and as the work proceeds new preparations will be added. As it is, however, the exhibition is very interesting, and that interest has been enhanced by the addition of specimens derived from previous wars.

The Museum of the Royal College of Surgeons has, since its foundation, been one of the recognized institutions for the reception of such material; and the whole of that in its possession is now on exhibition.

The earliest specimens it contains are a few obtained by John Hunter during the British expedition to Belleisle in 1761, which he accompanied.

To these succeed examples of gunshot injury from the Peninsular and Napoleonic wars, most of them presented by Sir Stephen L. Hammick. One of the most remarkable amongst these is a portion of the heart with the aorta, from a seaman who was shot in the axilla, the bullet, a spherical musket ball, lodging in the aorta, in which it now lies; the patient, nevertheless, lived for three days. He then died from internal haemorrhage. The specimen shows that the aperture in the aorta had been temporarily plugged by a piece of skin and subcutaneous fat which the ball had carried with it from the axilla.

From the Crimean war (1854–56) certain specimens were obtained. They number twenty-three, and consist almost exclusively of portions of fractured long bones. Some of these injuries were successfully treated by resection; the cases were fully described by Mr. G. J. Guthrie in his *Commentaries on the Surgery of War*. It may be noticed, in passing, that in the Crimean war some of the weapons used by the Russians were rifled and the bullet conoidal; these small arms, like the Minié and Enfield rifles then used in the British army, which fired a conoidal or cylindro-conoidal leaden bullet, were all muzzle-loading.

The College possesses no specimens from the Austro-Prussian war (1866), but a few which are in the museum of University College, London, have been lent in order to make the present exhibition more complete. They were collected by Alexander Bruce, by whose early death surgery, in the opinion of those who knew him, suffered a great loss.

Nearly the whole of the material from the Franco-Prussian war (1870–71) is contained in the museum of St. Thomas's Hospital; it was obtained through Sir William MacCormac, who worked in France during the war and shortly afterwards became surgeon to St. Thomas's Hospital. It comprises various macerated specimens of gunshot fractures of the long bones, and some of the bullets then in use. The rifles at this date were all breech-loading, the bullets being either oval (Prussian needle-gun) or cylindro conoidal (Chassepot, Bavarian, etc.). The material was described by Sir William MacCormac in his *Notes and Recollections of an Ambulance Surgeon*. A representative series from this collection is on loan, and is ranged amongst the College preparations.

Passing by minor wars to the South African (1899–1901), it is somewhat remarkable that only two specimens were obtained from this campaign; both are in the possession of the College. One is a humerus together with the scapula, the head of the former being comminuted, and the scapula likewise fractured; the entire upper extremity, including the scapula and the clavicle, was successfully removed by Sir Frederick Treves. The other specimen is a fractured femur from a case of successful secondary amputation performed by Sir William MacCormac. The bullets employed at this period were of lead encased in a harder metallic mantle; a great reduction of diameter, moreover, had been effected, with a proportionate decrease in weight, and a highly increased velocity, due largely to the use of smokeless propellants.

This paucity of material, which arose from the great difficulties of collection and transport, affords a remarkable contrast with that furnished by the present war. Of the 1,200 specimens so far received at the Royal College of Surgeons, a very large number, of course, are duplicates, which will later on be offered to the different teaching centres of Great Britain and Ireland; those obtained by the Canadian and Australian contingents will be reserved for their schools of medicine.

The specimens from the present war which have already been prepared for exhibition comprise gunshot wounds of the great arteries, of the kidneys, intestine, joints, and long bones, and examples of such novel conditions as epidemic nephritis and the acute nephritis and pulmonary lesions due to "gassing," whether by cloud or shell gas.

In addition to pathological specimens, there are on view Professor V. Boys's photographs of bullets taken at full velocity, showing their accompanying cone or wave of compressed air; and specimens presented by the late Sir Victor Horsley demonstrating the results of firing into soft clay; and others showing further explosive effects produced by bullets at short range, presented by Professor S. G. Shattock. Nor must a set of water-colour drawings by Mr. Maxwell, made at the seat of war, and a more extensive collection of skiagrams, be omitted from the list.

For the benefit of those further interested in the subject it may be mentioned that the Museum at the Royal Army Medical College, Millbank, contains a large number of specimens of macerated bones obtained from previous wars, showing the results of gunshot. Unfortunately, the histories attached to these are mostly very brief and their educational value is thereby diminished; they are too numerous to transfer to the exhibition at the Royal College of Surgeons, although they have been kindly placed at the temporary disposal of the College.

The exhibition at the Royal College of Surgeons, Lincoln's Inn Fields, will remain open during the period of the war, and probably for some time after its conclusion.

GERMAN VIEWS ON WAR-WORN SOLDIERS.

DR. R. O. MOON has been good enough to send us the following translation of some passages he found in looking through a number of the German Garden City magazine, which advocates the settlement of disabled soldiers in garden suburbs and garden villages that have recently sprung up in Germany owing to the initial inspiration of Mr. Howard and our English Garden City and Town Planning Association. The article was written at a comparatively early stage of the war.

Rich and poor are fighting at the front shoulder to shoulder; the manual labourer and the brain worker, the peasant side by side with the man of learning and the professional soldier, the wage-earner side by side with the artist, the official, and the merchant. This enables us to see in outline the infinite variety of the necessary provision which the country must make in order to discharge its debt of gratitude to the injured and disabled soldiers as well as to their relatives.

Only a small part of this gigantic task which lies before us consists in efforts for the after-care of the crippled, extensive co-operation of great medical clinics, finding suitable work for them, and improving their working capacity. Everything connected with this question must start from entirely new principles and be sustained by an entirely new spirit. In our dear country, which has been a model to the whole world in regard to the care of the sick, the maimed, and old age, we must deal with the home-returning soldiers and their relatives quite differently from the system of pensions which we employ in the case of the sick and their relatives in time of peace. All measures to be taken in connexion with those who have been disabled by war, in the widest sense of the term, must subserve the single object of giving to their life everything which promises happiness and renders possible for them a joyful prospect in the future, not merely protecting them from their worst anxieties about their daily sustenance, and guaranteeing their support.

Pensions in themselves, however large they may be, give no happiness, no self-respect, no joy in life. In the long run idleness satisfies nobody, even if he imagined it to be the most desirable thing. Next to the war bonuses—which are a matter of course, and bear some relation to impaired working capacity—the disabled soldiers and their relatives have not only a right to work, but to the proper pay which their work guarantees. Only so can the love of work and the joy in creation—those beneficent gifts of Heaven—be aroused everywhere; only so can the will which has been broken or impaired be reanimated and

strengthened, and the nerve power again restored; only so can our grey-haired warriors returning home from the titanic struggle be protected from painting their future entirely in gloomy colours; only so can they have the proud feeling of standing on their own feet as complete men, filling full places in the world without being obliged to accept gifts.

The immense moral value which lies in the faithful carrying out of regular and continuous professional work, which for every normal man is the source of his self-respect, and maintains for him fresh and keenly the consciousness of the worth of his personality, must come uppermost in all considerations for regulating the care of the disabled. All efforts directed to the restoration of their working and earning capacity must come first. In this connexion we cannot be too thankful that the German army medical administration puts in motion every possible means for making the after-treatment of the wounded as successful as possible. Great stress is laid on the fact that all the acquisitions of modern times in surgery, orthopaedics, and physical therapeutics should be drawn upon and used as far as possible in the interests of the wounded. Of electrical apparatus we may consider high-frequency currents for the production of new muscular force, diathermic apparatus which has the object with the high-frequency electrical currents of sending a stream of heat through stiffened joints and limbs, and of loosening scars and deformities. Light, too, in many forms is often employed in the treatment of the wounded. All that modern orthopaedics are in a position to accomplish is put at the service of the wounded in a very large number of hospitals.

Side by side with many of those who have injured and crippled limbs we have very many others with damaged internal organs, for whom no apparatus in the world can be of any assistance. How many a bullet, which we can exactly localize with the help of the Roentgen rays, must remain in the body of the patient because the surgical knife cannot penetrate everywhere. No one who returns from the horrors of the battle-field with a broken down nervous system is helped by the loud praises of what wonderful advances have been made to-day in surgery and in provision for the disabled. The same applies to him whose heart and lungs were not equal to the exertion of the war, and to him who returns from the trenches with severe rheumatic pains.

The laity, when they think about the disabled soldiers, have before their eyes especially men with injured limbs, who are to be seen outside the hospitals with crutches or with an arm bound up or missing. To the layman the most important and all-embracing kind of help for our soldiers seems to be bound up with the care of the maimed. The general pity naturally is lavished on those who have, as one assumes, obviously lost so much under such terrible conditions. The general public sees and knows almost nothing of the great misery of the many who are less visibly damaged and who have not actually become cripples. How very many have indeed lost no limb, but in consequence of the shattering of one or other important joint, such as the knee or hip, by splinters of shrapnel, lie in the hospitals for many months with tormenting pains and all the dangers of severe and protracted suppuration? What prospects can there be in their old occupation for all those, for example, whose work is mainly done on ladders and scaffolds—the masons, carpenters, thatchers, chimney-sweeps, and wagoners? Who knows—quite apart from those who have become blind and deaf in every possible way—anything of the painful conditions after injuries to the head and damage to the brain, of the paralyses, epileptic seizures, headaches, and fainting attacks even among apparently healthy people? Who realizes the consequences of damage to the internal ear, which result from the terrible explosions of the heavy guns used in this war? How many occupations are thus rendered impossible! As a result of frostbite many of those who have taken part in the war must seek a change of occupation; so, too, must many who have suffered damage in their kidneys or acquired rheumatic pains in the wet trenches. Enough has been said to enable us to recognize that there may easily be a slumbering of the public conscience if only the care of the crippled is considered; later statistics alone can tell us what percentage of our war heroes, without being actual cripples, have fallen victims to the above-mentioned and similar pains.

The success of many of the methods of treatment which have been mentioned may suffer shipwreck, because of a certain passive resistance on the part of the wounded man, if he either, owing to excessive painfulness, seeks to withdraw himself from the discomfort which is unavoidable in rendering movable a stiffened limb, or if he really lacks the necessary lasting energy required for carrying through the indispensable exercises and active use of the injured limbs.

Good-will cannot be imparted to any man from outside; something can be done by means of good teaching, threats or entreaties, but the good-will comes from inside, and is the expression of very complicated psychic conditions and processes which are partly below the threshold of consciousness.

In this respect the war offers the best conditions one can imagine. By being with, and having intercourse with, so many lightly wounded, whose treatment results in most brilliant and rapid success, there arises among the mutilated and seriously wounded a joyous and warlike mood and a proud confidence in the future. The sure expectation of victory keeps alive a certain loftiness of sentiment; the influence of their happy comrades, and the daily experience that both the State and general public are doing an enormous amount for the hospitals, suffers, at least provisionally, no serious anxiety to arise. Even the freshly appearing lists of killed day by day gives always the joyful feeling that one, although wounded or sick, has still come through alive.

The aim of any legislative measures for the care of the sick and wounded must be to kindle the desire for work and the power of work among all the disabled by offering rewards for those who have learnt to work again zealously and to support their family.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Lost at Sea.

DR. J. E. PARKER.

Dr. Parker, surgeon of the transport *Ivernia*, who lost his life when that vessel was torpedoed and sunk in the Mediterranean on January 1st, as announced last week, was Dr. Joseph Edmund Parker, of Bispham, Blackpool. He was educated at Owens College, Manchester, and took the diplomas of M.R.C.S. and L.R.C.P.I. in 1885 and 1893 respectively. He was in practice for many years at Ince, Lancashire, where he was medical officer of health and superintendent of Ince Isolation Hospital, but for the last eight years or so had lived at Bispham. He was 56 years of age, and leaves a widow, a daughter, and two sons, both of whom were in Canada when the war began, and joined the first Canadian contingent.

TEMPORARY SURGEON A. H. FLANNERY, R.N.

Temporary Surgeon Arthur Herbert Flannery, R.N., died at the Royal Haslar Hospital, Gosport, on the early morning of January 1st, aged 27. He was the son of the late Mr. John Flannery, of Ballaghaderreen, and was educated at Belvedere College, Dublin, at St. Vincent's College, Castleknock, and at the National University of Ireland, where he graduated M.B., B.Ch., and B.A.O. in 1915. He then took a temporary commission in the army, and served in Gallipoli, whence he was invalided, and after his recovery joined the navy as a temporary surgeon.

ARMY.

Died on Service.

CAPTAIN J. CROPPER, R.A.M.C.

Captain John Cropper, R.A.M.C., lost in the hospital ship *Britannic*, torpedoed in the Aegean Sea near Athens on November 21st, 1916, was the son of the late Mr. Edward William Cropper, and was born at Gainsborough in 1864. He was educated at Bruges and Charterhouse, whence he proceeded to Trinity College, Cambridge. He took his B.A. degree with Natural Science honours in 1886. He completed his medical education at St. Bartholomew's Hospital and graduated M.B., B.C.Camb. in 1892 and M.D. in 1901. After graduating, he acted as junior house-surgeon at the Huddersfield Infirmary and clinical assistant at the Royal London Ophthalmic Hospital. He saw considerable service in the missionary field in various regions—Palestine, Uganda, and Persia. In recent years it had been his custom to relieve medical missionaries in order to enable them to obtain a holiday. He was particularly interested in ophthalmology and malaria, in both of which subjects he had extensive experience in Palestine, and he contributed numerous articles thereon to the medical press. Soon after the outbreak of war he offered his services to the Red Cross Society, and he spent several months in France with one of his cars, which he had fitted up as an ambulance. He was subsequently surgeon to the Anglo-Ethiopian Hospital in France. In November, 1915, he joined the R.A.M.C. as a temporary lieutenant, and his promotion to captain, dated November 18th, 1916, was published in the supplement to the *London Gazette* issued on December 11th, 1916. He was an officer on the ill-fated *Britannic* on all her voyages. During the summer of 1916, when she was out of commission, he was ophthalmic surgeon to the military hospital at Pembroke Dock. At school he was an enthusiastic collector of moths and butterflies, and this pursuit he continued in the fens during his residence at Cambridge. He was spare man for the School XI at Charterhouse, but owing to an injured knee he was unable to go in for athletics at Cambridge. He afterwards played full-back for "Barts." In recent years he had been an enthusiastic motorist, and was one of the pioneers in the county of Monmouth. He was of a mechanical and inventive nature, and was never happier than when in his

rage, attending to his cars. Some years ago he patented vulcanizer. He was a keen gardener, being particularly erested in roses. He married Anne Ellen, daughter of e late Mr. T. A. Walker, who was responsible for the vern Tunnel and the Manchester Ship Canal, and merous other engineering feats.

In addition to his widow, he leaves a son and two ughters. The former is at present on active service the R.F.A. in France. His eldest daughter is studying edicine at Cambridge. In politics he was a Conservative; was a J.P. for the county of Monmouth, and a member the British Medical Association.

Wounded.

Captain J. Crawford, R.A.M.C.(T.F).
Captain D. W. F. Jones, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Beath, Frederick Stewart, Canadian Expeditionary Force, n of the late Colonel J. H. Beath, M.D., C.B., of Stirling, died hospital at Moose Jaw, Saskatchewan, Canada, on January 1.

Semple, William David, Second Lieutenant King's Royal fle Corps, eldest son of Colonel Sir David Semple, R.A.M.C. tired), Director-General, Public Health Department, Egypt, ported missing on June 29th, now presumed killed on that te, aged 21. He was educated at Campbell College, Belfast, d at Clare College, Cambridge, where he held an open science holarship. He enlisted in the Public Schools Battalion of the oyal Fusiliers in September, 1914, got a commission in the R.R.C. on January 1st, 1915, and went to the front early in 15. He was grenade officer of his battalion, and was killed rifle leading a party in an attack on the enemy trenches.

HONOURS.

SUPPLEMENT to the *London Gazette* issued on January th contains a list of awards for gallantry in the field. he following thirteen medical officers receive the Military ross:

ptain Edward James Blair, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and ressed the wounded under heavy fire continuously for eighteen ours. He set a splendid example of courage and determination hroughout.

ptain Hawtrey William Browne, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He made a tour of five regimental aid posts under very heavy fire, and carried in many wounded men. He set a splendid example throughout.

ptain William Malloch Hart, C.A.M.C.
For conspicuous gallantry and devotion to duty. He displayed great courage and skill in evacuating wounded under most trying conditions. On one occasion he worked for several hours in the pen under heavy fire attending to the wounded. He has previously done fine work.

mporary Captain William George Thomas Hepplewhite, M.D., R.A.M.C.
For conspicuous gallantry and devotion to duty. He has worked unceasingly day and night supervising his bearers, clearing the wounded under very heavy fire. He set a splendid example throughout.

mporary Captain Herbert Bruce Low, M.D., R.A.M.C.
For conspicuous gallantry and devotion to duty. He dressed the wounded and supervised the work of the bearers under very heavy fire. He set a splendid example of courage and coolness throughout.

ptain John Wright Malcolm, M.B., R.A.M.C.(S.R.).
For conspicuous gallantry and devotion to duty. He displayed great courage and determination in constantly directing bearer squads under heavy fire. On another occasion he rescued several men who were buried.

mporary Captain Victor Harold Mason, M.B., R.A.M.C., E. York R.
For conspicuous gallantry and devotion to duty. He displayed great courage and determination in tending and dressing the wounded under very heavy fire.

mporary Captain Lloyd Remington Meech, R.A.M.C.
For conspicuous gallantry and devotion to duty. He worked continuously for forty-eight hours collecting wounded under very heavy fire. He set a splendid example throughout.

mporary Lieutenant Alexander Gordon Peter, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination throughout.

mporary Surgeon Frank Pearce Pocock, R.N., attached R.N.V.R.
For conspicuous gallantry and devotion to duty. He displayed great courage and determination in dressing the wounded and leading stretcher parties. He worked continuously for three days under heavy fire.

Temporary Lieutenant Albert Edward Sutton, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He displayed great courage and determination in tending the wounded under heavy fire. He worked single-handed all night in an advanced post.

Captain Tom Welsh, South African Medical Corps, attached South African Infantry.
For conspicuous gallantry and devotion to duty. He displayed great courage and determination in organizing and leading stretcher parties under very heavy fire.

Temporary Captain Harold Ernest Pierpoint Yorke, R.A.M.C.
For conspicuous gallantry and devotion to duty. He displayed great courage and determination in tending the wounded under very heavy fire. Later, although himself wounded, he continued to carry out his work.

The Military Cross is also bestowed upon the Rev. A. E. Cousins for assistance rendered to the wounded.

The following are among the corrections made in the *London Gazette* announcements: Issue of November 14th, 1916, for Temporary Captain Richard Harold Hodges, R.A.M.C., read Captain Richard Harold Hodges, R.A.M.C., Special Reserve (BRITISH MEDICAL JOURNAL, November 18th, 1916, p. 700). Issue of January 1st, 1917, p. 31, delete Captain Robert Burgess, R.A.M.C. (BRITISH MEDICAL JOURNAL, January 6th, 1917, p. 30).

NOTES.

MILITARY ORTHOPAEDICS IN ITALY.

THE Italian Orthopaedic Society, of which Professor Galeazzi is president, has organized a congress on aid for crippled soldiers. The object of the congress, which is to be held at Milan, is to collect publications and proposals as to surgical orthopaedic treatment, physicotherapy, prosthesis, professional re-education, and medico-legal assistance.

An institute for the re-education of soldiers crippled in the war has been opened at Parma on the initiative of the Medical War Propaganda Association, the head of which is Professor Roncoroni, President of the Faculty of Medicine of the University of Parma. The institute has accommodation for 250 to 300 patients. The director is Professor F. Melocchi.

MENTIONED IN DISPATCHES.

In the list of names mentioned in Sir Douglas Haig's dispatch printed last week, p. 59, the names of Surgeon-Major Francis W. Bailey, D.S.O., and Surgeon-Major E. G. Peck, both attached to the Royal Field Artillery, were accidentally omitted. On being mobilized for active service, Surgeon-Major Bailey, who is honorary anaesthetist to the Royal Infirmary and to the Dental Hospital, Liverpool, and a member of the city council, found it necessary to resign the office of secretary of the Liverpool Division of the British Medical Association.

England and Wales.

THE HEALTH OF MANCHESTER.

THE effect of the war on the accuracy of health statistics is clearly shown in the annual report of the medical officer of health for Manchester for the year 1915. According to the usual estimates, the population would be 746,793, but the Registrar-General puts it at only 700,319, which is a discrepancy of about 6 per cent.; the report, however, states that, judging by the difficulty of finding housing accommodation, it is doubtful if there has been so great a reduction in the population. The birth-rate of 22.23 per 1,000, the death-rate of 16.31, and in fact most of the other rates, are based on a population estimated in the usual manner, and are therefore probably too low; for example, if the Registrar-General is correct the death-rate would be 17.39, and it is certain that there has been a steady decrease in the birth-rate, the figures showing 28.5 in 1909 and 22.2 in 1915. A striking feature in the statistics is the great mortality from measles and the continued increase in the mortality from cancer. The infant mortality-rate was 128.64, and has not varied much in the last three years; as it is based on the number of infants born it is not affected by the uncertainty as to population. There was a great decrease in both the attack-rate and the death-rate from scarlet fever, and it would appear that the periodic wave is now descending. The number of cases notified in 1914 was 4,712, and in 1915, 2,922; it is noticeable that while measles caused 447 deaths, scarlet fever only accounted for 83. No less than 80 per cent. of the cases were removed to hospital. The number of cases of enteric fever was 174, one of the lowest figures on record; of these, 30 were cases of soldiers infected outside Manchester.

The extent of the bacteriological work done for the city by the Public Health Laboratory of the University under

Professor Delépine is shown by the fact that 1,458 cases were tested for diphtheria with 208 positive results, and 449 for typhoid with 126 positive results. The number of examinations of sputum for tubercle was 2,438, and of these only 78 gave a positive result. In addition, there were 120 examinations of milk, showing the presence of tubercle bacilli in 15, and a number of miscellaneous examinations.

Altogether 678 cases of inflammations of the eye were notified and visited by the eye nurses. Of these, 414 were notified as ophthalmia neonatorum and 228 were notified by midwives, though the medical attendants regarded them as simple conjunctivitis. Forty-one cases of illness simulating cerebro-spinal fever were examined either by lumbar puncture or *post mortem*, and 18 were accepted as true cases. There was no epidemic, and the disease showed little sign of infectivity. There were also 10 cases notified as acute anterior poliomyelitis, and the diagnosis was confirmed in eight. Here again there was no spread amongst contacts in the affected households.

Tuberculosis.

The most striking figure in the statistics is the great increase in the deaths from pulmonary tuberculosis, which numbered 1,053 in 1913, 1,257 in 1914, and 1,315 in 1915: no satisfactory explanation of the increase is given. At the same time there was a great increase in the deaths from bronchitis, and a marked decrease in deaths from pneumonia. Tables are given showing the fate of the cases treated in Delamere Sanatorium for the last ten years, and the report is bound to admit that the results are not very favourable, owing to the difficulty in obtaining cases in the early stages of the disease. A classification is given of cases whose total family income fell short of the standard rate given by Mr. Rowntree in his book on poverty, and the conclusion is drawn that the disease was more fatal in the poorer classes than in previous years. The senior tuberculosis officer is evidently convinced that the best use is not being made of the domiciliary sixpence provided under the National Insurance. The sum available in Manchester at 6d. per insured person is about £7,500 a year, and the number of insured persons receiving domiciliary treatment is about 750, that is, about £10 per year for each case, and the report says:

> As it is, the doctor in charge of a number of tuberculous cases does not receive any specific sum in respect of them, but is simply paid on the established basis for all cases, and so the remuneration received for tuberculosis is lost sight of, and indeed is helping to pay for treatment of all cases. The total sum available to the profession remains the same; it is simply that the distribution of a part of it should be readjusted in accordance with the original intention of the Act. Until this is done, a large measure of control in the treatment of tuberculosis is sacrificed, to the detriment of both doctors and patients.

This conclusion, arrived at by the senior tuberculosis officer, can hardly be accepted without considerable qualifications. In respect of insured persons a sum of about £800 is set aside for the provision of food and clothing, and, after inquiry, food was granted to 187 patients and clothing supplied to 208, the conditions being imposed that proper precautions should be taken and advice followed. In addition to this, the city council voted a sum of £1,500 a year for assisting the families of consumptives exposed to the risk of infection with a view to strengthen their resistance against the disease. This amount has been found quite inadequate, and the actual amount of assistance given in the early part of the financial year 1915–16 was at the rate of £3,500 a year, and it was found necessary to cut down the assistance severely. Two tables of the results of treatment of insured cases are given. The total number of cases that received residential treatment was 955, of whom 505 were discharged "improved," 92 without improvement, and 76 died, the remainder being still under treatment or having taken their discharge. Dispensary treatment was given in 502 cases, of whom 212 were discharged as "improved," 99 not improved, and 11 died. During the year 152 insured notified cases were found to have so far recovered that no evidence of active tuberculosis could be found. The report lays stress on the fact, which is elsewhere obvious, that there is insufficient provision for the institutional treatment of children suffering from tuberculosis, and this is all the more to be regretted as the results obtained in the treatment of children are generally good.

Ireland.

THE King has appointed Sir William Whitla, M.D., to be one of His Majesty's Honorary Physicians in Ireland in succession to the late Dr. James Little.

A hospital ship, bringing 543 wounded, the majority cot cases, arrived at Dublin last week. A hospital train took 91 cot cases and 52 sitting-up cases to Belfast, the remainder were distributed through the Dublin hospitals; 15 orderlies were on duty at the North Wall and 145 at the various Dublin hospitals.

The Committee of the Royal Hospital for Incurables, Dublin, has received a letter from the Minister of Pensions asking whether any suitable premises are available for the purpose of a hospital for soldiers and sailors suffering from incurable conditions arising, directly or indirectly, as a result of the war. The Committee found itself in a position to furnish the Minister with the names of several places suitable for the purpose.

MEDICAL OFFICERS OF MILITARY AGE.

A special meeting of the Letterkenny Board of Guardians was held last week to consider the whole question of the medical officership, and to decide whether Dr. Walker, whom the Local Government Board recognize, or Dr. McGinley, appointed by the guardians but not sanctioned by the Local Government Board as he is of military age, is medical officer. It may be remembered that at a recent meeting a letter was read from the board of guardians' legal adviser to the effect that the Local Government Board had no authority to refuse to sanction the appointment of a medical officer merely because he was of military age.

A letter was received from the Local Government Board forwarding an opinion given by its legal adviser to the effect that the Board had an absolute discretion under Section 8 of the Act 14 and 15 Vict., cap. 68, to refuse its approval, without giving any reason, to the appointment of a medical officer of a dispensary district made pursuant to statute by the board of guardians. The Board, in the exercise of its discretion, decided a year ago that during the continuance of the war it would not, owing to the absence of the large number of Irish doctors who had volunteered for temporary service in the Royal Army Medical Corps, sanction any permanent appointments to medical posts in the Poor Law service until the termination of hostilities. The Board stated that it adhered to that decision, and trusted that the guardians would, on reconsideration, fall in with this general policy. The Board also enclosed a copy of the opinion of its legal adviser to the effect that the guardians had no power to remove Dr. Walker from the office of temporary medical officer.

One of the guardians proposed to instruct the guardians' solicitor to take proceedings to compel the Local Government Board to sanction Dr. McGinley's appointment, and this was carried by a large majority.

Scotland.

AT a meeting of the Edinburgh John O'Groat Benevolent Association on January 12th, in aid of the Scottish Branch of the Red Cross Society, Lord Strathclyde spoke warmly of the unobtrusive efficiency shown by the Scottish Branch. During the past two years no fewer than thirty-seven hospitals had been set going under the control of the Edinburgh Board, equipped and manned almost entirely by voluntary workers. They had treated 20,000 soldiers and sailors, sick and wounded. The transport department, which was admirably organized, had carried during the same period no fewer than 80,000 wounded men in comfort and with rapidity. A notable example of the rapidity, ease, and efficiency with which the organization worked was afforded after the recent railway accident at Ratho. A special department of the branch was concerned in producing medical comforts and garments, which went not only to the sick and wounded at home, but also to France, Russia, East and West Africa, Mesopotamia, Salonica, Rumania, and Serbia.

Correspondence.

RETURN TO WORK—LEGAL AND OTHER IMPEDIMENTS.

SIR,—Quite recently there has come to my notice an article by Sir John Collie in your issue dated December 2nd, 1916, dealing with the position of injured workmen and their return to work after accidents. The article is strangely entitled, "Return to Work—Legal (!) and other Impediments."

As the solicitor for this association, comprising a membership of nearly 40,000 in an industry where the risk of injury by accident is considerable, and accordingly having some experience in the practical administration of the Workmen's Compensation Act, 1906, I should like to deal, from the workman's point of view, with some of Sir John Collie's observations.

With respect to the advice given by solicitors to injured workmen as to return to work, the following quotation from a letter which was dictated shortly before reading the article in question represents the advice which is invariably given by this association (and I believe also by most other trade unions) to its members:

Replying to your letter of the 29th ult., so far as I can judge from your description, and bearing in mind Dr. D.'s opinion expressed in his report to me of the 17th May last, the work in question should be such that B. can undertake it. If there is any doubt on this head, I should advise him to see Dr. D. again, and having told Dr. D. what it is he is expected to do, to ask the doctor to say whether or not he is physically capable of undertaking the work. If Dr. D. says he is not, then B. should obtain a short medical note to the same effect which he can show to the management in explanation of his declining their offer. On the other hand (and as I expect will be the case), if Dr. D. thinks that B. might try the work, the latter should so inform the management and make arrangements to start. B. should not make any definite agreement as to the amount of compensation to be paid to him while on the work, but he should tell the management that he wishes this question to be settled by arrangement between the Head Office of the Society and the Insurance Company.

At the end of two or three weeks you might let me know whether B. is able to continue successfully at the work, and if he is, please tell me the date he actually starts work and the estimated *average* amount he will be able to earn per week at the employment. I will then make the necessary arrangement with the Insurance Company concerned for payment of compensation in respect of the difference of wages.

Upon return to work most workmen are requested to sign a receipt in final discharge of all future claims. The responsible managers of employers and insurance companies contend that this is necessary, and that no workman who has not obviously recovered is asked to give any such discharge. I could wish such managers had more control over their subordinates. The latter persist with an emphasis which needs no explanation from me that the workman *must* give the discharge, and in most cases the discharge is obtained. It is not surprising that sometimes its value is called into question.

It is my experience that return to work is associated in the workman's mind with the giving of such a discharge, and I have found in a considerable number of cases where the employers' liability is borne by insurance companies that this pestering of the workman by these minor officials is partly due to the fact that owing to the provisions of the insurance policy the employers cannot recover their payments from the insurance company until production of a receipt in final discharge. I would suggest to Sir John Collie that many of the difficulties which arise from the doctors' point of view would be avoided if employers and insurance companies would not, as is now the case, insist upon a final discharge being given upon return to work. It is not in any case essential, and in fact is merely a part of the machinery adopted by insurance companies in their arrangements with employers.

I should like to endorse what Sir John says about the recording of memoranda of agreements or of declarations of liability. Insurance companies are usually most unwilling to agree, and, in my experience, invariably prefer a lump sum settlement rather than consent to any such course being taken.

It is not difficult to see the reason for this attitude. Insurance companies naturally desire to reduce the number of outstanding claims as much as possible; the appearance of the annual balance sheet requires this. Indeed, I am informed that a certain Government department insists upon the transfer to the reserve fund of the actuarial value of all outstanding claims five or more years old.

I fully believe that insurance companies would experience less difficulty in securing return to work at the proper time if more readiness were shown to meet the workman's natural fear of a recurrence of the effects of the accident. The longer a declaration remains on the county court register without any claim being made under it the less prospect is there of any claim being made, as, with the lapse of time, workmen have greater difficulty in satisfying the onus or proof of continued incapacity resulting from the accident.—I am, etc.,

PERCY W. COLE.

The British Steel Smelters' Mill, Iron, Tinplate, and Kindred Trades Association Legal Department Swinton Street, W.C.
January 11th.

MOBILIZATION OF THE PROFESSION.

SIR,—I have followed with interest the correspondence which has been appearing recently in the BRITISH MEDICAL JOURNAL on the above subject, but, although all your correspondents seem agreed on the cardinal principle that mobilization of the profession is necessary, none, so far as I have seen, have suggested a method whereby the interests of the nation as well as those of the individual practitioner may be protected. Might I suggest that all doctors should be registered or pooled, to use an ordinary colloquialism, and that the Government should take all they may require for war purpbses, always keeping in view the needs of the civil population? This is where the crux of the whole situation comes in. There are many doctors to-day who, in my opinion, would willingly give their services to their country if they had a guarantee that when they returned their practices had not been monopolized by those who were left behind. In order to obviate such a contingency, would it not be possible for those practitioners who remain at home to be allocated to districts other than their own for the duration of the war only, so that when the doctors who have gone to the front return they will find absolutely the *status quo ante*? By such a process there would be no danger of unfair competition being indulged in, and undue advantage taken by those who remain at home to the detriment of those who have gone to the front.—I am, etc.,

January 15th. S.

SIR,—I am one of those at whom "M.R.C.S." sneers, as I had many moves in England, the Mediterranean, and Gallipoli; during my time I met many colleagues of the R.A.M.C. who, without exception, groused at the organization by which so many men were kept at stations where they had very little useful work. I could give very many instances. Here is one: Three medical officers waiting for the arrival of a hospital ship in port; on her berthing, the senior officer checks off the list of patients, allotting them to different hospitals according to the diseases or wounds from which they are stated to be suffering. The other two officers smoke cigarettes.

Again, the sight of a medical officer in charge of a hospital block occupied in going round the wards checking the number of blankets in stock does not suggest to my mind that the profession is being utilized as economically as might be. Certainly the sneers of "M.R.C.S." are, in the vast majority of cases, quite unmerited, as it is, as a rule, in no way the fault of the officer that he is so often quickly moved on—that is one of the unavoidable exigencies of the service, and most of the men joining up have to go through it.—I am, etc.,

January 14th. Ex-R.A.M.C.

SIR,—A note which has not yet been sounded regarding the importation of American doctors, is that we are all willing to work twice, yea, and five times as hard if it will help the profession on the British *Register* to cope with the increased work thrown upon it. The spirit of outside medical men wanting to come in is undoubtedly good, but surely after the war there will be quite enough to overcome, without the possibility of an added opposition, which has already been mentioned by one of your correspondents.

"M.R.C.S.," in speaking of "square pegs in round holes," must have come across some strange cases, and I would venture to say that they are fewer in the medical branch

of the service than in any other, and that the order for a "move on" as often as not comes from a higher source than the officer commanding unit to which the officer has just been posted. Again, an officer who has filled nearly every post from regiment to home hospital has in many cases had this privilege, not as the result of being a "square peg," but through the more honourable circumstances of sickness and wounds invaliding him home in the first place, and on recovery being once more ready for disposal. There are many young medical officers in our hospitals who, having become interested in some particular line, are apparently much keener on self-improvement and in compiling notes for publication, than in thinking of getting a "move on." A period as regimental medical officer or with troops in the fire zone would be a splendid discipline for them, and impress upon them the wonders of the other side of the service, and incidentally pave the way for the local talent of the medical men resident in civil practice in the neighbourhood to be used to the best advantage.—I am, etc.,

January 11th. REGIMENTAL M.O.

THE FUTURE OF THE MEDICAL PROFESSION.

SIR,—The first editorial that appears in the JOURNAL this year affords, as no doubt its author intended, much food for thought. May I be permitted to express a few of the ideas that occur to me, and ask whether some at least of these ideas do not find an echo in the minds of other readers?

We, as a nation, have at last awakened to the fact that the primary essential—nay, the only essential if we are to exist as a free race—is that we win the war. All else is of no account; the quibblings of politicians, the bleatings of pacifists, are but the murmurings of a little brook, whose very existence is soon to be lost in the bosom of a mighty river. Yet the application of this truism to ourselves is a matter that has escaped, apparently, even your observation. Those of us who advocate a State medical service, those who urge the formation of a comprehensive trade union, have at least the merit of some vision, however clouded, into the future.

The newly qualified man who has taken a temporary commission in His Majesty's Medical Corps can well be left to face the future with equanimity. He will start life with capital, experience, and prestige, and need have no qualms as to his ultimate success. It is the middle-aged man, the man who has given hostages to fortune, the man who is saddled with responsibilities towards the next generation and has yet found the call of national duty more imperative than the claims of his kith—it is he who sees in the future but one huge problem, the problem of very existence.

Ask any of us who are serving how the practice at home is faring and the reply will be the same. The indifference of the public, the carelessness and in some cases unscrupulousness of his colleagues at home, have made the horizon of his future dark with care.

A State medical service, with its inevitable loss of competition, is bad for public and profession alike. On the other hand, I for one cannot agree that an association such as the British Medical, where the tie is mainly that of common scientific interests, can ever hope to control the profession to that extent which is necessary for its proper existence. I am not one who expects our Association to work impossibilies and then reviles it for the inevitable failure. I have a profound admiration for this society, but this admiration does not blind me to its obvious and vital deficiencies.

The decrees of the British Medical Association have no sanction. Were it essential to every practitioner of medicine for the pursuit of his profession that his membership were intact, then we might very well leave the cares of the future to the wise governing of that body. But its orders can never be enforced; any medical practitioner who takes the narrow view of his own immediate interests as against the interests of the whole is free to exercise his will unchecked. And the influence of a small amount of pernicious leaven on the lump of the profession was too well shown in the disasters of the Insurance Act to need further emphasis.

To mention one problem alone. The absence of conscription in Ireland leaves it open to young Irish practitioners to profit by the military service of English, Scottish, and Welsh doctors and set up practice in the homes of the absentees to their obvious hurt. How does the British Medical Association hope to deal with that? Nay, to put it more fairly, how can we hope that the British Medical Association can right this wrong?

Is the time ripe to demand, is the country ready to give us as a just reward for our sacrifices, a corporate body, membership of which is a legal necessary preliminary before the practice of medicine can be permitted? That should be our aim, and until we can secure some such association, guild, union—call it what you will—we shall be the sports of capricious fortune and the dupes of our less scrupulous brethren.—I am, etc.,

France, Jan. 12th. CAPTAIN T.F.

*** In this connexion we think it right to recall attention to the letter from Dr. Maurice R. J. Hayes, honorary secretary to the Irish Medical War Committee, in which he said that that Committee had received from the secretaries of the Central Medical War Committee a letter, dated November 10th, 1916, which contained the following paragraph: "We should like to take this opportunity of offering our warmest congratulations to your Irish Medical War Committee on the steady flow of volunteers it is securing."

THE INCOMPLETE CURE OF CONSUMPTION.

SIR,—I cordially agree with all which is advanced by your leader writer. The reason I wrote my letter on the notification of phthisis was that I resented the suggestion, eagerly seized upon by certain Insurance Committees' representatives, that the lack of success attending the present methods of dealing with tuberculosis is chiefly due to the ignorance or carelessness of the panel practitioners. A great parade has been made in Lancashire of the 400 cases only notified on the death certificate in a densely populated and most insanitary area. Much careful inquiry as to the association of panel practitioners with these cases ought to be made before the statistic is used as a reason for depriving the panel practitioner of the tuberculosis sixpence. The sixpenny dispensary flourishes as much as ever in Lancashire, and it is unlikely that the Insurance Act has materially altered the character of the medical work.

When the present method of tuberculosis treatment started many of us who are members of Insurance Committees warned the lay members of its absurdity, its wastefulness, and its ineffectiveness.

We ought to agitate now for the following:

(*a*) The dispensary for consultation on, and classification of, cases and suspected cases.

(*b*) Suitably situated hospitals for the suspected cases, and notification of "a suspected case."

(*c*) Sanatoriums for undoubted cases with a chance of cure.

(*d*) Arrangements to ensure that seemingly cured cases do not return to live under conditions likely to cause a recrudescence of the disease.

(*e*) Open-air colonies for those cases which appear incurable and are a danger to the uninfected members of the community.

—I am, etc.,

Wigan, Jan. 16th. FERDINAND REES, M.D.

PSYCHO-ANALYSIS.

SIR,—If Dr. Mercier's account of psycho-analysis is accepted as a fair and accurate presentation of that doctrine (a conclusion justified by the absence of shoals of letters repudiating its unfairness) it is obviously futile to attempt to lead the discussion into the legitimate channels of scientific criticism in which it is popularly supposed that personal abuse and subjective bias "cut no ice," as the Americans say. While admitting its literary merits as a piece of satire, Dr. Mercier's article may be sedimented into two serious criticisms.

The first is a criticism of the conception of the "unconscious," which is certainly relevant to a discussion of psycho-analysis, but which is unfair, because its polemics are based entirely on the notoriously unfair method of analogy (the metaphor of the "ship" and the "overboard," etc.).

The second is a criticism which is both unfair and

irrelevant (in an intellectual debate), because it is merely an attack on the personal character and motives of scientific investigators whose views are distasteful to him.

I do not propose to answer the first criticism, because I shrink from anticipating a possible answer from those better qualified than myself to reply. I entirely agree with Dr. Mercier when he complains that the "unconscious" has not, so far, been satisfactorily defined, but I hold that research may not always wait on logical exactitude of definition, especially in psychology, where a rigid and logic-tight definition often presupposes the very knowledge which it is the object of investigation to discover. Indeed, in one sense an entirely satisfactory account of the "unconscious" is contingent on the solution of the ultimate riddle of consciousness itself. There is, of course, a superficial sense in which the "unconscious" is a mere logical absurdity; but while in this sense it is an unsatisfactory label and may be assailed with withering satire, the nexus of phenomena it is meant to label is by no means spirited away by sarcasm, but, let us say, placidly awaits a better name. The most striking confirmation of the need of some name for these well-known phenomena is supplied by Dr. Mercier himself when he speaks of a characteristic "*growing from within.*" If he prefers to call this hinterland the "within" instead of the "unconscious," no one can possibly object to him doing so except in the interests of a uniform nomenclature. It will be perceived that I also have groped after a synonym for this difficult concept when I used the word "hinterland," which, of course, exposes my flank to cross-fire, but at this stage the discussion becomes reminiscent of scholasticism.

The reply to his second criticism is easier and within the scope of any reader who prizes the hard-won amenities of intellectual controversy. The Freudians and the Jungians and all their followers in two continents may be on a wild-goose chase; they may even be engaged on a chase as wild as that of the alchemists which ended in modern chemistry; but to insist that these misguided folk who troop with indefatigable enthusiasm after the Will-o'-the-wisp of the "unconscious" are in reality lascivious scoundrels and sexual perverts, is a mode of intellectual criticism which, in common with other sanguine persons, I fancied had perished in the Middle Ages.

Dr. Thomson, while in the same breath endorsing this polemical expedient, complains that "British medicine has erred in the past in totally ignoring the very considerable influence of the sex instinct," and I hope that he will not think me merely impertinent if I point out that the sentiments expressed in his letter exemplify the main reason why it is ignored. It is no longer socially catastrophic to hold unorthodox theological opinions, but what British medical man could brave the accusation backed by respected names that under a scientific theory he is masking sexual rascality and a defiled imagination?

Rightly or wrongly, the Freudians claim to have laid the foundations of what Mr. Trotter felicitously terms the "embryology of the mind," and should future generations of workers trace the genesis of this science to the imperfect but suggestive generalizations which constitute its present stage, it is possible to imagine them looking back at our embittered opposition with the sentiments inspired in us by recollecting that (as Mr. Havelock Ellis points out) R. De Graef found it necessary to preface his early gynaecological treatise, *De Mulierum Organis Generationi Inservientibus*, with an apology for the subject of his work; and Linnaeus in his System of Nature "dismissed as 'abominable' the exact study of the external genitals, although he admitted the scientific interest of such investigations."—I am, etc.,

Cheltenham, Jan. 14th. JAMES GLOVER, M.B., Ch.B.

SIR,—The arguments advanced by Dr. Armstrong-Jones in favour of the existence of "the unconscious mind" hardly carry conviction. He mentions Lecky's suggestion that "ideas are located in the unconscious mind," and Sir Walter Scott's belief that "the plots of his own romances often came out of his unconscious mind"; and he quotes an eloquent passage from Oliver Wendell Holmes in which the power of the unconscious mind to "frame our sentences" and perform other remarkable psychic feats is dwelt upon.

Dr. Armstrong-Jones is evidently of opinion that a person can frame thoughts, elaborate plots, and solve problems—in a word, perform the most complex mental operations—without any glimmering of attendant consciousness, a conclusion which seems to deny to consciousness any causal efficacy, making one wonder why it has appeared upon the scene at all.

It is little to be wondered at that men of such rich, exuberant mental endowment as Walter Scott and Oliver Wendell Holmes should be tempted to refer the easy, effortless flow of their thoughts to a hidden source in the unconscious mind. Thackeray, I believe, used to say that his stories seemed to write themselves, so easy and spontaneous was the flow of his ideas. In a sense, indeed, all new thoughts come from out the unconscious, since they have no existence until they occur, but it is from an empty void rather than from an unconscious region of the mind in which they are supposed to be elaborated before they appear in consciousness. Such an assumption introduces an unnecessary complication, and does not, I submit, in any way help us to explain the nature of thought processes.

In seeking a decision on this question it is to the professed psychologist we should turn rather than to men of the type referred to, pre-eminent though they be in their particular spheres. In recent times no man has done sounder work in psychology than William James, and he answers the question "Do unconscious mental states exist?" in no uncertain way. After considering ten separate arguments which have been advanced in favour of their existence, this is his pronouncement: "There is only one 'phase' in which an idea can be, and that is in a fully conscious condition."

There appears to me to be a strong *a priori* argument against the existence of unconscious mental states. All evolutionists admit, I presume, that consciousness is not a mere accidental, useless by-product of evolution, that, on the contrary, it is endowed with causal efficacy, and is, in point of fact, essentially adaptive. Its first appearance marked, I take it, an advance in the adaptive capabilities of the nervous system, and it is certain that every advance in mental evolution has been paralleled by a corresponding increase in this range of adaptability. At the outset consciousness was, I imagine, limited to mere feeling tone—to pleasurable feelings prompting to beneficent activities (the endeavour *toward*), and painful feelings prompting to the avoidance of hurtful activities (the endeavour *fromward*); and this conative function of feeling tone constitutes the mainspring of conscious activity throughout the entire kingdom of conscious beings, including man himself—he is propelled by his feelings.

Starting, then, as feeling tone pure and simple, mental evolution proceeds from lower to higher phases, until the capacity for complex thought, with the corresponding wide range of adaptability which it confers, is attained.

Now, if we admit consciousness to be the criterion of mind at its first dawn, if we admit it to be an essential accompaniment of mind in its incipient and most elementary phase, should we not *a fortiori* expect it to be necessary to those higher phases of mental operation connoted by the term "thinking"?

Dr. Armstrong-Jones concludes his observations on the unconscious mind by reference to its supposed influence in the education of the young by way of example, which, he appears to assume, acts essentially upon the unconscious mind. But why "unconscious"? Through what medium does example act, if not through a conscious one? So far as a child's character is modified for good or ill, it must surely be through his conscious mind. Doubtless the child is unconscious of the way his character is developing, in the sense that he does not indulge in introspection, and has but a feebly developed consciousness of "self," but, none the less, the moulding of his character is essentially a moulding of his feelings (for it is these which prompt to action), and to speak of unconscious feeling is manifestly absurd.—I am, etc.,

London, W., Jan. 14th. HARRY CAMPBELL.

SIR,—Dr. Mercier's pen possesses a scathing virulence which might well intimidate any one, save Sir James Barr, from attempting, however humbly, to dispute his views.

Truth is always many-sided: psycho-analytic philosophy contains much that has no connexion with sexual ideas, and is profoundly illuminating in the study of the human mind and human action. Dr. Mercier has such a single-eyed vision that not only he cannot see, but he cannot

Digitized by the Internet Archive in 2011 with funding from University of Illinois Urbana-Champaign

even conceive of, other aspects of the problem he undertakes to illustrate for us. If science be, as I suppose, an inquiry into and exposition of truth, his controversial method is the very antithesis of science.

There must be some hidden cause for the public exhibition of himself he has recently made in your columns on the subject of psycho-analysis. Accustomed as we are to recognize in him with admiration an alienist of powerful intellect and sound judgement, possessing ordinarily the judicial mind requisite for advancing truth, how is it that we find him suddenly running amuck like a mad bull, head down, eyes shut to every relevant object save the red rag that infuriates him? The rag *is* red which he wants to trample under foot. I freely admit this while I jump briskly aside from the mad rush, to save my own skin! But Psycho-analyst Street, in which he is rampaging, is full of many objects more valuable and interesting than red rags, and is inhabited by many innocent, honest, and efficient workmen who do not deal at all in red rags, and may reasonably object to the antics of this bull. The bull does not know why he is excited by the red rag and wants to trample it out. He thinks—if he can be said to think at all in any rational sense—that there is something in it obscene, dangerous, destructive of the foundations of his conventions and his morality. These dangerous properties are not inherent in the street or in the rag; it is its redness which excites him. If we subjected the bull to a word association test we should find that redness is associated in his mind with blood, and that blood is naturally a painful subject to a bull's mind, suggesting the slaughter-house.

This little psycho-analytic investigation leads us to a suppressed complex—a painful thought suppressed from rational consciousness, but emerging into action in the bull's anarchic career of frenzy. It is probable that an investigation into the human bull's obsession might result in an analogous revelation of a suppressed complex.

This parable, though it treads on delicate ground, and cannot, therefore, be pursued further, may help us psycho-analysts to understand Dr. Mercier. His understanding of us is, I fear, past all human aid.

The same reasoning applies, *longo intervallo*, to the President of the Medico-Psychological Association, whose letter appears in the BRITISH MEDICAL JOURNAL of January 6th in support of Dr. Mercier.

In the future world it is probable that a psychologist may become a president of angels, while the psycho-analyst burns in the nethermost hell. Meanwhile, the words are much alike, and even their meanings are not mutually exclusive. The one talks about, the other investigates, the same thing. *Pace* Dr. Mercier, is it not conceivable that a man may be both a psychologist and a psycho-analyst without being at the same time either a knave or a fool?—I am, etc.,

January 8th. PSYCHO-ANALYST.

*** "The unconscious" is too large a subject for full discussion at the present time, and we must appeal to correspondents to write briefly.

THE PSYCHO-PATHOLOGY OF MEDIUMISM AND SPIRITUALISM.

SIR,—Will you grant me space in your columns, first to congratulate Dr. Charles Mercier on his article on psycho-analysis in the last issue of the JOURNAL for 1916, and second, to call attention to what I believe is at the present time a burning question closely allied to that upon which Dr. Mercier writes? To one who, like myself, has but recently completed the perusal of Freud's *Psycho-Pathology of Everyday Life*, the straightforward, common-sense utterances of a psychologist and logician of Dr. Mercier's calibre come not only as a timely corrective and tonic, but as a guiding light in a maze of obscurity. And I would ask if it is not high time that men like Dr. Mercier devoted their analytic minds to the study of what might, I think, be rightly termed the psycho-pathology of mediumistic and spiritualistic life, and honestly and courageously told the world their opinions. I, for one—and I have reason to believe I am in a considerable majority—am confident that, if the leading lights of our profession, more especially those who, like Dr. Mercier, are acknowledged experts in the field of things and phenomena mental, would but condescend to turn their attention to this tabooed subject, they would confer a lasting benefit, not only on the profession, but on mankind, by putting a stop to what it is to be feared is a growing practice among certain individuals of the community of reaping profit—whether pounds, shillings and pence, or notoriety, is immaterial—at the expense of those who are in great sorrow and distress through loss of some dearly loved one. The attitude of our profession as a whole to "spiritualism" and "mediumism" has been, up to the present, one of studied aloofness, and this is a most illogical and unscientific attitude to adopt, seeing that the question is of equal import to unbelievers and believers in the so-called "science." Either the claims of "spiritualists" and "mediums" are true or they are false, and the answer as to whether they are true or false, if it is to be of any value, must come from those whose training and knowledge best qualify them to sift the pros and cons of evidence and announce their verdict. When a motor car takes to performing strange antics and emitting weird noises, the owner sends, not for the butcher nor yet for the baker, however estimable in their respective spheres these gentlemen may be, but for the skilled motor mechanic. Why? Because reason and experience tell him that men who have studied the machinery of cars are more likely to explain their vagaries and restore them to their normal condition than are those who have studied meats and doughs. Now it is an absurd and glaring inconsistency that hitherto, so far as leaders of scientific thought are concerned, the principal exponents and apologists of "spiritualism" and "mediumism" have been, not students of the workings of the mind in health and disease—for such are conspicuous by their absence—but physicists (Lodge and Crookes), an astronomer (Flammarion), and a naturalist (Wallace).

Relative to "spiritualism" and "mediumism" the position of psychologists and mental experts is one of grave responsibility, for they only, by verifying or refuting the extraordinary claims made by the "spiritualists" and "mediums," can set the question, once and for all, at rest. But their position has now, in view of recent events which need not be here specified, become something more than this—it has become one of honour, for Sir Oliver Lodge has defiantly thrown down the glove, and the profession is anxiously inquiring who of its leaders will pick it up. Let our psychologists, therefore, be wise in their generation and anticipate the accusation that history will otherwise inevitably level at them—that they were "too proud" to investigate the subject.—I am, etc.,

C. MARSH BEADNELL,
H.M.S. *Shannon*, Jan. 6th. Fleet Surgeon, R.N.

THE TREATMENT OF CANCER BY CUPRASE.

SIR,—The remarks of Dr. Cooper on cuprase[1] compel me to give some of my own experiences. I have used cuprase four times in cases of cancer not suitable for operation.

The first was a case of rectal cancer, in which I had done a colotomy two years previously, but the growth of the disease involving the vagina and bladder was again reducing the patient by pain and discharge. A few injections of cuprase at intervals of a week checked the discharge almost completely, diminished the pain to a very great extent, and gave myself and the patient great satisfaction. For some reason, however, fatal cerebral inflammation supervened. What its cause was I was unable to find out, as a *post-mortem* examination was out of the question.

The second case was one of extensive disease of the uterus, with extremely foul discharge and frequent haemorrhages. By the time eight ampoules of cuprase had been injected the discharge and the blood had both been entirely suppressed, and the patient, who had been confined to bed, was able to come to my surgery. Here again, however, some cerebral inflammation, which it was impossible for me to investigate, put an end to life some months after I had stopped the injections.

I have now two cases under treatment—one scirrhus of the breast, the other a spreading growth in the descending colon. The growth was first discovered during an operation for intestinal obstruction, for which a colotomy was performed some twelve months ago. About three months from the present date, owing to great pain and enlargement of the growth in the flank, injections of cuprase were commenced, with the result that the pain ceased, the growth diminished rapidly in size, and the tenderness

[1] BRITISH MEDICAL JOURNAL, January 13th, p. 48.

which existed all over was lost. The patient, moreover, was able to get up, go about again, and the obstruction which had existed in the bowel was relieved. I may add that the colotomy opening had not been allowed to close. In this person only eight ampoules of cuprase were injected, the last having been given in October. There is now, however, a recurrence of the condition previous to the first injection. I am again commencing another course of injections, and there is again a marked improvement, after the use of only two ampoules.

In the case of scirrhus the growth has become circumscribed, the breast underneath and around it being quite soft and easily movable. The edges of the growth have a sodden instead of a hard feeling, the growth itself has shrivelled. The enlarged lymphatic glands under the arm are diminishing and the lancinating pains have gone; the appetite is greatly improved and the cachexia is completely absent. I may say that this, as well as the pain and foul smell, where it existed, were lost in every case.—I am, etc.,

Bradford, Jan. 12th. P. M. O'BRIEN, M.B.Lond., M.R.C.S.

SIR,—I have had a similar experience to that of Dr. P. R. Cooper. Being in despair over a case of multiple melanotic carcinomata, in a woman aged 26, disseminated by the blood stream from a fungating skin growth, I decided to try cuprase. One injection into the flank caused such severe pain with collapse that I did not venture on a second. The case has since died. No effect on the growths whatever was noted.—I am, etc.,

Nottingham, Jan. 15th. A. CHRISTIE REID, M.D.

SIR,—Having read the article on cuprase by Dr. Cooper, it may be useful to record my experience with that remedy. My case, like Dr. Cooper's, was one of large recurrent mediastinal glands. After amputation of the left breast my patient had the whole eight ampoules injected as suggested by the proprietors of the remedy. There was no local reaction whatever, nor, as far as could be seen, any general one, as the case progressed regularly to a fatal termination.—I am, etc.,

Coventry, Jan. 15th. W. H. LOWMAN, M.B., B.S., F.R.C.S.

SURGEONS AND PHYSICIANS.

SIR,—There has been much interesting correspondence on the question of surgeons' and physicians' fees, but it appears to me a very much more important matter for both the public and the profession that the allotment of their proper places in the care of the patient should be definitely set at rest. As in a discussion of this kind the personal element should be absolutely eliminated, and as this is practically impossible if names are mentioned, I enclose my card but not for publication.

How often do we hear people say with grim ridicule, "The operation was successful but the patient died"! and although this may seem to be a contradiction in terms, yet it embodies a condition of things which is taking place every day, to the grief and discomfiture alike of the profession and the public. Operative proceedings have now been brought to great perfection, every step has been worked out, and an intelligent man or woman with good sight, proper use of his hands, and reasonable perseverance can in a few years master the steps necessary for almost any group of cases; but when all these elaborate details have been carried out to the utmost perfection, the vital energy of the patient must complete the processes of union in the divided tissues and re-establish the delicate adjustment of metabolism which is necessary. The forces which control the processes of repair are necessarily varied and complicated, and depend not only on the condition of the heart, the kidneys, the bowels, the lungs, the skin, etc., but more truly on the causes of those conditions, the appreciation of which even to an imperfect degree require a lifelong training of close observation and analysis; and it is not reasonable to expect that even a mind of more than ordinary intelligence which is constantly concentrated on the elaboration of mechanical detail can continue for any length of time to assign the correct value to these subtle influences, of which the individual evidences are often but slightly marked and of a transient nature. Yet we find every day the surgeon, after he has performed his operation, continues his attendance not only upon the wound, but in many instances writes prescriptions for the patient without consulting the physician who had called him in.

Recently I was summoned to a patient who was very ill, evidently with appendicitis. I called in a surgeon of high repute, who operated, removing a gangrenous appendix, and opened up two abscess cavities. The patient's condition remained very critical, and a few days after, without consulting me, the surgeon wrote a prescription containing liq. strych. and spt. ammon. aromat. Now the patient was a thin, wiry, active woman past 50, whose arteries were hardening, whose heart was acting vigorously, and, without even examining the urine, he ordered this wretched incompatibility, in which the patient would get the whole of the strychnine in the last dose. So there was a straight talk, which was not pleasant for either of us, and resulted in his withdrawal from the case, and the patient ultimately made a complete though tedious recovery.

In another case in which a surgeon of high standing removed a prostate from a man aged 75, who was bleeding, the surgeon, without consulting me, ordered the nurse to give hypodermics of strychnine every two hours; the man died.

It is to be presumed that surgeons have heard of arteriosclerosis and of kidney disease; but it would appear that these are only names which do not convey anything to their minds, and that terror of heart failure dominates the position and they fly to strychnine, which as often as not leaves the last state worse than the first.

I think I have said enough to show that, even assuming that the surgeon is altogether a superior order of being, he should attend to the wound and allow the physician to control the nourishment and medicine which may be necessary for the patient.—I am, etc.,

December 16th, 1916. PRO BONO PUBLICO.

Universities and Colleges.

UNIVERSITY OF ST. ANDREWS.

AT a graduation ceremony held on January 13th the degrees of M.B., Ch.B. were conferred upon Mr. F. Braid.

UNIVERSITY OF BOMBAY.

THE first volume of the *Bombay University Calendar for 1916–17* contains an almanac, the acts of the university, its general and other regulations, university lists, accounts of the recognized colleges and institutions, various academic lists and details, and a brief but interesting account of the development of its work. Until 1904 Bombay University was an examining body. In 1912, owing to the accession of funds, it was enabled to enlarge its scope, and the details of this enlargement are indicated. The second volume contains reprints of the hundreds of examination papers of all sorts set by the examiners of the university during the years 1914 and 1915.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY COUNCIL was held on January 11th, when Sir Watson Cheyne, Bt., was in the chair.

Donation to the Museum.

The best thanks of the Council were given to Dr. W. Colin Mackenzie, of Melbourne, Australia, for presenting to the College his collection of marsupial and monotreme material used by him for investigation carried out in the museum workrooms, relating to the anatomy and physiology of the animals which are native to Australia. Dr. Mackenzie was also thanked for the assistance given by him to the Conservator in connexion with the reception of the pathological specimens received at the College from the seat of war.

Votes by Non-resident Fellows for the Election of Members of Council.

The new by-laws relating to the above were ordained, and the College solicitor was instructed to submit them to the Crown for approval. The following are the new by-laws in question:

1. The place and time appointed for every meeting of the Fellows for the election of Members or a member of the Council shall be announced in the *London Gazette* and in two London daily newspapers not less than one hundred days and ten and not more than one hundred and twenty before the day of meeting.

5. Not less than ninety days prior to the day fixed for such meeting, the Secretary shall deliver or send by the post to every Fellow of the College, whose address is registered at the College, a voting-paper, in such form as the Council of the College may from time to time direct.

Treatment of Venereal Diseases by Unqualified Persons.
The Council adopted a resolution expressing the opinion that it is urgently necessary, for the protection of the public, that the treatment of venereal diseases and the advertisement of remedies for such a purpose by unqualified persons should be made a punishable offence. The Council further expressed the opinion that the recommendations of the Select Committee of the House of Commons on Patent Medicines, which have now been endorsed by the Royal Commission on Venereal Diseases, should forthwith be adopted and embodied in the proposed legislative measures.

Obituary.

MARY BIRRELL DAVIES, L.R.C.P. AND S.EDIN., L.F.P.S.GLASG., LIVERPOOL.

By the death of Mary Birrell Davies the medical profession has lost one of its noted medical women. Although her health had been failing since the beginning of the war, yet she did not relinquish her duties at Croxteth Military Hospital until within a few weeks of her death. She was a native of Liverpool, and studied in Edinburgh, where she obtained the triple qualification in 1899. She then settled down in private practice, held the appointments of honorary medical officer, Liverpool Female Penitentiary, and Liverpool Wesleyan Girls' Home. She was elected a member of the Liverpool Medical Institution in 1905, and last year was the first medical woman elected to serve on the council of that body. Dr. Mary Davies was especially active in all social work pertaining to the health and well-being of her sex. Her organizing ability was at once recognized by the various philanthropic agencies throughout the city. It was in this direction that her professional knowledge found the widest scope. Like a true woman, she shunned the blazing light of publicity, and preferred to go about doing good, and by her example stimulate others to do likewise. Her professional knowledge enabled her to speak with no uncertain voice to mothers of the working classes of their parental responsibilities; and, indeed, Dr. Mary Davies said to the writer that she often thought that those women who seemed to think the working classes needed instruction were themselves too apt to neglect their own immediate duties. She deplored the diminution in the size of families among those who could well afford to have their quiver full.

She was interested in the Girl Guides' Movement from its start in 1909; was a member of the Victoria Women's Settlement, adviser to the juvenile employment section of the labour exchange, and inspector of children's institutes under the Children's Act. On the outbreak of war she initiated the Women's War Service Bureau in Liverpool, and in October, 1914, went to France where she did good work until failure of health compelled her to return home. She had indeed for several years been under the shadow of a mortal and painful illness, but she never permitted this to interfere with her work, which she carried on to the end with all the energy her diminishing strength permitted.

As a medical woman she had no difficulties with the male members of our profession. Her manner was tactful, her speech to the point, and in consultation the salient points of a case were put forth lucidly and tersely. Dr. Davies was indeed a tower of strength to her own sex, and was quick to detect its foibles in the matter of self-indulgence of any type. She was one of those women who recognized not only the limitations of her sex, but also its aspirations to the fullest extent. It was on this account that she endeared herself to so many of those whose views in pre-war days she did not actively share. Dr. Davies was one who preferred to sow and till the ground of the women's movement, and not to cry out for fruition before the time was ready. Personally she possessed great charm of manner, and was vivacious and a bright conversationalist. The funeral took place on January 4th. It was preceded by a memorial service at Sefton Park Presbyterian Church, which was largely attended by members of the medical profession and representatives of the various bodies with which Dr. Mary Davies had been closely identified. Now that she has gone we may say she lived a noble life, and one characteristic stands out perhaps more than any other in memory: her educated womanliness.

DR. OTHO FRANCIS WYER died on December 11th, 1916, at Leamington, where he had practised for forty-nine years. His father was an army surgeon who was awarded the Peninsular War Medal with five clasps, and a pension for distinguished service. Dr. Wyer was born in Ireland on July 5th, 1837, and was educated at Bedford Grammar School, passing from there to the Bedford General Infirmary, and completing his professional education at St. Bartholomew's Hospital, where he was distinguished by Sir James Paget as one of the most industrious and intelligent students of his time. In 1858 he took the diplomas of M.R.C.S. and L.S.A., and then held a temporary appointment as house-surgeon to the Warneford, Leamington, and South Warwickshire General Hospital, where he became known as one of the first doctors to introduce Spa water baths. After practising for a time at Nuneaton he studied under Lord Lister at Glasgow and took the degree of M.D. at its university in 1867, in which year he went back to Leamington, where he practised until 1910; in 1915 he celebrated his golden wedding. He became physician to the Warneford Hospital, and in 1869, when the Leamington Provident Dispensary was founded, he was appointed as one of its first medical officers. Dr. Wyer was a member of the British Medical Association, and succeeded Sir Thomas Chavasse in 1906 as President of the Branch. Dr. Wyer was a warm supporter of Lord Selborne's Society for the Protection of Birds. He inherited great literary tastes, some of his ancestors who came from Holland in the fifteenth century being workers with Caxton at his Westminster press. He was a good horticulturist, and gave much attention to the cultivation of roses. He was confined to his house for the last six years of his life.

DR. ISAAC MOSSOP, of Manningham, Bradford, Yorks, died, aged 71, on December 24th, after a long illness. He was born in Whitehaven, Cumberland, on January 16th, 1845, was educated at St. Bee's Grammar School, and studied medicine at Edinburgh University. In 1869 he took the diplomas of L.R.C.S. and P.Edin., and in 1891 that of F.R.C.S.Edin. After holding resident appointments in the Royal Infirmary and in the Royal Hospital for Sick Children, Edinburgh, he set up in practice in Bradford. He was made surgeon to the Bradford Children's Hospital at its foundation, and remained for fifteen years on the active staff; he took the greatest interest in the Bradford Women's Home and Shelter, and the Bradford Nurses' Institution. He was President of the Bradford Medico-Chirurgical Society in 1886–67, and of the Bradford Medico-Ethical Society in 1884–85. He played an active part in the work of the British Medical Association in Bradford; in 1906 he was Chairman of the Division, and in the following year President of the Yorkshire Branch. In 1874 he was gazetted surgeon-lieutenant to the old 2nd West Yorkshire Volunteer Artillery. He retired in 1910 with the rank of colonel, and received the Volunteer Decoration. He took an active part in war work of various kinds, till his ill health obliged him to desist. Dr. Mossop's wife died eleven years ago, but he leaves four sons and six daughters. Dr. Mossop was buried at Undercliffe Cemetery on December 28th, after a service at St. Luke's Church, Manningham. The Lord Mayor of Bradford, representatives of the professions and institutions in the city, and a very large number of friends and acquaintances attended the ceremony. At the Bradford Police Court Mr. Beaumont Morice, the stipendiary magistrate, made a sympathetic reference to Dr. Mossop, who had been a J.P.

DR. JAMES ARTHUR RIGBY of Preston died at his residence in that town on Christmas morning from acute pneumonia following influenza; only four days previously he was performing his military duties on the Medical Board of the 47th Area. Dr. Rigby was born in Preston in 1849. He studied medicine at Guy's Hospital, took the diplomas of M.R.C.S. and L.S.A. in 1873, and the degree of M.B.Lond (with honours) in 1874, and the M.D. in 1877. He returned to Preston, and practised there for the rest of his life. Dr. Rigby became medical officer to the Preston and County of Lancaster Queen Victoria Royal Infirmary, and took great interest in local government and social questions, being one of the most prominent members of the Preston Town Council since his election in

909, when he contested a ward in the interest of the Ratepayers' Association, of which body he was the chairman. He was also for some time chairman of the Health Committee, where he was conspicuous for his strong opposition to the views of those who bemoaned the decreasing birth-rate. He contended that the children and youths of to-day are a finer race, and far better educated and dressed than those who were born and reared in mid-Victorian days when large families were more frequent. For twenty years Dr. Rigby was surgeon to the Preston Volunteer Artillery, now the West Lancashire R.F.A., retired with the rank of major in the R.A.M.C., and was awarded the Territorial Decoration. He offered his services on the outbreak of the war. He was placed in charge of the examination of recruits until the formation of the Medical Board, and calculated that he had personally examined over 50,000 recruits in his daily attendances at the Public Hall. Dr. Rigby wrote many articles for the press, contributing to the *Nineteenth Century* and to several medical papers, and published in the BRITISH MEDICAL JOURNAL (vol. i, 1886, p.14) an instructive, well illustrated report of a case of mollities ossium in the male, with spontaneous fractures, which had been under his personal observation. His most important literary venture, however, was a treatise on the high death-rate of Preston, a pamphlet on the vital importance of municipal effort for the reduction of infantile mortality, which excited great interest in the North of England.

DR. JAMES EATON died on December 24th, 1916, at Grantham, where he was born in 1836, and where he had spent most of his life. His father had practised in the same town, and the son, after completing his general education at the town Grammar School, studied medicine at St. George's Hospital, and took the diplomas of M.R.C.S. and L.S.A. in 1858. After a short period of practice at Farnsworth and Knipton, and a time as a ship's surgeon, he settled in Grantham, where he continued to practise until within a few days of his death. In 1888 he was appointed M.O.H. for the Grantham Rural District. Before this he had come into conflict with the town council in connexion with an outbreak of scarlet fever in 1878, when the urban and rural authorities appointed a general committee to provide hospital accommodation in tents in the outskirts. The town council afterwards refused to pay Dr. Eaton's charges for medical attendance, and he brought an action which raised a point of law as to whether the contract was binding, inasmuch as it was a verbal contract, whereas by Section 174 of the Public Health Act a contract exceeding £50 must be in writing. The Queen's Bench decided against Dr. Eaton, who carried the case to the Court of Appeal, which unanimously decided that the case did not come within the section, inasmuch as the contract was not at the time of making known to exceed the amount of £50. Dr. Eaton was also M.O.H. to the Spittlegate District and medical officer to the Grantham Union workhouse, where he earned the esteem of the sick poor, for whose welfare he ever evinced personal solicitude. He was a successful practitioner, and took a large part in the public work of the town. He was a good judge of a horse, and took many honours for hackneys at local and district shows. He leaves a widow. The respect in which he was held was shown by the large number who attended the funeral, including many of his professional brethren.

DR. JOHN WALKER SMYTH, who died at his residence at Much Hadham, Herts, on December 29th, 1916, in his 70th year, was educated at Queen's College, Belfast, and took the diplomas of L.R.C.P. and S.Edin. in 1874. He was examiner to the Goldsmiths Company and surgeon to the City Provident Dispensary and Surgical Appliance Association. He practised at Colebrooke Row, Islington, for some forty years. A few years ago he went to reside at Much Hadham, but came to London several times a week. He was looked upon as Islington's oldest doctor. Dr. Smyth was a man of resolute character. He took a keen interest in local affairs, and had held the office of chairman of the old School Board. He was a Justice of the Peace and a member of the old vestry, and later represented St. Peter's Ward on the Islington Borough Council. The funeral took place at Much Hadham on January 1st.

The Services.

EXCHANGE.

CAPTAIN, R.A.M.C.(T.), Recruiting Medical Board near London, desires exchange with T.F. officer in charge infantry or mounted unit, Eastern Command or Ireland. — Address, No. 250, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

DR. SIMON FLEXNER, director of the laboratories of the Rockefeller Institute for Medical Research, New York, has been elected a foreign associate of the Paris Académie de Médecine.

A STATEMENT was recently made to the legislative committee which is investigating the prevalence of drug addiction in New York that there are some 200,000 victims of the habit in the State.

A COURSE of three lectures on the modern treatment of diabetes mellitus will be given by Dr. O. F. Leyton at the London Hospital on Wednesdays, February 7th, 14th, and 21st at 5.15 p.m. Members of the profession will be admitted on presentation of their card.

THE second series of the course of lectures on the anatomy of the human body for first aid and ambulance students, given at the Royal College of Surgeons of England by Professor Arthur Keith, conservator of the museum, began on Monday last, January 15th, and will continue until February 9th.

THE Home Secretary has extended to February 28th, 1917, the permission granted to persons bona fide engaged on July 28th, 1916, in practising dentistry but not registered under the Dentists Act, 1878, to purchase preparations containing not more than 1 per cent. of cocaine for use solely as local anaesthetics in connexion with dental work.

THE number of students in the Austrian universities during the summer semester of 1916 is stated to have been as follows: Vienna, 3,472; Prague (Czech University), 1,891; Prague (German University), 638; Cracow, 1,281; Lemberg, 1,174; Graz, 647; Innsbruck, 584. The proportion of medical students was highest at Vienna and at Graz, at both of which it was about 30 per cent. of the total number. At Vienna nearly two-fifths of the medical students are women.

A LEAFLET addressed to Belgian mothers in this country has been issued in Flemish and French by Miss Dora B. Vine, who has had experience as nurse and midwife in Belgium. It contains sensible advice on the management of infants, but we are not sure that it is safe to lay so much stress on avoiding the boiling of milk. On the other hand, the advice that if the water and milk have to be boiled the child should have the juice of fresh fruits is good. The leaflet can be obtained from the authoress at Eversley, Exmouth.

M. A. ZASUILOW (*Wratchebnaia Gazeta*, 1916, N. 25) strongly recommends the use of salt and soda baths and weak solutions of silver nitrate in the treatment of contaminated gunshot wounds. The injured limb is submerged in a solution consisting of soda 2 per cent. and salt 1 per cent., boiled before use and having a temperature of 30° to 32° C., which may sometimes be raised to 40° to 42° C. The bath lasts from fifteen to forty minutes. The wounds become less painful, the inflammation of the surrounding tissue diminishes, the separation of sloughs is hastened, and the temperature is soon lowered. The gauze used for dressing the wound was saturated with a solution of silver nitrate 1 in 200,000, covered with oiled paper and cotton-wool and bandaged; the suppuration diminished, lost it smell, and the wound soon healed.

SPRING courses of training for the certificate of the Sanitary Inspectors Examination Board and for the diploma of the National Health Society will begin on January 22nd. The courses, which are given at 53, Berners Street, W., consist of lectures, demonstrations, and practical work. Students must be educated women, and are advised to enter a hospital or infirmary for a period of training, or to qualify for the certificate of the Central Midwives Board. Stress is laid on the fact that by passing the examinations mentioned a woman obtains a profession which will be a permanent staff to lean upon. Among the appointments gained by the society's students are those of sanitary inspectors and health visitors, inspectors under the Infant Life Protection and Shop Hours Acts, and, in four instances, inspectors of workshops and factories under the Home Office.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

INCOME TAX.

G. D. K. B., who holds a temporary appointment as medical officer to troops, being paid £1 a day, to include cost of drugs and dressings, asks whether he is liable to payment of income tax.

*** If income tax were deducted the fact would be apparent on the draft or warrant received in payment, but we may add that we understand that "temporary civilian employees" are liable to direct assessment on their pay which is received in full. G. D. K. B. can, of course, deduct the cost of drugs and dressings, unless these have been or will be charged against his private profits. Prima facie the fact that the £1 a day is a sum inclusive of expenses would lead one to suppose that tax would not be deducted at the source.

E. W. was until December 31st, 1914, a member of a firm of practitioners, and paid income tax up to April, 1915, on his share of the partnership profits. His late partner asks him for payment of income tax on book debts collected since April, 1915.

*** We presume that during the time when E. W. was a partner the income tax assessments were based on the average cash receipts of the practice less the average expenses. Though usual, this basis of calculation is adopted and accepted not as theoretically correct, but as giving, except in the case of a new practice, substantially the same result as the true basis, which would substitute for the "cash receipts" the "value of the bookings," and consequently our correspondent, while he was a partner, paid income tax on his share of the full earnings of the practice, though a large portion of those earnings reached him, in cash, only after his connexion with the practice ceased. This was correct, because income tax is levied on "profits," and not merely on realized profits; but E. W., having paid tax on this basis, cannot now be called upon to pay tax again on that portion which was then unrealized and has since been received. The income tax payable after April, 1915, by the firm is in respect of profits earned after that date, and we fail to see why, either on legal or equitable grounds, our correspondent should bear any portion of tax payable for periods subsequent to that date.

ANSWERS.

CRANIUM.—Flower's craniometer with caliper action is made by Messrs. W. F. Stanley and Co., Great Turnstile, Lincoln's Inn Fields. At present it is not always possible to obtain instruments of this kind, as they are only made to order and the instrument-makers' firms are largely under control. For Dr. Waterston's *Index Calculator* our correspondent should apply direct to St. Andrews University, Scotland. Flower's work in craniology is embodied in the *Catalogue of the Osteological Specimens in the Museum of the Royal College of Surgeons of England*, vol. i, part 1: Man. It is out of print, but it must be at hand in the libraries of South African universities. Turner's contributions to craniology are scattered amidst numerous papers in the *Transactions of the Royal Society of Edinburgh*.

LETTERS, NOTES, ETC.

"SURGICAL" EMPHYSEMA DURING PARTURITION.

DR. JOHN J. REDFERN (Croydon) writes: This rare condition recorded by Dr. John Murray in your issue of January 6th, p. 14, is interesting both for its rarity and severity. I recorded such a case in the *Lancet*, 1890, and out of over 2,700 cases have not met with a similar case since. Emphysema of the abdominal wall due to the presence of gas-producing bacteria is referred to in Jellett's *Manual of Midwifery*, but the references to emphysema during parturition and due to physical causes are so rare as to lend additional interest to those recorded.

APPENDICITIS AND ENAMELLED WARE.

DR. F. S. D. HOGG (Rickmansworth) writes: Dr. W. G. Walford's note which appears in your issue of January 6th draws attention again to one of the causes, possibly the chief cause, of appendicitis. Some twenty years ago a letter appeared in one of the medical journals on the same subject. The writer had made a solution of some drug in an enamelled utensil; on pouring the mixture into a glass he noted glistening flakes of enamel. Since this letter appeared I have read of no more likely explanation of the enormous increase of appendicitis during the past thirty years. Such small spicules may not only lodge in and wound the appendix, but may scarify other parts of the intestine, and be, perhaps, one cause of colitis and other troubles.

"AUTO" COUNTER IRRITATION IN RHEUMATOID ARTHRITIS.

DR. JOHN HADDON (Denholm, Hawick, Scotland) writes: In the JOURNAL of December 16th, 1916, Dr. C. T. Griffiths relates a case of rheumatoid arthritis cured by what he calls "auto" counter irritation. In former days a seton was often used, and a crisis, I believe, is still brought on in some hydros, but "auto" counter irritation is new to me, and I doubt if it is correctly applied in that particular case. I regard disease as an effort of Nature to warn the patient that her laws are being transgressed, and I think we ought to second and not thwart her efforts. In Dr. Griffiths's case of rheumatoid arthritis a glandular swelling above each clavicle appeared, an abscess formed on each side of the neck leaving a large raw surface, which healed by granulation, and the arthritis was cured. The seton, and a crisis, and an abscess leaving an ulcer, are all eliminators rather than counter irritants, and the success of such elimination in such a generally hopeless disease seems to me to indicate the need for elimination in all rheumatic affections.

AN UNUSUAL CAUSE OF DEATH FROM SHOCK.

DR. GEORGE PRENTICE (Kasungu, Nyasaland) writes: A well-developed and healthy male belonging to the Achewa tribe recently returned to his home from a beer-drinking party. He was very much under the influence of beer, and must have imbibed a large quantity. On meeting his wife he sought intercourse with her, but the woman resisted his advances. The man seized the woman from behind, and she, in a sudden temper, struck back with her right hand. In so doing she inadvertently struck him a blow on the penis, which was in a condition of erection. The man immediately fell down, and with the words "You have killed me" on his lips he expired. The body showed no sign of any bruise of any sort. The abdomen was much distended with the beer he had imbibed.

I attributed his death to shock caused by a blow to the organ, and stated that the overloaded stomach probably increased the susceptibity to shock. I also stated that the woman acted under provocation, and advised that the case should be regarded as an accident. This view commended itself to the European magistrate and to the native chief.

I cannot recollect having read of such a case, and the cause of death seems so unusual that I have thought it might be of interest to the profession to put it on record.

GALYL.

WE have received the following note from the Anglo-French Drug Company, Gamage Buildings, Holborn, E.C.: "We are receiving queries from some of the hospitals and surgeons regarding the omission of galyl from the list of approved remedies on the L.G.B. Circular. They seem to be under the impression that it is due to some therapeutical objection, whereas it is really owing to the miscarriage of some correspondence on the matter with the secretary of the Local Government Board, and we hope to see galyl on the approved list in the very near future."

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

CONTRACTURES AND ALLIED CONDITIONS:

THEIR CAUSE AND TREATMENT.

BY

GEORGE COOPER, B.A., M.D.,

MEDICAL OFFICER IN CHARGE OF ELECTRO-THERAPEUTIC DEPARTMENT, ROYAL VICTORIA HOSPITAL, NETLEY.

THE deformities and disabilities that follow gunshot and other wounds form an interesting subject of investigation. Many of these are due to a contracted condition of the soft tissues, which obstructs the normal movement of the joints. Vague references to them as "cases of stiffened joints," or a general inclusion of all and sundry under the term "contracture" is a method of classification that is equally unscientific and unsatisfactory.

An attempt is made in this paper to elucidate some of the principles concerned in the production of these crippling conditions, and to outline the methods that may be adopted for their prevention and cure.

Passive resistance of a muscle to its normal elongation may be due to one or both of two causes: (1) The muscle may be in a state of contracture; (2) it may have undergone fibrotic changes. The two conditions are distinct, but a muscle may be the seat of both. Muscles are rarely affected singly, the distribution is generally synergic as regards definite movements—thus both pronators of the forearm are affected together and the involvement of the biceps generally determines that of the other flexors of the elbow also.

Restoration of normal passive movement to the joint is often rendered more difficult by the participation of the fibrous tissues controlling the joint in the morbid process, and there is evidence that in these cases relaxed ligaments tend to undergo definite contraction.

There seems to be ample ground for the opinion that the occurrence of contractures is relatively more common in military practice than was the case in the treatment of wounds and fractures in civil hospitals in peace time, and most surgeons in charge of military patients confess to finding it necessary to exercise the most constant care and supervision to prevent the development of these troublesome and deforming complications.

NATURE OF "CONTRACTURE."

It is necessary to make clear what is implied by the term contracture.

The word *Kontractur* was used by Hermann to describe the idiopathic state of contraction into which an excised muscle passes after it has been subjected to repeated stimulation. Under certain conditions a definite amount of residual contraction remains after each relaxation of the muscle, and if the muscle is made to contract several times in rapid succession the amount of this residual contraction is much greater and persists much longer. Finally, a condition of contraction can be produced which passes off very slowly indeed. A condition somewhat akin to this arises in muscles of the human body when under abnormal conditions they have been subjected to prolonged and excessive stimulation. As used at present, the word is of somewhat loose significance. It obviously should not be applied to muscles whose resistance to elongation is due to hypertonus; their state of contraction is in response to continuous stimulation, the result of increased innervation. It also should not be applied to muscles whose resistance to elongation is due to structural changes; such structural changes are essentially of a fibrotic character. Either the normal fibrous framework of the muscle has undergone contraction or fibrous tissue has been deposited in the muscle substance.

There remains, however, a definite class of cases to which the term "contracture" may legitimately be applied. These are muscles that have been subjected to an excessive and prolonged degree of stimulation, and it is found that many of these offer a resistance to their normal elongation which is unaffected by deep chloroform anaesthesia. Two explanations of this resistance can be offered: (1) It is due to a state of contraction in the muscle fibres; (2) it is due to fibrotic changes in the muscle structure.

If fibrotic changes can be excluded, then the resistance arises from the state of the muscle fibres. They offer resistance to normal elongation in virtue of the state of tension developed in them during the contractile process. Nothing short of section of the nerves to the muscle can exclude the possibility of stimuli reaching it and being the cause of the state of contraction in the muscle fibres; but if we take it that deep chloroform anaesthesia blocks all efferent stimuli, then the state of contraction of the muscle fibres must be of the residual type, and is closely allied to the condition of *Kontractur*.

The suggestion that has been offered that the muscle has undergone "structural shortening" in response to the prolonged state of contraction in which it has been maintained, must imply one or both of two things—either the fibrous framework of the muscle has adapted itself to the shortened condition of the muscle, and has undergone definite contraction, or the muscle fibres themselves are in a state of definite contraction. It will be seen that the first supposition comes under the head of fibrotic changes, and the second under residual contraction, or contracture.

Some reference to the contractile process is required in a consideration of these contracted conditions of muscles.

Various theories of the process of muscular contraction and relaxation have been advanced. The essential point in contraction is the development of a state of tension in the muscle fibre, and it has been shown that the energy developed is manifested as a surface phenomenon. During contraction lactic acid is formed, but there is no consumption of oxygen or evolution of CO_2. The restoration of this state of tension to the normal is accompanied by a process of oxidation, and the lactic acid disappears. There is considerable combustion of oxygen and production of CO_2. Fletcher and Hopkins[1] demonstrated in 1907, however, that the lactic acid did not disappear by oxidation, but that energy is restored to the system by the oxidation of carbohydrates. Hill expresses the matter by regarding the lactic acid as part of the machine but not of the fuel.

It will be seen that the lactic acid plays a very important part in the contractile process, but the nature of its action is not definitely understood.

Mines[2] considered the production of lactic acid as responsible for changes of surface energy, due possibly to its effect on the optimal hydrogen ion concentration for contractile response.

In the presence of oxygen the lactic acid tends to disappear, but its removal cannot be instantaneous; therefore, according to his view, a series of rapid stimuli may bring about a concentration of acid that is maximal, and so the muscle passes into "tetanus."

All authorities agree that during the process of contraction lactic acid is produced, and that during relaxation it disappears, and that its production is attended by an increase of tension in the muscle fibre, and its disappearance with restoration of the system to normal. In 1906 McDougall[3] published a theory of muscular contraction in which he conceived the state of tension developed during contraction to be due to interchange of fluid between the muscle fibrils and the surrounding sarcoplasm, such interchange being determined by the relative acidity of the two media. He regards the muscle fibre as consisting of a sarcolemma enclosing contractile substance —sarcoplasm—in which fibrils are embedded. The muscle fibril is conceived to be divided into segments by transversely placed membranes, the lateral walls of the segments are inextensible, so that increase of fluid contents leads to shortening of the segment and of the fibril as a whole. A nerve impulse is followed by the production of lactic acid in the fibril, fluid passes in from the surrounding sarcoplasm, and the tension developed results in shortening of the fibril. The lactic acid tends to disappear in the presence of oxygen—he suggests that it is neutralized by an alkaline substance inherent in the sarcoplasm—and its disappearance is followed by return of the fluid absorbed and the restoration of the normal tension within the muscle fibril.

If the nerve impulses are continuous, a stage will be reached when the neutralizing substance will become exhausted and a concentration of lactic acid will result within the fibril, and consequently the absorbed fluid will be retained; the muscle will therefore remain in a state of prolonged contraction or *Kontractur*, and this will persist so long as the contents of the fibril remain acid.

Whatever explanation is advanced of the highly complicated changes that occur during the contractile process,

the part played by lactic acid in the production and maintenance of a state of tension is generally recognized, and therefore it is reasonable to assume that every factor that tends to maintain an acid condition of the sarcoplasm may be regarded as a factor in the maintenance of the state of contracture.

The production of rigor mortis appears to have some features in common with that of contracture. It is distinctly suggestive that in animals hunted to death, and in those persons who have undergone severe muscular exertion before death the onset of rigor mortis is very rapid.

The possible explanation of this fact is that the excessive oxidation going on in the system leads to a local deficiency in the supply of oxygen to the muscular tissues; therefore lactic acid tends to accumulate, and at the moment of death there is an excess of acid present.

The onset of somatic death and the failure of the general circulation stop any further supply of oxygen to the tissues. Molecular life, however, persists for some time after somatic death; and the formation of lactic acid in a dying muscle is a matter of common observation. This lactic acid would determine an increase of tension in the muscle fibre, and in the absence of a supply of oxygen this state of tension would persist. Rigor mortis would therefore be of more rapid onset in muscles exhausted by prolonged activity than in those not laden with lactic acid at the moment of death.

Some light may be thrown on the consideration of the state of contracture by a reference to the interesting phenomenon of the "catch" mechanism that is met with in some varieties of smooth muscles. Von Uexküll's[4] description of a typical instance of its action may be quoted:

"If one takes a normal Pecten out of the water it gives two or three flaps with its shells before permanently closing them. While it is open, a piece of wood is pushed between the shells, which then close and hit upon the wood with so powerful a crash that their edges are splintered. The wood is then held as in a vice. One can, however, pull it out by twisting it about backwards and forwards, and then one is surprised to see that the shells remain motionless, just as would the jaws of a vice if an object clamped between them had been forced out.

"The shell movement shows not the least degree of elasticity. The muscular fibres seem to have been frozen solid. If one next tries to *open* the shell no effect can be produced, but even the pressure of a finger is sufficient to press them nearer together, and in this position they remain fixed again so that they cannot be brought back."

The action is analogous to a simple mechanical ratchet action.

The "catch" in the muscle has been shown to be put into action by one set of nerve impulses (excitatory), and removed by the intervention of another (inhibitory). A similar condition is met with in the urinary bladder of mammals, and possibly also in the muscular coat of the arterioles.

According to Bayliss[5] the actual mechanism may possibly consist in the prevention of the spontaneous disappearance of the lactic acid produced by stimulation of the muscle.

These three conditions—contracture, rigor mortis, and "catch" mechanism—illustrate states of muscle contraction maintained without nervous stimulation, and, as has been demonstrated, it seems clear that the essential factor which they all three have in common is the accumulation of lactic acid within the muscle fibre, and this, as we have seen, is inseparably associated with the development of a state of tension therein.

Production of Contracture.

The production of contractures is favoured by several factors:

1. Immobilization of joints in a flexed position for continuous periods places the flexors of such joints in a position of prolonged contraction. This positional response is somewhat similar to the "plastic tonus" described by Sherrington.[6] He has shown that in the decerebrate animal a limb will remain fixed in the position to which it is moved. This phenomenon is due to reflex tonicity from afferent impulses arising within the muscles themselves, and it would appear that each particular length of the muscle is able to set up afferent impulses of such a degree that the resulting afferent response is sufficient to maintain the muscle at that level. Afferent impulses arise from the proprioceptors of a muscle, and in the reflex contraction of plastic tonus the muscle calls forth the necessary afferent impulse by the degree of stimulation it imparts to the proprioceptors. This illustration of plastic tonus applies to the condition we are considering, since the fixation of the joint renders the degree of contraction in the affected muscles almost a purely reflex phenomenon. The placing of a muscle in a position of contraction results in the muscle accommodating itself to this condition; an increased stream of afferent impulses calls forth corresponding afferent response, and the principle of "reciprocal innervation" leads to inhibition of its antagonists (McDougall). The consequence is that the flexors are subjected to a prolonged degree of stimulation, which maintains them in a state of contraction, and, as has been shown, it is this prolonged stimulation that leads to the production of contractures.

II. There is strong evidence that many of these cases of prolonged contraction are really cases of localized tetanus poisoning. It will be recalled that one of the earliest symptoms of the onset of acute tetanus is the increased irritability of the muscles in the neighbourhood of the wound, and, moreover, it has been found that 15 per cent. of septic wounds examined contain a virulent strain of the *Bacillus tetani*. The muscles which are the seat of the infection, and from which the virus travels up the nerve, would naturally be the first to experience the responsive efferent impulses from the anterior horn cells, and if the virus does not spread in the cord one can readily conceive a state of prolonged contraction confined to the muscles in the neighbourhood of the wound. Contractures and myofibrotic conditions, following prolonged tetanic contraction in cases of acute tetanus differ only in degree from those arising in cases not obviously the subject of tetanus poisoning. They are generally much more severe, and it is clear that, as in the case of immobilized joints, the excessive stimulation of the muscle is the essential cause of the condition.

III. The presence of local and general sepsis has probably an important effect in the production of contractures and myofibrotic conditions. Lymph streams leading from a septic focus will be charged with toxic products, and these cannot be without effect on the cells with which they come in contact. The nature of the cell membrane and the conditions that determine interchange between the cell and the surrounding lymph are still very obscure. It is known, however, that substances that render the membrane more permeable increase the excitability of the cell, and similarly, when a cell is in a condition of stimulation, it is more permeable to certain substances.[7]

The muscular tissue in the vicinity of a wound generally exhibits a somewhat more excitable condition than normal (defensive spasm), unless there is profound toxaemia present, when the reverse is the case. This increased excitability may not be wholly reflex, but may possibly be due to a permeable effect of the septic products on the cell membrane, and, if so, it is reasonable to suggest that we may here have a factor in the readiness to pass into a state of strong contraction, which muscles fixed in a position of contraction so frequently exhibit. Many muscles so affected are exposed to the effects of lymph streams which must be laden with toxic products. It is established, however, that if the lymph-borne products are highly toxic, the cell is permanently damaged, and fibrotic changes ensue. Under these conditions a definite myofibrosis takes place, with progressive shortening of the muscle as a whole.

Stages of Contracture.

Muscles that passively resist their normal elongation fall into three groups: (1) Muscles that are in a state of pure contracture; (2) muscles in a state of contracture, with myofibrosis supervening; (3) muscles that have undergone fibrotic changes without antecedent contracture.

Muscles in Pure Contracture.

The first group is typically represented in lesions of the upper motor neurone. In ordinary capsular lesions the flexors of the upper and the extensors of the lower limb show a condition of hypertonus. This hypertonus must obviously be due to an increased flow of efferent stimuli to these muscles.

Sherrington[8] has shown the important part played by afferent impulses in the maintenance of muscle tone, and he regards the tonic contraction of the extensor muscles which enables a decerebrate animal to maintain a standing attitude, as an expression of reflex postural activity. He has demonstrated, moreover, that the essential afferent impulses that maintain tonic postural contraction in the extensors of the lower limb arise within the muscle itself, for the reflex tone is fully maintained even when all the skin nerves of both lower limbs and the nerves from all the other muscles of the limbs have been severed, and the tonus only vanishes when the afferent nerves from the muscle itself are divided.

These afferent impulses, on which the reflex tone of a muscle depends, pass into the cord via the posterior nerve roots and are conducted by various paths to different centres.

It may be assumed that the anterior horn cells are extremely sensitive and responsive to afferent impulses, and that they are protected from these afferent impulses by a series of synapses, part of whose function is to act as a resistance and to prevent the full force of the afferent impulse reaching them (McDougall). Moreover, there is evidence to show that in the reflex arc each afferent nerve fibre divides into two parts in the spinal cord; one division is excitatory and the other inhibitory in respect of motor neurones.

Certain poisons—strychnine and the toxin generated by the *Bacillus tetani*—have been shown by Sherrington to have a reversal effect on the inhibitory termination of the afferent fibre, and their action converts the process of inhibition into the one of excitation. It is probable also that these poisons lower the threshold of resistance at the synapses referred to above, and as a consequence a larger measure of the afferent impulse passes to the horn cells, and there is a correspondingly stronger efferent impulse transmitted to the muscle concerned. Hence the extremely powerful reflex contractions produced in these cases by very slight stimuli, such as moderate noises and movements of the bedclothes.

Normally, the afferent impulses are diverted along various paths, and only a portion of their influence is expended in the cells of the anterior horn. A considerable part of the sensory impulse passes up to the cerebral centres, where the response is to some extent under the control of the volition.

A series of experiments—Graham, Brown, and Sherrington[9]—have shown that inhibition is a more prominent reaction of the cortex than is excitation, and it would seem that one of the special functions of the cortex is to reverse the factors of purely spinal or decerebrate reflexes when necessary.

The demonstration of this fact serves to explain what is meant by "higher control" of the reflex response, and it would account for the hypertonicity of certain groups of muscles in lesions of the upper motor neurone.

In the latter conditions, the inhibitory influence of the cortex being removed, there is a correspondingly uncontrolled reflex response from the anterior cells, and the muscles concerned pass into a state of hypertonus.

In the upper limb the flexors naturally gain an early ascendancy over the extensors as they are more strongly developed, and, moreover, they have a postural advantage. They soon pass from a state of reflex tone to a state of reflex contraction—that is, they undergo shortening, and act on the joint concerned.

Once they assume the condition of definite contraction, the stream of afferent impulses from the contracted muscles is intensified, and there is a corresponding increased efferent response from the reflex centre. At the same time the afferent impulses from their antagonists have their efferent response inhibited, or most probably reversed to act on the flexors, and so what was at first a condition of increased tonus passes gradually into a condition of definite reflex contraction.

Reflex phenomena in lesions of the upper motor neurone vary according to the paths that are interrupted. Walshe[10] has shown that there are two centres for reflex contraction—one, which is paracerebellar in situation, controls extensor groups only; the other, situated in the anterior horn, controls both flexor and extensor groups. The extensors are thus seen to have a double innervation.

In hemiplegia, contracture in extension in the lower limbs is the rule, and contracture in flexion is only produced when the extra-pyramidal path that connects the paracerebellar extensor centre with the extensor neurone in the anterior horn has been severed.

Then the paracerebellar extensor centre is cut off and the extensors are left dependent on the spinal reflex centre which is only partially responsible for maintaining the reflex tone of the extensor muscles. Thus, severe injuries of the cord are generally attended with flaccidity of the extensors, or with actual hypertonicity of the flexor groups.

This group of muscles in a state of pure contracture embraces, however, a much wider range of cases than those produced by lesions of the upper neurone. It includes all those flexor groups that, placed in a position of prolonged contraction by immobilization of a joint, tend to pass into a state of contracture. These have already been considered and need not be alluded to further. The muscles most frequently affected in this manner are the biceps, brachialis anticus, pronators of the forearm, and the pectoral muscles.

There is, however, an interesting condition that may be referred to here. Amputations below the knee are frequently followed by spasmodic contraction of the hamstrings and amputations through the thigh by contraction of the ilio-psoas muscles. This contraction is due to irritation of the nerve stumps, and is obviously a defensive reflex, the effect of irritation of the nerve stumps being equivalent to painful stimulation of the tissues they supplied, with the consequent reflex withdrawal of the limb.

Muscles with Commencing Fibrosis.

The *second group* of muscles includes those muscles in a state of contracture in which fibrotic changes have supervened. Practically all the muscles belonging to the first group tend to pass into this condition. There is no degeneration of the muscle fibres, but the fibrous framework of the muscle has adapted itself to the prolonged state of shortening of the muscle, and it has undergone definite contraction. Microscopic examination of small portions of the muscle in such cases reveals no abnormality.

Fibrosis without Preceding Contracture.

The *third group* includes all those muscles which have undergone fibrotic changes without antecedent contracture. It includes both flexors and extensors. Such muscles have been the seat of inflammatory disturbance affecting them in whole or in part. There may have been direct trauma of the muscle, or it may have been involved in the products from a neighbouring area of inflammation.

A diffuse scar is formed where the muscle tissue has undergone degeneration, and this scar tissue often extends into and fixes the muscle to surrounding structures, thereby limiting its range of action more effectively. The muscle as a whole may have undergone fibrotic changes following degeneration of the muscle fibres, due either to the action of toxins or to prolonged strangulation, as in ischaemic contraction.

Microscopic examination in these cases, in the earlier stages, reveals the presence of numerous fibroplastic cells infiltrating the muscle fibres, and in the later stages fully-formed fibrous tissue is seen replacing and strangulating the contractile tissue and the blood vessels.

In the normal muscle the fibrous framework is adapted to the degree of complete normal elongation of the muscle, to which it offers no resistance, but pathological fibrous tissue formed while the muscle is not fully extended will, since it is practically non-elastic, obstruct its normal elongation, and will therefore limit the degree of movement at the joint which the muscle controls.

Allied to the condition of contracture, also, is the tendency of ligaments under similar conditions to undergo definite contraction, thus offering further obstruction to the normal free movement of the joint. The anterior ligament of the elbow-joint has frequently been seen to be involved, but the ligaments most commonly affected are the posterior ligaments of the metacarpo-phalangeal joints.

TREATMENT.

The discussion of the treatment of contractures and myofibrotic conditions falls under two heads—preventive and curative. The essence of preventive treatment is to deal with the cause. The principal factor in the production

of contractures has been shown to be prolonged and excessive reflex stimulation of the muscles concerned, and myofibrosis has been seen to arise as a result of degeneration or destruction of the muscular tissues. "Keep diseased parts at rest" is a doctrine enjoined both by Nature and by Abernethy, and Nature endeavours to secure this rest by immobilizing the neighbouring joints. She achieves this by establishing hypertonicity of certain muscle groups (defensive spasm) and in some cases by creating a functional paralysis of others. If a joint in the vicinity of an injury is artificially fixed in a position of flexion, she acquiesces in the arrangement by throwing the muscles thus placed in a position of contraction into a state of hypertonicity.

This employment of muscles as splints frequently results, as has been seen, in serious damage to their structure and function, but it is obvious that immobilization of the neighbouring joint is necessary, if rest for the injured tissues is to be secured, and it is not possible to circumvent the methods adopted to secure it without interfering with the process of repair. Direct treatment of the cause of contractures is therefore necessarily somewhat limited, and in many cases it is best directed along lines that aim at hastening repair, and so bring about the release of the contracted tissues at the earliest moment.

Passive and active movements should be undertaken as soon as is consistent with the state of the injured tissues, but the surgeon has to balance the question of repair against the preservation of the function of the other structures of the limb, and it is frequently very difficult to decide the rival claims.

As a general rule, however, it will be found that, as regards the condition of the soft tissues, the ultimate results will be much better if the limb is treated in a position of extension, rather than flexion, as it proves to be much easier to overcome resistance arising in the extensor than in the flexor groups.

Where hypertonicity of muscle groups is due to the toxins generated by the *Bacillus tetani*, the obvious line of preventive treatment would appear to be more effective administration of antitetanus serum, and it will be interesting to observe if the recent order from head quarters that every patient with unhealed wounds is to be injected with antitetanus serum weekly, will have any effect in reducing the percentage of contractures that has been so far experienced. Once a persistent state of hypertonicity due to *Bacillus tetani* toxin has been established, attempts to prevent the formation of contracture by moving or fixing the joint will only result in increased reflex contraction, and we must wait until the action of the toxin has largely declined before encouraging restoration of function to the muscle affected.

Where hypertonicity follows lesions of the upper motor neurone there is seldom any direct treatment of the cause possible beyond surgical relief of external pressure where that factor is concerned in the production of the lesion.

An attempt may be made, however, to prevent the hypertonic muscles passing into a condition of contracture, and subsequent fibrosis, by systematic massage and by gentle movements of the joints. The condition is amenable to preventive treatment in this respect—that the greater the degree of contraction that the muscles are allowed to assume the more marked in proportion will be the reflex efferent response.

The value of splints in controlling the action of hypertonic groups in certain cases is obvious. Thus, in hypertonicity of the tendo Achillis group, the ankle-joint should be fixed by suitable apparatus, and if the contraction of the flexors in the upper limb threatens to bring about a condition of passive resistance in these muscles, suitable means for maintaining extension of the joint should be devised.

The prevention, and control, of fibrotic changes in muscles depends on the origin of the toxin that gives rise to the degenerative changes in the muscle fibre.

If the degeneration appears to be due to faulty excretion of the products of metabolism, then the obvious line of treatment is to restore the function of the muscle as soon as possible, and in the meantime to promote the health of the muscle tissue by massage, and by movements where possible. If the degeneration of the muscle, however, is due to toxins of microbic origin, the surgeon will naturally be concerned at first with dealing with the septic process, and will postpone any manipulation until he is satisfied that the danger of extending the field of sepsis is past. It is apparent that serious harm will be done to the muscle cells if artificial stimulation is used to promote interchange between these and toxic-laden lymph channels.

If it is considered probable that a muscle will be the seat of fibrotic deposit, it is advisable, if other considerations permit of it, to place the limb so that the affected muscle will be as fully stretched as possible while healing.

Similarly, if flexor groups are likely to be the seat of scar tissue formation, the limb should be treated in a position of rest until the cicatricial elements have been laid down. Then it should gradually be brought into a position of full extension, and kept in that position until the wound is fully healed and hyperaemia of the scar has disappeared. During the healing process excessive granulations should be pruned down, as they promote the formation of fibrous tissue elements. As a general rule, wounds of the palm of the hand and front of the wrist should be allowed to heal with the fingers and hand in hyperextension; wounds near the flexure of the forearm with the forearm in extension; wounds of the pectoral muscle with the arm abducted, and so on (Jones).[11]

In view of the theory promoted that the condition of contracture is maintained by the persistence of lactic acid in the contractile substance, attempts to neutralize the acid by an alkaline agent were carried out.

The serious obstacle to testing the value of this line of treatment, however, was the difficulty of bringing the neutralizing agent into contact with the contractile substance. Attempts were made to flood the local capillary lymph system with solutions of sodium bicarbonate and sodium citrate, but they were not very successful. Moreover, it is very probable that the cell membrane becomes impermeable after prolonged contraction of the muscle fibre.

While experiments have shown that a short stage of excitation of the cell results in increased permeability of the cell membrane, the fact that continuation of a state of tension depends on the persistence of lactic acid within the cell would go to show that prolonged contraction brings about a state of impermeability of the membrane.

Crude attempts were made to introduce weak alkaline solutions by numerous injections into the belly of the muscle, and there is no doubt that the effect was so far favourable that a definite increase in elongation was obtained shortly afterwards. The introduction of hydroxyl ions was found to be limited in action by the readiness of these ions to combine before reaching the muscle cells. The method, however, offers a field for further experiment.

Curative Measures.

Curative measures may be divided into surgical and non-surgical. While the great majority of contracted conditions will yield to manipulation under appropriate conditions, there will remain a proportion of cases that obstinately resist every effort at extension. Indiscriminate tenotomy is, of course, to be condemned, but in some cases it is the only resource. This is especially the case where the powerful muscles of the calf are concerned; a Z-shaped tenotomy of the tendo Achillis will effect an artificial lengthening of the tendon and will enable the deformity of the foot to be corrected. A suitable fixation during healing is obtained by plaster-of-Paris, and at an early date active and passive movements of the joint are undertaken.

Non-surgical measures include (1) methods that aim at the restoration of metabolic activity in the affected tissues, and (2) movements of the joint designed to overcome the resistance to its range of action. Both active and passive movements of the joint should be employed for this purpose. The former are naturally restricted by the degree of contraction present, and success will most quickly be achieved by the exercise of the latter method.

Passive movements should be of a steady and prolonged character; spasmodic and violent efforts only irritate or rupture the tissues, and attempts at stretching under an anaesthetic fail, as a rule, to effect much improvement, because considerable force is apt to be employed, the tissues are ruptured rather than stretched, pain delays manipulation for several days following, and effusion promotes further fibrous changes. It is generally agreed that

ome form of preparatory treatment prior to manipulation f the tissues is desirable, and experience has shown that eating the affected part is the most valuable method of reparation. In a fibrosed muscle the effect of the patho- gical fibrous tissue is constriction of the muscle fibres nd strangulation of the blood vessels, with consequent xsanguination of the muscle.

A rise of temperature is followed by dilatation of the essels and an increased flow of blood; the fibrous tissue lements are opened up and metabolism promoted. Methods f heating may be classed as wet and dry. Of wet methods here are the ordinary still water baths and the recently- ntroduced whirlpool baths.

The *eau courante* has been adopted in this country in iew of the excellent reports made by the French regarding ts efficiency. Its superiority over immersion in a stagnant ath is apparent. The temperature registered by thermo- neter in a bath of still water is much higher than that o which the limb immersed is actually subjected. The kin is protected in a bath by a thin gaseous film—either dherent air or CO_2 given off from the pores. The buffer ffect of this film to the passage of heat, is further in- reased by the fact that the layer of water immediately urrounding the limb is of a temperature intermediate etween that of the tissues and the water—heat passing hrough fluids by convection, not by conduction.

With the water of the bath in a state of constant notion, however, the protective layers surrounding the imb are swept away, and the limb is more approximately ubjected to the actual temperature of the bath. It is laimed that a massage effect is obtained in these baths, nd air under pressure is introduced in order to heighten he result. There is no doubt that the sensory nerves of he skin are stimulated by these means and that the super- icial tissues are reflexly affected, but reflex action in muscles is mostly in response to afferent stimuli arising in he muscles themselves and the number of "skin reflexes" is comparatively small. It is the deep structures that are concerned in most of these disabilities, and they appear to benefit by the *heat* imparted to them; it is not apparent that they can be influenced materially by the massage action of the water. As many of the cases treated are complicated by a degree of functional paralysis, the spec- tacular effect produced by the introduction of compressed air into these baths must have a certain psychical effect.

Reports from centres in this country where the whirl- pool baths have been established are all unanimous that a great economy is effected by their use, and that in a short period they more than repay their cost. Modifications of the method will come with further experience—for example, a rhythmically interrupted sinusoidal current passed through the bath whilst the water is in motion will be found to be much more effective both physically and psychically than the action of compressed air, but there is no reason why he beneficial effects of moving water, wave current, and rushing air should not all be combined in one application.

Baths of hot wax have been advocated by some authori- ties as a means of imparting high degrees of heat to a limb. Very high temperatures have been employed in this manner, but it is apparent that the tissues are not sub- jected to the temperature at which the wax stands. They are undoubtedly insulated by the protective layer of air which the limb carries into the bath—an explanation similar to that given of the fact that one can with impunity plunge one's arm into a mass of molten metal.

Of dry methods of imparting heat to the tissues there are the various forms of radiant heat, dry air, hot sand, and diathermy. Radiant heat has many advocates, and there is no doubt that it is an efficient form of treatment. Hot sand has been recommended as a useful method of imparting heat to the tissues. It is, however, rather pain- ful, and the skin is found to have been rendered much too tender for subsequent massage. It has no advantages over other methods, and is but seldom employed.

Of all methods of heating the tissues, however, the most scientific and effective is by diathermy, and its advantages are not approached by any other method designed for the production and application of heat. As is well known, it is a modification of the high-frequency current (the ampèrage is much higher and the voltage much lower). Heat is produced in the part solely by the amount of current which passes through it, the enormous frequency of the oscillations of the current making it possible to transmit large amounts of current without injury to the tissues. The advantage of producing heat in the deep structures themselves is obvious. Heat applied to the skin brings about a dilatation of the peripheral vessels and a flow of blood to the surface. A great part of the heat so applied must therefore be carried away at once into the general circulation, and the condition of the superficial tissues after the treatment cannot give any reliable indica- tion of the state of the under ying muscles and ligaments. With diathermy, however, the skin is not unduly heated, and experiments show that heat is produced uniformly in the path of the current. Moreover, the oscillations of the current are known to have a marked effect on lymphatic absorption, and pain and swelling are observed to disappear rapidly under its action.

One disadvantage of diathermy is that it is not so easy to treat so large an area of the limb as is possible with the whirlpool baths. On the other hand, many parts of the body are more accessible to treatment by diathermy than by baths—for example, the muscles of the neck, shoulder, arm, and thigh.

Whatever system of preliminary treatment is adopted, it is followed by some form of manipulation. Of massage it is sufficient to say that by direct stimulation of the muscle fibres it aims at re-establishing the normal inter- change between the muscle plasma and the lymph stream. Direct stimulation of the muscle by this means is attended by various reflex phenomena; increased efferent impulses temporarily restore the muscle tone, and vasomotor dilatation is followed by a local fall in blood pressure.

Following massage, contracted tissues should be sub- jected to periods of prolonged and steady traction. In the intervals active movements of the joints should be encouraged if the condition of the limb permits.

Contracted conditions of the tissues are most commonly met with in the upper limb. When the flexors of the wrist and fingers are involved, the method described by Robert Jones [11] will be found most effective.

The wrist is flexed to permit extension of the fingers, each finger is then strapped to a gutter-shaped splint to maintain it in extension. A day or two later, according to the progress made, the metacarpo-phalangeal joint is extended and the palm and splinted fingers are bandaged to a flat metal splint. The wrist remains flexed for a day or two, and then by means of a splint it is each day gradually extended until finally it is brought into a position of hyperextension. The splints should be removed each day, and tone and nutrition maintained by a period of gentle stimulation.

A much more troublesome condition to treat is that in which passive flexion of the fingers is prevented by a contracted condition of the posterior ligament of the metacarpo-phalangeal joint. These cases have arisen by maintaining the hand and fingers in a position of extension for a prolonged period. Occasionally when there has been direct involvement of the extensor tendons as a result of trauma or sepsis, the nature of the resistance is clear, but in many cases it is probable that several structures are concerned in the fibrotic shortening. In severe cases not much is gained by attempting to overcome this condition by forcibly flexing the fingers under an anaesthetic; this generally results in effusion, pain, and a more intractable resistance to further flexion.

By the use of a metal splint similar to that introduced by Robert Jones for maintaining extension of the wrist in musculo-spiral paralysis, continuous traction can be applied, first at the interphalangeal joints and then at the meta- carpo-phalangeal joints. This splint consists of a metal stem applied to the front of the forearm and hand, with cross-bars partially embracing the wrist and palm. When bandaged to the forearm, the splint holds the hand in a position of hyperextension.

Small loops of zinc oxide strapping, with a cord attached to each, are passed over the middle phalanx of each finger. The cords are brought round the cross-bar which has been left exposed in front of the wrist, the phalangeal joints are flexed as far as possible, and the cords made fast. A few hours generally suffice to overcome the resistance at these joints, and after treatment with heat, massage, etc., the loops are slipped over the first phalanges and the metacarpo-phalangeal joints flexed to the fullest possible extent and tied down as before. As a rule, it is not advisable to maintain this position for more than six hours at a time.

The splint should then be removed, the hand should be heated, and active and passive movements of the joints carried out. The actual gain from day to day may be very small, but excellent results can generally be achieved if the treatment is persisted in. For the treatment of contracted conditions of the flexors of the forearm several methods of applying continuous traction are available. Splints with springs or elastic accumulators applied to the posterior aspect of the limb are, on the whole, rather unsatisfactory. The plan of tying weights to the forearm may be of some effect, but it does not commend itself to the patient.

The best results are obtained by placing the patient on his back on an ordinary massage couch. His shoulder and chest are fixed to the couch by adjustable strappings. A firm pad is placed under the flexed elbow, and traction is applied in the line of the arm by attaching a strong cord to the wrist, passing it over a pulley at the bottom of the couch, and fastening it below. After five or ten minutes the cord becomes noticeably slack as the flexion yields, and it requires to be tightened up at intervals. Cases steadily improve if this treatment is carried out for periods of an hour twice a day. The pectoral muscles can be stretched in similar fashion by tying the extended arm back to some object in the room, the weight of the limb being sustained by a small table placed under the forearm.

The Zander system provides an excellent method for the exercise of both passive and active movements. The machines can be adjusted, either passively to stretch contracted tissues or to provide a resistance against which the muscles are encouraged to contract. The action is a rhythmical one, and its value lies in the fact that the force is evenly exerted without sudden jar or strain; this is effected by an adjustable system of counterpoise, the action of which resembles in some measure the steadying and controlling effect exercised by antagonistic muscles during the contraction of their opponents. The Zander machines are expensive, but where large numbers of cases are treated they very soon repay their cost.

Whatever line of treatment is adopted, restoration of function and voluntary exercise of the affected limb should be encouraged from the earliest possible moment; and interference with the function of the muscles concerned should be as limited as is consistent with the treatment being carried out.

I am obliged to Colonel T. Lucas, C.B., for his kind permission to publish this paper.

REFERENCES.

[1] Fletcher and Hopkins: The Contractile Process (1907). [2] Mines: Action of Ions 1913). [3] McDougall: A Theory of Muscular Contraction. [4] Von Uexküll: Mechanism in Invertebrates (1912). [5] Bayliss: *Principles of General Physiology* (1915) [6] Sherrington: Plastic Tonus (1909). [7] Lillie: Changes in the Permeability of the Limiting Membrane (1911). [8] Sherrington Postural Activity of Muscle and Nerve, *Brain*, vol. xxxii. [9] Graham, Brown, and Sherrington: Cerebral Cortex (1912). [10] Walshe: The Physiological Significance of Reflex Phenomena in Spastic Paralysis of the Lower Limbs, *Brain* (1914). [11] Jones: *Injuries of Joints* (1915).

Lectures
ON
DISEASES OF THE MALE URETHRA.

BY

FRANK S. KIDD, B.C., M.B.CANTAB., F.R.C.S.,

ASSISTANT SURGEON, LONDON HOSPITAL, AND SURGEON TO THE GENITO-URINARY DEPARTMENT.

LECTURE III.—COMMON METHODS OF EXAMINATION AND TREATMENT (*continued*).

MASSAGE OF THE PROSTATE.

INSERT a gloved finger into the rectum. The prostate may be felt to be swollen, hot, and tender, or its outline may be lost and nothing be felt but a large smooth projecting abscess. If it is too tender, no further examination should be made, but if not, make gentle pressure with the finger from the outer limits of the swelling forwards and inwards towards the urethra. After a certain number of such squeezings, it will be found that a drop or more of purulent or opalescent fluid has appeared at the meatus. This is prostatic fluid. If needed for examination, it is caught on a microscopic slide, spread out as a film, fixed by gentle heat, stained with methylene blue, washed, dried, covered with cedar oil, and inspected with a $\frac{1}{12}$ in. oil immersion lens.

Healthy prostatic fluid consists of little else but droplets of fat (lecithin) suspended in a clear fluid. These are seen in the film as blue amorphous particles of varying sizes. Here and there an epithelial cell may be seen, but pus cells are remarkable by their absence. In prostatitis the film of prostatic fluid contains a large number of pus cells. This is the diagnostic feature. It is uncommon to find either gonococci or other bacteria in a stained film unless the examination be made as the acute stage is coming to an end, and it is usually only possible to isolate the bacteria by special stains or by culture on suitable media.

I cannot too emphatically warn you to use only the greatest gentleness in this procedure. The process is one of "peaceful persuasion." A heavy hand is not needed. If too great force is used the rectal mucous membrane may be torn, which will cause a fissure *in ano* and even ischio-rectal abscess. I have never seen this in my own practice, but cases have been brought to my notice with these sequelae in which too great force has been used, the operator not having realized that great force is not required. Again, there is the risk of setting up epididymitis if force is used. The process should only last one or two minutes, and the object has been obtained if a drop or two of fluid can be seen exuding from the meatus. Cure attends gentle methods.

By thus emptying the prostate not only do you remove some of the infected contents, but you open up also the blocked ducts, so that drainage is improved. You also ensure that fresh fluid from the blood vessels enters the prostatic tubules ("Nature's antiseptic fluid"), and probably you liberate a certain amount of gonococcal endotoxin, and produce an autovaccination of the patient with his own vaccine from his own germ as it lives in the tissues.

As a general rule prostatic massage should not be carried out more than every fourth or fifth day, and in many cases once a week is enough, or even once a fortnight. In chronic cases give a course of prostatic massage every fourth or fifth day for four weeks. Then give the parts a rest, and if possible get the patient away to the seaside. After a rest of two or three weeks test the fluid microscopically, and if not yet healthy institute another course of some weeks' duration. It is a great mistake to go on too long without a period of rest.

Indications for Prostatic Massage.

1. As a diagnostic measure in subacute or chronic cases, to obtain a specimen of fluid for microscopic examination.
2. In subacute cases every second or third day, to secure the subsidence of the swelling, and drainage of the glandular tissue.
3. In chronic cases every fourth or fifth day to secure drainage and autoinoculation.
4. In acute cases never except under two conditions—first, when there is retention of urine, to secure rupture of an abscess into the deep urethra; secondly, in joint cases, to empty the blocked vesiculae and prevent further absorption of gonococci into the circulation.

LUBRICANTS.

The ideal lubricant is one soluble in water that contains no oil or fat, that is strongly antiseptic, non-irritating, and always ready for use.

The objection to oily lubricants sterilized by heat is not that they are not sterile, but that they coat instruments and the urethra with a film of fat. A film of oil makes it more difficult to cleanse the surface of an instrument, and prevents formaline vapour from acting efficiently as a sterilizing agent on the surface of an instrument. Again, a urethra coated with oil cannot benefit from lavage by antiseptic fluids. I have abolished all oily lubricants from my clinic, as there is no need for them.

The ideal lubricant consists of sterilized glycerine 20 parts, tragacanth 2 parts, oxycyanide of mercury $\frac{1}{4}$ part, sterilized distilled water 100 parts. This formula we owe to Casper of Berlin, and it has been widely copied as the K.Y. lubricant, or as Lubrifax by Burroughs and Wellcome. It is put up in tin squeezer tubes with a screw top, and is thus portable and always ready for use. It is sterile and antiseptic, is a good lubricant, is transparent enough for cystoscopic use, and is soluble in water.

How to Anaesthetize the Urethra.

The best drugs are stovaine 4 per cent. or novocain nitrate 4 per cent. in sterilized distilled water. Cocaine should never, on any pretence whatever, be used in the urethra. Cases of death from this practice have actually been reported in the literature, but far more deaths have occurred which have not been reported. One half a grain of cocaine placed in the deep urethra is more than likely to kill a patient. Be wise, then, and do not permit any cocaine in the clinic. Otherwise you will be tempted to use it, and afterwards have cause for regret.

Novocain and stovaine are ten times less toxic than cocaine, and nearly as powerful analgesics. Their solutions can be sterilized by heat. There is no need to add adrenalin. Three to four drachms of a 4 per cent. solution of these drugs can be used with safety. In practice less than a drachm usually suffices, and as the solutions are expensive they should be used sparingly.

How to anaesthetize the anterior urethra: Suck up a drachm of 4 per cent. stovaine solution into a boiled stylo filler. Inject this into the urethra, and get the patient to hold it for some minutes by grasping the penis behind the glands with the thumb and forefinger.

How to anaesthetize the deep urethra: Suck up a drachm of 4 per cent. stovaine solution into an Ultzmann's syringe and catheter, lubricate and pass the catheter into the deep urethra. Press home the piston and withdraw the instrument. You can tell exactly when your catheter enters the deep urethra, as you can feel the tip ride through the resistance of the compressor urethrae muscle.

Ultzmann's Syringe.

This consists of a curved metal catheter with a very small central bore, to which can be attached a small syringe. Fill the syringe with silver nitrate solution, one, five, ten, fifteen, or twenty grains to the ounce of distilled water. Attach the syringe to the catheter, lubricate, pass into the urethra until the catheter is felt to pass through the resistance of the compressor urethrae muscle. Inject the contents of the syringe, so that they fall into the deep urethra. Remove the catheter. After a few minutes ask the patient to pass water. Warn him that this will cause an intense burning sensation and that he will experience this for some hours after. If this is very severe, let him sit in a hot bath for relief.

Indications.—This method of treatment is of great value in the last stages of the disease, when there is simply a clear urine, with a few threads and a moderate amount of pus in the prostatic secretion. Start with the lowest strength and work up to the highest strength. Never use these injections more than once or twice a week. Copper sulphate 4 per cent. in glycerine can be used as a useful variant on these silver preparations, especially in cases where silver is found to irritate. Some patients have an idiosyncrasy against silver.

Warning.—Use the Ultzmann pattern of catheter, as it can be boiled and is easily passed. Do not use the fashionable Guyon syringe and acorn-headed gum elastic catheter. The latter cannot be boiled, and is therefore an undesirable possession. Only the Ultzmann catheter need be boiled. The syringe should be kept in weak lysol solution. The piston will need renewal from time to time. When it is desired to anaesthetize the deep urethra prior to cystoscopy or deep urethroscopy the ideal method is to inject one drachm of 4 per cent. stovaine solution into the deep urethra with the Ultzmann syringe.

Urethral Instruments: Bougies, Catheters, and Dilators.

Instrumentation.

In this connexion a complete revolution of method has taken place in the last ten years. The normal urethra swarms with bacteria in its first inch or so, but higher up it is sterile. It has been proved that it is quite possible to sterilize the urethra for a short time by means of antiseptic washes. If this is not done before instrumentation, bacteria will be pushed up by the instrument and planted in the deep urethra and bladder. It may therefore be laid down as an absolute rule of practice that no instrument should be passed up the urethra until the anterior urethra has been well flushed with an antiseptic lotion.* The best antiseptic wash is oxycyanide of mercury 1 part in 4,000 of water, but if that cannot be obtained boracic lotion or lysol 1 drachm to the pint of water may be used. The wash is made up in a douche tin or bag and suspended three to four feet above the level of the patient's urethra. To the tubing of the douche tin is attached a urethral nozzle and shield. A pint or more of the wash is allowed to flow into the urethra through the nozzle up against the compressor urethrae, whence it rushes back again and out around the mouth of the nozzle, which is not allowed to block the urethra completely. The hands of the operator must also be cleansed with soap and water, and the meatus and the glans penis cleansed with the irrigating lotion.

All urethral instruments will withstand sterilization by heat except those made of gum-elastic. Modern gum-elastic instruments will however withstand boiling water for a time, so that in emergency the practitioner is advised always to boil his instruments.

Bougies.

In the treatment of chronic urethritis bougies are indispensable.

Metal Bougies.

Nickel or nickel-plated metal bougies should entirely replace the old-fashioned steel bougies, which get rusty and blackened so quickly. The nickel bougies will need replating from time to time, but do not rust. The most useful nickel bougies are those made for me by Montague. They possess the Beniqué curve, and they run on the Charrière scale from 14 to 24. The Beniqué curve is the natural curve of the urethra. These bougies are especially useful under two conditions:

1. *In cases of chronic prostatitis and vesiculitis.* Fill up the bladder with 1 in 5,000 silver nitrate solution. Lubricate and pass a No. 24 bougie, and leave it in place for some minutes. Remove the bougie and massage the prostate and vesicles. The bougie opens up the ducts for drainage, producing also by its weight internal massage of the ducts.
2. *In cases of stricture, both soft and hard,* to prepare the way for Kollmann's dilators, and accustom the urethra to the use of instruments.

Gum-elastic Bougies.

These are made of plaited linen, cotton, or silk thread, into which is worked the special form of shellac varnish known as "gum-elastic." Different pigments are mixed with the shellac so as to produce different degrees of hardness—for instance, there are yellow, brown, red, black, and white gum-elastic bougies. In former days gum-elastic bougies would not withstand boiling. Those now made will usually withstand boiling, provided they are picked out of the boiling water and placed separately on a sterile towel so as to let the heated varnish cool and harden before being rubbed in any way. The white gum-elastic instruments withstand boiling best of all. For occasional use it is always wise to boil a gum-elastic bougie for two minutes. In large clinics the sterilization can be carried out by means of formalin vapour, as described below. One or more complete sets of olive-tipped gum-elastic bougies will be required running from No. 1 Charrière up to No. 18 Charrière. These are used in dilating fibrous strictures of fine calibre after the diagnosis has been made with the urethroscope.

It is always well to possess two or three Harrison whip bougies for use in difficult strictures. As regards the bougies, the best method is to have six, twelve, or eighteen complete sets of these, depending on the size of the clinic and the number of stricture cases likely to come up for treatment at each session. A large oblong case can be manufactured containing a series of sliding trays or drawers, and with a door at one end. Each drawer is divided longitudinally into three parts, and marked with a number. Six drawers are required and eighteen numbered compartments. All the No. 1 Charrière go into compartment one, No. 2 Charrière into compartment two, and so on up to 18 Charrière. At the bottom of the case should be placed two glass capsules. One contains three or four "paraform" tabloids (Burroughs and Wellcome) which give off formalin vapour. The other contains calcium chloride, which sucks up superfluous moisture, and so allows the formalin vapour to get at the dried surface of the instruments. The door must be air tight, and should now be closed. At the end of twenty four hours the instruments are sterile and ready for use.

*The only exception is the urethroscopic tube. Lavage before urethroscopy may spoil the pathological picture. Always give a thorough irrigation of oxycyanide of mercury after urethroscopy.

When a case of stricture comes on the table the door is opened and a suitable bougie picked out, lubricated, and passed, and is then placed in a three-pint enamel jug, containing three drachms of lysol and three pints of cold water. The bougie is used no more that day. At the end of the day's work all the bougies that have been used are removed in this jug to a sink, and left under a running stream of water for ten minutes. At the end of that time the instrument man puts on a pair of rubber gloves, and with a sterile towel wipes the bougies dry, and places them on a second sterile towel. When all are dry he sorts them out into their proper trays, using the metal gauge. He then boils the gauge, removes his gloves, and closes the door of the sterilizer. Next day the instruments are again sterile and ready for use. On no pretence whatever should he be allowed to do this without gloves on, as the instruments are still septic when he dries them. It is extraordinary the prejudice against rubber gloves and the difficulty in persuading an assistant to use them. Yet it is surgical common sense to employ gloves for handling the infected instruments rather than soil the hands with germs and so go about infecting the whole clinic.

Hot formalin vapour is even more potent than cold vapour, and sterilizes in half an hour. It is perhaps more perfect to use hot vapour, but a suitable sterilizer is more expensive and more difficult to manage.

Montague has made for my clinic a metal sterilizer with trays, in which hot formalin vapour is used, and in which an air-pump is employed to pump away the excess vapour after use.

Catheters.

It is well to possess some gum-elastic catheters—say a few No. 4, 8, 9, and 10 on the English scale. The most satisfactory pattern is the "Marshall," either the yellow or the black. These are better even than *coudé* catheters, though it is well that the outfit should also include a few *coudé* black or white catheters and a few conical-ended red gum-elastic catheters provided with a stylet. A few india-rubber catheters are useful—say Nos. 8, 9, and 10 on the English scale.

A long metal stylet is supplied by Montague for threading into gum-elastic and rubber catheters, and is a most useful weapon in emergencies. Finally, never be without two silver catheters, one a No. 10 English of ordinary length, and one a No. 10 English with the long prostatic curve. Metal catheters are sterilized in boiling water.

Gum-elastic catheters are rinsed under the tap, dropped into the boiling sterilizer for one minute, picked out with forceps and laid separately on a sterile towel to cool. The assistant then wipes them dry, and places them upright for twenty minutes to allow the interiors to drain and dry out. (If a hot air cupboard is available they can be placed in that.) When dry the catheters should be placed in a tray of the formalin sterilizer, when they will be found ready sterilized for use when needed.

Dilators.

No up-to-date urethral clinic can afford to be without some form of Kollmann's irrigating dilators. They are absolutely indispensable, and many chronic cases cannot be cured without them. They are shortly to be manufactured in England by John Weiss, Oxford Street, London, and can also be obtained of Gentil of Paris. They are used:

1. For dilating soft submucous infiltrations, or early soft strictures.
2. For finishing off by means of over-dilatation cases of fibrous stricture.

The only way of determining when Kollmann's dilators are required is by means of the aero-urethroscope. This is one of the reasons why I maintain that the urethroscope is indispensable. With this instrument you can blow out the walls of the canal, and with a practised eye can at once determine if any part of the canal is not dilating properly (soft or hard stricture). You can then institute treatment with the dilators and can follow the progress to complete health, controlling your treatment with observation by the urethroscope. In this way a portion of the canal that if left alone would keep up a gleet for a long time and would eventually end in a fibrous stricture, can be detected and treated in the early stages when soft and dilatable. Two objects are thus gained: the cure of the gleet, and the prevention of fibrous stricture. I should be ashamed if any case passed by me as cured were ever to develop stricture in after-life. Into the beds of the London Hospital in ten years came 859 cases of fibrous stricture, which illustrates the importance of this matter. By means of Kollmann's dilators fibrous strictures can be overdilated until they are tired out altogether and cease to recur. At least four out of every five cases of old fibrous stricture that come under my care are thus permanently cured, and in this way the old need for the regular passage of bougies from year to year is done away with—a great boon to many a weary sufferer.

The Kollmann's dilators which I recommend are of two kinds: (1) The straight Kollmann, four branch, irrigating; (2) the curved Kollmann, three branch, irrigating.

They should be nickel-plated or made throughout of nickel. They possess dials marked with the millimetre scale from 22 Charrière up to 45 Charrière. They can be sterilized in boiling water. The *raison d'être* of the Kollmann's dilators lies in the fact that the meatus is the narrowest part of the canal (24 Charrière). It is impossible, therefore, to dilate the penile urethra (28–30 Charrière) and the bulbous urethra (40–45 Charrière) up to the proper calibre by means of ordinary bougies passed through the meatus. The Kollmann can be passed through the meatus, and when in place (straight for the penile urethra, curved for the bulbous) can be screwed up gradually until the calibre proper for this portion of the canal is obtained. After this has been effected the stricture seldom recurs.

In using Kollmann's dilators never employ a local anaesthetic, otherwise you will tear the canal, the patient's sensations being numbed. You do not want to tear the stricture or you will do harm. Your object is to tire out the stricture as rubber or elastic is tired by gradual stretching. Never dilate beyond a slight feeling of stretching and discomfort on the part of the patient. If you cause him intense pain you are overdoing it and defeating your own object. If you cause more than a slight bleeding you are overdoing it. Try to cause no bleeding at all. Bleeding means tearing. Tearing defeats your object.

The treatment always causes an increase of discharge for a day or two and may cause pain on micturition. Warn the patient of this. Do not carry out treatment with the Kollmann on any given case until you have been able to pass at a previous sitting a No. 24 Charrière Beniqué nickel bougie with ease. Do not use the Kollmann unless the urine is clear of purulent haze. Do not employ Kollmann's dilators more than every fifth day. Often every tenth day, or even once a fortnight, is enough. In between the treatments resolution of the stricture appears to take place. The treatment causes some peculiar irritation around the fibrous tissue, so that it becomes absorbed gradually and is replaced by more supple tissues.

As an irrigating fluid for the Kollmann's, use mercury oxycyanide 1 in 4,000 or silver nitrate 1 in 5.000. Never use permanganate. This dries up the mucous membrane and makes the removal of the Kollmann difficult. Always be careful to unscrew and remove the Kollmann while the irrigating fluid is still running through the instrument, so as to prevent nipping or tearing of the walls of the urethra.

Description of Treatment by Kollmann's Dilators.

Have an irrigator ready with two pints of mercury oxycyanide 1 in 4,000 and place a piece of rubber tubing on the end of the irrigating nozzle. Place the patient on a couch with a pot between his legs. Lubricate the Kollmann, and pass it closed until it is snugly in position (straight for the penile, curved for the bulbous urethra). Attach the rubber tubing running from the irrigator and turn on the flow of fluid by releasing the clip. Gradually screw up the handle of the Kollmann until the patient begins to complain of stretching and slight discomfort, or until you can feel resistance against your screwing motion. Note the number on the dial, and then leave the instrument in place for five minutes while the fluid continues to flow. At the end of that time, while the fluid is still flowing, slowly unscrew the handle to the lowest number on the scale, and then gently withdraw the instrument. Just as you take it out you can stop the flow of the fluid by catching hold of the rubber tube running from the irrigator. At the next sitting try and go up one or two

millimetres—seldom, if ever, more. You will obtain much better results by going slowly and by tiring out the stricture gradually.

In the bulbous urethra you can generally screw up at the final sitting to 45 Charrière. In the penile portion in some narrow urethras you may never get beyond 30 Charrière, in average urethras 35 Charrière. Never screw beyond 35 Charrière in the penile unless you are dealing with a very large urethra.

Never use Kollmann's dilators in the acute stage (five to eight weeks). Reserve them for the chronic stage, and never use them unless you have previously examined with the urethroscope and have also passed a nickel bougie on a previous occasion (No. 24 Charrière). As a general rule, do not use the Kollmann until the urine is clear of purulent haze. I advise you never to use Kollmann's dilators in the deep urethra. Only under the most exceptional circumstances does it do good in that situation, and you are likely to do much mischief with it. I know this is in direct contradiction with the teaching of many foreign authorities. All the same, I advise you to make it a general rule to which there are few exceptions.

Care of the Kollmann Dilators.

Irrigating Kollmann's dilators can be boiled after use and kept in a jar of lysol and distilled water, which prevents rusting. At the end of a session they ought to be boiled, dried out of methylated spirit, then dried in an oven, or by means of hot air, or with a "Fon." Finally, they should have sterile vaseline or paroleine worked into each of their joints before being put away.

NERVE GRAFTING AS A MEANS OF RESTORING FUNCTION IN LIMBS PARALYSED BY GUNSHOT OR OTHER INJURIES.

BY

A. W. MAYO-ROBSON, C.V.O., C.B., D.Sc., F.R.C.S.,

MAJOR R.A.M.C.T. (LATE TEMPORARY COLONEL).

At the present time among the wounded returning from the battlefields are large numbers of cases of paralysed limbs due to more or less serious injuries to nerves.

In many of these cases the nerves are simply contused, and recovery is brought about by Nature's efforts in course of time, but in others, where there is complete destruction of a considerable section of the chief nerve trunks, recovery is impossible without operation. I hope it will not be considered out of place if I draw attention to work which I performed on this subject so far back as 1888.

In February, 1889, I read a paper before the Clinical Society of London on a case of nerve grafting, which was, I believe, the first in which such an operation had been performed in this country on the human subject.

The patient was a girl, aged 14, whose hand was paralysed after the removal of a tumour from the forearm which had involved taking away over two inches of the median nerve. Repair was effected by grafting 2½ in. of the posterior tibial nerve from an amputated leg of another patient, the transfer being effected within a few minutes of the removal of the nerve from the amputated limb. The patient was shown at the Clinical Society, Mr. Christopher Heath being in the chair. A discussion followed, in which Mr. Anthony Bowlby (now Sir Anthony Bowlby, K.C.M.G.) and Mr. Bland-Sutton (now Sir John Bland-Sutton), Mr. Bryant, and the President took part.

Sensation returned within thirty-six hours of the operation, and motion in the paralysed muscles returned gradually. When the patient was shown at the Clinical Society Mr. Bowlby remarked that it was the first recorded case of nerve grafting in this country. I had the opportunity of seeing this patient three years subsequently, when recovery was perfect in every respect.

In July, 1890, my late colleague, Mr. Atkinson, described two cases of his own, two cases of mine, and one case of Mr. Ward's, all of which were, at the time of being reported, progressing satisfactorily or had completely recovered.

The following case is still more important, as it shows that in the absence of recently removed nerve, such a structure as the spinal cord of a rabbit may be successfully used as a graft.

W. R., aged 29, a gardener, was admitted to the Leeds Infirmary under my care on January 18th, 1890, having been sent to me by Dr. Mackay of Hornby. He gave the history of having, seven months before, fallen on a scythe, which had produced a deep incision on the lower and inner part of the upper arm, the brachial artery being divided. At the time of injury a surgeon ligatured the artery, and the two ends of a divided nerve were sutured. The wound healed slowly by granulation.

Condition Before Operation.

On admission to the infirmary the patient was in robust health. There was a scar on the inner aspect of the right arm, extending from a point 2 in. above and to the inner side of the olecranon process, obliquely upwards and forwards for about 3 in. to the inner side of the prominence of the biceps. The circumference of the right forearm was two-thirds of an inch less than that of the left, that of the wrist half an inch less. The hypothenar eminence was absent, the thenar eminence was much atrophied, and the interossei muscles were very much wasted. He had entirely lost the power of grasping, though he could flex the metacarpo-phalangeal articulations to a right angle. Extension of the wrist was possible, apparently with considerable exertion, but flexion of the wrist was impossible against gravity. The thumb could not be adducted nor the fingers separated or approximated. All the muscles acting on the wrist and hand which had their nerve supply from the median and ulnar nerves were paralysed, while those supplied by the musculo-spiral were capable of acting.

Sensation was absent along a narrow line extending over the inner and anterior aspect of the ulnar border of the forearm from the elbow to the wrist. In the palm, sensation was absent except over the thenar eminence and part of the proximal phalanx of the thumb. On the back of the hand it was absent internal to a line drawn backward from the cleft of the middle and ring fingers, also over the whole of the back of the little and ring fingers, as well as over the distal one and a half phalanges of the index and middle fingers. The extensors reacted to faradism; the flexors showed no reaction. To a current of 10 milliampères the C.C.C. was greater than the A.C.C. both in the flexors and extensors.

It was manifest that there had been a complete division of the median, ulnar, and internal cutaneous nerves, and it was clearly useless to attempt anything short of operative interference.

Operation.

On January 30th, 1890, the limb having been previously asepticized, ether was administered, and an incision made along the line of the cicatrix; it was prolonged some distance upwards and downwards, and supplemented by a transverse incision about an inch above the elbow. The ulnar nerve was soon exposed above the internal condyle; it was firmly fixed in fibrous tissue. The lower end of the upper segment, which was bulbous, was connected by fibrous tissue with the upper end of the lower segment. A long search was then made for the median nerve, as the large cicatrix had altered the normal anatomy of the parts. A small nerve was discovered at the upper part of the wound, which proved to be the internal cutaneous. The lower end of this nerve was discovered later, and united to the upper by a catgut suture. The internal intermuscular septum was divided 1½ in. above the internal condyle, and the atrophied remains of the brachial artery defined. At last, about the middle of the upper arm, the bulbous lower end of the upper segment of the median nerve was discovered well under, and concealed by, the belly of the biceps. Later the upper end of the lower segment was found just above the bend of the elbow. This extremity was expanded, and sent ramifications into the cicatrix. The fibrous tissue between the ends of the ulnar nerve was excised, and the two healthy portions were united by grafting strands of the sciatic nerve of a rabbit so as to fill up the gap and produce continuity. It was quite impossible to bring the divided ends of the median nerve nearer than 2½ in. All the nerve tissue at my disposal having been exhausted in uniting the ulnar nerve, Mr. Littlewood, who was assisting me, dissected out the spinal cord of a rabbit just killed, and this was used as a graft to connect the ends of the median nerve, the inserted cord lying loose and quite free from tension when finally placed in position. Fine catgut sutures were used throughout. The edges of the wound were brought together and the usual dressings applied, the arm being fixed on a rectangular splint. Healing occurred by first intention, and there was an entire absence of fever or pain.

Early After-History.

On February 10th the patient could feel the scratch of a pin on the flexor aspect of the first phalanx of the thumb, as well as at the root of the index finger. He could tell when the hairs on the back of the first phalanges of the ring and little fingers were pulled, but could not feel the scratch of a pin in that position.

On February 17th sensation had returned over the whole of the palmar surface of the thumb and the proximate phalanx of the index finger.

On March 4th sensation seemed to be creeping slowly along the first finger, and to be present over the whole of the palmar area supplied by the median nerve, and extending as far down as the web of the fingers, and a short distance along the middle finger. As yet there was no marked improvement in the ulnar distribution.

On March 6th electrical reaction to faradism was absent in the muscles. C.C. 15 milliampères, C.C.C. equal to A.C.C. in flexors; C.C.C. greater than A.C.C. in extensors. The muscles were

gradually developing, and the general nutrition of the hand showed improvement. There was slight power of grasp and some power of flexion in the wrist, as well as slight power of adduction of the thumb and flexion of the fingers. Sensation was felt all over the thumb and index finger, in the second finger up to the first phalanx on the palmar aspect, also in the third finger, though less distinct. No sensation could be elicited over the distribution of the ulnar nerve.

On March 30th he began to have sharp shooting pains along the distribution of the ulnar nerve. On April 1st the flexors of the forearm began to react visibly to C.C.C., though the muscles of the thenar eminence did not, and there was no faradic reaction. On April 30th sensation was returning at the back of the ring finger, and the flexors now reacted to A.C.C. of 5 milliampères.

On June 13th the nutrition of the hand was much improved, and there was a greater feeling of warmth in it. He could pick up small objects, and although the grasp was not powerful, it was much improved. The powers of flexion of the wrist and adduction of the thumb were considerably increased, but there was no sensation as yet over the ulnar distribution.

Condition of the Patient Six Years after Operation.

Being interested in the case, I made inquiries from time to time after he left Leeds, but I never saw him again until February, 1896, six years after the operation, when I asked him if he would let me demonstrate his case at the Leeds and West Riding Medico-Chirurgical Society, where my colleagues and other members of the society had the opportunity of seeing him. Dr. Mackay had applied galvanism to the muscles of the forearm and hand from time to time, from the time of his leaving Leeds until the middle of November of the same year, when all treatment was stopped. He did not resume work till March, 1891, not because he was unable to undertake light work, but, as the patient put it, "He wanted to give the arm a fair chance of complete recovery." Since March, 1891, he had not missed a single day's employment, and was able to do all his duties completely, from wheeling a well-laden barrow to using a scythe.

There was a firm round scar along the inside of the arm. The circumference of the right forearm was 11 in., left forearm 11½ in.; right wrist 7 in., left wrist 7½ in.

From these measurements it will be seen that the muscles had almost completely returned to their former volume, and in the hand all the muscles except the abductor of the thumb were as well developed as in the left; this was quite as well marked in the interossei as in the other muscles. The movements of the arm were completely restored and almost as perfect as in the left. Flexion of the fingers and the grasp had completely returned, and the only weak muscle was the abductor of the thumb, which had no perceptible power. Sensation was completely restored, as was easily demonstrated by touching the different portions of the arm and hand with a pin.

All the muscles of the arm and hand reacted to faradism except the abductor of the thumb.

It will thus be seen that, though the recovery had been tardy, it was complete in almost every respect, the only exception being that of the abductor pollicis, which for some unexplained reason did not recover its function. The case is very encouraging, since it clearly demonstrates the possibility of restoring continuity of nerves by grafting. Whether the spinal cord in this case simply served as a basis on which the nerve tissue was built up I am unable to say, but that it answered its purpose is clearly shown in the report of the case. Why restoration of function in the ulnar nerve should have taken longer than in the median I am unable to say, as the ends of the nerve were not separated more than ¾ in., whereas the ends of the median nerve were between 2 in. and 3 in. apart. Could it be that the spinal cord offered a better medium for establishing continuity? The patient was seen years subsequently, completely recovered in every respect.

Since operating on the above cases I have had considerable experience in the surgery of nerves, both with regard to suture of divided ends and in nerve grafting.

During the present war I have had experience both in the Dardanelles, in Egypt, and in the base hospitals at home in the treatment of nerve injuries, and my previous experience in civil practice has stood me in good stead in dealing with this class of cases.

Nerve grafting cannot, of course, be successfully performed in septic wounds, but where the paralysis remains after healing of the wound and it is known that it is not merely due to division of nerve or of some portion of the nerve trunk, as shown by the paralysis not improving under treatment, it seems to me desirable that too much time should not be allowed to pass before operative treatment is adopted in one or other of the ways I have described above, as it will lead in a large number of cases, if not in all, to complete restoration of function and thus to saving of otherwise useless limbs.

NOTE ON THE INCIDENCE OF TETANUS AMONG WOUNDED SOLDIERS.

BY

SURGEON-GENERAL SIR DAVID BRUCE, C.B., F.R.S.

THE principal object of this paper is to draw attention to the effect of prophylactic injections of antitetanic serum in lowering the incidence of tetanus among wounded men. The chart represents the ratio of cases of tetanus to number of wounded men from the beginning of the war to the end of 1916. This diagram has been made up, not from all the cases of tetanus which have occurred, but only from those which have arisen in home hospitals among the wounded men sent to England from overseas. It does not include cases which have occurred in France or elsewhere.

It will be seen that the ratio in September, 1914, is 16 per 1,000; in October, 32 per 1,000; and that it falls in November to 2 per 1,000, about which figure it remains until the present date. To what cause must this remarkably sudden fall be attributed? No doubt there were various factors at work, but beyond all reasonable doubt the introduction of prophylactic injections of antitetanic serum was the preponderating cause. To understand this it may be well to give a short account of the movements of our army during these first months.

The bulk of the British Expeditionary Force crossed over to France on the night of August 12th and 13th, 1914. On the 18th and 19th the troops began to move northwards into Belgium.

The battle of Mons and the retreat took place between August 23rd and 30th. During the retreat many of the wounded fell into the enemy's hands, and on our own part it was impossible in many cases to carry out any thorough surgical treatment of the wounds owing to the hurried nature of the retreat.

The battle of the Marne was fought between September 7th and 10th.

On September 13th the British Expeditionary Force reached the valley of the Aisne, and remained here until the end of the month. This was the ground where probably many cases of tetanus were infected. The soil is rich and fertile, and has an evil reputation for tetanus. Here in ordinary times it is found necessary to inoculate the farm horses at intervals with tetanus antitoxin as an ordinary measure of precaution.

The troops left the valley of the Aisne about October 3rd, and took up positions at La Bassée and its neighbourhood, where fighting took place from October 11th to the end of the month.

The severe fighting round Ypres, in which a separate division of the army took part, began on October 20th and continued until November 11th, 1914.

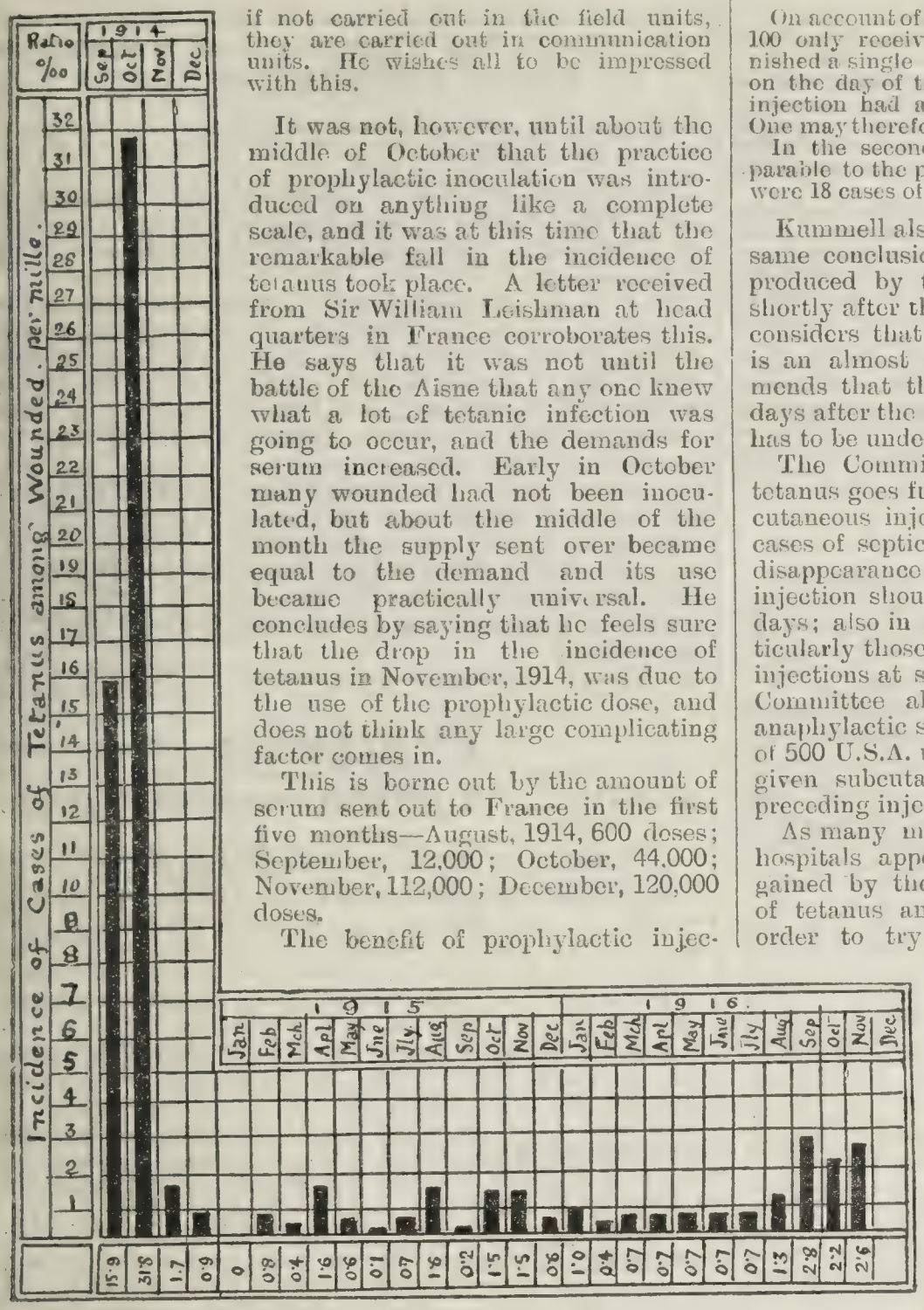
It is evident, then, that the 16 per 1,000 cases of tetanus among the wounded which occurred during September, must have been contracted at the battle of the Marne and in the valley of the Aisne. Further, that the abnormally high ratio of cases of tetanus which is found in October must have been to a great extent due to the tetanized soil of the Aisne valley.

There were therefore several factors at work in September and October, 1914, to raise the ratio—the heavy fighting with the consequent heavy toll of wounded, the highly infective character of the soil, the difficulty of collecting the wounded on account of their numbers and the movements of the troops, and finally the difficulty of giving the thorough surgical treatment to their wounds which is so essential in the fight against tetanus.

But there was another, and that the most important, factor which has not been taken into account—the prophylactic injection of tetanus antitoxin. This was not carried out during the first two months of the war. It would appear that in the beginning only a small quantity of antitoxin was taken out with the Expeditionary Force for purposes of treatment, and it was only when the number of cases of tetanus became alarming that steps were taken to ensure that every wounded man should receive a prophylactic dose.

Lord Kitchener telegraphed to the Director of Medical Services, Expeditionary Force, on September 8th as follows:

Earl Kitchener desires information as to whether antitetanus inoculations are being practised for wounded, and whether,



if not carried out in the field units, they are carried out in communication units. He wishes all to be impressed with this.

It was not, however, until about the middle of October that the practice of prophylactic inoculation was introduced on anything like a complete scale, and it was at this time that the remarkable fall in the incidence of tetanus took place. A letter received from Sir William Leishman at head quarters in France corroborates this. He says that it was not until the battle of the Aisne that any one knew what a lot of tetanic infection was going to occur, and the demands for serum increased. Early in October many wounded had not been inoculated, but about the middle of the month the supply sent over became equal to the demand and its use became practically universal. He concludes by saying that he feels sure that the drop in the incidence of tetanus in November, 1914, was due to the use of the prophylactic dose, and does not think any large complicating factor comes in.

This is borne out by the amount of serum sent out to France in the first five months—August, 1914, 600 doses; September, 12,000; October, 44,000; November, 112,000; December, 120,000 doses.

The benefit of prophylactic injections in tetanus is also vouched for from both France and Germany. Bazy, in the *Comptes rendus de l'Académie des Sciences*, vol. 159, states:

> In medical units where surgeons perform systematic prophylactic injections, as I do myself, to all wounded at the moment of entry, the incidence of tetanus is 4.18 per 1,000. In the medical units where this injection is only made to cases thought to be suspicious the incidence is 12.79 per 1,000. The incidence, therefore, is three times greater in the services where injections are only made to certain categories of wounded than in those where it is made systematically to all wounded.

On account of certain circumstances in a batch of 200 wounded, 100 only received a prophylactic injection. This series furnished a single case of tetanus, and in this case tetanus began on the day of the injection, so that one could not say that the injection had a chance to exercise any prophylactic action. One may therefore say the incidence was zero.

In the second batch of 100, which presented wounds comparable to the previous batch but received no injection, there were 18 cases of tetanus—that is to say, 18 per cent.

Kummell also, in the *Berlin. klin. Woch.*, comes to the same conclusions. He says that the picture of tetanus produced by the severity and the number of the cases shortly after the outbreak of the war has disappeared. He considers that early prophylactic injection of the wounded is an almost certain preventive of tetanus, and recommends that the injection should be repeated about seven days after the first injection if an operation, however slight, has to be undertaken.

The Committee of the War Office for the study of tetanus goes further and recommends that a second subcutaneous injection of 500 units should be given in all cases of septic wounds, and in order to anticipate the total disappearance of the antitoxin from the body the second injection should follow the first at an interval of seven days; also in cases of long-continued septic wounds, particularly those caused by shell or bomb, third and fourth injections at seven-day intervals are recommended. The Committee also states definitely that the danger of anaphylactic shock is negligible when prophylactic doses of 500 U.S.A. units contained in 3 c.cm. of horse serum are given subcutaneously, whatever the interval after the preceding injection.

As many medical officers doing duty in home military hospitals appear to be doubtful as to the good to be gained by these second and further prophylactic doses of tetanus antitoxin, this paper has been written in order to try to strengthen their faith. There can surely be no doubt in anybody's mind that an ounce of prophylactic serum is worth pounds of the same serum used therapeutically. There is always a chance that a wounded man in the confusion and stress of a crowded clearing station may escape his first prophylactic injection. So much the more reason, then, that he should get one as soon as he arrives in a home hospital. To inject two or three cubic centimetres of serum under the skin causes no great trouble, and cannot be dangerous. As Kummell says, the picture of tetanus as seen at the beginning of the war has quite changed. The incubation period has become longer, the number of cases of localized tetanus has greatly increased, and the mortality has been lowered.

CONCLUSION.

The incidence of tetanus among wounded men falls sharply on the introduction of prophylactic injections of antitoxin, and it is much to be desired that the primary injection be followed up by secondary and further prophylactic doses as long as the wound remains suspicious.

NOTES ON THREE CASES OF TETANUS.

BY

CAPTAIN R. I. DOUGLAS, R.A.M.C.(T.C.), AND CAPTAIN C. H. CORBETT, R.A.M.C.(T.C.).

In view of the uncertainty that still seems to exist as to the appropriate treatment of tetanus with antitetanic serum, and the desirability of putting all cases of recovery on record, it is thought that the following three cases will prove interesting. They are examples of cases in which a vigorous policy in serum treatment has apparently helped to ultimate recovery.

CASE I.

Pte. I. Frostbite in both feet, contracted on November 25th, 1915, and following three days. On December 15th the toes on both feet were gangrenous. Antitetanic serum 1,500 units was given subcutaneously as a prophylactic dose. On the following day he had a sore throat and the temperature was 100° F. On December 18th he had slight stiffness in the jaw and the back of the neck. The knee-jerks were very brisk, and he complained of twitchings in both legs. Spinal puncture was made, and clear fluid drawn off; it was subsequently found to be bacteriologically sterile. Antitetanic serum 8,000 units was given intrathecally, and the patient was removed to a secluded darkened ward.

On December 19th the symptoms were increased. The temperature was 102° F., the pulse 96, and the respirations 30. The toes were painted with iodine and spirit. Antitetanic serum 5,000 units was given subcutaneously, and 6,000 units intravenously (arm). On December 20th there were increased twitchings in the legs on attempted movement and risus sardonicus. Antitetanic serum 4,000 units was given intrathecally under chloroform.

On December 21st he was not so well; four or five spasms were noticed during the day and much reactionary stiffness following them; there was some difficulty in swallowing. Antitetanic serum 2,000 units was given subcutaneously and 8,000 units intramuscularly into the thighs below the level of a tight bandage by which the circulation was partially obstructed for ten minutes; 6,000 units were given intravenously in the right leg below the bandage, and 6,000 intrathecally (under chloroform). He had a bad night, and on December 22nd the musculature generally was stiff, swallowing was difficult, he would not take food, and was obviously frightened to attempt movement. Antitetanic serum 10,000 units was given intramuscularly into the calves (5,000 into each calf below the level of a bandage), and 10,000 units intravenously (5,000 into each leg

below the bandage). He was given chloral hydrate gr. xxx in solution by the rectum at 9 p.m. The pulse was 108 and the temperature 100° F

On December 23rd he could be handled more easily, but the stiffness was as marked as before. A serum rash appeared on the chest. Antitetanic serum 9, 00 units was injected intramuscularly, and 9,000 units intravenously (right leg 3.000, left leg 6,000), and 2,500 units intravenously into the arm. Wounds on feet looking well.

On December 24th his condition was improved; the jaws were less rigid, but the back was still arched. He had serum rash all over, but was taking food a little better. Chloral gr. xxx was given by the rectum as before. Antitetanic serum 11,000 units was given intramuscularly in the thighs (right 6,000 and left 5,000), and 6,000 intrathecally under chloroform. The temperature was 101° F., the pulse 116, and the respirations 26.

On December 25th all treatment was omitted; the patient was very much under serum, and had rash all over. Next day he was taking food fairly well, and showing general improvement. He was given a soap enema. Antitetanic serum 10,000 units was given intramuscularly (scapular region). The patient had no more antitetanic serum, and within fourteen days was able to be evacuated apparently cured.

CASE II.

Pte. W. Frostbite of both feet, contracted November 25th, 1915, and following two days. On November 28th he went out digging in his socks, as he said he could not get his boots on; he reported sick with his feet that evening. Stiffness of the jaw appeared on December 16th, and he received 3,000 units of antitetanic serum subcutaneously for the next four days.

On December 22nd his condition was as follows: Marked stiffness of jaws and risus sardonicus, boarded abdomen, knee-jerks very brisk with clonic movements of leg. Pulse normal; the bowels had not been open for two days. Two patches of gangrene on toes of both feet. Antitetanic serum 6,000 units intrathecally (under chloroform), and 6,000 intramuscularly (3,000 units into each leg below bandage on thigh for ten minutes), and also 3,000 units subcutaneously.

On December 23rd the jaw stiffness had increased, the intellect was quite acute, and he seemed fairly cheerful. He had some difficulty in swallowing, and increased tendency to spasms starting in the legs. Antitetanic serum 6,000 units was given intrathecally as before; 10,000 units intramuscularly (5,000 into each calf), and 3,000 units intravenously (1,500 into each calf). He was given a soap enema and chloral hydrate gr. xxx by the rectum. Next day he was much the same. He was given 10,500 units antitetanic serum (5,500 units in left and 5,000 in right thigh below bandage); also 10,500 unit intravenously (right arm 5,500, and left calf 5,000, below bandage).

On December 25th the temperature was 103°, the pulse 118, and the respirations 36. He seemed less stiff, but was suffering considerable reaction, and the treatment was omitted.

Next day the main condition was improved; the jaws were less stiff, and the tendency to spasms much less marked. Antitetanic serum 10,500 units was given intramuscularly (right calf 5,000, left calf 5,500). On December 27th the pulse was 98, the respirations 26, and the temperature 100° F. He was improving steadily; no further serum was given, and two weeks later he was evacuated apparently cured.

CASE III.

Wound of left hand one month previously to onset of symptoms. On December 12th he had twitching in hand, and on December 14th stiffness was noticed in the jaw and neck, but no generalized spasm.

On December 18th antitetanic serum 8,000 units was given subcutaneously (chest), and 7,000 intravenously (bend of left elbow). On December 20th the jaw seemed rather less stiff, but the hand twitched still. Antitetanic serum 5,000 units was given subcutaneously. Next day he was not so well; the jaw stiffness had increased. Antitetanic serum 6,000 units was given intrathecally under chloroform, and 6,000 intravenously in the left arm (below a bandage round the upper arm), and 9,000 units intramuscularly and subcutaneously.

On December 22nd, as the headache and temperature continued, he was given antitetanic serum 10,000 units intravenously as before, and antitetanic serum 10,000 units intramuscularly. Next day the arm twitchings were lessening, the jaw and neck were in the same condition. Antitetanic serum 10,000 units was injected intravenously as before, and 10,000 units intramuscularly.

On December 24th the back was rigid, but he was otherwise much the same. He was given antitetanic serum, 6,000 units extradurally and 3,000 intra-aponeurotic, under chloroform, and 9,000 intramuscularly (5,000 units in the gluteal region and 4,000 units in the arm). An urticarial rash appeared on the chest. Next day the general twitchings had all disappeared; the jaw was still stiff, the back and neck less so. He had a serum rash on the chest and arms. The pulse was 100, respirations 38, and temperature 102° F. He was given antitetanic serum 10,500 units intramuscularly (arm).

On December 26th the rash had spread all over, but the twitchings were absent, and the general stiffness was lessening. No antitetanic serum treatment. Next day slight twitchings reappeared in the arm, but the jaw and neck were less stiff. He was given antitetanic serum 10,000 units intramuscularly (arm). The improvement continued, and the patient was eventually evacuated without further symptoms.

In these cases the policy adopted was to push the serum as far as possible and to keep the patients absolutely quiet in a darkened ward, disturbing them as little as possible and doing most of the injections under anaesthesia. Food was taken at long intervals. Injections into the limbs were made in most cases below a bandage acting as a constriction to the circulation, and the limb was allowed to retain the antitoxin for five or six minutes. Twitchings in the limb were certainly lessened, and probably the spread to a more generalized spasm frequently averted by this treatment.

The source of infection in trench foot in Cases I and II is interesting at this time of year. In tracing the day of infection careful inquiry is needed; we found that men with frostbite have a way of getting on their bare feet, which may be insensitive in the earlier stages, and running risks of tetanus infection thereby. In Case III symptoms developed very slowly and recovery was proportionately slow. The patient required a very considerable amount of antitetanic serum, over 130,000 units being administered altogether. His chief trouble was severe headache and occasional high temperatures. Otherwise the chief complaint from the patients was at being disturbed for treatment which was usually administered in the evening.

Memoranda:

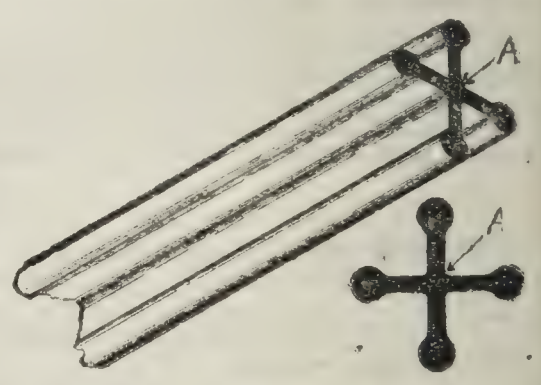
MEDICAL, SURGICAL, OBSTETRICAL.

GROOVED RUBBER DRAINAGE STAFF.

IF a drainage tube be inserted into a cavity the opening of which is not dependent it would allow fluid to well up and pour over its exit, but it would not empty. The rubber walls of the tube would prevent the contracting tissues around it from exerting their pressure upon the contents of the tube and in it stagnation would occur. Perforations in the sides of the tube would not overcome this difficulty. Perforations in drainage tubes inserted into the abdominal cavity are not free from danger. I have seen a portion of the small intestine strangulated after entering a perforated tube. Buttons of granulation tissue which grow into the perforations sometimes create a difficulty in removing a drainage tube

The deeply grooved rubber staff which I depict in the accompanying diagram has no walls, so the surrounding tissues exert their pressure directly upon the fluid and push it out. There is therefore not the same encouragement for fluids to stagnate, and none of the objections encountered in perforated tubes arise.

I have used this method of drainage in abdominal cases, amputation wounds, breast cases, and in many other conditions, and it has justified its existence.



The central stalk (A) must not be made too big, it should be as small in diameter as possible so that it cannot act as a plug. Useful sizes for rubber conductors of this kind are an inch, three-quarters of an inch, and half an inch in diameter.

Messrs. Down Bros. were making these tubes for me in 1913 and 1914, when many of my friends and I were employing them in hospital and private practice. I would not have mentioned these dates were it not for the fact that Mr. C. Max Page published in the BRITISH MEDICAL JOURNAL of October 16th, 1915, an article "Observations on the drainage of gunshot wounds." His observations led him to design tubes which are like mine. He has also pictured others which resemble those Down Bros. made for me in experiments I was conducting in the years 1913 and 1914. Hence Mr. Page and I have evolved independently the same kind of tube, but its evolution was not based on the same ideas.

Haslar. G. LENTHAL CHEATLE.

SODIUM SALICYLATE IN THE TREATMENT OF "TRENCH FEET."

In the winter of 1914–15 many of the cases of "trench feet" which came under my care were apparently suffering mainly from a neuritis caused by cold and wet, so I gave them sodium salicylate, and had no reason to be dissatisfied with the result. My purpose in drawing attention to this result now is not to discuss the pathology of the condition but to indicate a line of treatment which seems to me to lessen pain and hasten recovery, yet one which is not generally followed. Sodium salicylate is scarcely mentioned in the literature of "trench feet," if indeed at all, and I know of a number of hospitals in which it is not used. A recent opportunity has been afforded me, by the kindness of my colleagues, of comparing cases treated by sodium salicylate with others dealt with in other ways.

On December 21st last a convoy of men suffering from trench feet was admitted to No. 1 Temporary Hospital, Exeter, and six cases had come in on December 18th. Of these cases fifty-nine seemed reasonably comparable, in so far that no serious surgical complications existed; twenty seven were put on sodium salicylate; thirty-two were otherwise treated. No special selection of cases was made; it was a matter of pure chance which cases came into either group. All had their feet rubbed daily and all were first placed in the wards; only when much improved were any cases removed to our tents, where they had more moving about and were more exposed to the weather. All had pain on admission.

Results on December 24th.

	On Salicylates.	Not on Salicylates.
No pain	4*	0
Severe	8*	4
Worse	3	8

* One admitted on December 18th.

This suggests that at least as many "severe" cases had been included in the group on salicylates as in the other.

Results at Subsequent Dates.

	On Salicylates.	Not on Salicylates.
December 29th:		
No pain	6	2
Slight pain	12	8
Moderate pain	4	11
Severe pain	7	11
January 2nd:		
No pain	7	0
Slight pain	16	15
Moderate pain	3	13
Severe pain	1	4
January 9th:		
No pain	15† (8 in tents)	8‡ (4 in tents)
Slight pain	8	15
Moderate pain	4 (1 in tent)	8 (4 in tents)
Severe pain	0	1

* In the two free from pain on December 29th pain had returned slightly
† Three admitted on December 18th.
‡ Two admitted on December 18th.

On January 9th, amongst those who had "no pain," the average duration of the cases was practically the same in the two groups—that is, 26.2 days for those on salicylates and 25.5 days for the others. Carefully considering all the circumstances, the two groups seem to me quite comparable, and the seemingly superior results given by the salicylates to be probably real.

In confirmation of this conclusion I may mention:

1. My former experience.
2. The fact that the cases in one ward were deprived of their salicylate for twenty-four hours and considered they did worse without them.
3. A case which was not on salicylates had "severe" pain and was put on them; in three days his pain was "slight."
4. Some of the cases not on salicylates were given aspirin occasionally when in bad pain and were relieved by it.

Aspirin is the one form of salicylate of which common mention is made in the literature, but only, I think, as an occasional analgesic. I think it may be fairly claimed that the salicylate is a useful means of relieving pain and shortening its duration. The exact formula used has been:

℞
Sod. salicylate ... ... gr. x
Spt. am. arom. ... ... ♏ xv
Tinct. cinchon. co. ... ... ♏ xx
Syr. aurant. ... ... ʒ ss
Aquam ... ... ad ℥ j

Every four hours until the pain is slight; then thrice daily.

Some other observations may be worth mentioning, namely:

(*a*) The most valuable remedy used for the pain was rubbing.
(*b*) Galvanism (my colleague, Dr. Mabel Gates, finds) was also valuable.
(*c*) In severe cases hot fomentations over belladonna paint were often useful.
(*d*) So was laudanum sprinkled on flannel.
(*e*) Radiant light and heat often helped.
(*f*) The whirlpool bath sometimes helped.
(*g*) Local application of hot brine sometimes helped.
(*h*) Local plain hot water sometimes made matters worse.
(*i*) Walking on the tender feet did harm.

W. GORDON, M.D., F.R.C.P.,
Medical Officer attached to No. 1 Temporary Hospital, Exeter.

Reviews.

BIOLOGY OF TUMOURS.

THE origin of tumours has been a prolific source of controversy. In his *Biology of Tumours*[1] Mr. MANSELL MOULLIN continues the presentation of his idea, begun in the Bradshaw lecture delivered before the Royal College of Surgeons of England in 1912. He states that the conclusions he has reached differ in many particulars from the views current generally, and he therefore expects to meet with a good deal of adverse criticism.

The premisses on which his thesis is based may be summed up in the indestructibility of cell character—as it was in the beginning it is now. The primitive cell was asexual and reproduced its kind asexually. In the higher organism this power of the cells is in abeyance, but may on suitable stimulus reappear. The normal germ cells are busy reproducing on other lines, the normal somatic cells are wholly given up to their special work. Check the normal development of either, and each may revert to the asexual process of reproduction, and produce a bad attempt at a second generation or bud—or, in other words, a tumour. The nature and stage of growth of the parent cell will determine the character of the bud. If the parent cell is still in the actively-growing embryonic stage at the moment development is arrested, and the bud is given off, the bud will be embryonic too, and a tumour of great "malignancy" result. If the parent cell has nearly reached its perfect form the bud will grow slowly, and merely push aside neighbouring structures without invading them, and a "non-malignant" tumour results. It is the degree of maturity of the parent cell that determines benignity or malignancy; there is no difference save in degree. The bud that would form an innocent tumour if the parent cell had nearly reached maturity, will grow into a malignant one if it is still in the embryonic stage. So long as development continues as it should, work is properly done, growth and reproduction never break

[1] *The Biology of Tumours.* By C. Mansell Moullin, M.A., M.D.Oxon., F.R.C.S., Lieutenant-Colonel R.A.M.C.(T.). London: H. K. Lewis and Co., Ltd. 1916. (Demy 8vo, pp. 55. 2s. 6d. net.)

bounds, and the tissues never give birth to the irregular structures known as tumours. If the influence of development is removed, control over growth and reproduction is lost, the latent power of the tissues is set free, and all that is needed is a stimulus such as local irritation to start it on its course. Both development and growth are the outcome of chemical changes that take place in the living tissues, or the outcome of the persistent cultivation of a special series of chemical reactions brought into existence by the special work assigned to that particular part of the body. If these processes are faulty, development is arrested, and reversion to the primitive asexual type of growth may follow on some exciting cause. The reaction of tumours, both in origin and course of growth, to chemical influence is known.

The inheritance of tumours is denied as such, but it is argued that the influence of the somatic cells upon the germ cells may be so great as to determine their course of development or arrest of development, and these in their turn may produce faulty somatic cells prone to failure in growth. The somatic cells are stamped with the impress of the altered conditions under which the parent lived. Such a condition may be handed down through generation after generation, though in the absence of the necessary stimulus it may never result in actual tumour growth.

A second class of tumour is that due to structural defects. Development implies not only progressive advance of tissues in use, but also the recession and disappearance of those that have ceased to be of use. Evolution and involution are necessary; arrest of either may lead to tumours. Failure of evolution leads to such tumours as spinal meningo-myelocele, failure of involution to cysts of Wolffian or Müllerian remnants, or the graver growths of the post-anal gut.

The thesis advanced is highly suggestive, and should provoke thought.

ANXIETY IN MENTAL DISEASES.

DR. G. BERGONZOLI has written a full and scholarly account of states of mental anxiety as met with in patients with mental disorders and mental disease.[2] Such anxiety, he says, is a symptom, and not a morbid entity. It depends upon an alteration in the psychical and organic life of the individual, and is not to be regarded as a mere exaggeration of the emotion of anxiousness that is found in ordinary people. Pathological states of anxiety occur in persons with hereditary taint, degenerates, those who are unduly emotional; neurotics exhibit it, and still more the victims of various types of psychosis. Among these, the insane, anxiety is a feature most often associated with depression and obsessions; yet Dr. Bergonzoli thinks it undesirable to establish a classification of neurotic persons or the insane according as excessive anxiety is or is not a prominent feature in each case.

He attributes a preponderating part to changes in the sympathetic system and the bulb in the pathogenesis of anxiety in these patients. Such a view may be criticized as purely hypothetical, perhaps; yet it is at any rate preferable to Freud's theory that such anxiety is due to incomplete satisfaction of the sexual passions. Alternatively, and, one may say, inevitably, states of mental anxiety may be attributed to some alteration in the functions of the endocrine glands. No special therapy seems to be indicated; the patient is to be treated on the general lines indicated by his neurosis or psychosis, as the case may be. Dr. Bergonzoli has laboured mightily with the literature of the subject, quoting a list of over 370 authorities he has consulted. The book is well written, and though it appears to break no new ground it may be recommended to alienists in search of a general account of the subject.

REFRACTION OF THE HUMAN EYE.

THE work of THORINGTON of Philadelphia in systematizing and popularizing the methods of examining and correcting errors of refraction is well known. Several smaller works written by him have met with much appreciation by the profession, both in the United States and in Europe. This new work[3] of his incorporates the smaller books, and the resulting volume is excellent, both in its matter and method. The aim of the book is practical rather than theoretical.

By being dogmatic rather than ambiguous, by occasional repetitions to avoid frequent references, and by simple explanations and a definite statement of facts, the writer has aimed to make the text concise and comprehensive. Consequently, there are no lengthy mathematic formulas or any discussion of disputed points.

In arrangement the book follows familiar practice. A sufficient statement is given on the principles of optics. From it the effects of prisms are worked out and made easy of understanding by references to common observations. Then the effects of combined prisms or lenses are illustrated.

With this introduction the student is brought to the standard human eye and learns the normal mechanism of its working; and eventually to the many faults of the ordinary human eye, and their manner of detection and correction.

The author has dropped the word "skiascopy," or shadow test, in favour of the term "retinoscopy," and the concentration of the worker's attention on the light reflex. Experience shows that the change is more than a matter of nomenclature, for it encourages rapid appreciation of principles involved, and far better results in the application of these to treatment. An excellent feature in the work is the insistence on the necessity for a system in the examination of the eyes and in the record of the results. A good scheme is sketched out for the guidance of the beginner.

The final sections on the prescribing of glasses, the use and value of the various forms of lenses and frames for different classes of patients are likely to prove very useful; whilst the last chapter, on "Lenses, spectacles, and eyeglass frames: how to take measurements for them and how they should be fitted," puts the worker in possession of the main facts of the optician's craft, enables him to write his prescriptions with understanding, and if necessary to give complete directions for the preparation and fitting of the frames. These are workaday details too often neglected in medical works. Altogether the book is to be commended; it is sure to take a high place in the ranks of practical handbooks.

NOTES ON BOOKS.

THE drawings in the second number of *The Western Front*[4] are striking proof of the truth that, even regarded merely as a registrar of facts, the artist is more truthful than the camera. Mr. MUIRHEAD BONE has seen the essential things, and conveys them to the mind's eye. There will be many who think they recognize the actual roads he has drawn, with the screen in one, and the pole across another "liable to be shelled"; perhaps some will be wrong—the truth being that the drawings give a sort of abstract impression of what such roads are. As in the previous number, there are several drawings illustrating the evacuation of wounded; one showing the stretcher-bearers passing from a crowded quay to the gangway of a hospital ship; and three, the walking wounded on deck. There are vivid impressions of the ground over which the fighting of the Somme took place, and a very striking drawing of the cathedral of Amiens with aeroplanes circling round it, which shows what Mr. Bone can do when he chooses to be precise. The series promises to be one of the most interesting records of the war.

In his book on *Poverty and Its Vicious Circles*[5] Dr. J. B. HURRY gives a general view of the problems of poverty and the best means of curing them. Like so many writers before him he has no difficulty in showing that poverty, incompetence, drink, disease, and other evils, all interact in our social life, one leading to another, and all conducting their victims on the downward path. The cure of poverty is to be sought by breaking the vicious circle in each individual case at the most remediable spot. Dr. Hurry

[2] *Stati Ansiosi nelle Malattie Mentali.* Dott. Gaspare Bergonzoli. Voghera: Officina d'Arti Grafiche Boriotti-Majocchi-Zolla. 1915. Sup. roy. 8vo, pp. 186.)

[3] *Refraction of the Human Eye and Methods of Estimating the Refraction.* By H. Thorington, A.M., M.D. London: W. Heinemann. 1916. (Fcap. 4to pp. 420; 334 illustrations, 27 of which are coloured. 10s. 6d. net.)

[4] *The Western Front.* Drawings by Muirhead Bone. London: Published by *Country Life* and G. Newnes, Limited, for the Government. Monthly, 2s. net.

[5] *Poverty and Its Vicious Circles.* By J. B. Hurry, M.A., M.D. London: J. and A. Churchill. 1916. (Demy 8vo, pp. 194, 5s. net.)

shows up the harmfulness of the indiscriminate charity so dear to the hearts of almost all of us, and indicates the limits of the policy of *laissez faire* in social economics. His point of view is well worth the study of all charitable workers and social reformers.

The Uniform System of Accounts,[6] designed for the use of hospitals and other institutions by Sir HENRY BURDETT, K.C.B., now in its fourth edition, is a work invaluable to those responsible for the balance sheets and general financial arrangements of these places; its nine chapters and three appendixes give full explanations of the system, its origin and its many applications. The book should be consulted by all who have to keep the accounts or write the annual reports of charitable and other institutions of every description.

Dr. W. H. B. STODDART has written a short and excellent account of *Mental Nursing*,[7] intended to give a prospective mental nurse some idea of the work he or she contemplates. It is a practical guide to the nursing and management of insane persons, and contains no anatomical or physiological details. The book may be recommended to those for whom it has been written, and, indeed, will be found of great service by all who are brought into contact with insane or mentally deficient persons.

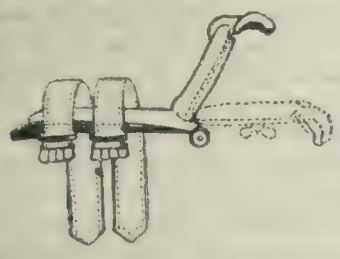
[6] *The Uniform System of Accounts for Hospitals and Public Institutions, Orphanages, Missionary Societies, Homes, Co-operations, and all Classes of Institutions.* By Sir H. Burdett, K.C.B., K.C.V.O. Fourth edition. London: The Scientific Press, Ltd. 1916. (Roy. 8vo, pp. 139. 5s. net.)

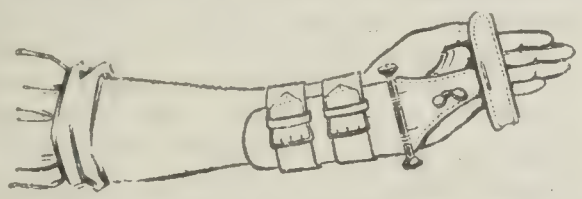
[7] *Mental Nursing.* By W. H. B. Stoddart, M.D., F.R.C.P. London: The Scientific Press, Ltd. 1916. (Cr. 8vo, pp 98. 2s. 6d. net, by post 2s. 9d.)

MEDICAL AND SURGICAL APPLIANCES.

A Splint for Drop-wrist.

THE skeleton hyperextension hand-splint and also the long hand-splint used by Lieutenant-Colonel Robert Jones were illustrated in the JOURNAL of January 16th, 1915, and more fully in the issue of December 16th, 1916, p. 833. Mr. Bryden Glendining, F.R.C.S., now sends us a description of a splint, the design for which was originally extemporized by Private D. O. Murton when a patient in the Duchess of Bedford's Woburn Military Hospital, for wrist-drop due to severance of the musculo-spiral nerve a little above the elbow by a piece of shrapnel casing. The splint, which is manufactured by the patient's firm, Henry A. Murton, Ltd., Newcastle-on-Tyne, is made of aluminium, and consists of (1) a wrist portion, moulded and shaped to adapt itself to the volar surface of the wrist and lower ends of the radius and ulna and attached by a webbing strap and buckle. (2) A palmar portion, which is shaped for the hand and is capable of being lengthened or shortened according to the size of the hand, according as one desires to carry the support to the meta-carpo-phalangeal joint only or to the first interphalangeal joint; a fly-nut in the splint locks the sliding surfaces and fixes it at the required length. (3) Between the wrist and palmar sections the splint is hinged and fitted with two strong wire springs, which act in the direction of dorsal flexion; so that, unless counteracted by energetic action on the part of the wrist and hand flexors, the position assumed is constantly that of hyperextension. The support is not carried beyond the first interphalangeal joint, since it is beneficial for the patient to exercise the fingers by means of the lumbrical muscles. The main advantages claimed for the splint are its small bulk and lightness; it has been generally adopted in the hospital mentioned during the period preceding and following nerve suture.





OF 330,179 school children in the city of New York examined in 1914, there were found to be 194,207, or 58.8 per cent., suffering from defective teeth. This exceeded the sum total of all the other defects noted by nearly 80,000.

MOTOR NOTES FOR MEDICAL MEN.

BY H. MASSAC BUIST.

THE PETROL CONTROL COMMITTEE'S LATEST ANNOUNCEMENT.

THE Petrol Control Committee made an important announcement on Tuesday touching the necessity for economy on the one hand, and, on the other, intimating that no fresh licences will be granted. This is a practical fulfilment of the forecast made in these columns some months ago, wherein, while attention was drawn to the continued increase of petrol production in the world, the facts were, besides, weighed that the shipping problem would increase the longer the war continued and the motor fuel needs of the services would grow at an amazing rate.

Those factors have now begun to operate, with the result that the Petrol Control Committee has this week issued the notice in question. It concerns medical men chiefly by reason of the fact that the Committee will not be prepared to issue licences to applications received after Wednesday last, except where such applications were for the renewal of licences which had expired in the usual course. Considering that the notification only appeared in the press on Tuesday, the public was given a bare twenty-four hours' notice. Residents in some parts of the country could have had scarcely twelve hours' notice.

Only the small proportion of medical men who have not been using petrol, and who have therefore had no licences, will be needing them. But that proportion of medical men will need them urgently when the time comes, because the necessity will arise from the nature of the work they will then be undertaking. That work must therefore be regarded as of national importance; hence, while no official announcement has been made on the subject at the moment of writing, nevertheless it may be taken for granted that, on showing due cause, medical men not at present holding motor spirit licences will be granted them, since, if it should be necessary to accommodate them, there need be no renewal in April of licences to purely private motorists at present holding them. Indeed, something of this sort is forecast, in that the Committee states that it cannot undertake that they will be able to issue renewals on all applications received from holders of motor spirit licences. In any case it announces that it may be necessary to reduce the quantity of motor spirit at present allowed. The general public may take it for granted that this is only a preliminary intimation that such restrictions will be put into force, and that the case of the medical profession will certainly receive special treatment, in that it is already announced that every effort will be made to avoid disturbance of the existing arrangement under which the Committee receives applications, supported by Government departments, on the ground that the motor spirit is required for work being performed in the national interest. In the past the department concerned has made sundry announcements to the effect that it regards medical work as being of national importance. Therefore medical men have no reason to fear being put to further inconvenience, or having their work restricted to any greater extent, as a result of the latest order of the Petrol Control Committee.

OBTAINING SPARE PARTS.

In regard to some remarks of mine touching the advisability of medical men obtaining immediately such spare parts as are likely to be required for their cars owing to the fact that car-makers are no longer allowed to manufacture spare parts for civilian needs, a medical correspondent writes from Dorset that this advice is a counsel of perfection and of no practical utility. He proceeds to argue that one does not know what part of a car may go wrong, that one cannot stock expensive spares most of which will never be needed, and that "the different spare parts of a car costing £200 would cost at least half that amount." He therefore concludes that it is an absurd proposition to buy spare parts against eventualities. Certainly it would be if one proceeded on any such lines. But it was never suggested that one should. If a motor owner does not know what parts of an ordinary car wear out and need renewal from time to time he can either ask his fellow motorists, or the maker of the vehicle, or the agent from whom he may have bought it. A more or

less cursory examination, moreover, coupled with the amount of service the vehicle has done, will give him a shrewd notion of what is likely to be needed within a period of six months, or a year, beyond which my remarks were not intended to apply. They were based on the announcement prohibiting the making of spare parts, and on the obvious fact that most makers had at the time a certain stock of spare parts for at all up-to-date models, therefore early applicants could alone hope to secure specimens from any such stocks, for which there would arise—as, indeed, there has arisen—an immediate demand on the publication of the announcement in question. Moreover, it is quite idle to hope that the Ministry of Munitions can take any action in the matter of sanctioning the special production of spare parts for medical men, in that the motor manufacturing programme to which this nation is committed this year does not leave any margin for the production for other than spare parts for machinery in absolute use by the services. My advice was, therefore, in the nature of showing the medical man how to make the best of an awkward case.

As to its practicability, provided the stocks of the given spares have not yet been exhausted, there need be no objection on financial grounds. Nothing approximating to 50 per cent. of the cost of any car, as is imagined by the correspondent whose observations on the point I quoted above, is in question; 10 per cent. would be an outside margin; 5 per cent. would be handsome for most doctors.

What is the owner of a car likely to need? Suppose a car has done 12,000 miles, then it is likely that sooner or later one piston will be needed, perhaps two, and some new piston rings. The big ends may need taking up somewhat, but he is scarcely likely to need to have them relined. On the bad roads general nowadays shackle bolts sometimes wear considerably. So an extra cautious owner may like to have some of these, though they are examples of parts which could be obtained and adapted without going to the maker of the given car. On the other hand, a steering worm might be wanted, or a new bevel for the back axle. But these are both parts which could be examined sufficiently with comparatively little labour and time to enable it to be foretold whether or not spares would be needing for them within the next twelve months.

Indeed, at the time my remarks were made, and again to-day, I had not, and have not in mind, the timely expenditure by the medical motorist of more than five or ten pounds on the acquisition of such comparatively few spare parts as are likely to be required by him for his car, and as might have been obtainable at the time the original prohibition to manufacture spare parts was published. Of course, the likelihood of obtaining spare parts has very greatly decreased in the interval. Nevertheless, of the great number of parts that go with the making of a car, comparatively few wear. Of these, fewer still cannot be made to continue rendering service by the simple process of adjustment, as instance steering and big end details; while of what remain a certain proportion, as instance bolts, can be obtained at a pinch from other sources and adapted locally. Thus the long and the short of it is that in the ordinary course of wear in normal service the average medical motorist will not want more than half a dozen spare parts by him to make assurance doubly sure for a twelvemonth ahead.

Of course, some quite unexpected part may go. But I was not dealing with the problem of accidental breakdown, or of abnormal failure, against which no human foresight can provide, but with the proposition of the inevitable wear and tear of a car called on for continual service by a medical man in all weathers, and that problem is like that of maintaining an omnibus or taxicab. The big carrying corporations know to a nicety at what intervals of miles of service rendered clutch linings want renewal, breaks want relining, joints need taking up, and so forth. Likewise, the spare parts departments of all the big motor manufacturers know from mere demand over long periods what parts of each model made by the given firm are most in demand for renewals and replacements. They could, therefore, assist the medical client by giving him a brief answer to any question he cared to put to them touching his own car, provided that in the interval since my notes were published on the subject the stock of spare parts in question has not been exhausted.

THE MILITARY MEDICAL SERVICES IN 1916.

In the British Medical Journal of January 2nd, 1915, and of January 15th, 1916, were published articles on the military medical services in 1914 and in 1915 dealing with the losses of the military medical services in the war. The present article continues the history of these services during twelve months of war in 1916.

The two former articles began with the consideration of the strength of these services, showing how greatly the numbers had expanded to meet the strain of war. As the *Army Lists* published since the middle of 1915 are not available to the public, that of June, 1915, having been the last issued for sale, any remarks on the strength in 1916 must be chiefly guesswork.

The following table shows the number killed, and died of wounds, died on service, wounded, missing, and prisoners, in each of the military medical services, during the year; also the number of honours conferred upon each service. It is believed that the numbers shown as killed are correct, but it is possible that a few names may have been omitted. The numbers shown as wounded are doubtless not quite exact, but they are approximately correct. It may be mentioned that many of those who have been reported as having died of wounds have previously been returned as wounded; while most of those reported as missing have subsequently been accounted for as killed or prisoners. There is, therefore, a certain amount of overlapping under all heads. During the greater part of the year the official lists have not mentioned the seat of war in which casualties took place. It may be assumed, however, that the great majority of the casualties in the various branches of the R.A.M.C. took place in the long-drawn-out battle of the Somme, or battle of Picardy, which lasted for just half the year, from July 1st to the end of the year.

The total number of medical officers killed in 1914 (five months) was 46, of whom 13 belonged to the navy and 33 to the other military services. In 1915 the numbers rose to 97—14 naval, 3 of the mercantile marine, and 80 of the other military services, besides 12 medical men serving as combatants. In 1916 the numbers reached 149, of whom 33 belonged to the navy and 114 to the other military services. 1 colonial services, 1 surgeon in mercantile marine, besides 13 medical men serving as combatant officers. Of these, no fewer than 73 were temporary officers of the R.A.M.C. To these should be added the names of nearly a hundred medical officers who have died while serving, making a total medical roll of honour of 260.

Table I.—*Casualties and Honours, 1916.*

	Killed and Died of Wounds.	Died.	Wounded.	Missing.	Prisoners.	Honours.
Royal Navy	33	4	3	1	2	21
R.A.M.C.	5	4	10	3	14	165
R.A.M.C.(S.R.)	9	2	34	—	—	56
R.A.M.C.(T.F.)	9	18	40	3	—	68
R.A.M.C. (temporary)	73	41	271	2	1	248
Australian A.M.C. ...	4	2	—	—	—	30
New Zealand M.C. ...	4	—	6	—	—	4
Canadian A.M.C. ...	4	4	19	2	2	33
South African M.C. ...	—	4	3	—	1	2
I.M.S.	1	15	7	—	25	46
I.S.M.D.	5	2	3	—	12	5
Combatants	13	—	—	—	—	—
Miscellaneous	2	2	—	—	—	—
Total	162	98	396	11	57	676

The Royal Navy.

The number of medical officers of the navy on the active list would seem to have slightly decreased owing to casualties; no official list of new appointments appears to

have been published. This decrease is more than counterbalanced by the number of appointments of temporary surgeons made during the year.

During 1915 fourteen medical officers of the Royal Navy were killed in action or lost with their ships. That number has been more than doubled in 1916. The chief losses took place in the battle of Jutland, which accounted for twenty-one. Two were lost in H.M.S. *Russell*, three in H.M.S. *Hampshire*, in which Lord Kitchener perished, and three were killed in the battle of the Somme. A few were lost in smaller ships. The names are as follows:

Killed.—Fleet Surgeons W. Center, F. F. Lobb, W. J. Bearblock, H. L. Norris, F. A. Capps, H. L. Geoghegan, P. G. Williams; Surgeons P. D. Pickles, S. H. Punch, J. D. Ward; Temporary Surgeons C. W. Lewis, M. H. de J. Harper, C. O. H. Jones, G. Shorland, A. A. Morrison, F. W. T. Clemens, G. M. Johnson, T. M. Wood Robinson, J. S. D. MacCormac, G. B. Moore, H. G. Chaplin, H. F. McNally, H. C. Gow, G. A. Walker; Surgeon Probationers J. Johnston, J. E. Macintyre, R. Walker, D. H. Ferris, H. J. Dingle, J. Hislop, G. S. Freeman, A. L. Strachan, W. S. Allardice.

Died.—Deputy Surgeon-General C. J. Mansfield, Staff Surgeon J. K. Murphy, R.N.V.R., Temporary Surgeon W. H. Edmunds, Surgeon-Probationer J. Hughes (as a prisoner of war).

The number of honours conferred on medical officers of the navy, and indeed on officers of the navy generally, has not been large. The contrast between the number of decorations bestowed on the members of the great silent service and on those of the army is indeed striking. The figures are given in the tables.

THE R.A.M.C.

As stated above, any consideration of the numbers must be chiefly guesswork.

For the regular R.A.M.C. the numbers have fallen slightly owing to the occurrence of casualties and the fact that no new appointments have been made.*

The Special Reserve and Territorial Force casualties by death have amounted to 11 and 27 respectively; while the number of new appointments have probably been larger, so that the strength of both branches of the service may have risen considerably.

The temporary officers of the R.A.M.C. have suffered no less than 114 death casualties (73 killed and 41 died), to which must be added a large number of resignations, partly on completion of the stipulated one year's term of service, and partly on account of ill health. On the other hand, the number of new appointments must have far more than counterbalanced these deductions, and the strength must have increased considerably.

As regards the numbers of the Colonial medical services we have no information.

The military medical officers killed have been almost entirely men of junior rank. Out of a total of 162 deaths in action only six were of officers above the rank of captain, and of these three belonged to the Colonial forces.

It is, of course, only natural that the junior officers should furnish the great majority of these deaths. Not only are they numerically greatly in excess of the seniors, but also the medical officers most exposed to danger at the front, serving with regiments and in advanced dressing stations, are chiefly officers of the rank of captain and lieutenant.

With regard to those who have died on service, it is in many cases impossible to say whether individuals have or have not recently returned from active service. Many, doubtless, had not been out of England. But a large number, probably the majority, have either been men recently invalided from the front, or have died while actually serving abroad.

The names of the officers who have been killed and who have died are as follows:

R.A.M.C.

Killed.—Lieutenant-Colonel H. B. Connell; Major P. A. Lloyd Jones, D.S.O.; Captains G. P. Selby, C. M. Nicol, B. J. L. Fayle.

Died.—Majors R. S. Smyth, F. C. Lambert, N. E. J. Harding; Captain A. G. Jones.

R.A.M.C.(S.R.).

Killed.—Captains T. E. Guthrie, A. M. Thomson, G. Stanton, M. P. Inglis, J. Deighton, A. T. Logan, T. C. Kidner, O. G. Parry-Jones, J. O'Brien.

Died.—Captains W. H. Nicholls, W. Crymble.

R.A.M.C.(T.F.).

Killed.—Captains J. L. Green, V.C., A. P. Low, J. H. Beilby, G. R. Hitchin, O. H. Peters, T. C. Houston, S. Clark, G. M. Levack, G. H. Watson.

Died.—Colonel J. Harper; Lieutenant-Colonels M. W. O'Connor, J. W. Stokes, S. Boyd, A. H. Lister; Majors F. R. Miller, W. L. Hawkesley, E. Brice, C. H. Benham, J. Hepple (drowned); Captains P. B. Ridge, J. T. Leon, R. Donald, R. R. J. Holmes, E. B. Hartnell, E. Bell (drowned), H. R. Robertson, M. C. Hayward.

R.A.M.C. (TEMPORARY).

Killed.—Lieutenant-Colonel A. N. Walker; Captains R. W. Duncan, A. C. A. Jekyll, J. Wilson, W. S. Armstrong, K. H. A. Kellie, H. C. Mulkern, J. C. Rix, D. W. Smith, G. O. Maw, F. L. Cleland, E. W. Lawrence, R. W. Michell, G. R. Heard, H. G. Morris, J. H. D. Acland, W. G. Shand, H. R. Knowles, D. H. D. Wooderson, A. J. Waugh, J. M. Stenhouse, D. B. Maclean, H. H. Proudfoot, W. N. Watson, G. S. Miller, A. W. Harvey, N. Broughton, W. Campbell, C. E. H. Smith, E. P. Leahy, R. J. Wooster, M. Peto, F. S. Walcott, E. R. Welch, T. L. Ingram, A. W. Venables, R. E. Harkins, M. T. Rees, W. R. Pagen, H. Matthewson, H. E. O'Brien, J. D. Forrester, H. Begg, I. A. M. Clarke, I. M. Brown, C. K. McKerrow; Lieutenants W. F. Thompson, W. W. Deans, A. N. Garrod, G. Dewar, F. S. Mitchell, B. B. Gough, M. E. Ball, J. M. Johnston, A. Booth, J. B. Haverson, E. C. Lambert, D. Rodger, W. R. Wilson, C. P. Kelly, R. Jones, R. F. T. Newbery, B. R. Roberts, E. H. McVicker, W. L. Evans, M. W. Loy, W. S. Lacey, S. A. Walker, W. C. E. Bower, J. Cropper (lost in *Britannic*), E. Howe, J. R. Brown, G. W. Guthrie.

Died.—Colonels A. E. J. Barker, Sir Victor Horsley (Mesopotamia), C. Stonham; Lieutenant-Colonels Sir C. Ball, Sir S. F. Eve; Majors G. H. Melville Dunlop, A. H. Benson; Captains P. Pattison, A. T. Campbell, H. J. R. Jones, A. R. Chavasse, G. F. Barr, F. F. German, R. K. MacGregor (accidentally killed), E. C. Austin, A. Seabrooke, H. H. Tanner (drowned), H. F. G. Noyes, T. Strain (accidentally killed), D. T. C. Frew, D. Gilmour, V. J. Ruttledge, L. A. Arnould; Lieutenants J. Le K. Maverty, W. H. Macdonald, F. G. Hopkins, R. G. Brown, W. W. K. Duncan, P. H. Berry, G. N. Murphy, J. J. Mackintosh, G. V. Fletcher, A. L. Thornley, H. J. S. Kimball, H. R. Griffiths, G. S. Graham, J. St. J. Dundon, S. W. Burrell, W. W. Farrer, F. Whitaker, W. D. Murray.

AUSTRALIAN A.M.C.

Killed.—Captains J. G. Mackenzie, S. M. Graham, H. F. Plant, R. F. Hughes.

Died.—Lieutenant-Colonel H. K. Bean; Captain E. W. Deane.

NEW ZEALAND M.C.

Killed.—Major A. Martin; Captains G. H. Wood, G. V. Bogle, F. Hitchcock.

CANADIAN A.M.C.

Killed.—Lieutenant-Colonels A. W. Tanner, R. P. Campbell; Captains D. Waterston, P. J. Walsh.

Died.—Lieutenant-Colonels H. B. Yates, H. R. Duff; Major A. V. Becher; Captain N. J. L. Yellowlees.

SOUTH AFRICAN M.C.

Died.—Major P. A. Gillespie; Captains W. Gem, N. J. Hofmeyr, A. Groenwald.

Wounded.—The number of medical officers returned as wounded in 1915 was 224. These figures have been far exceeded in 1916, the number of temporary officers of the R.A.M.C. wounded in 1916 is greater than the total for 1915. In both cases the totals are probably not quite correct, but are approximately so. A good many officers first returned as wounded subsequently died of their wounds. And in a few cases the same officer has been wounded more than once during the year. The numbers wounded in each of the different medical services are shown in the table.

Missing.—The number shown as missing, in the table, is not large. Most of them were subsequently accounted for, either as killed or as prisoners.

Prisoners.—The numbers of medical officers of the different services taken prisoners are shown in the table. Almost all, 50 out of 57, were taken in the surrender of General Townshend's force at Kut on April 30th. Many of them have since been released or exchanged.

HONOURS.

The various honours bestowed upon members of the different medical services during the year are shown in Table II. The honours gazetted on January 1st, 1917 (221), are not included.

* A large number of new appointments were gazetted on January 10th, 1917.

TABLE II.—*Honours, 1916.*

	V.C.	C.B.	K.C.M.G.	C.M.G.	C.I.E.	D.S.Cross	D.S.O.	Bar to D.S.O.	Military Cross	Bar to Mily Cross.	Foreign.	Total.
R.N.	—	6	—	2	—	10	—	—	—	—	3	21
R.A.M.C.	—	17	1	39	1	—	52	—	36	—	17	163
R.A.M.C.(S.R.) ...	—	—	—	—	—	—	4	—	50	—	2	56
R.A.M.C.(T.F.) ...	3	3	—	12	—	—	13	—	33	—	4	68
R.A.M.C.(temp.)	—	10	—	9	—	—	17	1	181	8a	22	248
Australian A.M.C.	—	2	1	4	—	—	3	—	19	—	1	30
New Zealand M.C.	—	—	—	2	—	—	—	—	2	—	—	4
Canadian A.M.C.	—	—	—	8	—	—	3	—	19	1	2	33
S. African M.C. ...	—	—	—	—	—	—	—	—	2	—	—	2
I.M.S.	1	2	—	3	4	—	13	—	22b	—	1	46
I.S.M.D.	—	—	—	—	—	—	—	—	5	—	—	5
Total	4	40	2	79	5	10	105	1	369	9	52	676

(a) One temporary R.A.M.C. officer gained a second bar to his Military Cross.
(b) One temporary lieutenant in the I.M.S. gained the Military Cross.

As the total numbers of the different services are not known, nothing can be said about the proportion of honours granted to each service, except that the very small number of honours bestowed upon the Navy is a regrettable feature. The most coveted honour of all, the Victoria Cross, has been granted to four medical officers during the year; three out of the four, Captains J. L. Green (killed), W. B. Allen, and N. G. Chavasse, were Territorials.

SONS OF MEDICAL MEN.

The names of over 200 sons of medical men killed in action during the latter half of 1915, were published in the BRITISH MEDICAL JOURNAL last year. Nearly double that number (385) have been noted in 1916. Even so the figures, especially those for the Colonial contingents, are probably far from complete.

MEDICAL STUDENTS.

The number noted, excluding those who were also sons of medical men, and included under that heading, has only been some 57 during the year, a number not much larger than those given for the latter half of 1915. Here also, however, the figures are probably very incomplete.

NURSES.

No nurse appears to have been reported as killed. But five have been shown in the casualty returns as wounded, and a large number have died on service—many in France, a few at Salonica and in Mesopotamia. No nurse was reported as lost in a torpedoed hospital ship during 1916, though eleven lost their lives in this way at sea during 1915.

COMBATANTS.

At least eight medical men and five dental surgeons, serving as combatants, were killed during 1916. The names are:

Medical Men.—Lieutenant-Colonel G. O. Moorhead, South African Infantry; Captains H. S. Monkham, Canadian Mounted Rifles; G. S. Stritch, Connaught Rangers; H. K. Birley, Manchesters; R. M. Dennys, Loyal North Lancs Regiment; G. Mowat, South African Infantry; Lieutenant J. T. Waite, The Buffs; Lance-Corporal R. G. C. Stewart, Canadian Infantry.

Dental Surgeons.—Major V. L. S. Beckett, East Yorkshire Regiment; Captains E. H. Wyand, King's Royal Rifle Corps; A. B. Tough, East Lancs Regiment; Second Lieutenants C. F. Snow, Royal Field Artillery; J. S. Palmer, Durham Light Infantry.

THE INDIAN MEDICAL SERVICE.

This service has just about maintained its normal strength of a little under 800. Some twenty appointments to the service have been made by nomination during the year, and this counterbalances the wastage by death and by a few retirements on account of age or ill health.

The number of temporary officers, which stood at about 130 at the beginning of 1916, has probably almost, if not quite, doubled. There have been a few deaths, and some resignations; also a few have been confirmed as permanent officers; while a large number of new appointments have been made.

With the closing of the hospitals for sick and wounded Indian troops at Brighton, Bournemouth, and Brockenhurst at the end of 1915 and beginning of 1916 the personnel of the Indian general hospitals serving in England were recalled to the East, and the employment of retired officers of the Indian Medical Service in these hospitals ceased. A number of these retired officers returned to India for temporary re-employment, while a considerable number were employed by the War Office in England, some in hospitals for British troops, some on administrative work, such as that of recruiting medical boards.

Only one officer of the Indian Medical Service was killed in action in 1916—Captain A. R. S. Alexander, in Mesopotamia. Some twelve officers on the active list died—one in Egypt, two in Mesopotamia. Colonel A. H. Moorhead, who died in England, had recently been invalided from the front in France. Of the three retired officers who died on duty, one had recently been serving in France, a second died in Mesopotamia; the third had not been abroad. The names are:

Killed.—Captain A. R. S. Alexander.
Died.—Colonels B. B. Grayfoot, C.B. (Egypt), A. H. Moorhead; Lieutenant-Colonels G. F. Braide, C. B. Prall, F. C. Pereira, C. Monk (retired), P. C. Gabbett (retired, Mesopotamia), W. Selby, E. Hudson, C. S. Rundle (retired); Captains J. D. Wilson, F. H. Hebbert (Mesopotamia), R. I. Binning (Mesopotamia); Temporary Lieutenants G. S. Engineer, P. K. Wariyar.

The number of wounded has been small, only seven or eight. Some twenty five were taken prisoners at Kut, many of whom have since been released.

The number of honours shown in the table above is 46. This number includes a Victoria Cross, gained by Captain J. A. Sinton. Only twice before, in sixty years, has the V.C. been bestowed on an officer of the I.M.S.; on Surgeon, now Colonel Crimmin, C.B., in Burma, in 1888; and on the late Captain H. F. Whitchurch, in the defence of Chitral, in 1895.

THE INDIAN SUBORDINATE MEDICAL SERVICE.

Five members of the I.S.M.D. have been killed; Assistant Surgeon W. J. Maine, M.C., lost in the *Maloja*; and Assistant Surgeons A. R. Emmett, A. C. Marchant, G. C. West, and P. C. de Cruz—all in East Africa. Only two names have been noted as having died on duty: Assistant Surgeons J. V. Fernandez (Mesopotamia), and E. C. Hallums. Probably the number who have died is really larger.

This service has received five Military Crosses. Three members have been wounded, while at least twelve were taken at Kut.

THE OVERSEAS MEDICAL SERVICES.

Members of the different African Colonial Medical Services must have taken part in the campaign in German East Africa. But the only casualty reported among them was the death of Captain W. Hillbrook, of the Congo Carrier Corps.

Some of the younger members of these services have joined the R.A.M.C. as temporary officers, and one at least, Lieutenant W. C. E. Bower, of the West African Medical Staff, has been killed in action. Temporary Lieutenant F. G. Hopkins, R.A.M.C., who died in England, was also an ex-officer of this service, who had been Principal Medical Officer on the Gold Coast; and Lieutenant J. T. Waite, of the Buffs, killed in action, had also served for some time in the W.A.M.S.

Dr. W. K. Miley, the senior officer of the Indo-Colonial Emigration Service, was lost in the *Maloja*.

THE MERCANTILE MARINE.

A large number of British ships have been torpedoed and sunk by German submarines during 1916, many of them large passenger liners, in some cases with great loss of life. Many losses among the medical officers of the mercantile marine might have been expected. The only one, however, which we have seen reported was the death of the surgeon of the Ellerman liner *City of Birmingham*, torpedoed towards the end of November. His name was not published. Dr. J. E. Parker, surgeon of the transport *Ivernia*, sunk on January 1st, was also lost.

Surgeon E. W. Welchman, of the Admiralty Transport Service, also died during the year.

British Medical Journal.

SATURDAY, JANUARY 27TH, 1917.

CARRIERS OF AMOEBIC DYSENTERY.

THE Medical Research Committee has issued a very valuable report on amoebic dysentery and the protozoological investigation of cases and carriers,[1] by Mr. Clifford Dobell, M.A., Lecturer in Protistology in the Imperial College of Science. In an introduction prefixed to the report by the Committee, the circumstances under which it took part in the organization of pathological work in this country in relation to the dysentery patients and convalescents received from the Mediterranean during and after the autumn of 1915 are related. When the influx of invalided men began no organization staffed and equipped for the diagnosis of protozoal infections existed, and the number of persons available competent to make the requisite examinations and to produce records of scientific value was very small in relation to the sudden call for this particular kind of skill and knowledge. Moreover, the bacteriological examination of the faeces, which was not less important, proved more than sufficient to occupy the time of the whole pathological staff of the hospitals concerned. In these circumstances it was determined to make use of the services of well-trained workers in extra-medical departments of biology, and to set them, after a relatively brief training in protozoal work, to supply the need. The War Office agreed to arrange for the concentration of patients suffering from or convalescent after dysentery in a limited number of centres, and it was arranged in certain of these to submit groups as large as possible to complete examination. Though for various reasons the plan did not work at as large a number of centres as was hoped, nevertheless the protozoal records from certain centres dealt with a sufficient number of cases to make it probable that valuable information could be got from them by careful analytical study, and it was for this reason that the reports were placed in the hands of Mr. Clifford Dobell.

His task was difficult, for the material on which he had to work was of unequal value, and the field of investigation itself is comparatively new, so that methods in it are neither so fully standardized, nor the canons of interpretation so much a matter of general agreement as is the case with bacteriology. He has produced an essay which, though many of its conclusions may be superseded, will remain of permanent value as a contribution to the literature of the subject. When the investigations made for it were begun there was an almost complete lack of information as to the significance to be attached to a negative examination—that is, to failure at any one examination to detect the presence of a particular parasite. A purely arbitrary standard of freedom from infection with *Entamoeba histolytica* was therefore laid down by the War Office as a practical necessity; it was not found possible in fixing it to take into account the relation in time of the examinations to the period of treatment with emetine, and this was an additional detriment to the scientific value of the material. It must be remembered, however, that the primary object of the examinations was to test the presence of infection and the results of treatment with a view to restoring sick or dangerously infective men to health and safety, and to fit them for duty. Mr. Dobell gives it as his opinion that negative examinations have no value unless made by a person who has had special training and experience, and that even then they are not to be relied upon absolutely. Personal error cannot be excluded from any single negative examination. Still, speaking generally, he finds it safe to assert that the greater the skill of the examiner and the number of negative examinations made in any particular case, the greater is the value of that examination for that case. When the skill of the examiner and the number of examinations are reduced to the minimum the negative examination ceases to have any value as evidence.

To the evidence supposed to incriminate *Giardia (Lamblia) intestinalis* in connexion with some types of intestinal disorder Mr. Dobell does not attach much weight, and whatever their opinion on this point all will admit the special importance of *Entamoeba histolytica*. It is his analysis of the observations accumulated with regard to this parasite that gives special value to Mr. Dobell's essay.

Even in the case of specially trained observers the amount of examination possible to be given to each patient was insufficient for the discovery of all cases of infection, and it is practically certain that in many centres the number of carriers of *E. histolytica* discovered has been but a small fraction of the number actually carrying the infection. He considers, however, that an increase of the number of examinations would result in the detection of all but a few of the cases, given the requisite special experience and skill on the part of the examiner. The examination of men who had been in Egypt or Gallipoli and had been invalided for causes other than dysentery without any history of this or other intestinal disorder, led to the rather disquieting discovery that the proportion of carriers of *E. histolytica* among the small number of non-dysenteric patients thus examined was not below that among the men convalescent from dysentery or enteritis.

The conclusion Mr. Dobell reaches is that the proportion of individuals still infected with *E. histolytica* among the convalescents from intestinal disorders reaching this country from the Mediterranean area has been about 18 to 25 per cent. of the whole number. If it be assumed that carriers of this parasite would be found in a proportion of this order throughout the whole body of troops which had been similarly exposed to the infection, it is evident that its eradication is a national problem of great magnitude, as well as of much importance.

Mr. Dobell's conclusions as to the results of the treatment hitherto applied, namely, by hypodermic injections of emetine, are disappointing. He shows that the criterion of cure—that is to say, of eradication of the infection by treatment—laid down on the basis of the best experience available at the time when the scheme was started was seriously deficient in two directions: in the first place, the number of negative examinations accepted as indicative of permanent freedom from infection was much too small; in the second place, negative examinations made during a period of treatment with emetine were accepted as evidence of cure, whereas it has been established that evidence of infection is usually unobtainable during such a period, even in cases

[1] London, H.M Stationery Office. To be obtained through any bookseller. Price 1s. 6d. net.

in which infection returns as soon as treatment is suspended. A study of a selected set of cases in which it was possible to repeat the examination sufficiently often after the conclusion of a course of treatment by hypodermic injections of emetine showed that only in a small minority, not more than about one third, was a permanent cure obtained. As a matter of fact the proportion of carriers discovered in the convalescent dépôts among patients discharged from the hospitals as cured did not differ widely from that found among fresh arrivals who had received no treatment in this country.

His analysis of the evidence as to the efficacy of treatment by the double iodide of emetine and bismuth encourages the hope that the method will result in the permanent cure of a large majority of the patients in a relatively short time. An account of the nature and mode of administration of this drug, which is given by the mouth, will be found in the issue of this JOURNAL of November 4th, 1916 (p. 613), in a paper by Mr. Dobell, and in a leading article (p. 626). Mr. Dobell's present conclusions on the matter are that this double salt properly administered has successfully cured the majority of carriers of *E. histolytica* hitherto treated by it, but that in acute dysentery, though the results have been very satisfactory, further trials are necessary. He points out that for treatment to be successful the drug must be given in large quantities; not less than 36 to 40 grains in daily doses of 3 or 4 grains; less than that amount is seldom efficacious, and more may be necessary in individual cases. He further states that emetine administered in this form has generally been successful, even when previous treatment with hypodermic injections of emetine hydrochloride have failed. The drug may exceptionally succeed in removing an infection with *Entamœba coli*, but neither it nor any known method of treatment seems to have any influence in removing flagellate infections (Lamblia, Trichomonas, Chilomastix).

THE REMOVAL OF FOREIGN BODIES FROM THE EYE BY MAGNETS.

IN the first number of the *British Journal of Ophthalmology*[1] there appear three papers on this subject, each written by men who have large and recent experience in the treatment of foreign bodies within the eye.

Mr. G. H. Pooley, who meets with large numbers of industrial accidents in Sheffield, states that experience has led him to depart from the technique advocated by Haab, whose giant core magnet he still uses. He insists on careful localization of the foreign body. "Three or four days' wait makes no difference to the result." The extraction is performed by two routes, and the choice between them determined by the state of the lens. If the lens is badly wounded so that it must become cataractous, and the foreign body is just behind it, the lens is removed, and then the foreign body, by drawing it into the anterior chamber. If the lens is not wounded, or only slightly, the foreign body is removed through an incision into the sclera behind the ciliary body; the point of the giant magnet is placed upon, or just introduced into, the incision. Extraction through the sclera, he says, "gives the best results." He insists on the necessity of avoiding "tidal pulls," tugging on the ciliary body, bruising of tissues, and particularly the lens, as must too often happen with extraction through the pupil. For the scleral route he claims a larger percentage of eyes saved, better visual acuity, shorter convalescence.

In the second paper Captain Maurice H. Whiting, R.A.M.C. (temp.), and Lieutenant Charles Goulden, R.A.M.C. (temp.), who had both had considerable experience in this work before the war, have very greatly increased it during the war. In July, 1916, alone they had to deal with thirty cases of magnetic foreign bodies within the globe. They adhere to what is essentially the technique of Haab. The foreign body is localized by *x*-rays, though they do not consider this essential to successful treatment, and consider that if the localization is likely to involve "delay of more than two or three hours it should be omitted." They use the giant Haab magnet and the smaller Snell magnet. The route they prefer is round the lens through the suspensory ligament, and through the pupil into the anterior chamber, whence the foreign body is removed by incision and the use of the small magnet. They describe at length the variations of current and so of magnetic pull used to coax the unwilling tenant to move, and the manipulative manœuvres necessary to ease it on the way out.

The third paper is by Mr. Harrison Butler of Birmingham, who, like Mr. Pooley, has wide industrial experience. In his practice the giant Haab and the small Snell are replaced by the ring magnet designed by Mellinger of Basle, introduced into this country by Mr. A. S. Percival of Newcastle, and now made in somewhat improved form by Weiss of London.

In core magnets such as Haab's the magnetic force radiates so that the tractive force rapidly falls off as the distance increases. With the ring magnet the lines of force derived from the solenoid lie parallel, so that the tractive force is great along the central axis at right angles to the plane of the ring. With this instrument no minor magnet is necessary to get into the eye where the big Haab cannot enter. Rods, even spatulae, of soft iron can be placed on the solenoid and be manipulated therefrom into the eye itself. A further advantage is that the patient lies on the ordinary operation table, and the ring magnet is placed as a frame over his face and the operation proceeds. There is none of the contortions of patient and operator necessitated by the unwieldy Haab, which were often suggestive of some process of the Inquisition. Mr. Butler relies on *x*-ray localization, and has a second photograph taken after an extraction lest there be a second foreign body. He uses both corneal and scleral routes for extraction, the choice depending on the circumstances of the particular case. He insists on the perfect control and clean extractions secured by the ring magnet, but he points out the necessity for the eye being in the centre of the ring otherwise there is no current; and adds a caution to the inexperienced on the powerful traction exerted by the instrument.

In the BRITISH MEDICAL JOURNAL of January 20th (p. 81) a paper by Dr. Kelsall of Perth, Western Australia, was published. He gave details of two cases of removal of foreign bodies from the posterior chamber. In each case the body was accurately localized by *x*-ray pictures, and removed by the Haab magnet by the posterior route through incisions into the sclerotic. In neither case was vitreous lost, and the wound was closed by suture of the conjunctiva. Dr. Kelsall adds that "the future may naturally involve degeneration and other changes." That is a point on which careful and extended observations are very desirable.

[1] *British Journal of Ophthalmology*, vol. i, No. 1. January, 1917. London: G. Pulman and Sons. Price 4s. net., or 31s. 6d. per annum.

SIR ALFRED KEOGH, G.C.B.

FOR services rendered in connexion with the war the King has promoted General Sir William Robertson, chief of the Imperial General Staff, and Surgeon-General Sir Alfred Keogh, Director-General Army Medical Services at home, to be Knights Grand Cross of the Most Honourable Order of the Bath. The Grand Cross of the Bath is, perhaps, the highest distinction conferred by the Crown on a soldier, and we believe that we are right in saying that this is the first occasion in the long history of the Order—since its establishment in 1725 and its reinstitution in three classes in 1815, "to commemorate the auspicious termination of the long and arduous contest in which the empire has been engaged"—on which the Grand Cross has been conferred on a medical officer. We very heartily congratulate Sir Alfred Keogh and the service to which he has lent distinction on so conspicuous a recognition of his great services. When in October, 1914, it was determined that the Director-General, Sir Arthur Sloggett, should proceed to France in that capacity, Sir Alfred Keogh, who had become the Rector of the Imperial College of Science and Technology, was brought back to the chair in the War Office, which he had filled from 1904 to 1910. The task he then had to face was one of great magnitude and difficulty. Nearly all the officers on the active list of the regular R.A.M.C. were required for service abroad. The officers of the Territorial R.A.M.C. were required for their allotted duties with the Territorial Force, which had rapidly been placed on a war footing. The new armies required a new corps of medical officers, and Sir Alfred Keogh appealed for volunteers. A whole new organization had to be called into existence, and that this proved possible of accomplishment was due to the splendid response of the civilian medical profession of all ages, and engaged in all departments of practice; but this response would not have been what it was had not the profession felt the fullest confidence in Sir Alfred Keogh's organizing power, openness of mind, energy, and patriotic enthusiasm. The honours list in the *Gazette* of January 24th is largely a home list, and we are glad to see recognition accorded to many of those who, as consulting physicians and surgeons, have in various ways so ably seconded the efforts of the Director-General at home. The distinction of C.B. is conferred upon Colonel Robert Jones, inspector of military orthopaedics; on Lieutenant-Colonels T. H. Openshaw, C.M.G., Gilbert Barling, Sir Thomas Myles, Sir William Arbuthnot Lane, James Swain, Sir Berkeley Moynihan, Consulting Surgeons; on Lieutenant-Colonels Henry Davy and Aldren Turner, Consulting Physicians; on Lieutenant-Colonel P. J. Freyer, I.M.S., Consulting Surgeon to Queen Alexandra Military Hospital; and on Colonel D. J. Mackintosh, M.V.O., A.M.S., Territorial Force Reserve. The distinction of C.M.G. is conferred on Lieutenant-Colonel Bruce Porter, Commandant of the 3rd London Territorial General Hospital; honorary Lieutenant-Colonel J. Lynn Thomas, C.B., Consulting Surgeon to the Western Command; and Major G. Lovell Gulland, Professor of Medicine in the University of Edinburgh, who served as Consulting Physician to the forces in the Mediterranean. Well-earned promotion to K.C.B. is received by Surgeon-General N. R. Howse, V.C., C.B., Australian Army Medical Corps, and by Surgeon-General William Donovan, C.B., A.M.S. The C.B. is received by the following officers of the A.M.S.: Surgeon-General W. W. Kenny, Colonels Edward North, W. H. Horrocks, C. C. Reilly, and James Thomson; and the C.M.G. by the following officers of the A.M.S. and the R.A.M.C.: Surgeon-General G. D. Bourke, C.B., Lieutenant-Colonels W. W. Pope, G. E. Twiss, G. B. Stanistreet, R. S. H. Fuhr, and H. P. W. Barrow; and also by Colonel the Hon. W. E. Collins of the New Zealand Medical Corps.

THE MILITARY MEDICAL SERVICES IN 1916.

AN article on the medical services of the navy and armies in 1916 is published at p. 124. As was the case with similar articles published in 1915 and 1916, the facts are founded on those recorded in the *Gazettes* and extracted in our own columns during the year. Nobody who has not attempted such an analysis can be fully aware of the difficulties in the way of making it absolutely accurate, and we cannot hope that we have overcome them all. We would appeal to officers and their relatives to send us corrections of any errors or omissions they may observe. As was to be expected, the number of casualties recorded during 1916 was considerably greater than the number in 1915. The total number killed in 1915 was 97; to these must be added 21 who died by disease or accident, making a total of 118. In 1916 the number killed reached 149, to whom must be added 98 who died on service or shortly after leaving, making a total of 247. In addition, a considerable number of medical men have been killed or have died of wounds while holding combatant commissions. The number was 13 last year and 12 in 1915. Of the total number of casualties in the Royal Navy, a disproportionate number—33 out of 43—were killed or died of wounds, but this disproportion is probably true of the navy as a whole, as is also perhaps the relatively small number of honours received by the senior service. Among army medical officers the heaviest toll both in killed and wounded has been paid by those holding temporary commissions. This was, of course, to be expected, having regard to their number and the advanced positions in which so many of them work. On the other hand, of the total number of honours given, 248 have gone to officers holding temporary commissions, R.A.M.C. The officers of the Special Reserve have received 56 honours, which, having regard to their number, may be taken to afford evidence of the excellent work they must have done. Territorial medical officers have received 68 honours, possibly a small proportion, but as a set-off, that most honourable branch of the medical service has the proud distinction of having won three Victoria Crosses, the recipients being Captain W. B. Allen, Captain N. G. Chavasse, and Captain J. L. Green; the last named was killed. The only other V.C. awarded to a medical officer was won by Captain J. A. Sinton, of the Indian Medical Service. We fear that the analysis published may be particularly defective in respect of the overseas medical services; it is not always possible from the *Gazette* to identify officers as belonging to these services, and in this matter, as in others affecting the accuracy of the analysis, we would appeal to the assistance of our readers. The list, imperfect though it may be, will be regarded with pride by the medical profession. It will mourn the many losses and will rejoice in the honours. It is consoled for the one by the knowledge that the military medical services of the country have taken their rightful place and won full recognition as one of the most efficient of the special branches of the army and navy; and it sees in the other proof that the personal qualities—the courage and ability—displayed on so many fields have not failed to receive recognition from the Crown.

THE TREATMENT AND TRAINING OF DISABLED SOLDIERS.

DR. R. FORTESCUE FOX has been induced by the note on this subject published last week to send us some impressions he received during a recent visit to the chief centres for physical treatment and training in northern France. He tells us that the medical administrators at the two chief Belgian Government institutions (Bons Secours for physical treatment, and Port-Villez mainly for training) and at the French centres in the military government of Paris emphatically express the opinion that it is necessary

to provide both treatment and training at one and the same time, and over a period of several months. They hold that only so can the mind and body of the soldier be healthfully occupied, and the completest possible restoration effected. This applies not only to the workshops for industrial training, and the class-rooms for intellectuals, but to places of agricultural training like Juvisy. Sir Henry Norman has stated in a recent report that a great saving to the state results in France from a systematic course of physical treatment being given to all disabled soldiers before the final adjustment of pensions. Dr. Fox reminds us that facts bearing on this point were set forth in detail in a report made last year by a committee of the Royal Society of Medicine; the figures in that report were lower than those given by Sir Henry Norman, but, calculated on them, the sum which will eventually be saved to the State by training soldiers before they are pensioned or discharged would run into many millions, and be spread over a generation. On the financial side, therefore, a successful handling of the problem would mean a war economy of importance, but to medical men the very large saving of suffering and disability, and the very large economy in man-power will be an even more powerful argument. Wherever it has been possible to put the plan into operation on an adequate scale, the results have been highly satisfactory not only in France, but also in this country, where more has been accomplished in this direction than is perhaps generally known. Improvements are constantly being introduced and the scheme extended in many directions. Much in respect of extension, of course, remains to be done, and the manner in which the men can best be brought under treatment is still subject to discussion. On this point Dr. Fox says: "The extra-military method presents, as you have stated, the great difficulty of providing special institutions and a medical staff; but it also involves the equally serious problem, to which you have not referred, of gathering once more together into centres for indoor or outdoor treatment and re-education, and for a period of several months, large numbers of men who are freed from discipline and anxious to return to their homes and enjoy their pensions." In whatever way this question is settled the need for providing medical men who have experience in physical treatment remains unaffected, for it will be essential to the success of the local centres for the treatment and training of disabled men that they shall be administered by medical experts. There are certain centres in this country where this experience can be gained, but it would seem to be necessary to organize the system so that medical men disposed to take the matter up should at once have facilities for gaining the necessary experience.

MR. ROCKEFELLER AND MEDICAL RESEARCH.

MR. ROCKEFELLER is to be congratulated on the fine spirit of philanthropy which has made him recognize the duties of great wealth, and even more on the enlightenment which has guided him in the selection of methods of using it for the increase of the happiness of his fellow men and the welfare of the world. How varied and large-minded are his schemes for the promotion of those objects can be gathered from a pamphlet entitled *The Philanthropic Boards established by John D. Rockefeller*, recently issued. The most important among them is the Institute for Medical Research, the object of which is the prevention and treatment of disease. Founded in 1901, it now consists of laboratories where investigations are made in pathology, bacteriology, chemistry, physiology, experimental surgery, and experimental biology; a hospital with accessory laboratories, where clinical studies are carried on; and a department of animal pathology which has been established on a farm near Princeton, New Jersey. Dr. Simon Flexner is the Director of the Laboratories, and the Board of Scientific Directors consists of Drs. William H. Welch, Theobald Smith, Theodore C. Janeway, Simon Flexner, Hermann M. Biggs, T. Mitchell Prudden, and L. Emmett Holt. The Institute has published twenty-three volumes of *Studies*, and several monographs. It also publishes the *Journal of Experimental Medicine*, of which twenty-four volumes have appeared, and the *Journal of Biological Chemistry*. The object of the Rockefeller Foundation, which obtained its charter in 1913, is "to promote the well-being of mankind throughout the world." The first direction in which it showed its activity was the establishment of an International Health Board. Another was the appointment of a Commission to study the needs of medical education and public health in China; this led to the establishment of a China Medical Board. A part of the annual income is being applied in helping outside organizations not connected with the Foundation, but engaged on work that comes within its corporate purposes. Among these are the American Association for the Conservation of Vision; and a National Committee for Mental Hygiene, which has contributed to the cost of conducting surveys for the care and treatment of the insane in certain States, and similar purposes. The Foundation has also given large sums toward the establishment and maintenance of a school of hygiene and public health at Johns Hopkins University, and toward the control of the epidemic of anterior poliomyelitis and the after-care of cases of that disease. The purpose of the International Health Board is the promotion of health throughout the world by research and the treatment or prevention of disease. Among the lines of work undertaken by the Board are the control of uncinariasis, malaria, and yellow fever. A commission for the study of that disease in its endemic centres in South and Central America started on June 17th, 1916; it returned recently to the United States, and Major-General W. C. Gorgas, who was at its head, has stated that it had been very successful, and that details of its investigations and recommendations would be published. The purpose of the China Medical Board is to promote the development of scientific medicine and hygiene in China through medical schools, hospitals, training schools for nurses, and so forth. It is proposed to establish medical schools at Peking and at Shanghai. Among the other foundations are a General Education Board and a Bureau of Social Hygiene. In the work of the Education Board is included the promotion of medical education. In pursuance of this object the Board has helped to place the teaching of medicine, surgery, and pediatrics on a full time university basis by making gifts and pledges amounting in the aggregate to about £584,175 to Johns Hopkins University, Baltimore, Washington University of St. Louis, and Yale University. The Bureau of Social Hygiene was founded for "the study, amelioration, and prevention of those social conditions, crimes, and diseases which adversely affect the well-being of society, with special reference to prostitution and the evils associated therewith." It is announced that Mr. John D. Rockefeller, jun., who has been president of the Foundation since its establishment, has resigned that position as from May 15th, 1917, when he will become chairman of the board of trustees. The reason given for his retirement is that the work of the Foundation has expanded to such an extent that it is necessary for one person to give his whole time to its direction. Mr. Rockefeller will be succeeded by George Edgar Vincent, Ph.D., LL.D., president of the University of Minnesota, and formerly dean of the faculty of arts, literature, and science of the University of Chicago. There will be no change in the policy of the Foundation.

THE PRICE OF SKILL.

IT would be going outside our proper sphere to attempt to make an *ex cathedra* pronouncement on the vexed question of the fees paid to the physician and the surgeon respectively for the application of their knowledge to the

cure or relief of disease. The recent debate in our columns showed that there is wide diversity of opinion in the profession on the subject. Something, however, may perhaps not inappropriately be said on the side which chiefly presents itself to the public mind. That the doctor who seemed an angel in the hour of sickness has a very different aspect when the time for payment comes is a familiar truth which has been embodied in a well-known epigram. People grumble at the fees asked for operations which have snatched them from the jaws of death, and hint that the surgeon earns his money very easily. What has been done may often appear simple enough, but people fail to take into account the time and diligence the surgeon has spent in acquiring the skill and experience that make his task easy to his practised hand though never free from anxiety. Hippocrates truly said that art is long. The time occupied in doing an operation is no measure of the value of the service rendered. When Whistler in his action against Ruskin was sneeringly asked by counsel how long it had taken him to paint a picture which to the untrained eye doubtless seemed a hasty sketch in colours, his answer was "Twenty-five years." In Grant Duff's *Notes from a Diary* (1896 to January 23rd, 1901) he records that he asked the Bishop of Ripon whether he had not very exceptional facility in extempore speaking. The bishop said, and with justice, that real extempore speaking is very rare; in nine cases out of ten what appears to be extempore has been prepared long before, and laid up unconsciously in the recollection. He went on to cite an answer made about a sermon which had struck one of the listeners very much. "I wonder how long it took to prepare that sermon?" The answer was, "Fifty years." Scott, who little more than a hundred years ago began that series of novels which made him known everywhere as the "Wizard of the North," was well on in middle life when *Waverley* appeared. He continued to write for years as fast as his pen could go with scarcely a blot. But it must be remembered that he had undesignedly been preparing himself almost for the whole of his life; his subject matter had been incubating within him from the age of seven to that of forty-three. It may be that, as Carlyle says, he wrote too fast and too "happily," by which we suppose the Sage meant easily. The point we are concerned with here is that the value of his writing must not be measured by the rapidity of its production. All this applies with the same force to the physician as to the surgeon. Thoughtless people often grumble at the two or three guineas paid for a few words of advice. They do not reflect how long it has taken the physician to acquire the knowledge that enables him to give profitable counsel, or that the advice, if faithfully followed, may mean prolongation of life and increased efficiency in work, to say nothing of greater happiness for the patient himself and his family. The public has still to be educated to a right appreciation of the intellectual value of things and to deliverance from the superstition of a crude commercialism as the ruling principle of life.

THE FUTURE OF THE PROFESSION.

Two documents are published in the SUPPLEMENT for this week to which we would invite the attention of every individual medical practitioner, whether concerned in insurance work or not, for they raise matters of great general interest and importance. The first is addressed to the Branches and Divisions of the British Medical Association and Local Medical and Panel Committees in the United Kingdom. It points out that had it not been for the war the profession would no doubt have had to face last year an inquiry into the whole insurance system; the opinion is expressed that presently a Royal Commission will be appointed or a parliamentary inquiry instituted, and it is urged that the medical profession must be prepared with a constructive policy for the future as well as with criticisms of the present system. While recognizing that the time and energies of the profession are absorbed in other matters, it is urged that it is essential that a beginning should be made in collecting the opinions of the profession in regard to this important question, and to this end a series of questions are appended to the circular letter to which specific replies are requested before May 31st. The hope is expressed that all possible steps will be taken to ascertain the opinions of medical men on military service, for their interests must be seriously affected by future changes in the insurance system. The second document is a letter addressed to the Chairman of the Joint Committee of Insurance Commissioners by the Insurance Acts Committee of the Association with reference to certain proposals for legislation in respect to maternity and child welfare which have been published in the press. It is said that legislation is to be proposed by the Local Government Board for treatment, including domiciliary attendance, of pregnant women, nursing mothers, and young children. The absence of any evidence that a comprehensive survey of the problem has been undertaken is noted, and the opinion expressed that piecemeal handling of it is greatly to be deprecated.

MOBILIZATION OF THE PROFESSION.

IN the SUPPLEMENT for last week we published the greater part of a memorandum drawn up by the Manchester Medical War Committee. We omitted to state that the memorandum was drawn up for the purpose of conveying information to the Director-General of National Service. We are told that the manner of publication has conveyed the impression that the document had been compiled for the information and use of the Central Medical War Committee. It was not intended to convey this impression, which we hasten to correct. A copy was sent to the Central Medical War Committee by the Manchester Committee as an act of courtesy. This courtesy was appreciated. We took the opportunity last week of pointing out the value of the information contained in the memorandum.

THE exhibition of war specimens at the Royal College of Surgeons of England, Lincoln's Inn Fields, is open daily from 10 a.m. till 5 p.m., except on Saturdays, when it closes at 1.

THE Hunterian Oration before the Royal College of Surgeons of England, to be delivered by Surgeon-General Sir G. H. Makins K.C.M.G., on February 14th, will deal with the influence exerted by the military experience of John Hunter on himself and on the military surgeon of to-day.

IN a review of a report on miners' phthisis in South Africa, published on page 653 of the BRITISH MEDICAL JOURNAL of November 11th last, an account of the clinical and pathological features of silicosis of the lungs was given. The exact nature of the doubly-refracting particles seen in microscopic sections of silicotic lungs is discussed in a recent report (*African Institute for Medical Research*, 1916; sup. roy. 8vo, pp. 24, 19 figures, 5s.) by Drs. Watkins-Pitchford and Moir of the South African Institute for Medical Research. These authors find that a vast majority of the mineral particles accumulating in the Rand miners' lungs are of quartz in the form of roundish or three-sided thin scales, most of them less than 2 μ in length; the longest particles measured 14 μ, and for every fragment 8 μ long or more there were 2,000 smaller particles. Only 1 particle in 400 was found to be some mineral other than quartz, and composed of the more highly refractile minerals, sericite (a potash mica), rutile, zircon, tourmaline, or chlorite. No evidence of any physiological selection of these various minerals by the lungs was found; their selection seemed to be determined solely by the size of their particles. The amount of extraneous mineral matter present in silicotic lungs is much greater than that in the normal lungs of elderly South Africans who are not miners; the maximum amount was found in cases in which the disease was in its earlier stages, and before extensive disorganization of the pulmonary tissue by fibrotic consolidation had occurred.

THE WAR.

THE CHANGING OF DRESSINGS.

PROFESSOR VULPIUS has been speaking very plainly to some of his surgical colleagues. He says that they have not shown in practice a rational conception of the indications for and against the changing of dressings. It might, he said, have been supposed that common sense and an elementary knowledge of surgery would have been sufficient, but experience showed that sins of omission and commission were exceedingly numerous. Severely suppurating compound fractures were encased in unfenestrated plaster-of-Paris splints, while the dressings of recent, uncomplicated shell wounds were changed more than once a day. These extremes could still [1] be found, he said, in several military hospitals. The worst offenders were not so often the medical men who had become surgeons in the course of the war as the surgeons of some standing. It did not so much matter that superfluous changes of dressings wasted material and the time of surgeons and nurses, as that they were injurious. Every change of dressings, even when necessary, implied movement, active and passive, the opening of lymph channels, haemorrhage, possibilities of infection, and a host of other dangers. He considered that the indications and contraindications for changing dressings should be systematized and standardized. He summarized his views as follows:

1. The most important indications for a change of dressings were haemorrhage, phlegmon, abscess, erysipelas, and gangrene. But the symptoms must be definite. Pain, a sense of heat and tension about the wound, fever, an abnormal pulse, and the condition of the tongue and senses should all be noted, as well as the patient's general appearance. In the absence of any of these symptoms it was unjustifiable to suspect complications and to change the dressings. Simple and obvious as this advice was, he had found it ignored in practice thousands of times, unnecessary, and therefore harmful, changes of dressings being undertaken.

2. It was obvious that, in the presence of complications, dressings should be regularly changed, several times a day if necessary.

3. Change of dressings was undoubtedly indicated when they no longer fulfilled their function of keeping the wound clean by absorbing the discharge. But the question was when this stage was reached. It was most common to find dressings being changed as soon as a trace of discharge appeared on their surface. Yet this merely showed that they were acting properly, and keeping the wound dry, and it was sufficient to apply more cotton-wool and bandages outside the original dressings, and thus to keep the bedding clean, to prevent flies settling on the discharge, and to maintain the drainage of the wound; always provided the condition was in other respects satisfactory. A properly drained and normally healing wound required change of dressings only when it itched, burned, or felt wet under the dressings. The most important objective indications for a change of dressing were a rise of temperature, a badly smelling dressing, extensive flooding of the dressing with discharge, and its escape between the dressings and the skin. It was clear that the amount and nature of the discharge on the one hand, and the amount and nature of the dressings on the other, were the factors to determine the frequency with which they should be changed. There should be no hard and fast rule as to the time for which dressings should remain unchanged; the one fundamental rule was to change them as seldom as possible. An exception to this rule was, however, to be made with fenestrated, rigid dressings; frequent changes were needed to prevent the discharge escaping between the dressing and the skin, causing troublesome itching.

4. The final indication for a change of dressings was the impending transport of the wounded. They should be sent away with clean dressings.

Professor Vulpius also expressed the opinion that great lack of discrimination was shown in the choice of dressings. Iodoform gauze was much used and misused. The presence of iodoform in the gauze could not check a serious infection; iodoform in a normally discharging and healing wound was useless. Undoubtedly the use of expensive iodoform gauze could be reduced to a minimum without the slightest disadvantage to the wounded; in fact, it should be used only when no other sterile dressing was available. For use as tampons in wounds strips of sterile gauze were good enough, particularly when the recent wound had already been painted with tincture of iodine. Gauze bandages were also wastefully used. Wood fibre was an excellent absorbent, which could be sterilized easily and applied to the wound over a layer or two of gauze, which kept the fibre from immediate contact with the wounded tissues. Professor Vulpius concluded with an appeal for the preservation, washing, and sterilization of old dressings for later use. The practice of cutting up and discarding dressings stained with discharge was wasteful.

[1] *Deut. med. Woch.*, Sept. 28th, 1916

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Wounded.

Captain W. C. Forster, R.A.M.C. (temporary).
Captain W. D. Reid, R.A.M.C. (temporary).
Captain F. B. Simpson, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Archibald, William Nicol, Private Royal Fusiliers, older son of Major W. N. Archibald, R.A.M.C., Netley Abbey, Hants, killed in November, 1916, aged 25.

Dalziel, Charles Sutherland, Second Lieutenant, youngest son of Dr. Dalziel, of South Shields. He was educated at South Shields High School, got a commission in September, 1915, and had been at the front for a year. He had three brothers also serving.

NOTES.

MILITARY MEDAL.

THE King has conferred the Military Medal for bravery in the field upon two members of the Queen Alexandra Imperial Military Nursing Service Reserve, one member of the Territorial Force Nursing Service, and a number of non-commissioned officers and men of the R.A.M.C. and the colonial medical services.

CONFERENCE ON THE TRAINING OF DISABLED MEN.

On the initiative of the Belgian Government, with the concurrence of the French Government, an inter-ally conference for the study of the professional re-education of the wounded and questions affecting the interests of war invalids will be held in Paris on March 6th. The work of the conference will be distributed among five sections: Physical re-education; professional re-education; the placing and establishment of disabled men; their economic and social interests, and a special section dealing with the blind and the deaf. Communications should be addressed to the General Secretary of the Conference, 1, rue du Bocage de Bléville, Le Havre, or to the Secrétariat de l'Office National des Mutilés et Réformés de la Guerre, 97, quai d'Orsay, Paris (VIIe).

THE ITALIAN MEDICAL SERVICE.

According to a list, admittedly incomplete, published in the *Policlinico* of January 1st, the number of medical officers of the Italian army who have died at the front is 86. To these must be added 5 who have perished in torpedoed ships and 10 who have died of disease contracted in the service. Three have died in Lybia. The losses among medical students on active service amount to 93.

RECOGNITION OF WORK OF MEDICAL PRISONERS.

The Austrian Minister of War has issued an order of the day in which special mention is made of the work of Drs. Savina and Paroldi, medical officers of the Italian army, in the concentration camp at Manthausen, where they are themselves interned as prisoners of war. It is stated that the Italian officers gave their professional services to sick and wounded Austro-Hungarians as devotedly as to their own countrymen. The General Commandant of the camp is ordered to convey to Drs. Savina and Paroldi the congratulations of the Austrian military authorities.

LEAD POISONING FROM BULLETS.

Disselhorst [1] asserts that lead poisoning from retention of bullets in the body is more common than is generally realized. Symptoms of plumbism, he says, may not develop until years after, even when the fragments of bullet are encapsuled in fibrous tissue. He considers that the danger of plumbism from retention of bullets in the body is a factor seriously to be considered when expectant treatment or removal of the bullet is under discussion. Schmieden [2] also holds that retained bullets may provoke serious plumbism, but while a few suffer, hundreds do not, and he considers that only when a bullet is superficial and easily removed should the prospect of plumbism be taken as an indication for operation.

[1] *Muench. med. Woch.*, September 26th, 1916. [2] Ibid.

QUACK TREATMENT OF VENEREAL DISEASES.

DEPUTATION TO THE LOCAL GOVERNMENT BOARD.

THE President of the Local Government Board (Lord Rhondda) on January 24th received a joint deputation from the Royal College of Physicians of London, the British Medical Association, the National Council for Combating Venereal Diseases, and the Association of Municipal Corporations.

The deputation asked that legislation be introduced for the elimination of quack methods in the treatment of venereal diseases.

Sir HAMAR GREENWOOD, M.P., Vice-President of the Association of Municipal Corporations, who introduced the deputation, said that a resolution on the subject had been adopted by that body.

Dr. FREDERICK TAYLOR (President of the Royal College of Physicians) said that the College had passed a resolution identical with that of the Association of Municipal Corporations. These diseases, he added, ought to be treated by those who knew how to do so. Members of the medical profession had to go through a course of training of from five to seven years, and had to be admitted to the *Medical Register* before they could claim to deal with any branch of medical treatment, yet unqualified persons, without training or without any guarantee that they were acquainted with disease, were permitted to treat it. The medical profession had promoted every measure of sanitary reform which meant the abolition of diseases, in spite of strenuous opposition from many quarters. Persons suffering from other infectious diseases were placed under proper control during treatment. Patients suffering from scarlet fever or typhus, for example, were isolated. In the case of these diseases the patients were incapacitated from work. Those suffering from venereal disease were not necessarily incapacitated; they could escape recognition for weeks or months, and might remain untreated. He emphasized the point that the treatment ought to be conducted by scientific and skilled methods, and therefore by qualified persons.

Mr. E. B. TURNER (Chairman of Representative Meetings of the British Medical Association) said that the Association had passed strong resolutions on the subject. It felt that it was extremely important, first, that advertisements of the form of quackery in question should be stopped. A person affected with venereal disease was not only dangerous to himself and to the community, but also in many cases to posterity. The medical profession, in seeking to bring about efficient means of treating these diseases in the early stages, was working for the good of the community. He mentioned that point because he had had it thrown in his teeth that the profession was working for its own interests.

Sir MALCOLM MORRIS expressed the hope that Lord Rhondda would introduce a bill to suppress the quack treatment of venereal diseases.

The LORD MAYOR OF BIRMINGHAM and Mr. J. W. WILLIS BUND also spoke.

Lord RHONDDA, in reply, said his department fully realized the burning nature of the question of treating venereal diseases, and he had been impressed with the necessity of dealing with it as a war measure. It affected not only the health of the population to-day but the health of future generations. Of all the matters that came before the Local Government Board he could sincerely say that he looked upon the treatment of these diseases as one of the most important, and he would go further and say that it was the most urgent question with which his department had to deal. He was not in a position to commit himself to anything definite, but he thought he could give the assurance that legislation would be procured at a very early date. In reply to a vote of thanks, he added that so far as he was concerned the deputation might dismiss from their minds any suggestion there might be that the medical profession were actuated by selfish motives in their hostility to quack methods.

THE authorities of Yale have decided to establish a university board of health to take charge of the medical examination of all students, the supervision of those taking part in athletics, and the inspection of dormitories, lecture rooms, and assembly halls.

THE ROYAL BRITISH COLLEGE OF NURSING.

AMALGAMATION WITH THE ROYAL BRITISH NURSES' ASSOCIATION.

A SPECIAL general meeting of the Royal British Nurses' Association was held at the house of the Royal Society of Medicine on January 18th to consider the proposed amalgamation of the College of Nursing with the Association. Dr. Bezly Thorne, who presided, read a letter from the President, Princess Christian of Schleswig-Holstein, expressing regret at her inability to be present, and stating that she was satisfied that the fusion of the work of the two bodies would be a great advantage to the nursing profession and to the public generally. Dr. Thorne said that the proposed amalgamation had been considered in all its phases by the council, which had come to the conclusion that it would enhance the dignity and increase the efficiency of the nursing profession and be to the great advantage of the public. Mr. Herbert J. Paterson, honorary medical secretary, in moving a resolution approving the agreement, said that the scheme for the foundation of a college of nursing suggested by the Hon. Arthur Stanley last year, was at first regarded with some suspicion by the council, but it had been remodelled and the points to which exception could be taken removed. For instance, the objection that there was too large a lay representation on the council no longer held good, for of the thirty-nine members of the proposed council only two were lay. The council would in the future be elected by the members and would be democratic in every sense. An important safeguard added to the original scheme was that before any person could be removed from the proposed register she would have the right to appear before the council in person or employ an agent, and any motion to erase a name would have to be passed by a two thirds majority of those present and voting. The Royal British Nurses' Association had always stood for an adequate curriculum and for State registration, and the College of Nursing advocated a uniform curriculum, a one portal examination, and State registration. One gratifying result of the proposal was that the opposition to State registration on the part of the majority of the managers of the large training schools had been removed, so that in future Parliament would not be able to plead that opposition as a pretext for ignoring the just demands of the nursing profession for State registration. The motion was seconded by Miss Latter, late matron of the Chelsea Infirmary, and supported by Sir James Crichton-Browne, one of the vice chairmen of the Royal British Nurses' Association, who said that the amalgamation would result in State registration, which would distinguish the trained from the untrained. Registration was more than ever necessary, because the war had drawn into nursing work numerous amateurs, who had no doubt done excellent work under skilled guidance, but it was to be feared that after the war many would continue to pose as nurses, and would compete with trained nurses. The proposed amalgamation was also supported by Professor Glaister (Glasgow), Dr. Comyns Berkeley, Dr. Curry, and Miss Wortabet. The only discordant note sounded at the meeting came from Miss Beatty, who opposed the amalgamation. In reply to a question by Dr. Griffith as to the functions of the new council with regard to the education and registration of nurses, the Chairman said that the council would never aspire to interfere with the regulations of the Central Midwives Board.

The motion, on being put to the meeting, was carried *nem. con.* Votes of thanks were accorded to the Chairman, the secretary, Miss Macdonald, and Mr. Paterson. Dr. Bezly Thorne, in acknowledging, referred to the great services rendered by Dr. Comyns Berkeley in the course of the negotiations for the proposed amalgamation.

The first council proposed to be established under the amended or supplemental charter will consist of thirty-nine members, comprising ten members of the medical profession (including one woman), two lay members (the Hon Arthur Stanley, M.P., and Mr. William Miner), sixteen past and present matrons, four lady superintendents, one sister-in-charge, one sister (late), and five trained nurses, including private and district nurses.

This first council is to hold office until the expiration of two years from the date of the charter, or until the first appointment of the council under the by-laws, which direct that the members of the council shall be elected by the members of the

corporation, and that the council shall be representative of the medical profession, matrons and principal officers of hospitals and infirmaries, superintendents of nursing, trained nurses, managers of hospitals and infirmaries, and persons and bodies interested in the question of nursing.

The council is to appoint a Consultative Board consisting of persons having the same qualifications as the council enumerated above, and also an Examination Board consisting of persons experienced in lecturing, or teaching in nursing schools, or physicians or surgeons on the staffs of hospitals to which nursing schools are attached. The council may establish branches or local boards either in the United Kingdom or elsewhere, and is to keep a register of such persons as shall in its judgement be fit and proper persons to act as nurses, and entitled to a certificate of proficiency granted in accordance with the regulations for the time being prescribed by the council. The register of the Royal British Nurses' Association and of the College of Nursing will form the first register, but a fee of one guinea will be payable on the subsequent entry of a name on the register. Any person whose name is removed from the register will cease to be a member of the corporation, and the council may remove the name of any person it deems unworthy to remain a member after an inquiry and the adoption of a resolution passed by a majority of at least two-thirds of the members present and voting; the quorum for this purpose is to be at least twelve. Diplomas will be granted to all members holding diplomas of the Royal British Nurses' Association, and the council may issue diplomas of fellowships to members who pass such higher examinations as may be prescribed.

LEEDS.

A meeting was held in Leeds on January 19th to consider the proposal for a college of nursing. Mr. Charles Lupton, chairman of the Leeds Infirmary, presided, and among the speakers was the Hon. Arthur Stanley, who said that he hoped that, if the Privy Council approved the granting of the charter to the proposed Royal British College of Nursing, it would take its stand in a humble way with the Royal Colleges of Physicians and of Surgeons. He considered that it ought to be endowed, and he hoped that two great organizations which had collected large sums for the Red Cross would succeed in raising a sufficient sum of money. The nursing profession was practically solid for State registration, but there would be some difficulties about a registered uniform. In the Red Cross, during the last two years, there had been probably more changes in uniform than in the British army during the last fifty years. While he could not say whether a registered uniform would be a good thing he was certain that a properly protected badge would be beneficial.

Miss S. A. Swift, Matron-in-Chief, Joint War Committee, said that for a period of grace, the first two years, the College would accept for registration nurses who had had a two years' training, later three years' training would be required; work in V.A.D. hospitals, which were special hospitals, would not count. She added that there would be a supplementary register of nurses who had devoted themselves to work amongst children.

Sir Berkeley Moynihan, in proposing a vote of thanks to Mr. Stanley, said that when the scheme was first heard of it was viewed with some anxiety. The medical profession knew that the international standard of British nurses placed them at the head of their profession all over the world, and it had at first felt some apprehension lest something might be done insidiously to lower the standard of training of nurses in this country. It was satisfactory, therefore, to know that the minimum period proposed was three years. Nurses must necessarily be of different grades, and he suggested that those with the highest qualifications and endowments might be recognized as Fellows.

Lieutenant-Colonel H. Littlewood, Commandant of the 2nd Northern Territorial Hospital, seconded the vote of thanks, which was heartily accorded.

CENTRAL COMMITTEE FOR THE STATE REGISTRATION OF NURSES.

The Central Committee for the State Registration of Nurses, on which the British Medical Association and the Royal British Nurses' Association are represented, at its meeting on October 21st, 1916, decided by a large majority to proceed with its own bill, subject to certain amendments, and reaffirmed its fundamental principles, which were that there should be a statutory general nursing council to regulate the qualifications of trained nurses and provide for their registration, and that the nursing profession should be directly represented on the council. It also provided that after a three years' term of grace a nurse must have had not less than three years' training under a definite curriculum prescribed by the council, in an approved hospital, and must have passed an examination approved by the council. It remains to be seen what action the Central Committee will take, in view of the decision of the Royal British Nurses' Association to amalgamate with the College of Nursing.

Ireland.

THE Registrar-General's return of emigration from Ireland shows an increase of 1,467 in the number of women, and a decrease of 4,824 in the number of men. The total was 7,302 (1,743 males and 5,559 females) in 1916, compared with 10,659 (6,567 males and 4,092 females) in 1915. There were 416 fewer emigrants from Connaught; 494 fewer from Munster; 1,057 fewer from Ulster; and 1,390 fewer from Leinster.

HONOUR FOR SIR WILLIAM WHITLA, M.D.

The many friends of Sir William Whitla, both lay and professional, saw with much pleasure, as was briefly announced in this column last week, that His Majesty had been graciously pleased to appoint him one of his Honorary Physicians in Ireland, in the room of the late Dr. James Little of Dublin. Sir William took the degree of M.D. in the old Queen's University in Ireland with the highest honours, and has occupied the chair of materia medica in the Queen's College, and, since its origin, in the Queen's University of Belfast. He is Senior Physician in the Royal Victoria Hospital. Some years ago he built the Medical Institute in Belfast and presented it to seven trustees for the use of medical bodies in the North of Ireland. He was also President of the British Medical Association the year of its visit to Belfast in 1909. Every one will join in offering Sir William their warm congratulations, and in hoping that he and Lady Whitla may be long spared to enjoy their numerous honours and distinctions.

ROYAL ACADEMY OF MEDICINE.

The president of the Royal Academy of Medicine in Ireland, Dr. R. Dancer Purefoy, entertained the Lord Lieutenant to dinner at the Royal College of Surgeons on January 18th. Dr. Purefoy thanked the Lord Lieutenant on his own behalf, and that of the Academy of Medicine, for his presence, which was evidence of the interest he took in the social and professional life of the city. In all that concerned the conditions of life in Dublin and in Ireland the Lord Lieutenant was an observant spectator, and in all its intellectual, industrial, and sometimes political activities, he was a close, intelligent, and sympathetic observer. In acknowledging the toast of his health, the Lord Lieutenant spoke at some length in favour of the scheme of the Department of Agriculture for increasing the production of food in Ireland. Among those present at the dinner were the Archbishop of Dublin, the Provost of Trinity College, and the presidents of the Royal College of Physicians and Surgeons.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASE.

At a public meeting, summoned by the Lord Mayor of Belfast, on January 18th, it was resolved to establish a branch of the National Council for Combating Venereal Diseases.

Professor Lindsay, who moved a resolution to this effect, pointed out how the innocent often suffered, and that recent exact methods of examination showed that 10 per cent. of their urban population suffered from syphilis; Sir William Osler said it came third or fourth in the list of all killing diseases. He gave a brief history of modern opinion and action, and quoted statistics and the recommendations of the Royal Commission. The Lord Bishop of Down seconded the resolution, which was supported by Sir John Byers, who pointed out the difference between this disease and ordinary infections; it crippled innocent adults and children in their mental and physical condition, was a vital factor in maternal and child welfare, caused blindness and deafness, idiocy and imbecility, and some forms of insanity; its economic aspect was serious, involving a loss to the nation and inefficiency in the army. Although the Commission hesitated as regards notification, he thought such hesitation rather stunted the value of its report, and impaired its thoroughgoing efficiency. Local authorities should now take a stand in the question. Captain W. J. Wilson, specialist sanitary officer in the Northern Irish Command, and lecturer in hygiene in Queen's University, also supported the proposal. A general committee was appointed, and also an executive committee. Mr. Robert Campbell, F.R.C.S.Eng., Preside

of the Ulster Medical Society, proposed, and Mr. A. B. Mitchell, F.R.C.S.I., President of the Ulster Branch of the British Medical Association, seconded, a hearty vote of thanks to the Lord Mayor.

SWAN MEMORIAL FUND.

A committee has been formed in Dublin to raise subscriptions to found a memorial to the late Mr. Robert Lafayette Swan, Fellow and ex-president of the Royal College of Surgeons in Ireland, and surgeon to Dr. Steevens's and the Orthopaedic Hospitals. Mr. Swan first became connected with the former hospital fifty-seven years ago, and it was in 1876 that he was mainly instrumental in founding the Incorporated Orthopaedic Hospital in Ireland. It is not possible at present to state what form the memorial will take, but it is hoped it will not only be worthy of the man but such as he would himself have liked. Subscriptions to the amount of £75 6s. 6d. have already been received; further subscriptions may be sent to the honorary secretary and treasurer, Dr. T. Percy C. Kirkpatrick, 11, Fitzwilliam Place, Dublin.

ULSTER MEDICAL SOCIETY.

The second meeting of the session was held in the Medical Institute on January 11th, when Mr. Robert Campbell, F.R.C.S.Eng., President, was in the chair. A report of Council on the joint meeting with the Ulster Branch of the British Medical Association in regard to the formation of a branch of the National Council for Combating Venereal Disease was approved. Sir Alex. Dempsey showed a fibroid uterus which he had successfully removed from a woman five months pregnant; she could never have delivered herself, owing to the pressure on urethra and bowel and general blocking of the pelvis; the abdomen was distended by it: there would have been danger in Caesarean section. Mr. Hicks showed a similar specimen, also removed successfully, obviating extreme haemorrhage, which his patient had suffered from before. Dr. J. C. Rankin showed some *x* ray photographs of intracapsular fracture. This gave rise to an interesting general discussion on the etiology, course, and nature of intracapsular and extracapsular fractures, in which the President, Drs. Kevin, Irwin, Dorman, Calwell, Burns, and Murphy joined. Mr. Hicks read a paper on the use and abuse of the pessary, and illustrated it with numerous diagrams and anatomical details on the blackboard. Mr. R. J. Johnstone and Dr. Lowry spoke.

AMBULANCE WORKERS' AWARDS.

Last week about 100 persons were presented with medals and certificates of honour, awarded by the Order of St. John, for services rendered in the cause of humanity during Easter week, 1916. The presentations were made by Sir Henry Blake, K.C.M.G. Some of those to whom medals had been awarded are now away at the war, one of them in Rumania. Mr. Justice Ross, P.C., who presided. said that they were very well aware of the state of facts that led to that ceremony. A lamentable rebellion broke out in the country, and Dublin was the seat of the principal disorder, which resulted in regrettable loss of life and damage to the great public buildings of the city. The casualties among the troops alone were considerably over 500, and amongst the civil population far exceeded 1,000. This most unfortunate state of affairs gave an opportunity to the St. John Ambulance Brigade to help at a time when the streets were swept by machine gun and rifle fire. The members of the brigade were mobilized immediately, and at once went out to posts of danger, and rendered most memorable service. Those connected with the British Red Cross Society rendered equally valuable service, while a great number of others, some attached to hospitals and some unattached, came out in a most spirited manner and rendered all the assistance in their power. The principle of the St. John organizations was the old one of the Knights Hospitallers, to go to the help of the stricken at whatever the risk. The way in which the nurses behaved was beyond praise. Sir Henry Blake said that though a rebuilt and resuscitated Dublin might bring oblivion of some memories, nothing could wipe out the heroic record of the men and women of Dublin who in that terrible week devoted themselves to their work with the energy and fearlessness which entitled them to take their stand side by side with those who had been engaged in the highest works of mercy.

NEED FOR MEDICAL MEN IN PARLIAMENT.

At its meeting on last Wednesday in Dublin the Council of the Irish Medical Association adopted the following resolution:

> That the Council of the Irish Medical Association is of opinion that for the successful solution of the many problems of public health which are certain shortly to come before Parliament, as well as for the safeguarding of the interests of the medical profession in any changes that may be made in its relation to the public, it is of the first importance that there should be an increased number of well-informed and able medical men in Parliament.

Correspondence.

THE PROPHYLAXIS OF VENEREAL DISEASES.

SIR,—The critical and helpful articles that were published in the *Lancet* and the BRITISH MEDICAL JOURNAL on January 13th have led me to ask for space in your columns for a few remarks on this subject, which, essentially medical though it is, is of high concern to the whole community. Since the appearance of my letter in the *Times* of January 6th I have had numerous communications from various quarters indicating such concern as well as a widespread conviction that medical men should make known to their patients generally those means of prophylaxis against venereal infections with which pathological science has in recent years supplied them. Up to now, however, although the public have been very generally and rightly instructed of late with respect to the multiform and dangerous results of syphilis and gonorrhoea, and also to the necessity of prompt treatment after these diseases have been contracted, a general silence has prevailed on the matter of prevention, not only on the part of the many lay members of the community who have earnestly and successfully promoted the important measures which have now found accomplishment, but also of the medical profession at large, inclusive of that special section of it which is devoted to the guardianship of the public health. The reason of this public attitude on the part of the medical profession generally (I am not forgetting the many individual medical men who are in no wise reluctant to aid in checking the spread of these infections by imparting their knowledge as freely as possible) is not far to seek. Medical men are hampered in this action by the "mediaeval doctrine," which, though it may not be expressed in words, is still operative in leading the public to regard sexual diseases from a different standpoint from that which they maintain towards all others. While the more prominent and powerful lay promoters of the recent great advance made in informing the public of the dangers of venereal diseases decline to take notice of the paramount importance of preventing infection at its source, it is, perhaps, scarcely to be wondered at that the medical profession as a body has not entered into an undertaking which, without some encouragement, would at least be difficult, and liable to miss a rapid success.

It is undeniably true that neither moral nor religious instructions will succeed in the future any more than they have succeeded in long past centuries in checking to any considerable extent the gratification of sexual instinct in both sexes by "irregular intercourse."

The danger of venereal infection has been long held out as a physical deterrent, but with little or no effect, and no adequate result in this direction can be expected from the more detailed accounts of these dangers that have lately been given to the public. However great the danger, the fact remains that only a comparatively small proportion of either sex, with the exclusion of regular prostitutes, contract syphilis or, indeed, gonorrhoea; and thus the risk is constantly taken, even by those who are well aware of what consequences are entailed by failure to escape infection.

In a private letter to me Sir James Crichton-Browne, who has granted my request to be permitted to use it as I like, says:

> If syphilis were an inevitable *ordained* consequence of irregular sexual intercourse something may be said for leaving it alone; but as it is only a very occasional consequent it can be but feebly deterrent, if deterrent at all, and ought to be unhesitatingly prevented in every possible way. The prevention of syphilis, and the prevention of immorality should be kept wholly distinct from each other.

The Government have interdicted the sale of whisky less than three years old, the object being that in maturing it may be freed from the ingredients that produce injurious effects on the consumer. But, according to the opponents of the prevention of syphilis, that must be all wrong. The rawer the whisky, the more fusel oil in it, the better; so that men may be prevented from drinking by the dread of delirium tremens. I remember Lord Houghton telling me that at the time of the discussion on the Contagious Diseases Act he had some conversation with Mrs. Butler. At last he said to her: "It seems to me that you regard the syphilitic virus as a beneficial moral agent. Now, tell me, if you had that virus locked up in a box and you had the key, would you keep it locked up or would you let it loose upon humanity?" Mrs. Butler vouchsafed no answer.

I wholly agree with the criticism in the BRITISH MEDICAL JOURNAL that effective measures of prevention must have regard to both sexes, "it being at least as likely that one infected woman will infect many men, as that one infected man will infect many women." This fact is persistently ignored in much that has lately been spoken and written on this subject. The dissemination of the disease by the male has especially attracted attention now owing to the assumption, based, I assume, on some ascertained facts, that large numbers of infected soldiers will return to this country during and after the war. It is on this assumption, at least, that a special plea of urgency for prompt and effectual treatment of the disease was put forward when financial aid from the State for this purpose was recently sought and successfully obtained.

I do not hesitate in expressing my opinion that doctors not only are justified in spreading the knowledge we now possess of effectual prophylaxis in respect to venereal disease, but also are bound in duty to do so in view of their knowledge of the results of disease, and of their functions as promoters of the public health.

Suggestions have been made to me for the forming of an association of medical men and others with human interests for promoting the knowledge of effectual prophylaxis against venereal diseases; but it seems clear that an initiative in this direction might be taken with far better prospects of quick success at the present juncture, if not by the Local Government Board itself, by the existing Society of Medical Officers of Health. The question is, and should be regarded as, exclusively medical. The time has come for plain speaking and prompt action on the part of the medical profession. In the words of the *Lancet* article, "preventive treatment is a logical step forward, and ought to be taken at once."—I am, etc.,

H. BRYAN DONKIN.

London, W., Jan. 21st.

TARTAR EMETIC AND MALARIA.

SIR,—The very important article by Sir Leonard Rogers in your issue of January 6th, suggesting that intravenous injections of tartar emetic are able to kill the sexual forms of the malaria parasites, should, in my opinion, be followed up at once by careful and long-continued researches by enumerative methods for the purpose of establishing the point with certainty. The work could easily be done in this country as well as abroad, but only by full-time workers who are thoroughly acquainted with the technique and have the patience to do the arduous work required. These enumerative methods are the only ones which are likely to set the question finally at last, because the parasites vary naturally to such a large degree from day to day that it is always difficult to distinguish between accidental and therapeutic improvements.

It is, of course, well known that quinine and many other drugs do not affect crescents, as shown most exactly by enumerative methods in the researches by Dr. (now Captain) David Thomson, published in the *Annals of Tropical Medicine*, 1910–13, and carried out at my suggestion in Liverpool. If, therefore, tartar emetic does destroy them, we shall be able to add another and powerful weapon to our armoury for the prevention of malaria, since the sexual forms are the forms which are engaged in carrying the parasite into the mosquito. The importance of the proposed researches need not therefore be enlarged upon.

Sir Leonard Rogers is quite properly not at all dogmatic on his find—which promises to be one more important discovery to his already distinguished account. His opinion that the antimony does not affect the non-sexual parasites seems to be supported by an article by Colonel Jackson in the *Indian Medical Gazette* for December last. A case of kala-azar had long been under treatment with intravenous injections of tartar emetic when it developed typical mild tertian malaria, which had to be treated independently with quinine. But this point does not in any way impugn the suggestion of Rogers regarding the sexual forms.

I certainly hope that the opportunity for further researches will not be lost, and think that a special malaria ward ought to be allotted somewhere in this country for such investigations. The investigations could there be extended to the moot question of intramuscular injections of quinine in malaria, regarding which there is a wide divergence of opinion between therapeutical experimenters and some clinicians. In fact, it may almost be maintained that the large case-mortality in malaria may be greatly due to the use of such intramuscular injections, and certainly I have had many cases which were supposed to have been cured by the injections but which continued to relapse afterwards as usual. Another point requiring investigation by the enumerative method is concerned with the efficacy of other cinchona alkaloids besides quinine.—I am, etc.,

RONALD ROSS.

London, W., Jan. 17th.

THE MEASURE OF THE POTENCY OF ANTISEPTICS.

SIR,—A good case has been made by Dr. Browning and his colleagues for the use of "flavine" as an antiseptic, but I think that the table of "antiseptic potencies" and "therapeutic coefficients" which they give does not apportion credit to the various antiseptics according to their utility, and therefore their conclusions are open to criticism.

Dealing first with potency, I pointed out in your issue of May 13th, 1916, that even if this were high in a mixture consisting of a small volume of pus and a large volume of the antiseptic lotion—a condition present when a wound is freely irrigated—the antiseptic would be of no value unless it acted *quickly*, that is, within a few minutes. Their experiments do not give any information on this point.

Again, when infected cells tend to be in excess and the volume of antiseptic relatively small—a condition obtaining when the antiseptic is applied in a dressing to the infected tissues—we have a completely different state of affairs. The antiseptic potencies which the table gives do not cover this case, and are very different from those which would be given by the result of their experiments with pus from an empyema. In these the conditions were analogous to those in a wound, and the authors then found that flavine was only four times more powerful than carbolic acid, a truer estimate of its potency than the 800 times which their table gives for the action in serum.

In my experiments in this connexion I judged of the potency of an antiseptic by its power to prevent obvious growth of the organisms in slightly infected pus, or in blood cells containing a few infected cocci. In these, chloramine-T 1 in 100, and, provided only a small proportion of fluid was present, mercuric chloride 1 in 1,000 to 1 in 1,250, did not prevent the growth of pyogenic organisms, whereas their table gives chloramine-T 1 in 250 and mercuric chloride 1 in 10,000, as sufficient to kill in serum. In regard to carbolic acid, I found, as one would expect, that its action was not more powerful in pus than in serum, and not, as they found, twice as effective.

Considering next the therapeutic efficiency, I concluded from my experiments that, with the strength of antiseptics generally used, mercuric and hypochlorous solutions had, compared with carbolic acid, relatively little effect on phagocytosis. This appears to be at variance with the list of therapeutic coefficients given in the table. However, the explanation of the difference is clear. In my experiment I avoided the use of excess of saline by making up the corpuscles, suspension of micro-organisms and antiseptics in serum, and also used a large proportion of corpuscles, instead of taking, as they did

one volume of serum and one each of corpuscles, micro-organisms, and antiseptic respectively, in saline.

Reflection will, I think, show that my experiments correspond more closely to what takes place in a wound when an antiseptic has been applied in a dressing to the infected tissues and serum oozed out; and also, that they demonstrate that in these circumstances mercuric and hypochlorous solutions have, compared with carbolic acid, much less effect in inhibiting phagocytosis than the table tends to show. In this connexion, I may say that I have noted activity of the leucocytes in a clot in the presence of a hypochlorous solution up to a strength which begins to disintegrate the fibrin. Also, I have collected leucocytes from a wound just washed with half strength eusol, and observed amoeboid movements in the clot formed after they had been transferred to plasma in flat capillary tubes.

In conclusion, I would suggest that the extraordinary differences of opinion regarding antiseptics are due to failure to recognize their two distinct uses, and the properties they must possess for each of these. When used for periodical irrigation with a view to diminishing the number and virulence of the organisms on the surface of a wound, the antiseptic should (1) be cheap; (2) kill rapidly in the presence of a little albuminous or cellular material; (3) should not unduly harm the tissues; and (4) have any noxious properties rapidly quenched. When used for dressings applied to infected tissues it should at least (1) act in a thick suspension of infected corpuscles in liquor puris or serum; and (2) not inhibit phagocytosis. For the first purpose hypochlorous solutions appear to be the best at our disposal; for the second, while these solutions are useless, flavine may prove to approach the ideal more closely than any antiseptic at present available.—I am, etc.,

WM. PARRY MORGAN, Temp. Capt. R.A.M.C.,
Bacteriologist Lord Derby War Hospital.

Warrington, Jan. 22nd.

THE TREATMENT OF CANCER BY CUPRASE.

SIR,—In your issue of January 13th a correspondent records an unfavourable experience on one case.

I wish to record a favourable experience on one case, that of a woman aged 38, with cancer of the uterus. She had been discharged from a hospital as inoperable. The diagnosis is not in doubt. When the patient came under my care first she was painfully emaciated, and suffered from frequent attacks of hectic fever with night sweats, and considerable pain and discharge from the vagina. The slightest examination caused profuse haemorrhage.

I have now given seven injections. Improvement started from the first injection. Only slight pain local to the site of injection occurred, lasting a few hours. The local reaction in the skin was also limited to some redness. The skin generally of her body and face has now a slight ivory tint. All pain has ceased, the discharge is less, hectic fever and night sweats have stopped, appetite has improved, and with it the body weight. In these circumstances I am going to continue the injections.—I am, etc.,

Lewes, Sussex, Jan. 20th. H. VALLANCE, M.R.C.S.

THE ALGOID STAGE OF BACILLI AS A HYPOTHESIS.

SIR,—Among the many unorthodox papers that recently have been shedding light on the obscurity of modern bacteriology there is none more notable than that of Professor Adami in the BRITISH MEDICAL JOURNAL of October 7th, 1916. He accepts as fully demonstrated by Hort and Dulfeild that the cause of cerebro spinal meningitis is not the meningococcus but an ultra microscopic organism that can pass through an ordinary bacterial filter. Moreover he claims that the instance of cerebro-spinal meningitis is by no means isolated; it is only one of a group of diseases the causation of which has been wrongly ascribed to specific bacteria which are found in frequent but not constant association with the disease, whereas the real cause is a filter-passing organism whose relation to the specific bacillus is at present undetermined. The group comprises the well known swine fever formerly ascribed to *Bacillus suipestifer* but now admitted to be due to a filter passer, scarlet fever in man formerly assigned by some to a streptococcus, distemper in dogs, dengue (an addition to Adami's list), and the most alarming and revolutionary of all, enteric fever, still ascribed almost universally to the *Bacillus typhosus*. Even those who were not experts in bacteriology have been aware for some time that the relations of the typhoid bacillus to the other members of the *coli* group, a group universally present in the intestines of a normal healthy man, were in a state of chaos. But it will come as a shock to most to learn "that although a stock culture of *Bacillus typhosus* when killed will cause immunity, when living it will not cause the disease. At least, no one, so far, has been successful in reproducing the symptoms and specific lesions of enteric fever in man or in an animal by the employment of a stock culture of the typhoid bacillus."

In India the shock will perhaps not be so great, for we have been long familiar with Cunningham's demonstrations, frequently repeated on the continent, that the swallowing of large doses of cholera culture almost invariably fails to produce cholera. With Cunningham's experiments the failure was invariable. When the man of ordinary accepted bacteriological tenets is confronted with the inclusion of enteric in the group caused by filter passers, he will probably comfort himself by the reflection that, after all, even the heterodox admit that the *Bacillus typhosus* causes immunity; therefore it must be the cause of the disease, says orthodoxy. But his comfort rests on a very insecure basis, for there are many known instances of heterologous immunity, and that most amazing and unexplained result of the immense experiment in South Africa of immunization against pneumonia, an experiment that ran to hundreds of thousands. Immunity against pneumonia was indeed produced, but so was an almost equal immunity against other diseases.

The exact relation of the filterable virus to the associated bacillus is apparently still a matter of doubt. "Previous workers have at most suggested a symbiosis: that the one, the filterable virus, prepares the way for the growth of the bacterial species. Hort suggests, and believes that he has evidence supporting the suggestion, that filterable virus and coccus are two phases in the life-history of one organism."

On analogy Hort's theory seems to be very probable, particularly if one recalls the sexual generation of the ordinary simple alga. The morphological difference between an alga thread and a bacillary thread is negligible except in scale. In both you have a chain of cells of similar structure with the main difference that the algal cells contain chlorophyll and the bacterial cells do not ordinarily. The sexual reproduction of the algal thread is that one cell of the thread becomes large and swollen, and breaks up into a large number of minute free swimming female gonads. Another sexual cell without preliminary swelling and enlargement develops and gives issue to smaller free swimming male elements. The two conjugate and the result is an ordinary algal thread reproducing itself by cellular division just as does the ordinary bacterial thread. Now imagine for a moment that in the bacterial thread a similar process takes place.

With most bacilli if the gonads as regards size bore the same relation to the bacterial cell as to the algal cell, the sexual elements would certainly be ultra-microscopic, and capable of passing through a filter. With regard to the probability of the sexual process setting free substances that would act as toxins or disease producers we have the analogy of the malarial organism. It is only when the free swimming elements are being set free in the blood that the fever paroxysm is produced.

I do not for a moment definitely assert that such a sexual process in bacilli as has been indicated does actually occur; I make it only a possibility requiring endless research before the point can finally be settled. Equally I do not assert that all disease is due to filterable organisms, and that bacilli may not be the actual instead of the associated cause in some disease conditions, such as gas gangrene, for instance, and ordinary sepsis.

But when one surveys the field of zymotic disease—mumps, measles, small-pox, chicken-pox, typhus, dengue, yellow fever, and the like—then we are at once confronted with the fact that all the efforts of the bacteriologists working for some forty years have been unable to establish that a single one of them is due to a specific bacillus. The presumption is inevitable that zymotic

diseases are not due to bacilli. On the other hand, it has been proved that many of the zymotic diseases of men and animals—for example, swine fever, dengue, typhus, and yellow fever—are caused by filter passers; therefore the presumption is that all zymotic disease is due to filter passers. These are mere hypotheses, which have to be tested. In other epidemic diseases—notably cholera and enteric—there is grave doubt as to whether the specific bacillus assigned to them is the real cause. It seems more probable that these also are due to filter passers.

What still further complicates the question is that the relation of the bacillus to the filter passer is still unsettled. There again at least three hypotheses are possible: First, that the relationship is purely accidental, owing to the universal presence in nature of bacilli. Secondly, that the relation between the bacillus and the filter passer is merely one of high association—symbiosis. This possibility cannot be denied if we remember that certain orchid spores will germinate only in association with certain fungi. The third hypothesis I have already described at some length, that the relationship between the filter passer and the bacillus is genetic, that the bacterial thread is merely an algoid stage, the sexual free swimming stage of which—namely, the filter passer—is the real cause of disease. A fourth hypothesis I mention merely in order to discard it. From the minute quantities used, I refuse to believe it possible that the results ascribed to filter passers are really due to associated bacterial toxins.

Which of all these hypotheses is most likely to prove correct I do not venture to predict, but personally I am in favour of the one that makes disease in general due to filter passers.

It seems clear, as I have already suggested in a previous paper,[1] that the whole subject of modern bacteriology requires a systematic international overhaul.—I am, etc.,

W. C. HOSSACK.

Calcutta, Nov. 16th, 1916.

NOTE.—The title of my letter may suggest I am in sympathy with Dunbar's idea that bacilli are the products of algae. In 1913, in his laboratory in Hamburg, he gave me a demonstration of his culture and an explanation of his views. Both demonstration and explanation struck me as unconvincing and left one crucial point unexplained—that is, how he originally obtained living sterile algae.

THE INCOMPLETE CURE OF THE CONSUMPTIVE.

SIR,—The naïveté of Dr. Ferdinand Rees's letter is delightful. Would that we lived in Utopia! and could dispense with money! Imagine the cost of "hospitals for suspected cases," of "sanatoriums for undoubted cases with a chance of cure," and of "open-air colonies for incurable cases."

In time, when experts have more influence than amateurs, most cases of tuberculosis will be treated at dispensaries by specific remedies, notably tuberculin. In this way the enormous cost of housing and feeding at public institutions will be saved, and a proportion of this saved money may well be spent in improving the homes of many of the victims.

Sanatorium benefit as administered by the Insurance Committees is honeycombed with arrant amateurism; and much of the money is devoted to purposes of public health, instead of the treatment of the unfortunate sufferer, who has paid his insurance money for *treatment*.—I am, etc.,

W. CAMAC WILKINSON, M.D.

London, W., Jan. 20th.

SIR,—Whilst agreeing with much that is said in your leading article on the incomplete cure of the consumptive (January 13th, 1917), about the waste of sanatoriums through treating incurables, yet towards the end there seems to be a suggestion of a scheme for the compulsory segregation of incurables, and I suppose also of the permanently infectious. I think that if this matter be considered from all standpoints it will be realized that a system of compulsion could only affect comparatively few infectious patients; whilst if such a scheme were put into operation it would become impossible to obtain cases which are curable for treatment. Our chief difficulty at the present time in obtaining early cases is that such people prefer to run any risks rather than come under the stigma of the Notification Act, though compulsory notification is a good thing when no pains and penalties are attached. By explaining to patients and practitioners that no consequences, civil or otherwise, will follow upon treatment, we have been able, in the case of three towns at least, each of 5,000 inhabitants, to get the great majority of persons suffering from pulmonary tuberculosis to be treated either in the sanatorium or in hospital. It is clear that if this is to continue compulsion must not be used.

For some years very little has been done by most authorities, except to attend to hopeless cases, with results less than negligible; surely it behoves us now to commence and treat these cases, if possible, before tubercle bacilli are demonstrable in the sputum.—I am, etc.,

EDWARD E. PRIEST.

Ayrshire Sanatorium, New Cumnock, Jan. 15th.

PSYCHO-ANALYSIS.

SIR,—Psycho-analysis, as I understand it, is not a body of doctrine, but an investigation conducted by special methods, chief of which are (1) Freud's method of "self-observation with suppression of critique," and (2) Jung's "association experiment." Of these, the second at any rate (involving, as it does, the use of the stop-watch) appears to admit of some precision, and may therefore be expected to yield some results not void of significance. How far the results obtained by these methods justify the doctrines which Freud and Jung profess to have based upon them may rightly be questioned, but it would be a misfortune if any useful method of research were discredited by the abuse now being heaped upon those doctrines. The title of Dr. Mercier's article in your issue of December 30th, 1916, is unfair. It is open to him to show, if he can, what is the proper significance of results obtained by psycho-analytic methods, or that the methods are untrustworthy, and, if so, in what respects, and why? Such criticism is, on several grounds, much to be desired, but it finds no place in Dr. Mercier's article, nor in the letters that have since been published in his support. They leave psycho-analysis unassailed.

That Dr. Mercier should have published such an article under the title of "Psycho-analysis" is as if a pathologist should fill six columns of your JOURNAL to proclaim that the reason why he eschews *post-mortem* work is because the atmosphere of the *post-mortem* room is unsavoury, while salving his conscience by accusing those who work there of ghoulishness. If Dr. Mercier finds psychology so distasteful, he may employ his pen in some other sphere. He might do worse than try to show that English surgeons should abandon the use of *x* rays on the ground that the name Röntgen sounds German.—I am, etc.,

SYDNEY J. COLE.

County Asylum, Devizes, Jan. 20th.

SIR,—I regret that in my letter to you on the above subject in your issue of January 6th, 1917, I signed myself "President of the Medico-Psychological Association." I should not have done so, as it invested my letter with undue authority, whereas my general adhesion to Dr. Mercier's views expressed in my letter is merely my own personal opinion. In no sense did I intend to convey that my views were those of the Association.—I am, etc.,

D. G. THOMSON, M.D.

Norwich, Jan. 23rd.

SIR,—In winding up this discussion, I draw attention to the fact that no psycho-analyst has come forward under his own name to deny the accuracy of the account I have given of the doctrine. We may therefore take it that this account is accurate. Dr. Hughes, it is true, accuses me by implication of misrepresentation, but he does not venture to make a direct accusation, nor does he point to any specific misrepresentation. Such a charge needs no answer, but I will answer it by pointing out that in every case but those in which the doctrines are too notorious to require it, I gave quotations to substantiate my account.

Dr. Glover says my account of the unconscious is unfair. It is the best I could give. If Dr. Glover is dissatisfied with it, why does he not give a better one? He says no

[1] Hossack, *Indian Medical Gazette*, May, 1916, to which readers may be referred, as it has been necessary to omit some passages from our correspondent's very long letter.

allusion to growth from within is an allusion to the unconscious. Does, then, an endogenous tree grow out of the unconscious? He says that to insist that "these misguided folk" (his own description of the psycho-analysts) "who troop with indefatigable enthusiasm after the Will-o'-the-wisp of the 'unconscious,' are in reality lascivious scoundrels and sexual perverts, is a mode of intellectual criticism which," etc. I dare say it is; but as I have not insisted on any such thing, Dr. Glover's intellectual criticism does not touch me. What I have said is that, though the doctrine of universal saturation with sexuality is not generally true, there is a certain basis of truth in it in a few scattered cases. If Dr. Glover denies this, I am quite willing to retract, and to admit that there is not the slightest basis of truth in the doctrine in any case whatever.

"Psycho-analyst" does not seem proud of his creed, for he conceals his name. He asserts, as has been asserted before, that psycho analysis contains much that has no connexion with sexual ideas; and I ask, as I have asked before, why, if this is so, we never hear of anything but the sexual ideas? The question will be left unanswered now, as it has been left unanswered before. Why, if the connexion is not constant, does Dr. Jung say of a case which seems as remote as possible from sexuality, "I will now show you how . . . this dream may be translated so that it has a sexual meaning"? Whether I can see or even conceive of any other aspect of the problem is beside the point. The point is that no other than the sexual aspect has ever been brought forward. The rest of "Psycho-analyst's" letter needs no answer. If this is the best defence they can make, their case is as contemptible as I have asserted.

Fleet Surgeon Beadnell opens up a new subject. The stupidities and the imposture of what he calls mediumism and spiritualism have been exposed over and over again; and after each exposure the imposture is scotched for a time; but it always rears its head again, and finds a new crop of fools clamouring to be deceived. It will never be killed until the supply of fools ceases; but if Fleet Surgeon Beadnell needs powder and shot to demolish any particular case that he has in his eye, may I without impropriety refer him to the chapter on Belief, and the chapter on Errors in Attributing Causes, in a little book of mine on *Causation*, just published by Messrs. Longmans? There he will find psycho-analysis also faithfully dealt with.

Finally, may I say that a second severe attack of influenza within a fortnight has left my correspondence in sad arrear, and that I wish to acknowledge here the many letters I have received from friends, acquaintances, and strangers, approving my article on psycho-analysis, and thanking me for it? There has not been one, not even an anonymous one, of abuse or disapproval. How different from the days of the suffragette controversy!—I am, etc.,

Parkstone, Dorset, Jan 20th. CHAS. A. MERCIER.

Postscript.—The Editor has kindly allowed me to see a proof of Dr. Cole's letter. Dr. Cole says that psycho-analysis, as he understands it, is not a body of doctrine, but an investigation, and that Freud and Jung profess to base their doctrines on their results. If this is what Dr. Cole understands by psycho-analysis, he does not understand it aright. It consists of several modes of investigation, founded, not on their results—it is evident that a mode of investigation must precede any results accruing from it, and cannot be founded on them—but on certain assumptions, which the psycho-analysts teach, and which are therefore their doctrines. These doctrines are not founded upon results. They are pure assumptions. I have demanded again and again for years past to be told on what foundations they rest, and I have had no answer. I am entitled to say, therefore, that they have no foundation. I have heaped no abuse upon these doctrines. I have described them, and examined them, and the accuracy of my description has not been impugned in any particular, nor is it impugned in any particular by Dr. Cole. It must therefore be taken to be accurate. The only expression in my article that can by any stretching of the use of words be termed abusive is that in which I compare the psycho-analyst to the man with the muck-rake. It is difficult to see why those who hold such doctrines and pursue such methods should object to the comparison. For my part, I would rather be called a man with a muck-rake than a psycho-analyst. The man with the muck-rake rakes up the muck, but he does not increase it, nor does he wallow in it. Lastly, if I have left psycho analysis unassailed, what has Dr. Cole to complain of? What is his grievance? If it is unassailed, it is secure and triumphant, until it falls to pieces of its own rottenness.

January 23rd. C. A. M.

⁂ We cannot continue this correspondence.

THE PSYCHO-PATHOLOGY OF MEDIUMISM AND SPIRITUALISM.

SIR,—Fleet Surgeon C. Marsh Beadnell complains that no psychologist has investigated occult phenomena. A very eminent Italian one, Cesare Lombroso, has done so. Permit me to recommend to him his book, *After Death—What?* (T. Fisher Unwin, Adelphi Terrace).—I am, etc.,

Rotherham, Jan. 22nd. GILBERT E. MOULD.

THE DIAGNOSTIC VALUE OF THE COLLOIDAL GOLD REACTION.

SIR,—With reference to the article on this subject in your issue of December 30th, 1916, pp. 909 and 910, a few notes on the subject from our own laboratory experiment book may perhaps be of interest.

Some six to eight months ago the Lange gold sol reaction was explained to the writer by the commanding officer of a well-known London military hospital, who also kindly supplied a number of normal and syphilitic serums for ultra-microscopic examination. Briefly, to the student of colloidal chemistry, serum may be regarded as a saline colloidal solution of insoluble protein protected to a greater or less extent by soluble protein (various aliphatic amino-acids). The total amount of solid matter in syphilitic appeared slightly higher than in normal serum, but undoubtedly the proportion of colloidal matter was greater, and this was much more pronounced in the cerebro-spinal fluid, in which the viscosity being so much less, the Brownian movement is much greater. Invariably the charge carried by the protein was positive, the capillary attraction by filter paper, devised by W. Ostwald, being the simplest method of effecting the test.

The interesting work of Morris-Airey and Long (J. C. S. A., November, 1913, page 1033) on the colour of gold sols is of particular interest. In the red solution the particles are negatively charged, and in the blue positively. The purple solutions contain both kinds of particles. The red solution is converted into the blue by the action of various electrolytes or electric fields. If the field is either too strongly negative or positive decolorization occurs.

The colloidal protein in the cerebro-spinal fluid is greater than normal in syphilis and possibly more highly charged; and herein may perhaps lie the explanation of the colour changes of Lange's gold sol. In cases where the particles are very numerous the field would be strongly positive, and not only neutralize the negative charge of the gold, but completely change the field into a positive one—so strongly, in fact, that decolorization occurs. In the next dilution the field is not so strongly positive, but sufficiently so to turn the negative red to the positive blue, and so on until dilution is so weak as to unaffect the red colour at all. Our observations were made on only a small number of specimens, and may very possibly be erroneous and the explanation too simple.

In conclusion, we should like to suggest that the statement "globulins have been shown to exert a protective influence on colloidal gold solutions" would be better expressed by "*soluble* globulins have been shown," etc., etc.

—I am, etc.,

JOHN WARD,
for Crookes Collosols, Ltd.

THE FUTURE OF THE MEDICAL PROFESSION.

SIR,—"Captain T.F." states, in your issue of January 20th, that "a State medical service, with its inevitable loss of competition, is bad for public and profession alike." Has he found it so in the army, or even in the Army Medical Service?

It seems to me that when professional men, such as soldiers or doctors in one of the public services, are paid by salary, they become more disinterested and independent, and are held in higher estimation by the public than when, as doctors or solicitors in general practice, they earn fees.

Our motives in paying visits and making up medicines and vaccinating babies may be questioned when we profit thereby. I think that the argument from competition is in favour of a public medical service, as we would be promoted in accordance with our experience and skill by the State. Under present conditions success comes to the

genial man with ready wit and confident manner, who may or may not be skilful professionally. The public judges rather by manner than results, and success comes to the plausible.—I am, etc.,

Hartland, North Devon, Jan. 21st. RICHARD KAY, M.B.

MOBILIZATION OF THE PROFESSION.

SIR,—In your leader on this subject you say the proposal has deeply moved all its members. Undoubtedly it has some, and in different ways; but I am afraid there are very many more who, by reason of the exacting nature of present demands on their time, know little of the proposal or what it involves for the rank and file of the profession, or there would be most vigorous opposition. I cannot imagine the profession would knowingly and voluntarily hand over what remains of its freedom, and actually seek to be put under compulsion, irrespective of age, circumstances, or fitness.

I believe the profession is as patriotic as any other body of workers, and perhaps more so; for our gratuitous work for the public and country is almost unlimited, and the contribution to H.M. Forces a most honourable one, but to ask that every man on the *Register* shall deliver himself up ready to go anywhere and do anything he may be told is surely not only unnecessary, but unbusinesslike and absurd. Imagine the confusion, chaos, and expense were the suggestion of your correspondent "S." for a sort of general "all change" adopted!

If all this were necessary to the winning of the war no reasonable individual would object, but is it? The military authorities may be trusted to secure all the available officers they need, and other machinery is in existence to arrange where they can safely be taken from, and to conserve the interests of those taken.

In spite of this, it appears to be suggested that we should all be handed over to the arbitrary disposal of compulsion, which need not consider age, fitness, qualification, or circumstances, and, indeed, will know little about them.

Take the case of a man who, quite unfit for military service, is able to do useful work in his own time and way, in his own practice and for absentees. Transfer him from the place he has chosen because of his limitations to another locality away from all that has made his work possible, and his usefulness is destroyed, and he will probably completely break down.

Let us do everything we can to serve our country and to protect our absent colleagues. Make it compulsory if you like for each practitioner at home to disclose a list of new patients who have come to him for the first time since his absent neighbour was called up, or any other fair means of ensuring that an absentee's patients shall not be taken; but before it is too late, and our leaders have betrayed us into bondage, can we not do something to show most plainly that they have no right or mandate from the profession to give us away so hopelessly?

I hope others with more ability to voice the views and feelings of the rank and file will take up this matter.—I am, etc.,

January 22nd. REJECTED.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following degrees have been conferred:

M.B., B.C.—A. Orr-Ewing, V. C. Pennell, N. S. Tirard
M.B.—C. H. M. Gimlette, R. S. Woods.

* Admitted by proxy.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

A SPECIAL introductory medical course in physics, chemistry, and biology for students desirous of beginning their medical studies will be held at University College, and will begin on March 1st. Intending students should communicate forthwith with the Secretary, University College, London (Gower Street, W.C.).

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the Final Examination in the subjects indicated:

Medicine—R. N. Burton, F. J. Jack, Mary G. Jones, J. B. Minford.
Surgery.—Don Adrian Jayasinghe.
Midwifery.—B. Ajayi-Young, R. C. Battersby, A. E. Elliott, F. J. Jack, G. A. Grandsoult.
Medical Jurisprudence.—A. E. Hempleman, A. P. McLeod, R. Pollok, J. Michaelson, Arukatti Patabendige Frederick Abeysuriya, J. L. West, A. I. Meek, D. Stewart, F. J. Jack, D. C. Howard.

The following have been admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.:

W. F. Mason, J. A. Tolmie, J. W. Gordon, R. F. C. H. Buchanan, A. Black, Yeshwant Narayan Kadam, J. Berry, A. D. Gorman, W. T. Garretson.

Public Health AND POOR LAW MEDICAL SERVICES.

VITAL STATISTICS IN ENGLAND AND WALES, 1916.

WE are indebted to the Registrar-General for the following statement showing the birth-rates and death-rates and the rate of infantile mortality in England and Wales and in certain parts of the country during the year 1916.

ENGLAND AND WALES.

Birth-rate, Death-rate, and Infant Mortality during the Year 1916 (Provisional Figures).

	Death-rate per 1 000 Living.*	Death Under One Year per 1,000 Births.
England and Wales	14.0	91
96 great towns, including London (Populations exceeding 50,000 at the Census of 1911)	14.4	98
148 smaller towns (Populations from 20,000 to 50,000 at the Census of 1911)	13.0	90
London	14.3	87

* The death-rate for England and Wales is based upon deaths in the whole population and an estimated total population of 36,250,000. The birth-rate similarly calculated is 21.6 per 1,000. The death-rates for the towns are based upon civil deaths and estimated civil population. The birth-rates cannot be stated. In all cases the population used relates to the year 1915.

Obituary.

GEORGE MUNRO SMITH, M.D.,

CONSULTING SURGEON TO THE BRISTOL ROYAL INFIRMARY.

DR. MUNRO SMITH, who died on January 13th, was the son of Mr. W. Smith, who practised for many years in Clifton. He received his early education at Clifton College, and entered as a student in Bristol Medical School in 1874. He studied with exemplary diligence in the wards of the Royal Infirmary, and won the Clark Scholarship and gold medals for medicine and surgery. He took the diploma of M.R.C.S. in 1879, and that of L.R.C.P. in 1880. Returning to Bristol, he was made lecturer on physiology to the Bristol Medical School, and his connexion with the Royal Infirmary was renewed when he was chosen as demonstrator of morbid anatomy. He was elected assistant surgeon in 1889, and he became full surgeon in 1897; on his resignation in 1909 he was placed on the consulting staff. His interest in the Royal Infirmary never flagged, and at the request of its managing committee he undertook to write its history. Fortunately Dr. Munro Smith was able to complete the revision of this work before his decease, and we understand that it will shortly be published by Messrs. Arrowsmith. He was president of the Bath and Bristol Branch of the British Medical Association in 1909.

In 1912 Dr. Munro Smith received the diploma of M.D. Bristol *honoris causâ*. He was on the staff of the 2nd Southern General Hospital with the rank of Lieutenant-Colonel R.A.M.C.(T.). He attended the hospital at Southmead daily, and did not cease to discharge his duties until compelled to do so by serious deterioration of his health.

Dr. Munro Smith will be remembered by some of the readers of the JOURNAL for his contribution "On the varieties of hepatic cirrhosis" (vol. i, 1888, p. 1381), which led to a correspondence with Dr. Robert Saundby on the question of a tuberculous type of that disease. Dr. Munro Smith also wrote in the *Bristol Medico-Chirurgical Journal* of 1884 on "The cardiograph in medicine," and contributed to other medical serials. He was a keen lover of animals, and was President of the British Naturalists' Society. Being a good amateur actor he greatly aided the local medical dramatic club in attaining success.

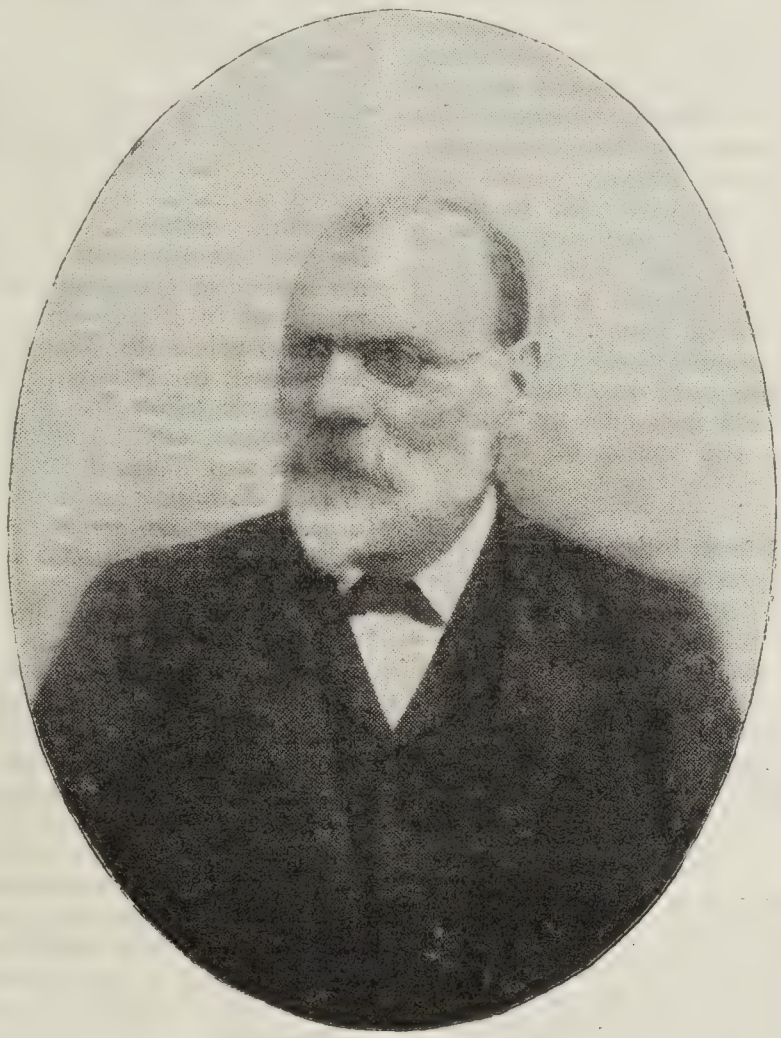
DUNCAN BURGESS, M.B., F.R.C.P.,

LATE SENIOR PHYSICIAN, ROYAL HOSPITAL, SHEFFIELD.

WE regret to record the death of Dr. Duncan Burgess, which took place in Sheffield on January 17th at the age of 66.

A native of Scotland Dr. Burgess commenced his academic career at the University of Aberdeen. After taking the degree of M.A. there he proceeded to Cambridge; he was thirteenth Wrangler in 1876 and was elected a Fellow of Corpus Christi College. At Cambridge he commenced his medical career; he went afterwards to the London Hospital and graduated M.B. in 1882. He studied subsequently at various universities on the Continent, including Prague, Würzburg, and Vienna. In 1887 he became Member and in 1905 was elected Fellow of the Royal College of Physicians of London. His connexion with Sheffield dates from 1887, and for many years he was a physician to the Sheffield Royal Hospital, retiring as senior physician on reaching the age limit in 1915.

He took an active part in the teaching of medicine in the Sheffield Medical School. He lectured on medicine in the Sheffield University College, and later became professor of medicine in the Sheffield University. He was long a keen and energetic member of the Sheffield Medico-Chirurgical Society, of which he was secretary for some years and in 1899 president. In 1890 he was deputed by the society, with Dr. W. S. Porter, to visit Germany and report on Koch's tuberculin treatment. In 1905 he was elected president of the Sheffield Literary and Philosophical Society.



DR. DUNCAN BURGESS.

On the outbreak of war he was called upon to take an active part in the work of the 3rd Northern General Hospital (T.F.), of which he was officer in charge of the medical section, with the rank of lieutenant-colonel. He performed his military duties with great devotion for nearly two years, and in all probability the additional stress materially hastened his final illness.

By his death the profession in Sheffield has lost a loyal friend and an able and gifted colleague. To the younger men in the profession he never failed when the opportunity arose to hold out a helping hand. To all he was genial and kindly, and he succeeded in no small measure in winning the affection of patients and colleagues alike. In his profession a deep reader and keen critic, beyond it he possessed a wide knowledge of literature and a sympathetic interest in men and affairs. A great raconteur, a great lover of his native Scotland, an ideal host—for these things, hardly less than for the professional attainments, he was esteemed by those who knew him.

Lieutenant-Colonel SINCLAIR WHITE, Professor of Surgery in the University of Sheffield, sends us the following tribute to his colleague and close friend:

Born at Grantown-on-Spey, Duncan Burgess was a splendid type of the Highland Scot. Of fine physique, possessed of a herculean strength, and a rugged but kindly face, he embodied in a very high degree the best qualities of his native race. Reserved but always courteous to strangers, he had the faculty of arousing and reciprocating strong and lifelong friendship among those who were privileged to enjoy his close fellowship. He could at times be a fierce critic, but his strictures were always accompanied by some humorous or complimentary remark which robbed the sting of its pungency. Hospitable to a fault, singularly unselfish in all his acts, invariably kind and helpful to his younger colleagues, often insisting that they should take sole credit for work that was largely his own; a lover of children and animals, and withal a good story teller and a keen sportsman.

With these qualities it goes without saying that he was universally popular. Whether on the golf links, where he spent much of his leisure time, and where his Scottish humour was at its best; or in hospital among his patients, or in the class-room where succeeding generations of students learnt by precept and example from a beloved master, he was without peer. On the outbreak of war he threw all his energies into his work as officer in charge of the medical section of the 3rd Northern General Hospital, and there can hardly be a doubt that the arduous duties of this office brought on the disease from which he died. He was buried in the beautiful churchyard at Fulwood on January 20th, in the presence of a numerous body of mourners, and with military honours.

One of his colleagues writes:

The loss of Dr. Burgess is widely and deeply felt in Sheffield, the city of his adoption. ...Few men have been so universally respected and beloved as he. Wide reading, quick observation, and an excellent memory contributed to the value of his practical experience as a physician, whilst his courteous manner, his candour, and his modesty gained the admiration of all his colleagues and of a large circle of patients and friends. His judgement was sound and rapid, and his character was marked by strong common sense. Too stable to be readily deceived by words and phrases, he gave no encouragement to showiness or credulity in the practice or study of medicine.

That the trustworthiness which characterized his professional career was early developed seems shown by the following incident. At the final M.B. examination another candidate with the same initials as Duncan Burgess was rejected, and, by a confusion of the two names, Burgess was informed that he had failed to pass, and so telegraphed home. His mother read out the telegram, and then quietly remarked, "Oh! no: there is some mistake. Duncan has never failed in anything, and he has not failed now." Shortly afterwards a second telegram was received from him with the correct information that he has passed.

His generous help and sympathy, his genial companionship, and his interesting conversation, will long live in the affectionate remembrance of many who have experienced them.

JAMES HUNTER JOHNSTON, a native of Skipton, Yorkshire, died on January 4th at his residence at Nottingham in his 52nd year, after a long and trying illness cheerfully and courageously borne. He was educated at Skipton School and afterwards at Owens College. He received his medical training at the University of Edinburgh, graduating M.B., C.M. in 1892. He was a steady student, a keen cricketer, becoming a member of the university eleven, often scoring freely, and at times meeting with some success as a change bowler. After graduation he obtained house appointments, both on the medical and surgical sides, at the Edinburgh Royal Infirmary, and also held appointments at the Royal Asylum, Morningside, the Edinburgh Fever Hospital, and the Crichton Royal Institution, Dumfries. For many years he had practised in Nottingham, and in his earlier years there did pioneer work, of much value to the profession locally, in securing improved terms and conditions in relation to contract practice. He took a somewhat prominent part in the discussions during the period just anterior to the introduction of the Insurance Act, and was subsequently a member of the Nottingham Panel Committee. Dr. Johnston was a good type of general practitioner and a kindly, cultured English gentleman, who placed the interests of his patients before his own. The loss of his wife some years ago affected him greatly, and in later years he was of a somewhat retiring disposition. He retained, however, his interest in cricket, often playing for the Notts Amateurs, while his favourite hobby was architecture, which had attracted him in student days. He was held in much esteem by his professional colleagues, who were largely represented at the funeral service at All Saints' Church, Nottingham, on January 8th, in spite of the manifold claims on their time in these days of stress. The interment took place at Holme Pierrepont subsequently, when his remains were placed beside those of his wife. A son and daughter are left to mourn his loss, and his absence will leave a sensible gap in the ranks of the local profession.

MR. SIDNEY BAZALGETTE died from influenza and pneumonia at Brent Knoll, Somerset, on January 7th, after ten days' illness, at the age of 38. He received his medical education at St. Thomas's Hospital and took the diplomas of M.R.C.S.Eng. and L.R.C.P.Lond. in 1904. After serving for some years as assistant medical officer at the Bristol City Asylum he succeeded some two and a half years ago to the practice of the late Mr. Mughston at Brent Knoll, where he won the respect and confidence of an increasing circle of patients. He leaves a widow to mourn his loss.

DR. J. WILSON HAMILL, of Higher Broughton, died from pneumonia and heart failure on January 7th, aged 63, after a few days' illness. He received his medical education at Queen's College, Belfast, and Owens College, Manchester, and took the degrees of M.D. of the Queen's University, Ireland, in 1873, and the M.Ch. and L.M. in 1874. After holding the posts of resident surgeon to the Worksop General Dispensary and surgeon to the Worksop Cottage Hospital he set up in practice at Higher Broughton thirty-five years ago. He was physician to the Greengate Hospital and Dispensary, Salford, and to the Retreat for Inebriate Women, Fallowfield. Dr. Hamill was associated with his wife in a number of social, philanthropic, and temperance movements. He had been a member of the British Medical Association, and was a frequent attendant at the annual meetings.

THE death of Mr. ANDREA ANGEL, the expert chemist of the munition factory at which the explosion took place last week in the east of London, who gave his life in an attempt to get workers out during the fire which preceded the explosion, will be much felt in Oxford, where his work was very highly appreciated. He was educated at Exeter Grammar School and went into residence at Christ Church College, Oxford, in October, 1896, having obtained a college exhibition in chemistry in the previous December. In 1899 he obtained an excellent first class in honours in chemistry and proceeded in due course to the degrees of B.A. and M.A., to which he added B.Sc. in 1906 by a research in chemistry. He acted for a time as a demonstrator in the Christ Church Laboratory, and since 1903 had been tutor to the non-collegiate students at Oxford; since 1906 he had been lecturer at Brasenose College, and he became lecturer also at Christ Church in 1912, with complete supervision of all the chemical work in the college. He did no specially brilliant work as a chemical researcher, but his knowledge was exceedingly wide and sound, and as a tutor his work was beyond praise. He was of a quiet disposition, but cheerful in the highest degree and most popular with his pupils and colleagues. He knew well the perils of the munitions work in which he was engaged, and the supreme heroism with which he faced the hour of danger will have come as no surprise to those who knew his quiet determination and sense of duty.

PROFESSOR A. CHAUVEAU, a pioneer in several new paths of physiological and pathological research, died recently at the age of 89. Born at Villeneuve-le Guyard in the department of Yonne in 1827 he entered the Veterinary School of Alfort in 1844, passing out first at the final examination in 1848. In the same year he was appointed *chef de service* in the veterinary school of Lyons, becoming professor of anatomy and physiology in 1863, and director in 1875. When the medical faculty was reorganized, the chair of experimental and comparative pathology was offered to Chauveau. Not being a doctor of medicine he had to qualify for the post by taking the degree, which he did at Paris in 1877, with a thesis in which he embodied the results of his investigations on vaccine. In 1886 he was called to Paris to hold the posts of inspector-general of veterinary schools, and professor of comparative pathology at the museum of natural history. He was elected a member of the Académie de Médecine, of which he was president in 1913. From 1892 to 1897 he was president of the Société de Biologie. In 1899, in conjunction with Bouchard, he founded the *Journal de physiologie et de pathologie générale*. Later he founded the *Revue de la tuberculose*, and he collaborated with d'Arsonval, Gariel, Marey, and Weiss in the direction of the publication of the *Traité de physique biologique*. He was the author of a treatise on comparative anatomy, the first edition of which appeared in 1855 and a fourth in 1889. Later he devoted himself to experimental research on the physiology of the heart and the general mechanism of the circulation. He also made researches on the working of muscles, formulating the law which bears his name—the expenditure of energy by a muscle is proportional to its shortening and to the weight lifted. Chauveau also published memoirs on the excitability of the spinal cord, on the origin of the cranial nerves, and on the part played by the pneumogastric nerve in contraction of the oesophagus. He studied vaccines and their relation to small-pox. He also investigated the pathogenesis of tuberculosis, and noted the transmissibility of the infection by the alimentary tract. He was one of the first to maintain that microbes act, in causing disease and producing immunity, through the soluble substances to which they give origin.

SURGEON-GENERAL SIR EDMOND TOWNSEND, K.C.B., Army Medical Staff (retired), died at Clontymore, co. Cork, on January 2nd, aged 71. He was born on April 22nd, 1845, the son of the late W. C. Townsend, M.D., of Cork, and after taking the degrees of M.A., M.D., and M.Ch. in the Queen's University of Ireland, entered the army as assistant surgeon on April 1st, 1867, becoming surgeon on March 1st, 1873, surgeon major on April 1st, 1879, and surgeon-general on September 25th, 1901. He retired on April 22nd, 1905. He had a very long record of war service, including nine campaigns, as follows: Abyssinia, 1867–68, action at Asirgee, medal. Perak expedition, in Malay peninsula, 1875–76, severely wounded, medal with clasp. South Africa, 1879, Zulu war, battle of Ulundi, and operations against Sekukuni, mentioned in dispatches, medal with clasp. Egypt, 1882, actions of Kassassin and Tel-el-Kebir, medal with clasp and Khedive's bronze star. Burma, 1885–86, medal with clasp. Ashanti, 1886, mentioned in dispatches, star. North-West Frontier, 1897–98 as P.M.O. in Mohmand campaign, mentioned in dispatches and Tirah campaign, as P.M.O. of 1st Division; actions of Sampagha and Arhanga passes, and operations in Bazar Valley, mentioned in dispatches, medal with two clasps and C.B. South Africa, 1899–1902, as P.M.O. of 1st Division, and later P.M.O. Western District, actions of Enslin

Modder River, Magersfontein, and Pardeberg, and relief of Kimberley; dangerously wounded, mentioned in dispatches, Queen's medal with four clasps and King's medal with two clasps, and C.M.G. He received the K.C.B. in 1904.

DR. J. COURTIN, who died on December 9th at the age of 59, was for many years a leading surgeon at Bordeaux. He took his degree there in 1880. He became surgeon to the Children's Hospital and to the Saint André Hospital, to which he remained attached from 1878 till 1912. He won a high reputation both as a surgeon and a teacher. He retired four years ago under the rule as to limit of age, but on the outbreak of the war returned to his post at Saint-André. He worked there and at the auxiliary hospital of La Pouponnière for fourteen months with a devotion which won him the respect and affection of all with whom he came in contact. From 1895 till his death he was general secretary to the Association des Médecins de la Gironde. He was also at various times secretary of the Infant Protection Society, professor at the school for nurses, and President of the Bordeaux Society of Anatomy and Physiology. He was long associated with Professor Massage in the editorship of the *Gazette hebdomadaire des sciences medicales de Bordeaux*, becoming sole editor on the retirement of his colleague. At the Congress of the Assistance Publique in 1903 he was honoured with the Ribbon of Officer of Public Instruction, and at the International Congress on Infant Protection in 1905 he received the "palmes académiques" for the part he had taken in its organization.

BRIGADE SURGEON SAMUEL CORNWALLIS AMESBURY, Bengal Medical Service (retired), died at Dehra Dun on November 8th, aged 84. He was born on November 21st, 1832, the younger son of Mr. Joseph Amesbury, surgeon, London, was educated at King's College, London, and at the Middlesex Hospital, and took the diploma of M.R.C.S. in 1854, subsequently taking that of F.R.C.S.Edin. in 1866. He was nominated, by Mr. H. T. Prinsep, an assistant surgeon in the I.M.S. from January 14th, 1855, became surgeon on January 14th, 1867, surgeon-major on July 1st, 1873, and brigade surgeon on December 3rd, 1883, retiring with an extra compensation pension on April 30th, 1890. During the later part of his service he was medical officer of the Bengal Sappers and Miners stationed at Rurki, and after retiring he practised for some years at Masuri. Though in India during the Mutiny he does not appear to have seen service in that campaign, his only war service being the Hazara campaign of 1868, in the North-West Frontier of India. His elder brother, the late Surgeon Major J. W. R. Amesbury, who died over thirty five years ago, received a Brevet-Surgeoncy for his services in the Mutiny.

LIEUTENANT-COLONEL GEORGE ARCHIBALD MARSHALL, Deputy Assistant Director of Medical Services of the Commonwealth Military Forces, died on December 24th at Darling Point, Sydney, N.S.W., aged 58. He was the third son of the late Dr. Joseph Marshall of Dromore, co. Tyrone, Ireland, and was educated at the Royal School, Raphoe, and at Trinity College, Dublin, where he took the degrees of B.A., M.B., B.Ch. in 1882. He was an officer of the Australian Army Medical Corps, which served during the South African war in 1900–1. He was on active service again when he was wounded by shrapnel in the Dardanelles, and was then sent back to Australia, but pernicious anaemia developed. He had practised in Sydney for over thirty years, and was much beloved and respected by his patients and medical brethren in the city. He has two brothers still in the medical profession.

LIEUTENANT-COLONEL AUGUSTUS NAPOLEON ROGERS-HARRISON, Madras Medical Service (retired), died at Cheltenham on January 1st, aged 67. After taking the diplomas of M.R.C.S., L.S.A., and L.R.C.P.Lond. in 1872, he entered the I.M.S. as assistant surgeon on October 1st, 1872, becoming surgeon on July 1st, 1873, surgeon-major on October 1st, 1884, surgeon lieutenant-colonel on October 1st, 1892, and brigade surgeon lieutenant-colonel on April 7th, 1896, and retiring on January 6th, 1902. Most of his service was spent in civil employ in the Madras Presidency, at Salem and Vizagapatam. The *Army List* assigns him no war service.

The Services.

EXCHANGE.

CAPTAIN R.A.M.C. in charge of troops in Egypt desires exchange with M.O. on home station, hospital, or sanitary. Cardiff or London district preferred.—Address No. 250, BRITISH MEDICAL JOURNAL Office, 429, Strand.

Medical News.

THE council of the London and Counties Medical Protection Society, Limited, has decided to apply for £9,500 Five per Cent. War Loan (£2,100 new money), bringing the amount of the society's investment in war securities up to £10,000.

DR. C. J. WHITBY, well known to many members of the Association as representative for several years of the Bath Division, has published in the Christmas number of *Khaki* a play entitled "The Elder Brothers," which shows his power of dramatic writing to the best advantage. Romantic in form and indeterminate as to time and place, it yet has a symbolic relevance to the state of opinion in the country shortly before the outbreak of war, when we understand it was written.

AT the annual meeting of the Incorporated Midwives' Institute a resolution was adopted strongly opposing the notification of pregnancy, on the ground that it would tend to prevent early engagement of the doctor or midwife and undermine the confidence between the midwife and patient so necessary for effective antenatal care. Another resolution recognized that prenatal care was an important factor in diminishing abortion, stillbirths, and premature labours, and urged that the midwife was a suitable person to give this care since, under the rules of the Central Midwives Board, she had responsibilities towards the patient from the time of booking. For this reason another resolution affirmed that there must be efficient and hearty co-operation between practising midwives and maternity centres.

IT is stated in the German medical press that the decline of the incidence of venereal disease in the army observed between 1870 and 1913 has continued even during the war. Before 1870–71 this incidence was 5 per cent. By 1912–13 it had fallen to 2.12 per cent., and during the first year of the war it was only 1.44 per cent. The Governor of Kiel has forbidden unqualified persons to advertise their willingness to treat the subjects of venereal disease. He has further decreed that women suspected of suffering from venereal disease are, as a rule, to be examined by medical officers, and in certain cases to be compulsorily treated in hospital. A conference of the German Evangelical Workman's Association has demanded the establishment of a public health office for combating venereal diseases, and that the regulation of prostitution and the brothel system in every form should be abolished.

PROFESSOR SULTAN (*Deut. med. Woch.*, June 15th, 1916) advises the more general use of giant electro-magnets. Before using electro-magnets on the living the author carried out a series of experiments with them on brains soon after death. He found this method of extraction the least harmful, for the electro-magnet pulled the splinters out in their long axis. Far less harm was, therefore, done to the brain than when it was probed with pincers or a finger. He gave cases to illustrate two points of interest. They showed (1) that all the tissues surrounding the metallic splinter were raised into a fold by the action of the magnet, and thus the position of the splinter was indicated. They also showed (2) that even when such a fold was not produced, and the splinter was not directly palpable in the wound, a vibration like that of a weak faradic current could be felt with the probing finger. By this vibration the position of the splinter could again be ascertained. He had never seen the slightest injury from the use of the giant electro-magnet.

THE report submitted to the monthly meeting of the committee of the Medical Sickness Annuity and Life Assurance Friendly Society on January 19th, when Dr. F. J. Allan was in the chair, showed that the society had experienced an exceptional number of claims during the last two months, arising from the epidemic of influenza. The claims were beginning to lessen. The total sickness experience for the year was under the expectation, in spite of a considerable sum having been paid for wounds, etc., to members on active service. It was decided to apply for a further £15,000 in the new Five per Cent. War Loan, and to convert the society's existing holdings, amounting

to £25,500. This transaction, when complete, will give the society a total of £40,500. The important question of the depreciation of stock values, which affects all insurance companies, was considered; a further £6,000 has been added to the investment reserve, raising it to £10,000. There is now no limit to the amount for which a member can insure, provided that such amount is not more than three-quarters of his average professional earnings, and advantage of this facility has been largely taken. At this meeting the chronic claims were reviewed and the advantages of insurance were well exemplified by these cases, which consist of men totally incapacitated from any work for the remainder of their lives, many of whom have stated that the amount received from the society is, in most cases, just sufficient to maintain themselves and families. For further particulars of the society apply to the Secretary, Medical Sickness and Accident Society, 300, High Holborn, London, W.C.

A MEETING of the Central Midwives Board was held on January 18th, Sir Francis Champneys presiding. The Standing Committee reported, amongst other correspondence, a letter from the Town Clerk of Middlesbrough enclosing a communication from the coroner, informing the medical officer of health that at an inquest on October 12th, 1916, on the body of a newborn child, the jury had added a rider to their verdict expressing their view that a midwife should not be allowed to notify as stillborn a child born before her arrival at the case where no registered medical practitioner had been in attendance at the time of birth. The Board has noted the suggestion for consideration on the next revision of the rules. In reply to a letter from the Colonial Office, transmitting an Ordinance to Amend the Midwives Ordinance, 1915, passed by the legislature of the Straits Settlements, it was decided to inform the Colonial Secretary that the new ordinance incorporated most of the amendments suggested on October 15th, 1915, but that the legislature of the Straits Settlements had not thought it desirable to omit the words "habitually and for gain" occurring in Section 14 (2) of the Ordinance of 1915. The presence of these words in Section 1 (2) of the Midwives Act, 1902, had been found productive of much difficulty in enforcing the provisions of the Act. It is hoped that an early opportunity may be found of amending the Midwives Act by the omission of these words. At a penal session on January 19th six women were struck off the roll. Among the charges were neglect of ophthalmia neonatorum and delay in recognizing abnormal presentations, and consequent delay in sending for medical aid. In one case the patient died and in the other the child was stillborn.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY. *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

INCOME TAX.

W. inquires whether, if his wife undertakes war work at such a distance from home that her remuneration is wholly, or partly, absorbed by the cost of her board and lodging, he will have to add her salary to his own for income tax purposes.

*** Strictly the cost of board and lodging in such cases cannot be claimed, but we understand that in the special circumstances the authorities allow a deduction not exceeding 2s. 6d. a day for the additional expenses of the worker's maintenance. If the total joint income of husband and wife does not exceed £500, separate "abatement" can be claimed in respect of the wife's earnings.

LETTERS, NOTES, ETC.

PRACTICES OF MEDICAL MEN DYING ON SERVICE.

V.A.D. writes: In all the schemes for the mobilization of the profession attempts have been made to conserve the practices of those away on military duty, but no attempt has been made in regard to the sale of the practices of those who have unfortunately fallen in the cause of their country. As this very often represents the sole capital of the dependants of the deceased officer, I think it of very great importance that steps should be taken to remedy this omission. It ought not to pass the wit of man to devise a suitable scheme for this purpose, and the General Medical Council ought to have penal powers in regard to such of those men who would reap pecuniary benefit from the losses of others who have died in the service of their country.

NICOTINE IN CIGARETTES.

M.D. writes: The reply to "M.R.C.S." in your issue of September 16th, 1916, p. 412, was read with great interest by me. I have attended a great many men who had lost their health and their means of livelihood from excessive nicotine poisoning, and now that women and children are taking to cigarette smoking in ever increasing numbers, I would like to make the patriotic inquiry whether cigarettes made from English tobacco from Virginian seed of which 80,000 lb. were grown last year by one farmer, would not be much less harmful. Your correspondent refers to your report in 1909, p. 911, which proved that Virginian tobacco when grown in Virginia contained the largest amount of nicotine, while it appears from the daily press that much of what are called Egyptian cigarettes are really Turkish.

I know for a fact that tobacco is grown in Canada by thousands of farmers for their own use as well as for the manufacturers which is generally known to pay them £40 an acre, and although this tobacco is grown from Virginian seed it is generally known to be much milder in nicotine than tobacco grown from the same seed in Virginia. This is easily explained by the difference in soil and climate. At Farnham, Surrey, the climate seems so suitable that I understand that the whole crop of the above-mentioned farmer was sold before it was ripe for picking. Tobacco growing is eminently suitable for women, and it would save the empire at least some of the tremendous efforts to keep up the United States exchange.

SUPPRESSION OF QUACKERY.

DR. DAVID ROBERTS (Swadlincote) writes with reference to the resolutions of the Council of the Royal College of Surgeons, published on p. 106 of the JOURNAL, January 20th: Why not go further? I contend that the general quackery practised by chemists is a danger to the community and should be included. Why do so many people resort to quackery? I think it is the dislike of examination and questions, arising from aversion to the decisive and downright, in the same sense as the "Iron Chancellor" objected to the thorough examination and questions of yet another of his new doctors; the reply he received was to the point: "You have made a mistake in calling me in; you ought to consult a veterinary surgeon, and he would not ask you any questions at all."

SUPERNUMERARY NIPPLES.

DR. W. H. PARKINSON (Assistant County Medical Officer of Health and School Medical Officer, Warwickshire) writes: Within the last few days I have met with a case of supernumerary nipple. The subject was a boy; the structure was situated on the left side immediately under the normal nipple and about 1½ in. lower down. It was very small, and there were no signs of a similar structure on the opposite side. While I have heard of the abnormality, I have never before seen a case, though I have examined, roughly, 20,000 children during the last four years in my capacity of school medical officer. I presume it is an instance of approximation to the type found in lower animals, owing to the usual suppression not having taken place.

*** Supernumerary nipples are said to be not very uncommon, and as many as eight in one case have been described. We find in *Anomalies and Curiosities of Medicine*, by Gould and Pyle, that Hirst states that "supernumerary breasts and nipples are more common than is generally supposed. Bruce found sixty instances in 3,956 persons examined (1.56 per cent.). Leichtenstern places the frequency at one in 500; both observers declare that men present the anomaly about twice as frequently as women." The fact that the accessory glands may develop at odd places on the body—on the shoulder, the axilla, the groin, or the thigh—has been held to make the theory of approximation to the type found in lower animals untenable.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE INFLUENCE OF ANTISEPTICS ON THE ACTIVITIES OF LEUCOCYTES AND ON THE HEALING OF WOUNDS.

BY

C. J. BOND, F.R.C.S., HON. COLONEL R.A.M.C.(T.).

HONORARY CONSULTING SURGEON, NORTHERN COMMAND; MEMBER OF THE MEDICAL RESEARCH COMMITTEE; HONORARY CONSULTING SURGEON TO THE LEICESTER ROYAL INFIRMARY.

PART III.—ON THE PRESENCE OF AN IODOPHIL SUBSTANCE IN THE WHITE BLOOD CORPUSCLES IN HEALTH AND IN SOME OTHER CELLS, AND ON THE RELATION OF THIS SUBSTANCE TO PHAGOCYTOSIS AND IMMUNITY.

In the course of this inquiry on Antiseptics, Leucocytosis, and the Healing of Wounds, I have come across certain facts about the iodine reaction in leucocytes and other cells which I think have an important bearing on phagocytosis and immunity. It is, of course, already known that the white blood cells, especially the polymorphs, in some infective diseases frequently give a colour reaction with iodine, which is regarded as evidence of the presence of glycogen in those cells.

The following observations show that even in health a large proportion of the white blood corpuscles normally give, under certain conditions, a colour reaction with iodine, which is closely related to, if not identical with, the so-called glycogen reaction met with in the same cells in disease. The reaction which I am about to describe occurs not only in the white blood cells but in many pus cells, in some of the cellular elements of granulation tissue, in some marrow cells, and in the cells of certain cancerous tumours.

The White Blood Corpuscles and the Iodine Reaction in Health.

If a drop of blood from the finger of a healthy person be incubated for one hour in a Ponder's plasticine cell[1] at 37° C. the white blood corpuscles emigrate out of the clot and adhere to the slide below and the cover-slip above. If the cover-glass and the plasticine cell wall be then removed and the red corpuscles and fibrin carefully washed away with a gentle stream of normal saline, two films of vigorous living leucocytes will be obtained. These films can be mounted in normal saline and a drop of 1 per cent. watery iodine and potassium iodide solution allowed to flow under the cover-slip. All the white blood cells in contact with the iodine will stain a light yellow, but, in addition, a large number (in some fields nearly all) of the cells will show a mauve-coloured exudation of colloid material to one side of the cell. The reaction occurs best in a certain zone of the preparation where the iodine reaches a certain concentration in the saline fluid and where the cells are not stained too deeply by the iodine. Under favourable conditions, the beginning of the reaction can be detected inside the cell. One or more beads of mauve-coloured material collect in the cell, the granular cytoplasm shrinks away from the differentiated protoplasm which forms the boundary wall, the beads run together into larger drops, the limiting membrane ruptures, and the colloidal substance is discharged into the surrounding medium, where it may for a time remain attached to the cell or float away like a coloured oil-drop and eventually diffuse into the surrounding liquid.

Thus far we have described this colour reaction as it occurs in the wet preparation, in the incubated film of emigrated cells to which a watery iodine solution has been added. A second incubated film also freed from clot and red corpuscles is allowed to dry; the leucocytes can then be fixed and stained in iodine vapour, and mounted in iodine gum. The dry film so prepared gives the colour reaction in many of the corpuscles, but in the dry film the iodophil substance takes on a richer stain, and the mauve colour gives place to the mahogany or port wine colour characteristic of glycogen. In healthy emigrated white blood cells the reaction is partly intracellular and partly extracellular, and the iodophil material collects as drops or beads just within or on the surface of the cells. It is already known that in certain diseases a mahogany colour reaction occurs with iodine in some of the leucocytes in a freshly drawn blood film which has not been incubated, and this is an important distinguishing feature, and serves to mark the boundary line between health and disease.

The Reaction is Characteristic of the Polymorph Cells.

The question arises, Which of the different varieties of leucocytes give the reaction in health? This is a somewhat difficult problem, owing to the fact that nuclear stains prevent the iodine reaction, while the presence of iodine also inhibits the nuclear stain. If, however, a film of normal blood be incubated on a ruled slide and subsequently washed and treated with iodine solution, the leucocytes which give and those which do not give the mauve reaction can be mapped out in a certain square, the cover-slip is then removed, the iodine washed away, and the cells stained by some nuclear stain. It will then be found that the cells which gave the mauve reaction are the finely granular polymorph leucocytes. The large mononuclears and the small lymphocytes do not usually give the reaction, and so far I have not detected it in the eosinophil cells. This is true of healthy blood, and is confirmed by the examination of films of incubated blood in disease. In a child aged 7, suffering from a severe lymphatic leukaemia, a blood count gave polymorphs 8 per cent., large mononuclears 1 per cent., lymphocytes 90 per cent., eosinophils 1 per cent.; in this case the number of cells which gave the iodine reaction was much reduced. In certain cases, however, the mononuclears and the lymphocytes may give the reaction. Incubated films from this patient at a later stage of the disease showed a considerable number of lymphocytes with the mauve-coloured exudation. It is known that the glycogen reaction in disease is confined for the most part to the polymorph cells.

The Iodine Reaction in Leucocytes from Aseptic Closed Wounds.

In a former paper[2] I drew attention to the essential similarity of the phagocytic problem in the closed aseptic and in the open septic wound. The leucocytes which collect in such numbers in the pigment thread drain in a surgical incision re-enter the tissue spaces or the circulation as primary union takes place, but these are the same cells in origin as those which are thrown off as dead pus cells in the discharge from an open septic wound.

In the first case nearly all the emigrated cells retain their vitality and re-enter the circulation; in the second most of the cells are killed and thrown off as pus cells; a few only re-enter the circulation. If we tease up in normal saline the leucocyte-covered thread from such an aseptic wound and add a drop of watery iodine 1 per cent. solution, nearly all the cells will show the characteristic mauve coloured reaction. (Fig. 1.) These emigrated leucocytes are in fact vigorous living phagocytes of the polymorph class. They have emigrated from the blood vessels into the wound cavity *in vivo*, just as the white corpuscles in the incubated blood film have emigrated from the blood clot on to the slide *in vitro*. The fact that these emigrated leucocytes give the reaction in both cases, although they do not do so in health while circulating in the blood stream, is important in connexion with the further fact that living pus cells also show the same reaction.

Pus Corpuscles and the Iodine Reaction.

If a drop of pus from a healthy granulating wound be diluted with normal saline, and if a drop of 1 per cent. watery iodine solution be allowed to flow under the cover-glass, a considerable proportion of the pus cells will show the characteristic mauve reaction. (Fig. 2.)

A large number of observations have been carried out on samples of pus from different wounds in various stages of healing and under different conditions of treatment. Pus from certain wounds, when examined on separate occasions, may consistently show a high proportion of cells giving the reaction. Pus from similar wounds infected with the same variety of organisms, showing a like tendency to granulation and repair, may fail to give the reaction, or give it only in a few cells. This difference depends largely on the conditions in the wound.

Stagnant pus—pus which has lain for hours in an undrained pocket, or exposed on the surface of a wound—consists largely of dead cells, whereas the pus which continually flows from a well-drained, healthy wound contains

a large number of living phagocytes, and it is the living cells which, when killed with iodine, give the mauve reaction. The iodine reaction thus affords some indication of the vitality of the pus cells. This is shown in another way. If the sero-pus which collects in the lymph-leech contrivance of Sir A. Wright be examined with the iodine solution, a number of the leucocytes which have been aspirated from the walls of the wound and have collected



*Fig. 1.—Leucocytes from "phagocyte trap"; aseptic closed incision; fresh preparation in normal saline and 1 per cent. iodine. A, Mauve-coloured iodophil substance; C, red corpuscle. 1/12 im., B oc.

in the tube will be found to give the reaction even when pus cells from the surface of the same wound fail to do so. Pus aspirated from an empyema or an acutely infected knee-joint may fail to give the reaction when first withdrawn, whereas, if the discharge which flows freely from the empyema or the joint cavity be examined a few days later after efficient drainage has been established, quite a number of the cells will show the mauve-coloured exudation.

The capacity to give the iodine mauve-colour reaction depends largely on the vitality of the pus cell and pus

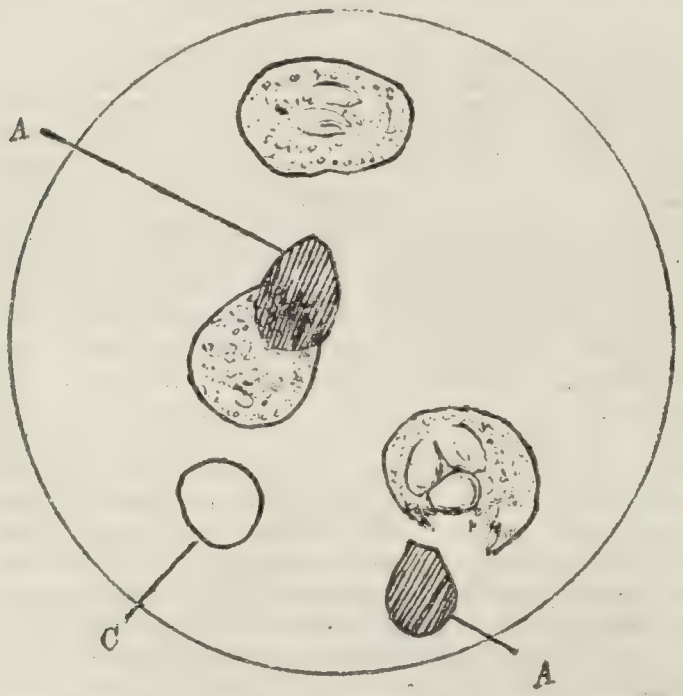


Fig. 2.—Pus cells from healthy granulating wound. A, Mauve-coloured iodophil substance; C, red corpuscle. 1/12 im., B oc.

cells which have lain for some time in a closed cavity in a tryptic medium have undergone partial cytolysis. It is the living leucocyte which has recently emigrated from its natural environment—the blood or lymph stream—which shows the reaction. Of course the conditions to which the cells have been exposed in the wound after emigration are also very important. It is evident that highly concentrated antiseptic solutions which kill the leucocytes will also prevent the reaction, but when these disturbing factors have been eliminated, if a considerable proportion of the pus corpuscles in any wound shows the mauve-coloured iodine reaction, that wound is probably in a healthy condition as far as successful



Fig. 3.—Cancer cells from epithelioma of upper jaw; stained 1 per cent. iodine. B, Mahogany-coloured iodophil substance (glycogen). 1/12 im., A oc.

reaction to infection is concerned. On the other hand, the absence of the reaction in any one sample of pus from a wound does not necessarily mean that the whole of that wound is unhealthy. The pus cells examined may have lain for hours on the surface and been killed by exposure, or the sample may have been taken from some stagnant pool in some inefficiently drained pocket.

As in the blood cells, the reaction occurs in the polynuclear pus cells. It is much less marked in the mononuclears and in the lymphocytes. This fact must be borne

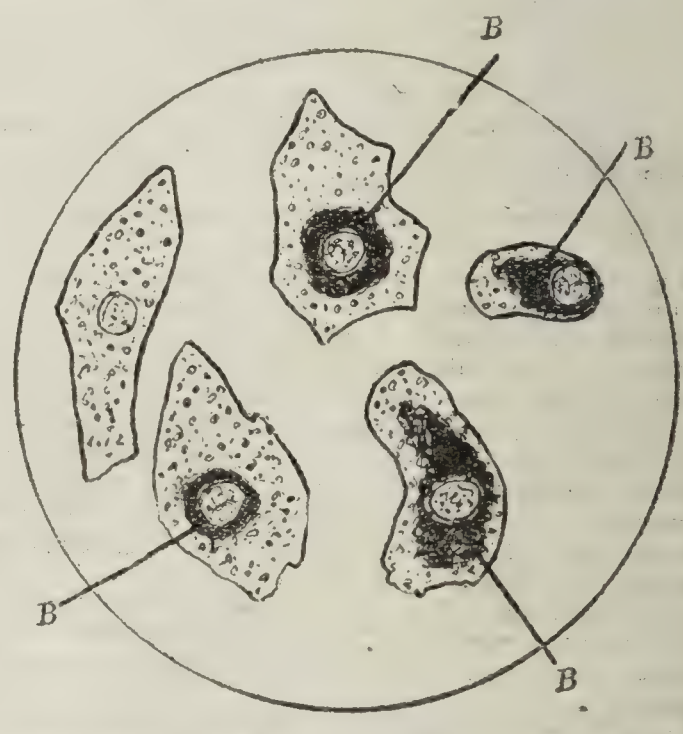


Fig. 4.—Cancer cells from squamous-celled epithelioma; stained 1 per cent. iodine. B, Mahogany-coloured iodophil substance (glycogen) round nucleus. 1/12 im., B oc.

in mind in making use of the reaction as an indication of the healthiness of a wound. The acute stage of infection is marked by a flow of polymorphs, at a later stage the mononuclears are more in evidence, and at this stage the reaction would be less marked.

On the whole, efficient drainage and the establishment of a flow of rapidly renewed phagocytes seems to have more influence on the iodine reaction than the nature of the solutions used in the treatment of the wound.

*These semidiagrammatic drawings are taken from actual microscopic preparations; in each case A (shaded area) represents the mauve-coloured iodophil exudation which in some cases (Fig. 2) has broken away from the cell; B (black area) represents the mahogany-coloured substance (glycogen).

Granulation Tissue and the Iodine Reaction.

It is interesting to find that the iodine reaction is not confined to the cells of the purulent discharge. If a small portion of healthy granulation tissue be removed from a wound and examined in salt solution while alive, and a 1 per cent. watery iodine solution be added, a considerable number of the cellular elements will show the mauve-coloured exudation. The cells which give the reaction are the polynucleated cells; the large mononuclears and the smaller lymphocytes do not show it to the same extent; neither do the fibroblasts and other fixed tissue cells.

The Marrow Cells and the Reaction.

If a small piece of healthy red marrow be examined in 1 per cent. watery iodine solution a considerable number of the marrow cells will show the mauve-coloured reaction. A short incubation at 37° C. will promote this It is shown by the myelocytes of the bird's marrow, but I have not detected it in the frog's marrow cells. Marrow cells, both avian and human, also have a considerable capacity for ingesting pigment both in the body and when incubated *in vitro*. This is important in relation to the marked tendency to latency of infection and to attacks of recrudescent sepsis which are often associated with gunshot wounds of bone.

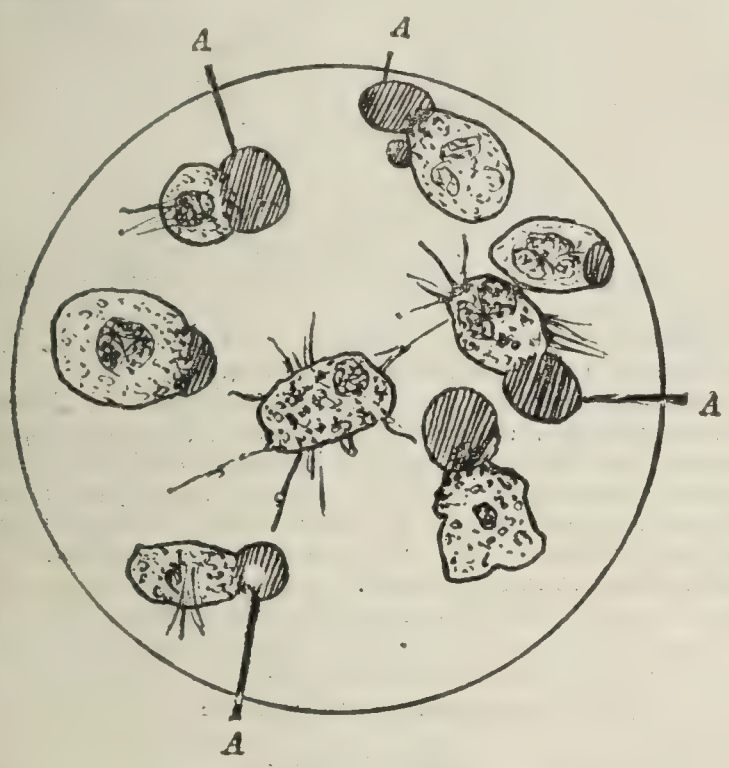


FIG. 5.—Leucocytes from incubated blood during streptococcal throat infection A, Mauve-coloured iodophil substance exuding from leucocytes. 1/12 im., A oc.

The Nature of the Iodine Reaction in Healthy Leucocytes.

It is, I think, clear from the foregoing observations that we must not regard the colour reaction indicative of the presence of an iodophil substance in leucocytes merely as evidence of a so called glycogenic degeneration, as some observers have supposed. We have seen that healthy leucocytes show a corresponding reaction, and that the distinctness of the reaction—that is, the amount of iodophil substance in the polymorph leucocytes—varies according to the degree of infection. The reaction may take the form of an extracellular mauve-coloured exudation, or of a mahogany-coloured intracellular deposit. In other words, the iodophil substance may exist in the leucocyte in a mobilized form, as in health, or it may be present in a less soluble state, as in some infective diseases.

The question now arises whether this substance which gives the mauve-coloured reaction with iodine in health is chemically the same substance as that which gives the mahogany or port wine colour with iodine in disease. In other words, does the mauve-coloured exudation consist of glycogen? Most observers—Gulland, Wolff, Da Costa, and Burnham—agree that it is the polymorph leucocytes which give the glycogen reaction in dry blood films in septic diseases. We now find that it is the polymorph leucocytes which give the mauve-coloured reaction in incubated blood films in health. Hitherto it has been thought that leucocytes, while circulating in the blood in health, do not give any reaction with iodine, except, of course, the yellow stain. It is quite true that neither wet nor dry films of freshly drawn normal blood give the iodine reaction, but my observations show that a considerable number of the polymorph leucocytes circulating in the blood in health contain an iodophil substance which becomes mobilized when the blood is incubated, and this substance then combines with any free iodine present.

The same is true of leucocytes which have emigrated from the blood vessels into an aseptic wound. The fact that the cells have migrated and are no longer bathed by the blood plasma seems to render the colloid substance accessible to the iodine.

Whether the reaction shall take the form of the more soluble mauve-coloured extracellular exudation, as in the incubated leucocytes in health, or the less soluble mahogany-coloured intracellular deposit, as in some pus cells, and in the white blood corpuscles in certain infective diseases, seems to depend on the presence of a toxin. The toxin renders the iodophil substance more readily accessible to the action of the iodine, with which it gives in combination a more strongly marked colour reaction when in the intracellular form. The mobilization of this iodophil substance in the leucocytes is probably closely associated with the phagocytic function of these cells.

Wolff[3] has suggested that an iodophil substance is present in the circulating leucocytes in health, but that,

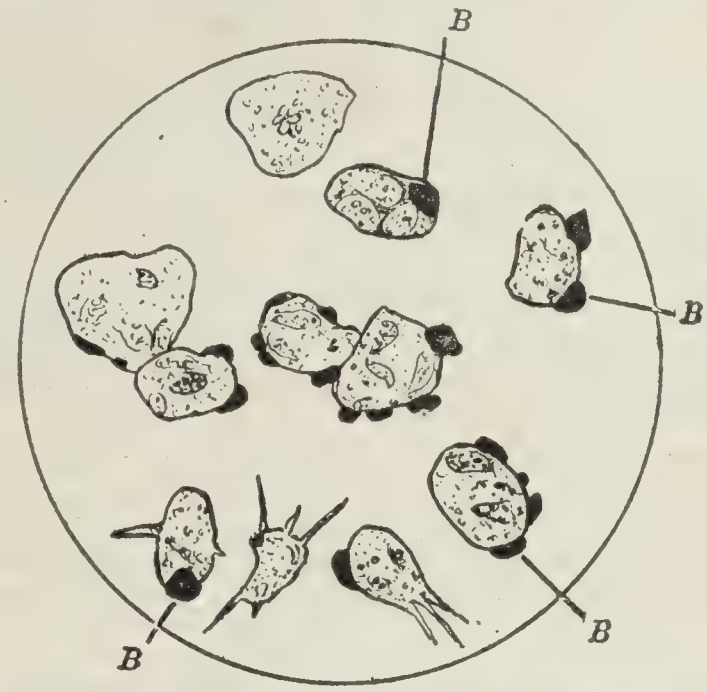


FIG. 6.—Leucocytes from incubated blood (streptococcal throat infection); film dried, fixed and stained with iodine vapour and mounted with iodine gum. B, Mahogany-coloured iodophil substance (glycogen). 1/12 im., A oc.

owing to its extreme solubility, it cannot be demonstrated in a dry film of normal blood, but when rendered more insoluble by the action of certain toxins its presence can be shown. My observations provide an experimental verification of this hypothesis, and show further that the action of a foreign, or at any rate bacillary, toxin is not essential, since the removal of the corpuscles from their natural environment, the blood plasma, will bring about the result. Two films of emigrated leucocytes were obtained from the incubated blood of a healthy person. One film was examined in normal saline to which iodine 1 per cent. solution had been added, and the mauve reaction was obtained. The second film was dried, fixed, and stained in iodine vapour and mounted in iodine gum. Many of the leucocytes in this dry film showed mahogany-coloured beads of colloid exudation. There can, I think, be little doubt, therefore, that the substance which gives the mauve coloured reaction with iodine in the white blood cells in health is either glycogen or a precursor of glycogen, possibly a complex substance, from which, as the result of emigration, the carbohydrate molecule is split off as glycogen, while the protein molecule may be concerned with the elaboration of ferments or antibodies formed by the phagocytes in response to a toxin.

There would seem to be two phases in the response made by phagocytes of the wandering cell type to the action of foreign toxins. The first phase is due to changes in the cell brought about by emigration, and results in the

appearance of an iodophil substance which very readily diffuses out of the cell; the second phase may occur in the phagocytes before emigration, while circulating in the blood stream, and results in the deposit of iodophil material in the cell.

We have already seen that some marrow cells give the mauve-coloured reaction; these are the neutrophil myelocytes, the precursors of the polymorph leucocytes, and, like them, exhibit amoeboid activity and a capacity for ingesting foreign particles.

Cancer Cells and the Iodine Reaction.

Cancer cells from some (but apparently not all) actively growing cancers give the mauve reaction when examined fresh in salt solution and iodine, they also (like some pus cells) give the mahogany reaction when treated with iodine vapour. (Figs. 3 and 4.) Although I have failed to obtain any evidence of any capacity in these cancer cells* to ingest pigment particles when incubated *in vitro*,* we must remember that cancer cells retain certain embryonic and parasitic characters, and the presence of an iodophil substance in cancer cells may have reference to this parasitic capacity.

The following experiments show that the iodophil substance in leucocytes is not destroyed by foreign serum. If two drops of blood, each taken from a different individual, be thoroughly mixed and incubated together in the same cell, the mixed leucocytes when treated with iodine show the normal percentage of cells giving the iodine reaction. The foreign serum does not act prejudicially on the formation or the mobilization of the iodophil substance in either case. If a drop of normal blood be incubated with egg albumen the emigrated leucocytes so obtained give the reaction on treatment with saline and iodine.

Although present in the leucocytes of birds and mammals I have not detected the mauve reaction in the incubated white blood corpuscles of the frog either from the blood stream or from the dorsal lymph sac. It may be that the iodophil substance is not present in the leucocytes of cold-blooded animals.

The Iodophil Substance may be Present in Leucocytes in an Infected Area though Absent in Leucocytes drawn from the General Circulation.

In a case of cutaneous erysipelas (streptococcal infection), with marked local and general symptoms, a drop of blood drawn from a puncture in the inflamed area (unincubated) gave a well marked mauve reaction in a number of leucocytes when treated with watery iodine solution. A dried film from the same blood, also from the inflamed area, treated with iodine vapour and mounted in iodine gum, showed the characteristic mahogany-coloured (glycogen) reaction. Blood drawn from the finger of the same patient gave no mauve reaction with watery iodine, or glycogen reaction in a dry film.

The occurrence of iodophilia in the leucocytes from the infected area, while absent from the leucocytes in the general circulation, is a point of interest. It suggests that changes of a defensive kind occur in leucocytes while circulating in an infected area, but that after the corpuscles leave this area and return to the general circulation they revert to the normal condition, and cease to show the iodophil change unless the general toxaemia has been too profound. In connexion with this point, however, it is necessary to remember that the leucocytes which give the reaction may have already emigrated from the capillaries into the tissue spaces and lymph channels before mingling with the blood which escapes from the puncture.

The Association between the Iodine Reaction and Infection.

I have recently had an opportunity of observing the effect of a sharp attack of (streptococcal) throat affection on the amount of iodophil substance in my own leucocytes. Having from frequent observation for some weeks ascertained both the percentage of leucocytes which gave the mauve reaction and the amount of iodophil substance poured out in incubated films of my own blood in health, I was in a position to compare these results with the results obtained from incubated blood films taken during the height of the throat infection. (Fig. 5.) Wet films of incubated leucocytes treated with watery iodine solution showed, during the febrile stage, a considerable increase in the number of cells giving the reaction and in the amount of iodophil substance exuded. Films of the same blood incubated, dried, and stained with iodine vapour and mounted in iodine gum showed an abnormal amount of intracellular and extracellular mahogany coloured exudation. (Fig. 6.) Unincubated dried films of the same blood treated in the same way appeared normal. This increased iodine reaction lasted for nearly a fortnight after the temperature had fallen to normal. This observation shows the intimate association between the circulation of bacillary toxins and the occurrence of iodophilia in the leucocytes. It also shows the phases of increased formation of iodophil substance by the phagocytes—first the increase in the extracellular soluble mauve-coloured exudation, then the occurrence of the less soluble intracellular mahogany-coloured deposit. Both these occur before any corresponding change can be detected in the leucocytes in the general blood stream, and they are still present in the incubated leucocytes for some time after the constitutional reaction to the infection has disappeared. This shows the close association which exists between leucocytic activity in response to infection and the formation of an iodophil substance by the phagocytes. A still later stage of this same condition has already been described by other observers in the leucocytes in various septic conditions.

Time alone can show the real significance of the occurrence of iodophilia in the leucocytes in health, and the part played by this iodophil substance in the process of immunization against bacterial, and possibly other toxic substances. It is, however, evident that the problem must be attacked from the chemical side before the metabolic changes in the leucocytes and other cells which lead to the elaboration of this iodophil substance can be fully understood, or estimated at their true value.

I am hopeful that the routine examination of the cells of various kinds of malignant growths at various stages of their development for the presence of iodophil substances, especially undertaken in connexion with the existence or absence of like changes in the leucocytes, may tend to throw light on some obscure points in the metabolism of the cancer cell.

* Possibly if incubated in blood plasma cancer cells may exhibit pigment ingestive capacity.

REFERENCES.
[1] *Lancet*, December 12th, 1908. [2] BRITISH MEDICAL JOURNAL, June 3rd, 1916, p. 777. [3] Quoted by Burnham, *Haemocytes and Haemic Infections*.

Lectures
ON
DISEASES OF THE MALE URETHRA.

BY
FRANK S. KIDD, B.C., M.B.CANTAB., F.R.C.S.,
ASSISTANT SURGEON, LONDON HOSPITAL, AND SURGEON TO THE GENITO-URINARY DEPARTMENT.

LECTURE IV.—TREATMENT (*Continued*).

GENERAL CONSIDERATIONS, WARNINGS, AND INSTRUCTIONS.

IT is advisable to have at hand a small printed card that will fit the waistcoat pocket. On this card should be printed the following instructions.

A. *General Warnings.*

1. Please remember that until the doctor passes you as "cured" you are infectious to a woman. This is the fact even though you yourself see no sign of urethral discharge. You will think you are cured for a long time before you are really cured, that is to say free from infectious germs.

2. Be careful not to convey discharge on the fingers to the eyes. If you do so you may set up dangerous inflammation and might even lose your sight. If the eyes become inflamed return to the doctor *at once* for examination.

It is wise to buy a small bottle of lysol or listerine from the chemist and to use a teaspoonful of this in a basin of water wherewith to wash the hands after handling the parts in urinating or injecting.

3. Be careful not to use towels which other persons, especially children, are likely to use. Children may contract the disease from infected towels.

4. If you are using a common bath, try to use it after everyone else has finished. Always pass water before taking a bath. In any case add four teaspoonfuls of lysol or listerine to your bath, and wash your face before you enter the bath. Swill out the bath with fresh water after use.

B. *Directions as to Mode of Life.*

1. You must not drink a drop of alcoholic liquor (beer, wine, or spirits) until the doctor gives you permission.
2. You must refrain entirely from any kind of sexual excitement.
3. You should not ride a horse, bicycle, or motor bicycle.
4. As regards diet, you must avoid all things that sting or burn the tongue, such as curry, ginger, pickles, vinegar, horse-radish, mustard, pepper. Meat will not do you any harm. Do not starve yourself. You can fight the disease better if you eat plenty. Your appetite is the best guide.
5. As regards drink, take plenty of fluid, especially plain water, milk, milk and soda, tea, cocoa, lime juice, lemonade, barley water, and the ordinary mineral waters. Do not take any ginger beer or ginger ale, and coffee is best avoided.
6. Smoking is not harmful.
7. During the first three weeks of your trouble the best results can be obtained if you can lie up in bed. Usually this is not possible. If the testicles or joints swell up, or if you are feverish, then it is essential to go to bed. Anyhow, take no exercise and keep as quiet as possible. After the first month you should gradually begin to take exercise again and should try to get fit. Week-ends at the seaside will then prove of great benefit.
8. If you suffer from painful erections while in bed you will find relief if you get up and pass water.
9. It is not wise to stick cotton-wool over the end of the penis. If you wish to avoid soiling your clothes by discharge, get some lint and cut out small pieces, which you can wrap round the organ and tie on with tape or string.
10. Above all, do not worry. If you let the disease get on your mind it will depress your general health and make the disease more difficult to cure. Remember you are not the first man to get this disease, yet the world goes on all right. The disease is always curable, but the cure often takes several months.

General Treatment.

During the acute stage of a posterior urethritis (average five to eight weeks if the patient is up and about) there is no doubt that far quicker results are obtained if the patient can be persuaded to lie up in bed, as by that means the acute stage may be cut short to a period of three weeks. If the patient is in bed less toxin is massaged into the circulation so that the patient's resistance is not overcome by a flood of bacterial poison. The patient also avoids fatigue, and so is better fitted to resist his trouble. When in bed he is far less likely to develop complications. If a patient is sent to bed the acute posterior urethritis often dies down at the end of three weeks, making it possible to begin posterior irrigations and prostatic massage at the end of that period. Many patients are able and willing to lie up for a few weeks, and they should be encouraged to do so. Keep a temperature chart, as it will be found of great help and interest. Let the patient sit in a hot hip bath twice a day. Hot baths act as fomentations.

Drugs.

The disease is usually a local disease, and is most effectively treated by the local application of antiseptic remedies. It has been proved by control experiments that sandalwood oil does not cure the disease. All the same there is no doubt that it often diminishes the discharge and keeps it under control, and it undoubtedly relieves painful micturition. The disadvantages of sandalwood oil are, first, its great expense (one patient of mine had spent £30 on sandalwood oil before he came under my care); secondly, it is apt to upset the stomach and cause pain in the kidneys. I seldom order sandalwood oil except under two conditions: First, when there is greatly increased frequency of micturition and intense pain at the end of micturition (cystitis). Then it acts like a charm. Secondly, in hyper-acute cases, where it undoubtedly soothes the red and swollen mucous membrane of the urethra.

The best form is pure sandalwood oil suspended in tincture of quillaia or mucilage of acacia, and taken as a fluid mixture after meals in plenty of water.

If you wish to order an internal medicine, the best for routine purposes is an alkaline mixture. Potassium citrate in doses of 30 grains, given until the urine becomes alkaline, is, I believe, the best drug. There is little doubt that when cases are doing well they tend naturally to develop alkalinity of the urine which, when passed, may be milky with phosphates. (The milkiness dissolves at once on addition of acetic acid to the urine.) Evidently the gonococcus living in its natural habitat, the human urethra, does not like an alkaline urine. This is why I believe in producing an artificial alkalinity by means of potassium citrate. It is an erroneous notion, widely held, that if the urine is allowed to be alkaline, then there is an increased risk of cystitis. I am convinced, from practical observation of patients, that this is not the case.

Particularly harmful is the exhibition of hexamethylene tetramine. It does not exercise any bactericidal influence on gonococci in the living urethra, and often produces painful micturition when urethritis is present. Formalin in the urine is very irritating to the inflamed mucous membrane.

It is important to keep the bowels well moved by suitable laxatives. Magnesium salts seem to be particularly helpful as laxatives in this disease.

In chronic cases alkalis are not so useful. In these the indication is to increase the general resistance of the body by every possible means. Send the patient to the seaside for two or three weeks, get him to take outdoor exercise, and live amidst cheerful surroundings in the fresh air as much as possible, and let him feed up and get fit. Tonics are now required, such as iron, quinine, strychnine, and arsenic. Above all, keep the patient from brooding over his complaint. Cheer him up. Encourage him to think he is going to get well. Let him realize that you at least have no doubt that he is going to get well. Patients with chronic gonorrhœa tend to be most depressing individuals, and much virtue must go out of the physician who would cheer them up and help them.

Type Cases.

I am now about to enter upon the most difficult part of my task. I have described to you the surgical anatomy of the urethra, the clinical pathology of urethritis, methods of accurate diagnosis, and methods and instruments employed in scientific clinical treatment. I shall now endeavour to put into words an account of the different types of cases that will come to you clinically. It is easy enough to take an individual case and demonstrate upon it the diagnosis and treatment suited to that case. It is far more difficult to describe type cases and lay down lines of examination and treatment. Nevertheless, the task must be attempted, as it is necessary to give you a basis on which to found your own experience and practice. Take what I say as a guide to help you. Adapt it as your own intelligence and knowledge serve to the actual patients who come to you in practice. Above all, I do not want to discourage you from trying new methods of treatment. But before trying the new methods I want you to master, first, the accurate diagnosis of the disease, and, secondly, the average results you can obtain by the methods I describe, which I have tried and found satisfactory. You will then have a basis of knowledge of what can be done, and will be able to determine if you are getting better results by your new methods.

Examination.

A case of acute urethritis, duration some days or weeks, with profuse yellow discharge exuding from the meatus. Diagnosis: Either acute anterior urethritis or acute anterior and posterior urethritis.

History.—Note how and when contracted, length of incubation period, previous treatment if any, how many previous attacks, pain, frequency of micturition.

Physical Examination.—Place the patient on a couch, take a film of the discharge, stain, and examine under the microscope for pus cells and gonococci.

Place a pot between the patient's legs and have a large urine glass and a sink handy. Wash out the anterior urethra with mercury oxycyanide 1 in 4,000 until the washings come away quite clear of pus and threads, as tested by pouring them into the urine glass. Now ask the patient to rise and pass water into the urine glass. If the urine is clear the diagnosis is acute anterior urethritis. If the urine is hazy with pus the diagnosis is acute posterior urethritis. (Cystitis as well, if there is greatly increased frequency of micturition and pain at the end of micturition.)

Note, however, that the haze may not be a haze of pus. Determine this question as follows: The haze may be—

1. *Phosphates.*—These disappear on the addition of acetic acid.

2. *Pus.*—A ropiness on the addition of potassium hydrate indicates pus. If in doubt place a drop of urine on a slide, make a film, dry, stain, and examine under the microscope. Pus cells can then be seen.

3. *Bacilluria.*—Place a drop of urine on a slide, dry, fix, stain, and examine under the microscope. Nothing is seen but bacteria.

4. *Sandalwood Oil.*—The patient is taking sandalwood oil. Place a drop of urine under the microscope. Nothing is seen but fat droplets. If in doubt, stop the sandalwood oil and examine again the next day.

5. *Urates.*—The haze disappears on the addition of potassium hydrate. Warm the urine; the haze disappears.

6. *Oxalates* (very rare).—Place a drop under the microscope. Typical crystals are seen.

What is the real object of this examination? It is not meant to determine whether anterior irrigations or anterior injections should be used. These should be used in any case. It is meant for *prognosis*. If the disease is confined to the anterior urethra, the case should get well under treatment in three or four weeks, and possibly in a week. Encourage the patient by telling him this, but make no rash promises. If the disease has spread to the posterior urethra, the disease can hardly get well in under three months. Tell the patient this from the start, so as not to encourage false hopes, and explain the reasons to him. Encourage him if possible to lie up. (It is true that a few exceptions will be met where the posterior urethra clears itself in a week or ten days, and the disease never spreads to the prostate. These cases are lucky exceptions.)

Short Examination if Little Time is Available.

Inspect the meatus and note if the urethritis is very acute or only mild. This will guide you as to strength of injection or irrigation to order—potassium permanganate 1 in 4,000 for acute cases, up to 1 in 2,000 for mild cases.

Ask the patient to pass water into two glasses. If the second is clear, the chances are that the disease has not spread to the deep urethra (proof not absolute). Note this. Then give the patient the printed directions and order a suitable injection or irrigation. Tell him to call in a week or ten days, when you can arrange sufficient time to carry out the more complete test described above.

Treatment.

Give the patient his printed directions, and if the disease has spread to the deep urethra, try and persuade him to lie up. Whatever the state of the disease, whether anterior or posterior, employ anterior irrigations from the very outset. Do not employ posterior irrigations in the acute stage—five to eight weeks in ambulatory cases, three weeks in cases that lie up. The best results are obtained if the doctor himself can irrigate the anterior urethra once a day. Irrigate from a low height (3 to 4 ft.) with the utmost gentleness in ballooning the canal, and suit the strength of the fluid to the severity of the inflammation. In average cases start with 1 in 3,000 potassium permanganate, and as the discharge and pain diminish increase the strength by 1 in 500 until you have reached 1 in 2,000, or even 1 in 1,500. If the discharge and pain diminish, you are doing right; if they increase, you are either using the washes too weak or you should carry out irrigations twice a day. In the majority of cases once a day is sufficient.

ACUTE ANTERIOR URETHRITIS.

In mild anterior cases I often start with 1 in 2,000 potassium permanganate and work up to 1 in 1,500, or even 1 in 1,000, by the fourth or fifth day. Often by the fifth or sixth day there is no discharge and the urine is clear. I then use the urethroscope and look for infected glands of Littre. If not present, the patient is cured; if present, I cure them with the operating urethroscope, and continue irrigations for another five or six days. At the end of that time I use the urethroscope again. If no diseased follicles are seen, cure is complete. Such quick cures can only be obtained in patients who have had the discharge a few days and in whom the disease is not very acute when first seen. I have dozens of such quick cures in my records—that is to say, five to seven day cures in non-follicle cases on washings alone, ten to twenty day cures in cases with infected follicles. Having treated the follicles you must continue with daily irrigations for five to seven days before it is advisable to use the urethroscope again and see if all the follicles have been destroyed; if not, you must operate again, and again irrigate daily for a week and then inspect again.

In the more acute later anterior cases it often takes a fortnight, or even a little longer, of regular daily irrigations or injections to stop all discharge and get the urine quite clear. When that is attained you should proceed to urethroscopy, as described above, to eliminate infected follicles.

If the patient has acute anterior urethritis but cannot come to you for irrigations, then instruct him how to irrigate or inject for himself. Let him irrigate once or twice a day and inject at least twice—and, better, three or four times—a day. Let him report in a fortnight or three weeks for further examination. Many such cases will then be found cured. All such cases, if free from discharge at the second visit, should be urethroscoped. In this way you can detect infected follicles and destroy them if present.

Early Urethroscopy.

The object of early urethroscopy is to answer the question whether these patients, who are discharge-free, are fully cured, or have they the gonococci still lurking in a side track in the anterior urethra. These side tracks are of two kinds:

1. Usually they are found to be infected and swollen glands of Littre. Destroy these with the operating urethroscope, and ask the patient to inject for a week and then report. Urethroscope again. If all the glands are healthy the patient is cured. Often at the second examination there can still be seen a few remaining infected glands; destroy them. Let the patient irrigate or inject for another week and then report. Urethroscope again. In most cases there are no more infected glands to be seen; the cure is complete. Time of cure, two to four weeks.

2. Less often a portion of the canal is seen to be red, swollen, and oedematous, and not to dilate properly under air distension. This is a submucous infiltration or a soft stricture. Treat this by means of Kollmann's dilators applied every fifth day until the normal calibre of the canal has been restored, and the canal can be seen by the urethroscope to be healthy. All this time the patient continues his irrigations or injections. Time of cure, three to five weeks.

ACUTE POSTERIOR CASES.

If, however, you find by your first examination that the disease has already spread to the deep urethra, you will do no good by irrigating the case yourself as you are not going to get an early cure. In such cases instruct the patient how to irrigate or inject for himself, and tell him to use 1 in 4,000 potassium permanganate if the disease is acute, 1 in 3,000 potassium permanganate if mild, and to irrigate twice, or inject four times a day. On no account irrigate the deep urethra at this stage, as it does no good and leads to complications. The object in irrigating or injecting the anterior urethra in early acute posterior cases is to keep down the discharge in the anterior urethra, and prepare for the time when you will be able to irrigate the deep urethra—five to eight weeks in ambulatory cases. It is more pleasant for the patient to be comparatively free of discharge, and you are saving time by getting the anterior urethra into a healthy state. At the end of some weeks the case will enter on the subacute stage.

TREATMENT OF A SUBACUTE CASE.

The patient has had an acute posterior urethritis. Towards the end of some weeks (three weeks if the patient has gone to bed, five to eight weeks if he has remained at work) the severity of the disease begins to die down in the course of nature; that is to say, the discharge lessens and becomes thinner. Pain, burning, and chordee cease, fever disappears, and the patient begins to feel better in himself. Take the case of a patient who has had acute posterior urethritis for some five to eight weeks from the date of the infecting coitus. If he has been under your care at an earlier date he will have been irrigating his anterior urethra regularly, and there will be little if any urethral discharge to be seen. Ask him to pass water into two glasses. The first is certain to contain a fair haze, the second may be hazy with pus, or it may be clear. Now is the time to institute treatment for the deep urethra, but begin with the utmost gentleness, and use weak solutions of your antiseptic wash. At the commencement posterior irrigations should only be carried out by the doctor. Irrigate the deep urethra every day for a week or ten days, or

In the case of out-patients two or three times a week. For the first two or three sittings anaesthetize the urethra with a little 4 per cent. stovaine solution. Then irrigate the deep urethra with 1 in 5,000 potassium permanganate from a height of not more than five feet. Increase the strength each day by 1 in 500 until a strength of 1 in 2,000 has been reached. Most patients will stand 1 in 2,000 after a short time, and their urinary haze will not disappear until this strength has been attained. Some patients' urethras are, however, very sensitive, and will not tolerate concentrations greater than 1 in 3,000. In such cases perseverance at such a strength will remove the purulent haze. Above all, beware of causing intense pain and strangury by your irrigations. If you are doing so you are using too great strengths, or you have begun to irrigate too soon. Another warning is necessary: Do not keep passing several lots of wash into the bladder. Such a proceeding will irritate the bladder. Be content at first if you can only persuade an ounce or two into the bladder. Very soon the bladder will learn to take half a pint quite easily. Flush out the bladder once only, and then let the patient pass the wash out. Use the rest of the wash for irrigating the anterior urethra. Above all, the wash is to be persuaded into the bladder—not forced in by excessive pressure.

During this period of treatment massage the prostate very gently every third day for twelve days. Later on you ought to lengthen the intervals of prostate massage to every fifth or seventh day. Do not try to effect too much at each massage. Do not massage for more than one to two minutes, and let the process be one of peaceful persuasion or gentle stroking. Do not use powerful squeezings. I cannot warn you too carefully on this point.

If you content yourself with posterior irrigation and prostatic massage for a period of twelve to fourteen days you will find at the end of that time in the majority of cases that all purulent haze has disappeared from the urine, and that the urine has become clear, and at most contains a few purulent threads. In other words, the case has entered upon the chronic stage.

Treatment of a Case of Urethritis in the Chronic Stage.

The patient now thinks he is cured. His urine contains a few threads, and there is noticed a little sticking of the meatus, and a slight gleety discharge in the early morning. Warn your patient that it will be at least three to six weeks before he is really cured.

Ask the patient to pass water, and then massage the prostate and examine the discharge under the microscope. Make a rough note of the number of pus cells, large, medium, or minimum. Repeat this examination every two or three weeks, and by this means you can best judge the progress of the case towards cure.

As regards the treatment of the chronic posterior urethritis, you should now discontinue daily irrigations in order to test if the urine will remain clear without such treatment. In most cases, if the patient is keeping the rules, the urine will remain clear, provided you treat the patient every fourth or fifth day yourself. Only three rules of life are now necessary—no alcohol, no sexual excitement, no riding or bicycling. These are the three prostatic sins. The rules as to diet still hold, but encourage the patient to take exercise, feed up, and get fit. Help him to get his mind off his urethra, and let him go to the seaside at the week ends. Every fourth or fifth day let the patient attend for treatment. Massage the prostate, and instil the deep urethra by means of the Ultzmann syringe with strong solutions of silver nitrate, beginning with five grains to the ounce and working up to twenty grains to the ounce. If these cause undue discomfort let the patient go home and sit in a hot bath. Some patients cannot stand such strong treatment. If so, be content with giving, after the massage, a posterior irrigation of 1 in 5,000 silver nitrate. At the end of five or six weeks the prostatic fluid will probably be found free of pus and the posterior urethra is cured.

In cases of chronic vesiculitis, instead of using these instillations, proceed every fifth day as follows: Fill up the bladder with 1 in 5,000 silver nitrate solution, pass a No. 24 Charrière metal bougie. Leave this in for five minutes. Remove the bougie, turn the patient over and massage the vesicle gently but firmly and thoroughly. Let the patient then pass out the irrigating fluid. It will be found to be full of purulent sperm, or even of casts of the vesicles. An infected vesicle, possessing, as it does, a thick fibrous wall and a very small duct opening, needs much firmer massage for its cure than does an infected prostate. For this reason vesicle cases often take four or five months for their cure, and are the most resistant cases of all. Cure is a question of obtaining proper drainage and emptying of the infected vesicle. Cases only do well when the vesicles can be got to empty themselves properly. In such circumstances drainage probably does not take place through the ducts. The ducts become digested by the pus, and a large pathological opening, as of a burst abscess, is formed leading from the vesicle into one side of the posterior urethra. You can see such openings if you use the posterior urethroscope, and can actually see pus issuing from them if you squeeze the vesicle at the same time with a rectal finger. That is the object you have in view in passing the metal bougie. The bougie helps in the formation of a proper opening for drainage. You can detect when you are dealing with a vesicle case by means of tactile rectal diagnosis. The thickened wall of the distended vesicle can be clearly felt in this manner. Give a guarded prognosis in such cases. In some of these cases the purulent haze in the urine is most peristent and lasts for weeks before it yields to massage and irrigations.

The case often begins to do well after the patient has experienced a series of nocturnal seminal emissions, the emitted fluid being found to be greenish-yellow, or even blood-stained. This is a sign that the abscess has burst into the deep urethra. Failing the formation of such an opening, the duct of the vesicle sometimes gets blocked altogether, and may remain blocked for months or even years at a time. The urine then gets quite clear, and the patient thinks he is cured. He may go months, or even years, without a relapse of yellow discharge, yet sooner or later excessive indulgence in alcohol or coitus, or depression of the general health, may lead to the bursting forth of the vesicular secretion afresh, and a sudden apparently inexplicable appearance of profuse yellow urethral discharge. These facts I have just mentioned will account for those curious cases we see where a man suddenly develops urethritis when he has not been with a woman for a long time. Such a phenomenon sometimes occurs in married men whose wives remain perfectly healthy.

Resistant vesicle cases, if persistence in treatment after three or four months does not result in cure, should be submitted to the operation of vasotomy, by which it is possible to wash out the infected vesicle and bring about a rapid cure.

Chronic Anterior Urethritis.

During the same period, when you are carrying out the treatment of the posterior urethritis as just described, you should also employ the time in curing the anterior urethra. This can only be done by an intelligent use of the aero-urethroscope.

Once the urine is clear, therefore, lose no time; urethroscope the anterior urethra, as there may be lesions in the anterior urethra which need attention. If these consist of infected follicles, destroy them once a week with silver nitrate fused on to the operating probe.

If, on the other hand, these consist of submucous infiltrations (soft strictures), fill up the bladder with silver nitrate 1 in 5,000, and pass metal bougies of suitable size until you can pass a No. 24 Charrière with ease. Now begin to use Kollmann's dilators every fifth or seventh day—the straight Kollmann for a stricture in the penile urethra, the curved Kollmann for a stricture in the bulbous urethra. Use as an irrigating fluid either silver nitrate 1 in 5,000, or, if this stings too much, use oxycyanide of mercury 1 in 4,000. Increase a millimetre or two at a time until you have attained a No. 45 Charrière in the bulb, Nos. 30 to 35 in the penile. If a soft stricture is present you cannot obtain a cure of the gonorrhoea without these instruments, and at the same time you will be saving the patient from developing a fibrous stricture in later years. Control the dilatations by periodical urethroscopy.

Note on the Treatment of Strictures.

A Stricture can only be Diagnosed by using the Urethroscope.

By this instrument you can see and judge how small or how large the opening is, and the nature of the stricture.

whether soft or fibrous. (A) If fibrous and almost pinpoint, start dilatation with gum-elastic bougies. The first time you will probably get in 1, 2, 3, 4 Charrière, the next time 4, 5, 6, 7, the next time 7, 8, 9, 10, the next time 10, 11, 12, 13, 14, the next time 14, 15, 16, the next time 16, 17, 18 Charrière.

When up to 18 Charrière proceed with your nickel bougies and work up on these till the meatus (24 to 28 Charrière) will not let you use them any more. Then start with the Kollmann's dilators. If the stricture is in the bulb, work up with these to 45 Charrière; if in the penile, work up to 30 or 35 Charrière. Then tell the patient to come back for urethroscopic inspection in six months' time. In the large majority of cases cure will be found to be permanent if dilatation has been carried out to these high degrees. (B) If you find a tunnel stricture that you can feel from the outside, or if you find that the stricture will not dilate up any more than to 8 or 9 Charrière, then take the patient into the hospital for internal urethrotomy. In actual practice only a few cases will require this operation.

There is no mortality from dilatation, but the mortality of internal urethrotomy may be as high as 4 to 5 per cent. When the patient comes out after an internal urethrotomy, go on dilating with nickel bougies and then with the Kollmann's dilators as above.

The Routine for Passing Bougies.

The patient passes water. Fill up the bladder with oxycyanide of mercury solution 1 in 4,000 or silver nitrate solution 1 in 5,000 by Janet's method from a height; lubricate and pass the bougies. The patient then rises and passes out his irrigating fluid.

After the passage of bougies and Kollmann's dilators warn the patient—

1. That he may bleed a little for twenty-four hours.
2. That he may have urethral discharge for twenty-four hours.
3. That it will hurt him to pass water for twenty-four hours.

Warnings.

Never forget that the object of dilatations of all kinds is not to tear the stricture or tear the urethra, but to tire out the stricture as rubber is tired. You will find that absorption of the stricture goes on between the treatments by phagocytosis on the part of the tissues. If you tear, this process does not go on, but the stricture becomes more resistant. Never dilate more than twice a week, and usually once a week or once in ten days is sufficient.

SALVARSAN TREATMENT OF SYPHILIS:

AN ANALYSIS OF TWO HUNDRED CASES.

BY

MAJOR LLOYD JONES, R.A.M.C.(T.),

AND

CAPTAIN A. J. GIBSON, R.A.M.C.(T.), REGISTRAR.

BETWEEN May 22nd, 1916, and September 24th, 1916, we have treated at hospital 200 cases of primary and secondary syphilis by intravenous injections of salvarsan and intramuscular injections of mercury, and in view of the probability of this treatment being extensively employed by members of the medical profession in many centres, we think that our results and experiences may be of use.

The method we have employed is that laid down by the War Office. It is divisible into three parts:

A. Comprised of first to eighth week: Eight doses of 1 gram of mercury; 2.8 grams of salvarsan. Time occupied, fifty-two days.

B. Fourteen days' potassium iodide.

C. Comprised of eleventh to thirteenth week: Three doses of mercury; 1.2 grams of salvarsan. Time occupied, fifteen days.

The full course of treatment is as follows, in accordance with instructions contained in War Office letter dated May 8th, 1916, No. 24 General 4912. (A.M.D.2.)

COURSE A.

First Week:
2 doses salvarsan (0.3 gram).
1 dose mercury.

Second Week:
1 dose salvarsan (0.3 gram).
1 dose mercury.

Third Week:
1 dose mercury.

Fourth Week:
1 dose salvarsan (0.4 gram).
1 dose mercury.

Fifth Week:
1 dose salvarsan (0.5 gram).
1 dose mercury.

Sixth Week:
1 dose salvarsan (0.5 gram).
1 dose mercury.

Seventh Week:
1 dose salvarsan (0.5 gram).
2 doses mercury.

The above course of treatment, as will be seen later, is not given to all patients, as B and C are merely extensions of Course A, and in a large percentage of cases we have found that the desired results—that is, a negative "Wassermann" reaction and absence of all clinical signs and symptoms—have been obtained by the end of Course A. If the "Wassermann" reaction is still positive at the end of Course A, potassium iodide in 10 grain doses, three times a day for fourteen days, is then prescribed. If still positive, Course C is given.

The Cases Treated.

Practically all the cases from which these results have been obtained were conclusively shown to be syphilis by (*a*) the "Wassermann" reaction being positive, or (*b*) the presence of *Spirochæta pallida* in either primary sore or secondary rash.

None were treated on a purely clinical diagnosis, unless the signs put the diagnosis beyond all doubt.

The Results Obtained.

The 200 cases were composed of 125 primary and 75 secondary; not picked cases, but the first 200 treated with the course.

At the end of Course A, of the 125 primary cases, 16, or 12 per cent., still showed a positive "Wassermann" reaction, and 109, or 27 per cent., showed a negative "Wassermann" reaction. Of the 75 secondary cases, 43, or 55 per cent., still showed a positive, and 32, or 45 per cent., a negative "Wassermann" reaction.

Of the 43 secondary cases showing a positive reaction at this point, 16 ceased treatment for the following reasons: 11 were showing signs of marked stomatitis, having had large quantities of mercury before this course, 3 had marked albuminuria, 1 refused more treatment, and in 1 the treatment was stopped owing to the violence of the reaction.

At the end of Course B (potassium iodide) the following results were obtained:

Of the 16 primary cases with a positive reaction, 6, or 38 per cent., still showed a positive, and 10, or 62 per cent., showed a negative "Wassermann" reaction; 2 of these 6 cases ceased treatment owing to stomatitis.

Of the 27 secondary cases with a positive reaction, 16, or 59.3 per cent., still showed a positive, and 11, or 40.7 per cent., showed a negative "Wassermann" reaction.

At the end of Course C (further treatment with 1.2 grams salvarsan and 3 grams mercury) the following results were obtained:

All the primary cases, which numbered 4, showed negative reactions, and of the 16 secondary cases 10, or 62.5 per cent., were still positive, and 6, or 37.5 per cent., were negative.

Of the 200 cases which started treatment, 182 completed the full course where necessary. Of these, 172 had negative "Wassermann" reactions—namely, 123 primary, or 98.4 per cent. of those starting, or 100 per cent. of those completing the full course, and 49 secondary, or 65.3 per cent. of those starting, or 81 per cent. of those who completed the full course.

As would be expected, the primary stage shows a much higher percentage of negative "Wassermann" reactions after treatment than the secondary stage. We think it probable that a certain number of the secondary cases may show a negative reaction in a short time, as the final blood tests were taken directly the course had finished.

The Reactions.

The reactions shown by the patients under treatment with salvarsan twenty-four hours after having had the injection may be grouped under three headings: I. Mild;

, Severe; III, Local. After 36.6 of the injections, there ere no reactions.

The figures used here are obtained from the 200 cases eady quoted, and in all 1,320 injections were given.

Group I.—*Mild Reactions.*

In the first group (mild) we include:

1. Headache: 27.3 per cent. of injections.
2. Diarrhoea (two or three loose stools in twenty-four hours): 29.3 per cent.
3. Vomiting some time after injection: 15.3 per cent. of injections.
4. Abdominal pain: 18.4 per cent. of injections.

This group can be dismissed with few comments. A rge factor entering into all these symptoms is neurosis, ad, together with improper dieting, may be considered to ause 50 per cent. of the reactions met with in this group.

Group II.—*Severe Reactions.*

In the second group (severe) we include: (1) Cardiac, 2) respiratory, and (3) central nervous symptoms, (4) omiting at once, (5) rash, (6) rigors, (7) severe diarrhoea, 3) albuminuria.

These symptoms require more careful consideration and xplanation, and are certainly more alarming, especially if iet with by a practitioner dealing with few cases. The ercentage shown is not large, but is large enough to be isconcerting if met with in a small number of cases.

Cardiac and Vascular.—(*a*) Flushing of the skin, and idespread vascular dilatation. These effects we are nclined to attribute to the effects on the vasomotor centre, he tachycardia being secondary, as during the exhibition f the nitrites. (*b*) Tachycardia, apparently secondary to he vascular changes above referred to; the pulse rises to 30. (*c*) Bradycardia precedes or follows the previous ondition, and is frequently accompanied by vomiting, and ometimes by coughing. We are inclined to attribute this ffect to stimulation of the vagus or its centre. The pulse s sometimes at the same time irregular. The patient at his time complains of dyspnoea, and the hand is often sed to indicate distress referred to the upper part of the ternum. He seems often muddled, and may become artly or wholly unconscious.

Respiratory.—Respiratory difficulties are for the most art subjective—a feeling of dyspnoea—but paroxysmal ough is common, from a slight attack of a few coughs to evere paroxysms. Symptoms were noticed in one case vhich started as soon as the fluid was run in. The first ign was shortness of breath leading to a semicomatose ondition, quickly followed by a dry, hacking cough, which ontinued for some minutes after the injection was stopped, nd then passed away, leaving a feeling of weakness and narked pallor.

Central nervous symptoms are met with seldom, but nay take the form of loss of consciousness at once or fter getting off the table, or in some cases some time fter injection. In one case we observed a transient emiplegia, which lasted for three days and then disappeared; the man recovered completely in a week and howed no more reactions of any kind during the rest of he treatment.

Vomiting.—Immediate vomiting seems to be akin to he paroxysmal cough, starting as soon as the injection is ommenced. This condition we met on several occasions, hree times in the same man, who was of rather a nervous emperament; he finally had to stop treatment owing to he fierceness of his reactions. He exhibited at different imes upon the table vomiting, flushing, slow pulse, semi-consciousness, and finally all four at the same time. His reatment was suspended.

Diarrhoea may be troublesome, and some patients uffered from a muco colitis, with the passage of blood-stained mucus for a few days.

Rashes.—We have met three types: (*a*) Erythema, either local or general; it usually passes off in from a few hours to a day or two, but great care must be taken in these cases to graduate the doses, or else an acute dermatitis may be set up. (*b*) Urticaria, which quickly disappears, usually only lasting a few hours. (*c*) Herpes, facial or labial, is not uncommon. Apart from the purely local conditions, we had one case which at the end of treatment, and five days after his last injection, developed acute exfoliative dermatitis. Starting as an erythema on the dorsal surfaces of the feet and the palms of the hands, it quickly spread over all the body, face, neck, and into the hair, and became pustular; under treatment with starch baths, it healed up, leaving very little scarring.

Rigors usually appear from two to six hours after injection, and last for about twelve hours. The temperature runs up to about 100° to 102°, but the patient is usually quite well in the morning.

Albuminuria appears in a few cases during and directly after treatment, but passes away when treatment ceases. In some cases with albumin in the urine before starting treatment we have noticed it disappear after one or two injections.

The percentages of severe reactions were as follows:

	Per cent. of injections.
Cardiac	0.53
Respiratory	0.53
Central	0.53
Diarrhoea	0.7
Rash	5.3
Rigors	9.9

To account for these symptoms is not easy in all cases, but the following are factors to be considered:

1. The temperature of the solution injected. Excessive variation from blood temperature on either side is to be avoided.
2. The alkaline reaction of the solution is to be carefully noted. Excessive alkalinity will give rise to unlooked for symptoms.
3. Injection of air into the veins, even in minute quantities, is dangerous.
4. Small clots may form in the needle owing to back pressure if great care is not taken to wash the needle through well after giving an injection, and before using it again.
5. A full stomach. In one case we found that the man had been eating a large quantity of cakes just before injection.
6. All water must be freshly distilled, as failure to attend to this may lead to increased reactions.
7. The temperature of the injection room should be about 70° F., and the patient covered with a blanket.

Another point of interest, but not of clinical importance, is that towards the end of treatment acute neuralgia occurs during injections of salvarsan, due in all probability to the fact that the gums are inflamed by mercury, although they may show no outward signs of inflammation. The pain quickly passes away at the end of the injection, and leaves no after effects.

Group III.—*Local Reactions.*

Local reactions may be summed up and explained in nearly all cases by faulty technique. The conditions which may be seen are: (*a*) Local bruising, (*b*) haematoma, (*c*) lymphangitis, (*d*) abscess formation, (*e*) necrosis, (*f*) thrombosis.

The first two (*a*) and (*b*) are both due to the operator injuring the vein to a lesser or greater extent at another point to that through which he finally introduces the needle. This can be avoided by introducing the needle through the skin first, and then passing it through the lateral wall of the vessel. By this means the vein does not slip away from the needle point, as it has a tendency to do if an attempt is made to get into the lumen in one motion from above.

Lymphangitis appears in a very minute percentage of cases, and if care is taken it should never occur. In our opinion it is due to local infection. Abscess formation at the seat of injection, again, is due to lack of local antiseptic precautions, and not having the apparatus sterile.

Necrosis at the seat of injection, which we are pleased to say we have not experienced, is due to allowing the injection to run into the cellular tissues around the vein. This can be avoided by first running in distilled water to make sure that the needle is in the lumen. If by chance the needle slips out during injection, owing to the patient moving, it is best to take a scalpel and open over the swelling and thoroughly clean out any solution loose in the tissue. The incision made will heal much more speedily than the necrosed area that will otherwise appear.

Thrombosis is due, we think, in a large percentage of cases, to rough usage, especially in cases where difficulty has been experienced in getting the needle into the lumen, or when too many doses have been given into the same vein. Great care should be taken not to try to give another dose into the thrombosed vein. Some men show a

marked susceptibility to thrombosis. One man whose veins were easy to puncture had a local thrombus after each injection. Soft thrombi sometimes form during the injection, and it is then dangerous to proceed. One first sign of local thrombosis in such a case is hindrance to the flow from the needle.

GENERAL OBSERVATIONS.

1. The general tone and appearance of the patient improve so markedly after one or two injections of salvarsan, and the primary sore so soon disappears, that the practitioner may be persuaded by the patient to stop treatment. We have seen several cases in which this has occurred, with the result that a very early relapse has taken place. Care should be taken to continue the treatment until all clinical signs have disappeared and the blood reaction is negative.

2. The speed with which primary sores, secondary rashes, and condylomata disappear is worthy of note; two or three injections will usually remove all outward signs.

3. The effect of salvarsan is not so speedy in cases in which the mucous membranes of the mouth and tonsil are affected, nor in glossitis, and they do not usually heal until the blood has got to a negative phase.

A SIMPLE DIETETIC TREATMENT IN DIABETES MELLITUS.

BY

R. T. WILLIAMSON, M.D.LOND., F.R.C.P.,

CONSULTING PHYSICIAN, MANCHESTER ROYAL INFIRMARY.

WHEN the ordinary dietetic treatment fails to check the glycosuria in cases of diabetes mellitus we have now many new methods of treatment which, temporarily or permanently, are of distinct service. Some of these methods have, however, disadvantages, and occasionally are followed by very unpleasant symptoms.

I desire to draw attention to a simple method of dietetic treatment which I have found of the greatest service, in many cases of diabetes, in checking the glycosuria, at least temporarily. It is free from risk, quite palatable, and can be taken by almost all patients. It is worthy of trial in most cases of diabetes if the ordinary diabetic diet does not promptly check the glycosuria.

The treatment lasts for a week or ten days only; during this period the patient ceases work and rests on the sofa. Every two hours from 8 a.m. to 10 p.m. he receives a small amount of food—eggs, cream, milk, beef-tea, and tea—according to the following diet sheet.

Diet.

8 a.m.—Coffee, or tea, with one tablespoonful of cream. One egg (poached, boiled, or buttered).
10 a.m.—A glass of warm milk (half a pint).
12 noon.—Custard (prepared from one egg and half a pint of milk).
2 p.m.—A glass of warm milk (half a pint).
4 p.m.—Tea, with one tablespoonful of cream. One egg (poached, boiled, or buttered).
6 p.m.—Cream, two tablespoonfuls, in half a pint of warm beef-tea.
8 p.m.—A glass of warm milk, or one egg beaten up and added to half a pint of warm beef-tea.
10 p.m.—Cream, two tablespoonfuls, in half a pint of warm beef-tea.

The order of these meals may be varied or slightly modified as the patient desires. The patient takes no other food. The bowels are kept regular.

In many cases the glycosuria ceases in a few days, in other cases in a week or ten days, although an ordinary rigid diabetic diet had failed to check the sugar excretion. If the sugar excretion does not cease on this diet of eggs, cream, milk, and beef-tea, carried out as just described, in the course of a week or ten days, I discontinue it and try some other method of treatment. After the glycosuria has been checked I change gradually, at the end of seven or ten days, to a diet of solid food. First, a little diabetic bread* is allowed with the tea and egg at 8 a.m. and 4 p.m., and two of the other meals are diminished or omitted. Then a day or two later bacon and green vegetables are allowed, followed by custard, in place of the meals at 12 noon and 2 p.m., and the meals at 10 a.m., 6 p.m. and 8 p.m. are omitted, and the tea and egg taken at 5 p.m. instead of 4 p.m. If the glycosuria does not return then the bacon at midday dinner may be replaced by fish, and later by fowl or meat. Later the ordinary diabetic diet may be allowed, and still later, if no sugar returns in the urine, a small amount of white bread may be given.

Of course, this treatment for a week or ten days with the diet of eggs, cream, milk and beef-tea, in the manner just described, does not remove the glycosuria in all cases of diabetes; but it is interesting to note how often it will do so, when a previous treatment with the ordinary rigid diabetic diet has entirely failed to check the sugar excretion.

If the glycosuria returns at a later date, the patient may try again for one week the diet of cream, eggs, milk and beef-tea, and repeat it from time to time, if necessary.

The permanent value of this treatment cannot yet be estimated, but it is a method which is more prompt and powerful than the ordinary rigid diabetic diet.

In the BRITISH MEDICAL JOURNAL of March 13th, 1915, I published a method of treatment with casein or biogene (mixed with cream and water) which I had found of great service. Since that date I have used this method very frequently and often with excellent results, and my further experience has confirmed the opinion I then expressed as to its value. It requires, however, to be carefully watched, and, as I previously pointed out, it occasionally causes unpleasant symptoms, which can, however, soon be checked. Occasionally bad specimens of casein or biogene are obtained which cannot be taken by the patient, and occasionally a case is met with in which a satisfactory preparation of casein or biogene is most unpalatable to the patient and cannot be taken. The casein preparation known as Laitproto No. 6† may then be tried in place of casein, and in the same quantity, and may be well taken. If this should be very unpalatable and cannot be taken, the method of treatment with milk, cream and egg described in this article can almost always be taken quite well.

The dietetic treatment (with cream, eggs, milk, and beef-tea) just described is (1) simple; (2) less expensive than diabetic breads and foods, and specially suitable now on account of the increased price of diabetic foods through the war; (3) it can be taken by nearly all patients, and is quite palatable; (4) it can be taken by patients who cannot take casein or biogene; (5) it does not require any very special care or watching; (6) it is very useful and suitable in the case of diabetic children; (7) it is often very successful, and often removes the glycosuria when an ordinary rigid diabetic diet has failed; in other cases, like all other treatments, it is not successful; (8) after taking this diet for seven or ten days the patient may then often take an ordinary rigid diet, and continue it for a long period without the return of the glycosuria, whilst previously such a diet had entirely failed to check the glycosuria; (9) in some cases it removes the diacetic acid as well as the sugar, but not in many others; (10) probably it is not so often successful as the treatment with casein or biogene (which I have previously published), but if it should fail, the latter treatment may then be tried, or a combination of the two methods may be tried.

The dietetic treatment described in this article should be continued for seven or ten days only. It is to be regarded as a method usually very much more successful than an ordinary rigid diabetic diet in removing the glycosuria temporarily, and its after-effects probably continue much longer. If later the sugar returns in the urine the treatment may be repeated. The earlier the treatment is tried the more likely is it to produce satisfactory results. It is worthy of trial in most cases of diabetes if the ordinary rigid diet does not check the glycosuria in one or two weeks.

* Biogene bread and ponos biscuits, protene bread, etc., or the coconut and biogene, and other cakes which I have described in the BRITISH MEDICAL JOURNAL, December 23rd, 1916.

† Laitproto No. 6 can be obtained from Casein Co., Limited, Sheepcote Lane, Battersea, London, S.W.

DR. LANPHIER VERNON-JONES, of Arlington Street, S.W., left £16,808.

AT the first meeting of the American Congress on Internal Medicine, held in New York on December 28th and 29th, 1916, an American College of Physicians was founded. Sixty-five physicians were elected Fellows.

Memoranda:

EDICAL, SURGICAL, OBSTETRICAL.

SUDDEN DEATH FROM APOPLEXY.

DDEN deaths are not so often attributed to a "stroke" they were a few years ago. Heart failure figures now ich more frequently, and in the overwhelming majority cases it is the truth. When one meets with quite a dden death from a cerebral lesion it seems worth while cording.

A female, aged 62, had had a trace of albumin in the ine for several years. In 1908 she suddenly lost power the right arm and hand, almost if not complete at first. ie speech was only affected in as far as it was an effort explain anything. In January, 1917, she had been tertaining friends in conversation all the afternoon, and st after tea became suddenly unconscious. Arriving a w minutes later I put her flat on the floor and found e heart sounds present. They improved with artificial spiration, but no air entered the lungs. There was no lse at the wrist, and the heart sounds disappeared in lf an hour from the attack. Some colour at first re-rned to the face; the pupils were moderately dilated. imagine the immediate cause of death was cerebral emorrhage involving the respiratory centre. The tient had homoeopathic tendencies, and had not con-lted me about her general health for some years, hence e paucity of the account I can give of signs and sym-oms. She had lost flesh, and always looked more or less le and unhealthy. No *post mortem* examination was lowed.

I have never before known a case of apoplexy prove tal until after many hours had elapsed.

HENRY WALDO, M.D., M.R.C.P.,
Consulting Physician, Bristol Royal Infirmary.

Clifton, Bristol.

A NOTE ON ACIDOSIS.

HE recent communications on acidosis in children by Dr. ampbell Stark and Dr. Pinson induce me to put on record me observations of my own on this subject.

When I was resident medical officer at the Children's nfirmary, Liverpool during 1915, many children, includ-g babies, were admitted suffering from burns and scalds. he majority died even under the best local treatment, nd some of those who succumbed had been only slightly urned or scalded in perhaps one limb.

Those who died presented the following symptoms: Within twenty-four hours of the accident, even when the hild appeared fairly well on admission, there was a rise f temperature to 100° or 101° F.; the patient then became stless, with persistent vomiting, gradually becoming more nd more drowsy, and usually within three days died from xhaustion.

In some of the cases I noticed the odour of acetone in he breath, and the urine by examination was found to be ery acid and to contain a large quantity of acetone. fter this, in every case of burns or scalds, in addition to he local treatment, I prescribed twenty grains of sodium icarbonate and one drachm of syrup of glucose in one unce of water every four hours, also small quantities of randy when there was great prostration. The acetone isappeared from the urine in a few days. The mortality-ate greatly diminished.

There was one very striking case which has been im-ressed on my memory. A child, not quite a year old, was admitted to hospital almost immediately after being everely scalded; a catheter specimen of the urine was at nce obtained and it was found to contain a large amount f acetone. It appears to me that this acidosis has much o do with the fatal issue, and this is borne out by the lkaline treatment reducing the mortality. The cause of he acidosis in these cases is evidently not dietetic, but it nay be probably due to the nervous shock, and possibly, to ome extent, to the suppression of the excretory function f the skin.

Liverpool. R. J. MINNITT, M.B., Ch.B.

LIEUTENANT-COLONEL ARTHUR NIMMO WALKER, of Liverpool, who was killed in action on September 24th, 916, left £8,905.

Reports of Societies.

TOXIC JAUNDICE IN MUNITION WORKERS AND TROOPS.

AT a combined meeting of the Sections of Medicine, Pathology, and Epidemiology of the Royal Society of Medicine on January 23rd, when Surgeon-General H. D. ROLLESTON, R.N., was in the chair, a discussion on the origin, symptoms, pathology, treatment, and prophylaxis of toxic jaundice observed in munition workers and troops was opened by Dr. T. M. LEGGE, H.M. Inspector of Factories.

Incidence and Prevention.

Dr. T. M. LEGGE said that, in the early stages of the war, it looked as though poisoning by dope, which contained 12 per cent. of tetrachlorethane, was going to be formidable; 19 cases were detected in one factory in quick succession. That the tetrachlorethane was the culpable ingredient of dope had been shown experimentally by Dr. W. H. Willcox; the plenum system of ventilation then in vogue in the workshops was unsuitable. The danger had been combated by periodical medical examinations, installation of exhaust ventilation, and frequent changes of employment. The tetrachlorethane had now been replaced by a substitute which was safe. From first to last about 70 cases had been heard of, with 12 deaths. Concurrently two or three cases of toxic jaundice due to T.N.T. occurred, and this form of jaundice was made notifiable. At first only a few cases occurred, then with an intensification of the work, which coincided with the hot weather, there were more; later, in the last two months, there were fewer cases again. The incidence had been at places where the material was used rather than where it was made. The skin was the main channel of absorption, as shown by the occupations of those affected. A method of exhaust ventilation could do little to reduce the danger from skin absorption. Mechanical aids to diminish the need for handling the material had been employed. Other safeguards used were alternation of employment, periodical medical examination, and cleaner working; and these, with suitable ventilation, were the chief methods of control.

VISCOUNT CHETWYND (managing director of a large factory) wrote saying that it was in the interest of a factory that sickness should be kept down, in view of the reduction of labour. That poisoning was due to fumes rather than to dust was, in his opinion, shown by the fact that in a group of men who worked covered with dust but with easy access to the air no cases arose; while in another group who worked where the circulation of air was poor and fumes were more evident the incidence was 9.3 per cent. With better ventilation this percentage dropped, a similar reduction being noticeable also after a gale. There were more gastric cases among women than among men, who fed themselves better. A part of the wages of the women was withheld, and they were efficiently fed; a reduction of cases from 11.6 to 1 or 2 per cent. followed. Although the amount of wages withheld did not cover half the expense of feeding, the improvement in health made the transaction financially successful.

Professor BENJAMIN MOORE said that the minor illnesses arising from T.N.T. were of very great importance. The number of absentees from this cause at one factory was high. Animals kept in dense fumes for considerable periods had remained well. He then noticed that in a very clean factory, where workers had oily hands, cases occurred. Next he provoked poisoning symptoms in himself by rubbing an oily preparation of T.N.T. into his palms. In a factory he had breathed fumes and dust very systematically, but had not induced any poisoning. Most poisoning occurred among the workers who rubbed off the spilt material about the shells, which should never have been there. There was an attitude of false security about the handling of T.N.T. because it was so little explosive. There should be as clean working with T.N.T. as with black powder or petrol. As preventive measures, cleanliness came first, then alternation of employment. During the periods of cessation of work with T.N.T. there must

be cleanliness of the skin, changing of underclothing, and cleansing of the scalp. An organic solvent, such as acetone, should be used to remove the material from the skin and scalp as far as possible. The greater the cleanliness the less would be the incidence of illness. There should be a penalty for careless handling and if the floor became littered with dust.

Post-mortem Appearances.

Dr. B. H. SPILSBURY described the *post-mortem* and microscopical changes found in fatal cases of tetrachlorethane, dinitrobenzene, and trinitrotoluene poisoning. He pointed out that in all cases the most advanced changes were found in the liver. In large areas the liver cells had almost or entirely disappeared, the stroma of the organ remaining, and showing in some cases processes of organization, with fine globules of fat as sole evidence of the previous fatty degeneration of the cells. The bile ducts in some cases remained, and might show active proliferation and even slight attempts at regeneration of the liver tissue. The areas in which the liver tissue had not disappeared might show some hypertrophy of the liver cells, but these generally exhibited a varying degree of fatty degeneration. In all these cases the kidneys exhibited fatty degeneration, generally widespread and advanced. In most of the cases there was fatty degeneration of the heart muscle. Experiments in rats with the vapour of tetrachlorethane, conducted by Dr. Willcox and himself, had shown that, after exposure to the vapour for one week, a marked fatty degeneration of the liver developed, and some of the kidneys and heart, the other organs showing no pronounced changes. These experiments suggested that the earlier stages of tetrachlorethane poisoning in man consisted of fatty degeneration, which, in the liver, led to complete destruction of many of the liver cells before death.

Morbid Anatomy.

Dr. H. M. TURNBULL had examined *post mortem* seven cases of toxic jaundice caused by T.N.T. In six of these the least damage in the liver was in the anterior part of the right lobe. In the seventh the portion most affected was the upper part of the right lobe. The destruction was greatest in the parts most remote from the portal blood supply. The condition resembled portal cirrhosis of the liver in the patches where the destruction was not complete. In some cases there was regeneration. The changes had not always been progressive. In one case a large liver was met with, showing only three very small areas of complete destruction, and elsewhere reticular fibrosis. Another case was one of very severe anaemia without jaundice, and was erroneously thought to be an example of pernicious anaemia. The liver showed fatty degeneration in the centres of the lobules, such as occurred in severe anaemia (there was no iron), but in another part the lesions were like those due to T.N.T. Two other cases of men with extremely severe anaemia were examined. They were examples of aplastic anaemia, and very little marrow was found, but in it were many plasma cells and phagocytes containing chiefly erythroblasts. There appeared to be an actual destruction of the marrow by the poison.

Captain MATTHEW J. STEWART, R.A.M.C.(T.), gave the results of observations dealing with: (1) The morphological changes in the blood occurring in a series of fourteen cases of toxic jaundice from trinitrotoluene poisoning, and (2) certain points in the morbid anatomy of the disease as observed in a series of seven fatal cases.

I. CHANGES IN THE BLOOD.

The cases numbered 14, and occurred in munition workers admitted to hospital during the months August to December, 1916. Most of them were under observation for weeks or months. As many of them were still coming up regularly for examination, these results were to be regarded as partial and preliminary, but sufficient had already been made out to show that very profound changes in the composition of the blood might occur as a result of trinitrotoluene poisoning; it might be said that such changes were the rule in cases in which pronounced clinical symptoms, and especially jaundice, manifested themselves. One case only out of the 14 examined, a man who, clinically, was never seriously ill, showed no blood changes. All the others had definite deviations from the normal of some sort or another.

A. Changes in the Leucocytes.

These were worked out on a basis of the absolute number per cubic millimetre of each variety of leucocyte; the fairly elastic figures taken as the limits of the normal were: Neutrophile polymorphs, 3,600 to 6,750; lymphocytes, 1,200 to 2,700; and eosinophiles, 30 to 360 per c.mm.

(a) Neutrophile Leucopenia.

This, the most striking of the leucocytic changes, was present at some stage of the disease in 9 out of the 14 cases. In 4, two of them fatal, the leucopenia was extreme, under 1,100 per c.mm.; of the other 5 affected, the highest neutrophile count was 3,175. In the two fatal cases the leucopenia was progressive and terminal, the final counts being 120 and 636 respectively. One case illustrated very well the polymorphonuclear recovery which accompanied clinical improvement in the condition of the patient. While the patient was seriously ill the neutrophiles numbered only 1,030 and 1,092. A fortnight after her discharge from hospital they numbered 6,280. In three cases, one of them fatal, neutrophile leucopenia was associated with anaemia of pernicious type. A progressive failure of the leucoblastic function of the bone marrow was therefore to be regarded as one of the most common manifestations of severe trinitrotoluene poisoning but that it was not a constant feature in fatal cases was shown by one instance. In another fatal case, which was not investigated during life, the bone marrow showed evidence of great leucoblastic, as well as erythroblastic, activity. Here the whole duration of illness was only one month, yet the liver changes were extreme, and it seemed reasonable to suppose that there had not been time for the development of the full toxic action on the marrow. Whether this neutrophilic failure was due to a direct action of the poison on the leucoblastic tissue could not be said with certainty, inasmuch as all the cases in which it occurred presented clinical evidence of an antecedent or accompanying hepatic lesion (jaundice, etc.), while both the fatal cases showed a typical advanced trinitrotoluene cirrhosis of the liver *post mortem*.

(b) Neutrophile Leucocytosis.

This change was present in a notable degree in one (fatal) case only, in which, at the first examination, the total leucocyte count was 14,200, of which 10,000, or 70.5 per cent., were polymorphonuclears, while a month later, on the day before his death, the figures were 22,000 and 19,200 (87.25 per cent.) respectively. This change was unassociated with any variation in the lymphocytes or in the red cells or haemoglobin, but at the first count there was an eosinophilia of 1,000 per cubic millimetre. *Post-mortem* examination showed the bone marrow in the shaft of the femur to be largely fatty, with a narrow peripheral zone of red. Microscopically, small foci of very active leucoblastic proliferation were found. The inspection, however, failed to reveal any inflammatory cause for the persistent leucocytosis, which was in striking contrast to the other fatal and clinically serious cases. In three other cases an early and slight neutrophilia was present, but was speedily followed in each instance by a pronounced leucopenia.

(c) Lymphocytosis.

This was one of the most commonly observed changes; it occurred at some time or other in 9 out of 14 cases, and varied in different patients from 3,150 to 5,100 per cubic millimetre. Considerable variations were often seen from time to time in the same patient, but the fluctuations were irregular and did not appear to have much, if any, significance. In the remaining five cases the lymphocytes ranged within normal limits, except that in two cases there was a single temporary drop to 1,040 and 1,160 respectively. Even in fatal cases and in those showing profound polymorphonuclear or erythrocytic failure the lymphocytes were maintained at or above the normal level. In two cases lymphocytosis was the only change noted.

(d) Eosinophilia.

This was observed in three cases; in two of these it was well marked, accompanying a marked neutrophile leucocytosis in one and slight neutrophilia in the other. While

s significance was doubtful, it was to be noted that in no ase did an excess of eosinophiles coexist with a neutro- hile leucopenia. Altogether the number of eosinophiles as found to be a very variable quantity in these cases.

B. *Changes in the Erythrocytes and Haemoglobin.*

These were much less conspicuous than the leucocytic hanges. A serious degree of anaemia was observed in hree cases only; in all the others, including two of the atal cases, the red cell counts were over 4,000,000, but a light grade of chlorotic anaemia was present in several. n the three serious cases the anaemia was of the "per- icious" type, with a colour index over 1, but very arying degrees of severity were presented. In the most xtreme case there was a fall in the red cells to well nder 1,000,000, and as the haemoglobin was not reduced o anything like the same extent (25 to 30 per cent.) there as a high colour index (1.5 to 1.8). The erythrocytes in his case were greatly altered qualitatively; anisocytosis as well marked, with many megalocytes. During the orst phase numerous erythroblasts appeared, and there as polychromatophilia. In the other two cases the red ells fell to 1,500,000 and 2,900,000 respectively, with colour ndices of 1.4 and 1.1. Qualitative changes in the red cells ere not striking—some anisocytosis with many megalo- ytes, and in one case slight polychromatophilia. Punc- ate basophilia was not seen in any case, in striking ontrast to the findings of Malden in workers among initrobenzene and anilin.

II. MORBID ANATOMY.

The liver lesion appeared to lie somewhere between sub- cute yellow atrophy and ordinary multilobular cirrhosis f irregular distribution. The action of the poison on the epatic cells was probably slow and insidious, and the legenerative changes were speedily followed, if not actually ccompanied, by leucocytic infiltration and fibroblastic vergrowth. The degenerative and other processes once et going were progressive, even when the patient was emoved from the influence of the poison, and in a certain roportion of cases a fatal termination ensued in from four o twelve weeks after the first symptoms. Certain portions f liver tissue escaped complete destruction, and these howed evidence of more or less regenerative hyperplasia. t might be assumed that in some cases this persistent and egenerated hepatic tissue would be sufficient to maintain ife for a considerably longer period than three months, ut what the ultimate fate of such persons would be time lone could show.

In the series of seven *post-mortem* examinations on which his remarks were based, the weight of the liver varied from 20 to 32 oz., the average being 27 oz. The degenerative- irrhotic process, as evidenced by the dark red contracted reas, was always most advanced in the left lobe and nferior marginal region of the right lobe. Often these two portions of the organ were composed almost entirely of red issue. Another striking feature was the frequency with which large rounded yellow nodules projected from the under surface of the right lobe on each side of the gall- bladder, less often from the Spigelian and quadrate lobes. The bone marrow of the femur was examined in 6 cases. In five the red marrow was in excess, extending well down the shaft of the bone, but on microscopic examination a definitely erythroblastic reaction was found in one case only. In it the yellow marrow of the shaft was completely re- placed by a cellular red marrow, the appearance being comparable to that seen in pernicious anaemia. Evidence of considerable leucoblastic activity was also present, but there had been no opportunity to examine the blood during life. In one case with neutrophile leucocytosis the shaft marrow was fatty, with a narrow red layer next the bone. Microscopically, some small foci of active leuco- blastic proliferation were seen. The spleen was never appreciably enlarged, the weight varying from 4 oz. to 7 oz. in different cases. Ascites to the extent of five or six pints was present in three cases. Clinical examination of the fluid in one case showed a very scanty cellular deposit with a preponderance of lymphocytes. A very few red blood corpuscles and endothelial cells were also present. Haemorrhages in various situations were present in five cases, most frequently in the peritoneum and peri- cardium, less frequently in the stomach, lungs, pleurae, endocardium, and skin. In one case there was very extensive haemorrhage into the peritoneum and subperi- toneal cellular tissue, especially of the omenta, mesocolon, mesentery, and appendices epiploicae. In the same case there was profuse terminal oozing into the stomach. In the other four cases the haemorrhages were mainly petechial.

DR. P. N. PANTON said that he had examined the blood in fifty women in one factory who were still at work and apparently well. No blood changes were found except those of minor importance. The majority showed some leucocytosis, chiefly of polymorphonuclear cells. There was no suggestion of blood destruction, in contradistinc- tion to what had been described in poisoning by D.N.B.; 100 workers had been examined for cyanosis; 18 were definitely cyanosed; others were blue, but possibly because the day was cold. The cyanosis had been generally ascribed to methaemoglobinaemia, but he did not consider that this had been proved. He had used Haldane's test, with which 36 examples of blood were positive, but it was difficult to be sure of the conclusiveness of the test. In 20 out of 100 cases the serum was bile-tinged, without evidence of jaundice, but this sign was also present in a certain number of normal people. Of 19 patients suffering from poisoning by T.N.T., 15 of whom had toxic jaundice, nothing abnormal was found in the blood in 13. Two con- ditions might occur, in his opinion, with T.N.T.: (1) Toxic jaundice; (2) aplastic anaemia. He had seen 4 cases of the latter—2 with jaundice and 2 without.

DR. I. FELDMAN raised the question of the possibility of another toxin being present in T.N.T. cases. Webster's test should not be regarded too absolutely as determining the existence of T.N.T. poisoning. He cited a case which had occurred seven weeks after the last exposure to the poison, and in which no trace of T.N.T. was found in the urine or faeces. In two animals inuncted with T.N.T., no trace of T.N.T. was found in the organs, and in a fatal case also T.N.T. was absent from the organs. Among the early symptoms were a very definite dark-brown colour of the urine before jaundice was noticeable, urgency in micturi- tion, and lassitude, the patients feeling faint and weak. A later symptom in one case was the appearance of leucin and tyrosin crystals in the urine. The metabolic activity of the liver was not affected as far as urea was concerned.

Clinical Aspects.

DR. W. J. O'DONOVAN dealt with the clinical aspects. The typical manifestations could be classified into five groups: (1) Dermatitis; (2) an irritative gastritis evinced generally during the first week of employment and cured by simple treatment and a few days' holiday; (3) a toxic gastritis; (4) effects upon the blood and blood-forming organs; and (5) toxic jaundice. Toxic gastritis was due to T.N.T. absorption; its symptoms were colicky epigastric pain, often severe, and having no relation to meals; con- stipation, anorexia, wasting, and sometimes vomiting were associated symptoms. It was difficult to diagnose this from gastritis due to other known causes, but the wizened pallor of the face of these T.N.T. cases was very striking. Another common sign of T.N.T. absorption was cyanosis, but neither this nor gastritis were reliable warnings that jaundice might supervene. Of 30 cases of toxic jaundice, in 15 the jaundice was the first sign to call for notice. In 1916 about 50 deaths had occurred from toxic jaundice, a mortality among those exposed of 0.05 per cent. The total sickness incidence had in one factory been as high as 11 per cent., but the sickness incidence and the mortality- rate, in cases of jaundice, had both steadily lessened. Jaundice might supervene at a very early or late period of employment, from the fourth day to the ninth month, and it might first appear after an absence up to two months of freedom from exposure to absorption. The prognosis of a case of toxic jaundice was uncertain. When recovery was expected coma or convulsions might suddenly supervene, but with the early detection of icterus the prospect of the chances of recovery were much greater. A second attack should not occur, because a return to T.N.T. work on recovery from toxic jaundice was forbidden, but he had seen one such case; in this the man, after a return to T.N.T. work, became again icteric, and, in addition, very pale; the serum contained bile pigment, and the blood showed a marked absence of bone marrow reaction. Since

Professor Moore's investigations were reported great attention had been paid to the prevention of the possibilities of skin absorption.

Dr. J. A. P. BARNES said that an observation of 1,100 workers had borne out in the main the contention that the channel of absorption was chiefly the skin. He had found that among employees working with greasy hands the incidence of sickness had been 17 per cent., as compared with 10 per cent. among others. In two groups of workers the hands were brought into close contact with the powder. Among these there were toxic symptoms in 10 per cent.; in all the others they occurred in 1 per cent., in spite of exposure to fumes in the case of some of them. He thought that the mucous membrane was also a channel of absorption in the case of women who wore suction plates, between which and the mucous membrane a sandwich of powder collected and remained all night, as the women were often advised by the dentists not to remove these plates at night. Girls, after a few days at the work, often suffered from severe mental depression, replaced later, when serious jaundice occurred, by a state of exaltation, probably toxic, and reminiscent of the *spes phthisica*. He hazarded the suggestion that excretion plays a large part in the elimination of the toxicity of T.N.T. He had transferred a group of ten workers from a well-ventilated building to one less well ventilated and more confined. They deteriorated in health, while those who replaced them, coming from the worse-ventilated building, improved considerably. He had endeavoured to find out whether any after-effects occurred in those who had formerly worked in T.N.T.; constipation was commonly complained of.

Dr. W. R. SMITH gave his experiences in a shell-filling factory. Up to January 20th there had been 62 cases of toxic jaundice with 16 deaths, 10 in men and 6 in women. Six cases had occurred in youths under 18, with 4 deaths; the employment of juveniles was then stopped. There had been a steady fall in the number of cases, due to several factors, the most important being efficient ventilation. Another beneficial factor was the introduction of intervals during the shifts for relaxation, feeding, and walking about. All the women were supplied with two good meat meals daily. Thorough preliminary examination of employees had been introduced, and free dental advice and treatment provided on the spot. Finally, pressure had been applied to make the patients report earlier. A most striking clinical feature was the reluctance of most cases of toxic jaundice to admit that they were ill in the early stages. No dermatitis had been met with among the jaundice cases. Nausea and anorexia were usually present early. Constipation was almost invariable. Purpura occurred in three cases, in one around the nail beds, in one in the mucous membrane of the mouth and lips. Drowsiness and sometimes maniacal violence occurred. In one case tetanic convulsions and opisthotonos simulating cerebro-spinal fever were met with. Absolute rest in bed was essential even in the mildest cases. Calcium chloride might be used if there was any suggestion of haemorrhage.

Major O'REILLY said it was noteworthy that no ill effects from T.N.T. had been noted before the war, even among juvenile workers. The cutaneous affection was most frequently met with during the first week of exposure, the hands, wrists, face, and neck, and occasionally the ankles, being the chief sites. Itching occurred. It was followed by a fine desquamation, and was not generally severe but yielded to simple ointments. The toxic effects presented themselves in three forms: The gastric type, usually with cyanosis, toxic jaundice, and the anaemic type. These were not different stages but distinct types. The gastric type occurred at all periods of exposure, and was marked by listlessness, pallor, cyanosis, an icteric tinge of the conjunctivae, depression, nausea, giddiness, faintness, pain behind the xiphisternum and constipation. It was remediable by suitable treatment, and left no after-effects. The chief diagnostic aids were constipation, the pallid pinched appearance, and the epigastric pain. He had not seen the toxic jaundice form emerge from the gastric form. It appeared suddenly, and did not differ at first from ordinary catarrhal jaundice. The liver might be enlarged in the early stages. In three fatal cases meningeal symptoms appeared, ending in coma and death. The anaemic cases looked like examples of pernicious anaemia, but though the colour index might be high there were no nucleated red cells. The use of acetone had been encouraging. From the point of view of prevention great attention had been paid to the teeth, which were inspected once a week. Gloves, veils, and respirators were supplied and change of employment given fortnightly. The workers were warned to change their clothes when at home. Milk was supplied free, washing of hands was insisted upon, and ointment was supplied in each work house.

Dr. MORLEY FLETCHER recorded a case of toxic jaundice under his care in hospital, in which saline infusions and venesection had had no beneficial effect, in contradistinction to what he had observed in cases of acute yellow atrophy. The blood was noticed to be very tarry. He questioned whether these methods had been useful in other cases and whether they should be employed in early stages. The cerebro-spinal fluid had been found bile stained after death in a case in which it was clear during life.

Fleet Surgeon R. C. MUNDAY recorded his experience in the Admiralty munition establishments. There had been a complete immunity from toxic jaundice. This he explained by the greater amount of cubic space provided, the absence of piecework, better discipline and cleanliness, and better ablutionary arrangements. It was better to remove the fumes from their source than from the bottom of the room. Alternation of work was provided very fully, scrupulous cleanliness was observed, and soiling of shell cases was prevented. There was an absence of dust on the floors. The workpeople were clean. He agreed that the skin was the chief channel of absorption. At the naval air stations no case of dope poisoning had occurred, the alternation of work among those employed being very perfect.

Dr. C. PILLMAN said that it was difficult to state when toxic jaundice started, as 15 per cent. of women workers had yellowness of the conjunctivae, probably due to constipation, before commencing work. All cases of jaundice could not, therefore, be notified with advantage.

Dr. MARY A. S. DEACON and Dr. H. G. P. CASTELLAIN concurred as to the frequency of bile tinged conjunctivae before exposure to T.N.T.

Reviews.

THE MAKING OF THE PROSTITUTE.

A BOOK has recently appeared, entitled *Downward Paths*,[1] which gives an account of an investigation into the causes which contribute to the making of the prostitute. A preface is written thereto by Miss A. MAUDE ROYDEN, who states that "the book is published under a trust, and the several writers who have contributed to produce it desire that their names should remain unknown. They are women who, realizing that knowledge is the first need of the reformer, have sought at least to make a beginning, and to study the conditions of a great and terrible problem which society must ultimately attempt to solve." An anonymous investigation of this sort suffers under a disadvantage: the statements made are not subject to verification by the ordinary citizen, he is obliged to take the evidence offered by those who have made direct investigations, and the credibility of the evidence must be the credibility of the witnesses. In this instance the writers provide no personal guarantee of credibility, for they are not known.

The data forming the basis of the book are slender; the chief evidence is that provided by the histories of 669 women, and that evidence is wholly secondhand. Such a foundation is insufficient for a generalization such as is hinted at in the foreword. But when the particular findings are compared with those derived from other and much more extensive investigations, it is found that there is a substantial agreement; so that this book may be taken to

[1] *Downward Paths: An Inquiry into the Causes which Contribute to the Making of the Prostitute.* With a foreword by A. Maude Royden. London: G. Bell and Sons. 1916. (Cr. 8vo, pp. 213. 2s. 6d. net.)

ve a fair picture of the facts, and it has a certain special lue in that it is written from a feminist standpoint.

Most people, when questioned on the causes of the making the prostitute, will answer, without hesitation, that overty and the wickedness of the seducer are the chief actors. The girl sells her soul for a morsel of bread, or she robbed of her innocence by the ruthlessness of a beast. hese ideas rest on a general impression gained by reading orks of romance, especially the sort that is brimful of ne kindlier human sympathies, and tells of the saving of ne lost and the repentance of the evil-doer.

The book before us is a corrective of such ideas. Indeed, will be a shock to most to discover that poverty and the educer are the least active agents in the making of prostiutes, and that the causes of prostitution are more subtle nd much more difficult of eradication.

Chief amongst the causes of prostitution is placed "bad omes and the desecration of childhood." In this category re lumped two conditions—the real bad home, where the arents and the whole surroundings are vicious; and nother sort of home, where propinquity and a generally unmoral" atmosphere leads to a familiarity amongst hildren and a precocity in sexual indulgence. It is vident that modesty is cultivated by a reasonable paciousness of abode, and that the reverse may be true. There is a habit of submission to the physical demands f the opposite sex evolved from the upbringing in squalid omes. Mere animal toleration is fostered." The authors ncline to the view that early and abnormal stimulation eads to perversions and disturbances of the sexual feelings; he victims of such conditions emerge from childhood in oo many cases endowed with an appetite which "tempts hem into dangers, and deprived already of those precious afeguards for the young of both sexes—modesty, virginity, nd a sense of self-respect." This section of the work is perhaps the least substantiated, and its impressions may be corrected by the statement of another author, to whose work we refer later.

The next great cause cited (and it is probably the chief cause of prostitution) is "deliberate choice." Many adopted the career from vanity, love of pleasure, an adventurous spirit, bad companions, a wilful and uncontrollable nature, laziness, love of sweets and the obligation to pay bridge debts, sexual desire, love of gain; these cases added together form a full 40 per cent. of the tale of the prostitutes brought into the inquiry. Such a finding as this makes the task of eradication vastly difficult. From the cases cited it is evident that neither ignorance nor knowledge, innocence nor wisdom, poverty nor comfort, determine the actions of some women. There is a perverse generosity at one end of the scale and a greedy cunning at the other, but both combine in a similar line of action, and by an unmoral impulse which is suggestive of a low grade of development rather than the breach of a known code of morals.

"Homelessness" is given as a cause for a small number of women. A few drifted into prostitution from sheer loneliness; more had already entered on a course of conduct which estranged them from their homes before they took up this sort of life. "Seduction and desertion" is stated to be "comparatively rare as a first step to an act of prostitution, that is, to be undertaken for gain, nor does it, except in a small proportion of instances, lead to prostitution." The writers expressly exclude as innocuous premarital sexual freedom, the custom of some parts of this and other countries—such as the "island custom" of Portland, where for a long period of years there were no illegitimate children and few childless marriages. The popular idea credits "compulsion and exploitation" as causes responsible for much degradation of womanhood, but the book gives no support to this idea. "A weeping and reluctant girl is not an easily marketable asset, and it may be doubted whether the majority of men who visit houses of ill fame are prepared to commit rape." Recently the papers and the mouths of gossips were full of harrowing tales of "white slavery," spread at the time of the promotion of the Criminal Law Amendment Act of 1912. A careful investigation was made by Mrs. Billington Greig into a crop of "cases," and none could be substantiated. One authority stated, "I cannot call to mind a single case of the forcible trapping of a girl or a woman by drugs, false messages, or physical force, during the last ten years, that has been authenticated or proved. I should say that such cases were very rare indeed. . . . The average number of cases of procuration in London is about three per annum, and none of these are really cases of trapping."

The married and the widowed, it is stated, do not contribute largely to the ranks of the prostitute. "Some witnesses assured us that such cases are almost unknown." But nurses in seaport towns said that wives of seamen often resorted to prostitution as temporary help when their husbands were away.

Lastly come the feeble-minded. These formed two groups: those morally deficient, but sexually active or even attractive, who pursue more than they are pursued; and the larger class of non-resistant ones, who have no active impulse to seek out men, but who will yield to any one who approaches them. According to the figures of this return somewhat more than one-third of all the cases reported on showed some sign of mental defect.

We have at hand a little book of 60 pages, published in 1890 by the Rev. G. P. Merrick, M.A., M.B., Chaplain of H.M. Prison at Millbank, entitled *Work Amongst the Fallen* (Ward, Lock and Co., London). This bachelor of medicine and chaplain made personal records of the lives of over 100,000 women. In his book he gave a return based on 16,000 consecutive cases. There is scarcely an item of interest—from place of origin, age at fall, work of parent or of subject, and general education, up to religious knowledge—on which he has not some information to give. Half the London prostitutes came from the provinces and mainly from shipping and military centres. The crowded East End of London was not a cradle of infamy. "Though it gives homes to many hundreds of thousands of human beings, and comprises miles of streets and roads whose invariable features are poverty and destitution, misery and squalor—a very desert of the good things of this life—yet it has a smaller criminal and dissolute population (not in comparison, but in fact) than any other large area in London." Half of the cases had been domestic servants; needlewomen, trade girls, and barmaids came next in order; theatre and music-hall girls were low on the list, and lowest of all were not the "no occupations" but the "street sellers"; he concluded that open-air life was in some sense conducive to morality. More than half the girls stated that they had had no or little parental care. More than half had fallen before they were 21 years of age, the maximum age of incidence was 17 years.

As to causes, he owned that he had thought "every poor outcast a victim of some man's brutality, but discovered that woman's special enemy was not so frequently a man but a member of her own sex, and often the very woman herself." Of 16,022 women, 4,790 stated they owed their fall to a man, and nearly always one of their own class: 11,232 were led away by such allurements as "nothing to do," "plenty of money," "your own mis ress," "perfect liberty," "being a lady"—all these being their views of a "life of pleasure." A very few began the life to gain support for their families; for their own children, their parents, younger brothers and sisters; or for paramours and husbands. Mr. Merrick stated that "it is not uncommon for a man to marry a poor woman of this class, in order that, when he loses his work, or gets tired of it, she may keep him by the sale of herself." No fewer than 773 women considered that "a life of gross immorality was not inconsistent with the regular practice of attending a church or chapel." Their ideas on this point were often curious. "One woman told me that she was 'certainly on the streets, but she had not sunk so low as not to say her prayers night and morning"; and he adds, "I am convinced that there are many poor men and women who do not in the least understand what is implied in the term 'immorality.' . . . To talk of virtue or purity is simply to talk over their heads." The rate of mortality was "terribly high"; his investigations gave an average life after having taken to the streets of about 3 years and 6 weeks. The main causes of death were due to exposure, irregular feeding, and drink.

He makes a caustic comment on the state of our town streets. It is unfair to poor girls, unfair to men, unfair to pure-minded women. "Unfair to poor girls that vice in a glamour of dress, apparent prosperity, ease, and freedom, should be everywhere flaunted before their eyes." In discussing the prevention of the evil, he writes: "It is surprising to find that when women have 'fallen' they

seldom warn others against following their example; on the contrary, they try to drag others down, and keep them down."

It will be seen that the findings of this larger inquiry by Dr. Merrick are in substantial agreement with the findings of the smaller inquiry made by the women writers. Both suggest that the actual causes that lead to a life of prostitution are in themselves essentially trivial, but that there is some underlying deficiency in the mental, moral, or physical equipment of some women that leads them to view such a life not merely without repugnance but actually with favour. It is probably this that accounts for the last sentence quoted from Dr. Merrick's book; the women probably did not mislead their sisters of malice aforethought, rather they thought that in so doing they were doing them a good turn—"putting them on to a good thing"!

Such a conclusion shows the difficulties in the way of treating such a disease of the body politic. The writers of *Downward Paths* do not agree in this conclusion, but the data on which they base their deduction scarcely justify their view of the cure—"a reconsideration of the whole economic position of women."

FAMILY MEDICINE AND HYGIENE FOR INDIA.

THIRTEEN years have elapsed since the seventh edition of *Moore's Manual of Family Medicine and Hygiene for India*,[2] edited by Major I. H. TULL WALSH, I.M.S., was published. The work was originally composed in the year 1872 by the late Surgeon-General Sir WILLIAM MOORE of the Indian Medical Service, and was selected by a special committee as the best of several treatises submitted in competition for a prize offered by the Government of India. The publication of so many editions attests the popularity of the work and the need of its revision, in order to keep pace with the progress of medical science. In a brief foreword Director-General Sir CHARLES PARDEY LUKIS, M.D., F.R.C.S., K.C.S.I., remarks that "thirteen years is a long period in these days of active advance in all that pertains to tropical medicine, and the need of a new edition has been evident for some years past." The preparation of this eighth edition has been ably accomplished by Major SPRAWSON, assisted by no fewer than twelve collaborators. The revision has been most thorough. The arrangement of the material has been changed, and separate chapters have been assigned to Indian medicine, the anatomy and physiology of the human body, the diagnosis of disease, fevers, diarrhoeas, other medical diseases, poisoning, accidents and surgical emergencies, surgical diseases, diseases of the skin, affections of the eye and eyelids, diseases of the ear, nose and throat, diseases of women, pregnancy and labour, management of the infant at birth, the hand feeding of infants, diseases of children, the preservation of health, nursing, therapeutical applications, etc., invalid diet, disinfection, and prescriptions. The arrangement of subjects in the several sections is alphabetical, and a copious index renders access to the contents of the book easy. The work was originally intended for the use of persons residing beyond the reach of skilled medical aid and advice. Major Sprawson remarks that doctors and medicine shops have been greatly multiplied throughout India since Moore's book was first published, and that railways and motors have rendered the obtaining of skilled assistance less difficult; still, many Indian residents living in remote places will be glad to possess information, conveyed in plain terms, regarding the recognition and treatment of diseases and injuries. The descriptions and recommendations offered in this book go considerably beyond the lessons in first aid and home nursing which are so common and popular, and, it may be added, useful in these days; and it may be questioned whether, in many cases, they are intelligible and practicable for laymen. The information and directions are sound and sensible, and even if mothers and nurses cannot, for example, perform the prophylactic and curative inoculations mentioned in the book, it is as well that they should know that such methods are practised with advantage. The editor very properly inserts a caution that "it should be clearly understood that the treatment of illness recommended in this book, whether by medicine or otherwise, is not intended to take the place of skilled medical assistance and advice" when available.

[2] *Moore's Manual of Family Medicine and Hygiene for India.* Published under the authority of the Government of India. Rewritten by C. A. Sprawson, M.D., B.S.Lond., M.R.C.P.Lond., Major I.M.S. With a Foreword by Sir C. Pardey Lukis, M.D.Lond., F.R.C.S.Eng., K.C.S.I., D.G., I.M.S. Eighth edition. London: J. and A. Churchill. 1916. (Demy 8vo, pp. 672; 69 figures. 6s. net.)

NOTES ON BOOKS.

THE fourth volume of the second edition of the *Encyclopaedia Medica*,[3] edited by Dr. J. W. BALLANTYNE of Edinburgh, contains articles from *Ear* to *Filariasis*, written for the most part by Scottish physicians, surgeons, and specialists. It is impossible to do justice to the merits of a volume of this important work within the limits of a brief review. The *Encyclopaedia Medica* is designed to supply the needs of medical practitioners who want scientific and practical accounts of the various conditions of disease with which they have to deal in the course of their professional activity. In addition it contains most useful definitions of the chief scientific and medical terms employed in medical literature, accounts of drugs and methods of treatment, general articles on medical and physiological processes of importance, and brief essays on kindred subjects. The volume now before us contains numerous excellent articles, well written by competent authorities, up to date, and thoroughly practical so far as treatment is concerned.

Evolution,[4] by J. A. S. WATSON, B.Sc., is the first publication in a series to be known as "Through the Eye" Series, designed, presumably, to educate through the eye as distinct from "through the ear" as in oral teaching, or "through the imagination" as in reading. In a less precise age than this we might wonder at a series of "books" bearing such a title, for if "through the eye" means anything, it means oral teaching on objects which are at the same time demonstrated to the eye. As a matter of fact, the work under notice is merely an essay on zoological evolution with illustrations. These last, which number 146 in a text of 153 pages, form the chief feature of the book, and, as usually happens in such cases, the text has no little difficulty in keeping pace with the illustrations, and tends to lose that quality of sequence which it is so necessary for the writer to preserve if he wishes to retain the interest of the reader. The illustrations have been largely selected from Günther's and Haeckel's works, and are excellently reproduced on thick paper. The chief criticism which can be directed against them is that no scale is furnished to enable the reader to appreciate the size of the animal depicted. From Figs. 114 and 115, for example, the reader might obtain the impression that there is little to choose in size between the armadillo and the sea-cow, and from Figs. 95 and 96 that the sphenodon is somewhat larger than the alligator. The author would have succeeded better if he had chosen fewer types to illustrate his thesis and had dealt with his types in greater detail. The book will, we imagine, be of more use to the teacher than to the general reader, for it has brought together for the former a large number of useful and excellent illustrations.

Mr. KYRIAKIDES has long been known to students and readers of modern Greek as the author of various Greek-English and English-Greek dictionaries, and a Greek reader. He has now produced a pocket English-Greek dictionary[5] of a new type. The common English words are given, and under each are arranged the idiomatic phrases (so deplorably common, from the point of view of the foreigner, in the English tongue) and expressions in which the word is used. Each phrase and expression is rendered into modern Greek by the author; and so the reader has a dictionary that will stand him in good stead in translating from English into Greek, or, still more, in sustaining a conversation in Greek. The book is admirably conceived, and so far as we can judge, Mr. Kyriakides has succeeded well in the difficult task he has set himself. The dictionary should be in the hands of all travellers in Greece and the Aegean.

[3] *Encyclopaedia Medica.* Under the General Editorship of J. W. Ballantyne, M.D., C.M., F.R.C.P.E. Second edition. Volume IV. *Ear* to *Filariasis*. Edinburgh and London: W. Green and Sons, Ltd. 1916. (Roy. 8vo, pp. 693. Illustrated. 20s. net.)

[4] *Evolution.* By J. A. S. Watson, B.Sc. London: T. C. and E. C. Jack. 1915. (Cr. 4to, pp. 160; 146 figures. 5s. net.)

[5] *English-Greek Dictionary of Idioms, Proverbs, and Phrases.* By A. Kyriakides, advocate. Nicosia (Cyprus): The Nicosia Printing Office. 1916. (6 × 4½, pp. 908. 15s. net.)

MEDICAL AND SURGICAL APPLIANCES.

Intravenous Injections of Galyl, etc.

DR. JOHN ADAMS, F.R.C.S.Eng., writes: Messrs. Maw Son and Sons have made at my suggestion an outfit for the injection of concentrated solutions of the galyl and similar preparations. It consists of:

1. A syringe of Record pattern graduated up to 15 c.cm.
2. A mixing glass graduated up to 20 c.cm.
3. A glass rod for mixing purposes.
4. A glass tube, with a constriction to hold a small plug of absorbent wool, to serve as a filter.
5. A short rubber tube with metal ends to connect with the syringe and needle.
6. Two hollow needles with stylets.
7. A small scalpel.
8. Dissecting forceps and probe.

The apparatus must be sterilized before use, the plunger being removed from the syringe before boiling. The powder is dissolved in 10 c.cm. of fresh doubly distilled water; if this is not obtainable, tap water may be used, but this must have been boiled for a quarter of an hour, and allowed to cool to room temperature in a sterilized flask, this being done twice, so as to precipitate the lime salts and sterilize the water.

The bend of the elbow is first painted with tincture of iodine. A double thickness of lint, about four inches wide, is then placed round the arm just below the elbow to take up the small quantity of blood that will flow through the tube before the syringe is connected. The solution is then drawn up into the syringe through the filter, any air being expelled by inverting the syringe in the usual way. The selected vein is then brought into prominence by a rubber tube compressing the arm above the elbow, and a very small incision is made through the outer layers of the skin over the vein. The needle is connected with the rubber attachment and inserted into the vein, and when the blood begins to flow the pressure on the vein is released and the syringe is joined on, and the fluid slowly injected. To make absolutely sure the needle is in the vein the piston may be drawn back a very little, when a small stream of blood will be seen in the syringe. Should the needle not have entered no harm is done; another attempt can easily be made either in the same or a different vein. Failure to enter the vein, or piercing through both walls and injecting the solution into the surrounding tissues will cause considerable pain, and set up thrombosis and cellulitis.

The operation can be done in the consulting room and the patient sent home for the remainder of the day with safety. After use the apparatus must be carefully cleansed, using first warm water and then alcohol, the liquids being drawn up into the syringe and expelled through the rubber attachment and needle. I have given a large number of intravenous injections in the manner described with excellent results.

THE MEDICAL SERVICES IN INDIA.

REPORT OF THE ROYAL COMMISSION ON PUBLIC SERVICES IN INDIA.

THE report of the Royal Commission on the Public Services in India has been issued. It is a very large document, containing 528 foolscap pages. It consists of the report proper, filling 60 pages, and a series of twenty-four annexures, which are really parts of the report, since they contain detailed discussions on the several subjects, together with the recommendations; there are also a series of separate minutes by various members. The annexure dealing with the medical services occupies 40 pages, and the evidence upon which it is founded is given in the twelfth volume of the publications of the Commission, the report now issued being the first. The Commission, it will be remembered, contained no medical member, although it took much medical evidence. This evidence was taken before the war, and the Commission recognizes that certain parts of the information it obtained and the recommendations it makes thereon will call for review in the light of the experience afforded by the war.

The Commission included in the scope of its inquiry into the medical service in India all those appointments now filled as a matter of practice by officers who possess a medical qualification—for example, professorships and chemical examinerships and their connected posts, and the posts in the alienist, bacteriological, sanitary, and gaol departments. The more important of these posts are now filled, the report states, almost exclusively by the officers who form the War Reserve either of the Indian Medical Service or of the Indian Subordinate Medical Department, both military services with organization based on military considerations. Officers are recruited to them by the military authorities for service with the troops in the East, and after they have learnt their military duties those of them who are in excess of the peace requirements of the army are lent to the civil authorities for employment on civil duties until such time as they are needed on the outbreak of war. Transfer to civil employment is sought after by most of the officers, and forms one of the principal attractions of the two services. The civil element in the various medical cadres is restricted, for the most part, to posts of minor importance. Certain changes of detail have been made since the Commission completed its inquiry in India, and it states that at the time of its report, out of a total of 566 officers in superior civil medical employment, 493, or 87 per cent., were military, and 73, or 13 per cent., civil officers. In the case of posts of minor importance the position was reversed, for out of 821 appointments, 723, or 88 per cent., were filled by civil officers, known as civil assistant surgeons. Military officers of the Indian Subordinate Medical Department, who are also called Military Assistant Surgeons, occupied 98, or 12 per cent.

The Commission is satisfied that under existing arrangements the civil medical work of the country has been economically and satisfactorily performed, and that no case has been made out either on the ground of expense or of efficiency for ceasing to employ the Medical War Reserve of the army in India on civil duty. It considers, however, that should it be found in the future that the medical cadre of the army in India, as determined by military requirements, is insufficient to meet the civil medical needs of the administration, the Government should obtain such additional assistance as may be necessary by some form of civil recruitment to its civil medical service, and suggestions for carrying this out are made.

The Commission, recognizing that a new situation has been created by the war, recommends that a fresh investigation should be undertaken at its conclusion. In the recommendations it makes it assumes that the existing system will be maintained in its essentials. In these recommendations it lays stress on the necessity for calculating separately on their merits the needs of the army and of the civil medical administration, and for abandoning the idea that the civil medical administration should be dependent on the requirements of a military reserve. A purely civil machinery should be created to meet all civil requirements, but officers forming the Medical Reserve of the army should be admitted to the civil cadres so formed.

The Commission further recommends that if the experience of the present war leads to such an increase in the military reserves as would seriously endanger the maintenance of a civil element in the civil medical administration it should be considered whether a minimum number of civil officers in civil medical service should not be fixed. It considers that the civil departments should no longer be the adjuncts of the military services, and that even under the gravest war conditions the civil cadres should not be unduly depleted, and in particular that no dislocation of the educational and scientific work of the country should take place. It recommends that each of the various departments should be regarded as a separate unit, and deals with the matter under the following heads:

Part I. Civil medical services, including the administrative and staff posts, the civil and presidency surgeoncies, and the assistant surgeoncies and certain miscellaneous appointments of a kindred character.

Part II. Other services or departments—namely, professorships and chemical examinerships, with their connected posts, and the alienist department and bacteriological department.

The sanitary department, including the plague appointments.

The gaol department.

CIVIL MEDICAL SERVICES.

Under this head the Commission recommends:

That regular civil medical services should be constituted, one entrusted with the higher duties for the whole of India to be called the Indian Civil Medical Service, the others, formed separately in each province to carry out the duties of minor importance, to be called the Madras (Bombay, etc.) Civil Medical Services.

In the Indian Civil Medical Service should be placed the civil surgeoncies and posts of a similar or superior position, all officers holding them to be on one list and enjoying the same status.

In the local services should be included the assistant surgeoncies and similar posts not belonging to the various special departments.

Officers of the Indian Medical Service in civil employ should be recalled to military duty only if not of administrative rank, and only in the event of war.

No officers of the Indian Medical Service of more than five years' standing should ordinarily be admitted to the Indian Civil Medical Service.

Local governments should have full power to revert officers of the Indian Medical Service to military duty at any time during their probationary period. The period during which officers of the Indian Medical Service are awaiting transfer to civil duties should be utilized for specialized training.

Military assistant surgeons in civil employ should be admitted to the local services, and should be liable to recall to military duty.

Should the number of superior posts available for civilian officers be increased, direct civil recruitment should be adopted for at least a part of the Civil Medical Service, but regard should be had to the special needs of European officers entitled to free medical attendance, and of their families.

The Director-Generalship of the Indian Medical Service should be thrown open to all officers of that service wherever employed; the surgeons-general and inspectors-general of civil hospitals should have regular and direct access to the head of their province, or to the member of the council in charge of the medical department, where there is a council form of government.

Professors and Chemical Examiners.

The teaching staff of each Government medical college should be treated as a separate unit, and separate chemical and alienist departments established. Military officers holding superior posts in these departments should not be liable to recall to military duty in case of war, but military assistant surgeons holding minor posts should be liable to recall.

The clinical chairs of medicine, surgery, clinical surgery, ophthalmology, and midwifery, and their connected posts, should be reserved, so long as a fit person is available, for officers of the Civil Medical Service, however recruited.

The scientific chairs of physiology, pathology, anatomy, materia medica (or pharmacology), and biology, and their connected posts, should be thrown open to all candidates, and efforts should be made to have teaching in biology, chemistry, and physics given through the various universities.

Appointments to chemical examinerships and their connected posts and the alienist appointments should be thrown open to all candidates.

Appointments to professorships, chemical examinerships, and superior posts in the alienist department should be made with the advice of a committee, and only if no fit candidate be available in India should an officer be appointed from England.

Medical officers holding scientific posts should be debarred from private practice, but should receive a monthly allowance instead.

Medical officers holding clinical posts should be allowed consulting practice in their own subject.

Chemical examiners and alienists and their assistants should be allowed private practice in their own subject. It should, however, be open to the Government of India, or to any local government, where no qualified chemist or alienist is available, to call upon officers serving in these departments to give to the public their services in their own special line, the fees to be credited to Government, and a suitable monthly allowance made to the officer concerned.

Bacteriological Department.

All posts in this department, whether major or minor, should be included in a separate department, and members of the Indian Medical Service employed in it should not ordinarily be liable to recall to military duty. All appointments should be thrown open to general competition, and be made by the Government of India with the help of a selection committee.

If confirmed after two years' probation in the department officers should ordinarily remain in it for the rest of their careers.

Medical officers in the department should be debarred from private practice, but, if so required by Government, should give their services in their own special line to the public, all fees being credited to Government, and the officers receiving a suitable monthly allowance.

Sanitary Department.

The present provincial organization should be maintained, but local governments should appoint to the office of sanitary commissioner only if they have a suitable officer of the rank of lieutenant-colonel, or of equivalent standing if a civilian, available. The plague appointment should be brought on to the permanent strength of this department. Only such officers of the Indian Medical Service as have not yet attained administrative rank should be liable to recall to military duty.

In selecting candidates not belonging to the Indian Medical Service, local governments should act with the advice of committees formed separately for each province, consisting of three officials and two non-officials, and including two Indians.

For two years officers should be on probation, and such as are not members of the Indian Medical Service should during that time be given practical experience of urban and rural problems under the supervision of selected municipal and district health officers.

Gaol Department.

The Commission recommends that all questions relating to the gaol service should be referred to the expert committee which is to inquire into gaol administration. Meanwhile, such Indian Medical Service officers as are not of administrative rank should be liable to recall to military duty.

These are the recommendations which on first perusal appear to be the most important, but, on further examination, no doubt other points worthy of note will be found.

Promotion of the Growth of an Unofficial Profession.

The paragraph on this subject is as follows:

Several of the non-official witnesses who came before us drew our attention to the importance of developing in India an unofficial medical profession. Some of them were of opinion that this could best be secured by replacing the Indian Medical Service officers in the civil medical services by officers recruited in India. There can be no doubt of the need for an increased number of private practitioners to provide medical treatment on Western lines for the many millions of the people of India, and we have every sympathy with the movement which we observed in this direction. But to substitute one set of officials to do certain Government work of a restricted character for another would not help matters. We are, therefore, of opinion that this question should be treated as distinct from the question of limiting or reducing the number of Indian Medical Service officers in civil employ. To encourage independent practitioners we would let them have the advantages of State institutions and of State help wherever this can be secured without dislocation of the ordinary machinery. For example, Government hospitals should be made available as training grounds for young men who are about to take up private practice, and who are prepared to work in them as assistants to the house surgeons and physicians for suitable periods at the outset of their careers; and such men should be encouraged to come back in after years, to the extent of the clinical material available, and subject to the general rules of discipline of the hospital, to keep themselves up to date. We anticipate that in this way it would be possible to attach to the larger hospitals by ties of sentiment bodies of practitioners, who would look to them as their centres and to the civil surgeons in charge of them as their friends and professional heads. Arrangements should also be made by which practitioners of distinction should be allowed to join the visiting staffs of the non-teaching hospitals in an honorary capacity. Measures should also be taken to prevent Government medical institutions from competing with private practitioners by giving gratuitous relief to persons who can afford to pay for attendance. Suggestions were also made to us for assisting private practitioners by subsidizing from Government revenues private medical colleges and hospitals under suitable conditions to ensure efficiency and for enforcing registration. It was also claimed that money grants should be made or increased to institutions and societies for the training and treatment of women. These proposals are not directly relevant to our inquiry, but they appear to us to have been well conceived and to be worthy of favourable consideration.

British Medical Journal.

SATURDAY, FEBRUARY 3RD, 1917.

INDIAN MEDICAL SERVICES.

I.

THE Royal Commission on Public Services in India is unfortunate in the date of the appearance of its report, for not only is the mind of the country absorbed in the successful prosecution of the war, but the war has itself thrown new light on some of the problems the Commission had to consider, and it seems certain that further inquiry will be necessary. The Commission was appointed in September, 1912, to report in connexion with the Indian Civil Service and other civil services, imperial and provincial, on the methods of recruitment and the systems of training and probation; the conditions of service, salary, leave, and pension; and on such limitations as still exist in the employment of non-Europeans, and the working of the existing system of division of services into imperial and provincial. The report is signed by all the members, but each, with the exception of the chairman, appends minutes on certain points. The section dealing with the medical services occupies forty pages, and the evidence on this part of the subject fills a volume of 430 pages.

On the general preliminary point as to whether there is an obligation on the Indian Government to maintain state medical services the Commissioners are quite clear. "We have no hesitation," they say, "in finding that some form of state service is needed"; they are satisfied that in the present conditions of India, if there were no state service there would be large tracts of country left without any regular provision of medical relief, and "convinced that state control is necessary in order to secure the continued and extended diffusion in India of Western medical knowledge."

There are two grades of medical services in India—the higher grade, and the lower or assistant grade. The higher grade consists of the Indian Medical Service and certain officers promoted out of the assistant or lower grade. The Indian Medical Service and part of the assistant service are, in respect of duties, divisible into military and civil. The Indian Medical Service and the assistant Medical Service are primarily military services and form the war reserve of the Indian Army, both grades of officers being liable to recall to military duty in war. In the present great emergency a large proportion have been recalled to military duty; down to April, 1915, 286 officers of the Indian Medical Service, and 113 of the assistant Medical Service had been so recalled, and it may be assumed that the numbers are now greater. At the time when the Commission was in India the Indian Medical Service had an actual strength of 772 officers, of whom 475, or 62 per cent., were engaged on civil duties, all holding superior posts; and the assistant Medical Service had a strength of 713 officers, of whom 289, or 41 per cent., were employed by the civil authorities. It is very necessary always to bear in mind the point that the officers of the two grades employed in civil work form the war reserve of the Indian Army. The Commissioners state that they are satisfied that "under the existing arrangements the civil medical work of the country has hitherto been economically and satisfactorily performed, and that no case has been made out, either on the ground of expense or of efficiency, for ceasing to employ the medical war reserve of the army in India on civil duty."

The most important suggestion of the Commissioners seems to be that, should the number of superior posts available for civilian officers be increased, a system of direct civil recruitment should be adopted for at least a part of the civil medical service. The Commissioners do not put forward a detailed scheme for such recruitment, but express the opinion that when the time comes to frame one "regard should be had to the special needs of European officers entitled to free medical attendance and of their families." This is a very important point, for there can be no blinking the fact that medical education at present to be obtained in India is deficient in respect of the diseases of women and children. Efforts, the Commissioners state, should be made to utilize the products of the Indian medical schools, but it should be provided that no officer should be appointed unless and until he has proved his fitness in actual hospital practice. If it is found necessary to give Indians this training in the United Kingdom, sufficient facilities should be provided there for them. It is, they add, an unsatisfactory feature of the present arrangement that there are still districts in India in the charge of officers who would not be allowed to practise in Great Britain, and the hope is expressed that this will become increasingly infrequent.

The paragraph in which the Commissioners deal with the promotion of the growth of an unofficial medical profession in India will be found quoted in full in our abstract of the report at p. 161. While expressing the desire that there should be an increased number of private practitioners to provide medical treatment on western lines for the many millions of people of India, the Commissioners point out that "to substitute one set of officials to do certain Government work of a restricted character for another would not help matters," and are therefore of opinion that the question should be treated as distinct from that of limiting or reducing the number of Indian Medical Service officers in civil employ. To encourage independent practitioners they should have the advantages of state institutions. For example, Government hospitals should be made available as training grounds for young men about to take up private practice and prepared to work in them as assistants to the house surgeons and physicians for suitable periods at the outset of their career, and such men should be encouraged to return in after years. It is also advised that arrangements should be made by which practitioners of distinction should be allowed to join the visiting staff of the non-teaching hospitals in an honorary capacity.

The Commissioners see no reason to find fault with the present system of recruiting for the Indian Medical Service by an open competitive examination in England, but they recommend that all candidates should have had a hospital training, have been through a practical course of midwifery, and have had experience of treating the diseases of women and children. This is an essential condition, and the Commissioners have done well to underline it, but in dealing with the examination they have fallen into a curious error, which might have been avoided by reference to the official documents issued by the India Office to candidates. The Commissioners express the view that the present form of examination is not sufficiently practical, and recommend "that the

syllabus and marking of the examination be revised, and that a *viva voce* test be introduced." This is, as we have said, a curious error, for there is probably no more practical examination in existence than that for admission to the Indian Medical Service; as a matter of fact, of the total number of marks that can be obtained—5,100—less than half (2,350) can be obtained for the papers, and the remainder (2,750) for practical or oral examinations; 900 marks are given for the clinical examinations in medicine and surgery, 1,300 for oral examinations in the various subjects, 200 for operations in surgery, and 350 for the practical examination in pathology and bacteriology.

There is another point on which the Commissioners appear to have wandered from their text. They have considered it necessary to come to some finding with regard to the liberty enjoyed by certain officers to take fees for private practice, and allege that on this point a good deal of misunderstanding appears in the evidence. They assert that the claim to take fees as a right conferred by statute is mistaken; on the other hand, they say that non-official witnesses were under a wrong impression as to the extent to which members of the Indian Medical Service actually did practise, and as to the value of the fees earned. "Nowadays," the Commissioners state, "the evidence is clear that it is only special officers with special gifts and special opportunities who earn anything unusual." The Commissioners are of opinion that officers should continue to enjoy their existing privileges in the interests of efficient medical treatment, but they say that "steps should be taken to make clear to all officers at the outset of their careers that the permission is given at the pleasure of Government and to meet the needs of the country, and not as a matter of right." We will now make no further comment on the question of right—which is very open to argument—further than to say that it is indeed essential that the point should be made clear, for in the memorandum regarding the position of officers appointed to the Indian Medical Service, issued as an appendix to the regulations for the examination of candidates, it is stated that "except in the administrative grades and in certain special appointments medical officers are not debarred from taking private practice, so long as it does not interfere with their proper duties."

There are other points of importance in the recommendations which may be gathered from the abstract published at p. 161, especially those relating to teaching appointments, to the bacteriological department, and to the sanitary department, to which we have not now space to refer, but they will require very careful consideration, for the work done by the Indian Medical Service in India, both clinical and educational, is an achievement of which the medical profession may well be proud.

ANTISEPTICS AND LEUCOCYTES IN WOUNDS.

THE publication this week of the paper on the occurrence of an iodophil substance in the white blood corpuscles in health, by Colonel C. J. Bond, completes the series of articles on the influence of antiseptics on the activities of leucocytes and on the healing of wounds, which he has contributed to our columns during the last nine months. The experiments described have thrown a very interesting light on the problems investigated. To those who may be inclined to say that the inquiry does not lead to any immediate practical improvement in wound treatment, or solve any of the difficult problems of immunization, it may be answered that the biochemistry and physiology of reaction to injury in wounds will require much more study before we are in a position effectually to control wound infection. And there is good reason to hope that the new method of investigation Colonel Bond has worked out will prove useful in elucidating the problem of the movement of phagocytes and repair in wounds.

The method used was the application of pigment or starch or other organic substances both to closed aseptic incisions in man and animals, and to open granulating wounds. By the recovery of the phagocytes from these "leucocyte traps," and by the microscopical examination of the tissues at the site of the introduction of the pigment, it has been possible to study the activities of various kinds of phagocytes in different kinds of wounds under different conditions of treatment. The result is to give grounds for the conclusion that a circulation of leucocytes takes place in all wounds. In aseptic wounds nearly all the leucocytes which emigrate return to the tissues, reach the nearest lymphatic glands, or enter the general circulation. The wanderings of these cells could be traced because they had been caused to carry loads of pigment. In the case of many infected wounds these wandering phagocytes also carry cargoes of ingested organisms. If the organisms so ingested are not digested and killed by the phagocytes, they may, if liberated, establish a new focus of infection. There is reason to think that the phagocytes, especially if injured, may disgorge the pigment particles on their return journey, the pigment so liberated being taken up by the fixed tissue cells. Other observers have brought forward evidence to show that the same sort of thing may occur in connexion with the ingestion of pathogenic organisms by phagocytes.

The capacity of pus cells to ingest pigment from granulating surfaces is largely influenced by the local conditions in the wound, especially tension, drainage and exposure. The return immigration of phagocytes probably has an important bearing on immunization. It may provide the machinery for the introduction into the body of regulated doses of living or dead organisms as the case may be, and although the machinery may be self-regulating to a certain extent, it is easily thrown out of gear. The examination of white blood cells which have emigrated into aseptic wounds and the examination of incubated healthy blood shows that when treated with watery iodine solution the emigrated leucocytes give, even in health, a characteristic mauve-coloured reaction. This colour reaction is also given by living pus cells from healthy wounds, by some marrow cells, and by the cells which form granulation tissue. It is believed that this iodophil substance is either glycogen or a precursor of glycogen. Its occurrence in phagocytes is associated with defensive reactions on the part of these cells to foreign toxins and occurs chiefly in leucocytes of the polymorph class. It is also present in the cells of many (but not all) malignant tumours. Evidently we must cease to regard the presence of an iodophil substance in leucocytes as evidence of degeneration in those cells, and it is hoped that its chemical examination may be the means of throwing light on the metabolism of the cancer cell. To what extent this carbohydrate iodophil substance so elaborated itself acts in the reaction to infection is a point of great interest. Possibly it may be a by-product split off from some complex body of which the protein molecule may play an important part in the elaboration of antibodies or enzymes.

THE HEALTH OF NATIVE LABOURERS IN SOUTH AFRICA.

THE report of the Commission appointed by the Governor-General to inquire into the causes and extent of the prevalence and spread of tuberculosis in its various forms in the different areas of the Union of South Africa and also to study the extent and causes of the mortality of natives employed on the Witwatersrand mines contains information of much more than local interest.

With respect to the Commission's findings on the general subject of the etiology of tuberculosis or their administrative proposals it is unnecessary for us to speak, since the former cover familiar ground, and the latter, which in certain particulars are not unanimous, require for their appraisement close familiarity with local conditions.

The topics to which we desire to direct attention relate to the incidence of mortality upon different races at work in the mines and the influence of environment in determining the rates apart from differences of nationality.

The most valuable data relating to the former subject are derived from the Witwatersrand gold mines. The Commissioners give a table (the figures refer to the period 1905–12), according to which the mean annual mortality varies from 14.36 per 1,000 in the case of tribes from Natal and Zululand to 70.53 in the instance of tropical natives (that is, natives from Africa north of latitude 22° south). The rate for Cape Colony natives is 16.14.

Thus the tropical natives die at more than four times the rate of the Cape Colony natives. But even this enormous difference underestimates the disparity. If deaths occurring in the Native Labour Association's Compound among natives waiting to be assigned to or repatriated from mines are included, the ratio is over 5 to 1. The mean annual death-rate per 1,000 of the tropical natives (1905–12), combining deaths on mines and in compounds, is 88.13. Some idea of the significance of this figure may be derived from the following considerations: The exact ages of the native labourers are unknown, but the men may be presumed to be for the most part in the prime of life—say between 15 and 45. In the urban areas of the Cape Province for the census year 1911, the death-rates of male Europeans range from 4.3 at ages 15–20 to 9.59 at ages 35–45 (the corresponding figures for London, 1901–10, are 2.88 and 10.97), so that the tropical natives die at more than nine times the rate prevailing among Europeans. It is, of course, impossible to say what rate of mortality prevails among the adult tropical natives in their kraals, but the opinion of the Commissioners that the tropical native has shown himself unsuited from the health point of view for work on the mines is not likely to meet with dissent in this country.

Turning now to the question of environmental effects, it is shown that underground and surface workers are subject to very different rates of mortality. Taking first the incidence of certain diseases upon workers in the De Beers Consolidated Mines during 1903-12, we have for tuberculosis, underground workers 6.52, surface workers, 4.0. For pneumonia the rates are 93.35 and 30.30. The respective death-rates are 2.38 and 1.80, 20.53 and 4.23, while for all causes we have 28.49 and 11.13. The tuberculosis death-rate for Europeans (1911) in urban areas was 0.61 at ages 15 to 20, 1.33 at ages 20 to 35, and 2.09 at ages 35 to 45. The difference is not due to variations of tribal composition, since the same inferiority, with the exception of one group which seems explicable on other grounds, appears in a comparison of different tribes classified into underground and surface workers. The effect of unfavourable environmental conditions is also brought out in an instructive comparison of the rates of mortality prevailing in collieries when overtime was or was not worked. Thus, in the Witbank Colliery heavy overtime was worked in 1909, and the death-rate from all causes was 21.75. In 1910 there was no overtime during the last six months of the year, and the rate of mortality 9.82. In 1911 overtime was frequently worked, and the rate of mortality 16.69.

Of course, in drawing inferences from these figures, we must bear in mind the *post hoc ergo propter hoc* fallacy, and further the basal numbers are in several instances small; but the coincidences are at least remarkable. On the whole, there can be no doubt that the native labourers are subject to an enormously excessive incidence of pneumonia, and it is probable they experience a decidedly heavier mortality from tuberculosis than other native communities, although a satisfactory statistical proof of this statement cannot be furnished. There is also some reason to think that tuberculosis in natives runs a more severe course than in Europeans, having certain of the characteristics of the acute tuberculosis of young children. Out of 308 autopsies on East Coast and tropical natives, pulmonary tuberculosis was the predominant lesion in 140, general tuberculosis in 92, tuberculous peritonitis in 33, tuberculous spleen in 31, tuberculous liver in 7, tuberculous meningitis in 3, and tuberculous kidney and spinal caries in 1 case each. Indications point to an increase in the amount of tuberculosis and a tendency for its clinical manifestations to partake of the ordinary chronic types according to the length of contact between a tribe and European civilization.

It will be seen that the report contains valuable materials for studying the effect of adopting civilized conditions upon the native tribes. The picture is not attractive, but it is fair to observe that the hygienic conditions which existed in most of the native compounds were not such as to afford a fair test of the suitability of European methods for the maintenance of health and efficiency. Many of these defects are remediable, and we trust that the numerous specific recommendations of the Commission will be well weighed by the responsible authorities.

THE PREVENTION OF VENEREAL DISEASES.

IT is to be feared that the two tests suggested in the women's manifesto quoted at p. 172 will not help very much in answering many of the practical questions which arise with regard to the prevention of venereal diseases. How, for instance, are the tests to be applied to the matter raised by the Bishop of London in the *Times* on behalf of the London Council for the Promotion of Public Morality? So far as the first test affects the matter at all, the existence of brothels must tend rather to weaken than to strengthen "the sense of individual responsibility in relation to sexual conduct." The leniency with which brothel keepers are frequently treated is, the bishop says, misplaced, and he instances the case of one brothel keeper "whose takings were estimated at over £6,000 a year, and who admitted that in two years she had paid £500 to cab drivers for bringing customers to her house, was convicted and sentenced to pay a fine of £20 and 8 guineas costs. If the case were not so serious it would be laughable." The case is serious, but how is the second test to be applied to it? If, as the bishop assumes, public authorities are right in instituting proceedings against brothel keepers, how can

this measure "in actual practice be applied with impartial justice to both sexes and to all classes"? It can be applied to all classes, but how with impartial justice to both sexes? It would be applicable, no doubt, to a brothel keeper of either sex. But this does not take us far; what is to be said about the inmates of the brothel, out of whom the brothel keeper is alleged to make the large annual income? It may be possible for justice to regard those who live in the brothel, and constitute the attraction drawing "customers" to the brothel, and the men who visit it impartially, but the existence of brothels reveals an unlikeness between the sexes. The fact is indisputable that men and women are sexually different, and therefore on those who assert that men and women should in all respects be treated alike in sexual matters lies the onus of proving their assertion. The presumption is that the sexes should in sexual matters be treated differently. This presumption may be rebutted in this particular or in that, but it has to be rebutted. It cannot be taken for granted that men and women should be treated alike. The onus of proof lies on those who make this assertion. That very great judge, Mr. Justice Maule, said that the putting and answering of abstract questions on matters not before the court was unwise and calculated to embarrass the administration of justice. Therefore no opinion can be expressed on the suggestions for restrictions to be imposed upon women until the nature of these suggestions is known. But that some restrictions should be imposed seems to be the opinion of the London Council for the Promotion of Public Morality, for it asserts it to be notorious "that a very large number of men have been, and are being, incapacitated for the service of their country by diseases directly due to immorality"—that is to say, sexual immorality—and that the recent development of prostitution in London has been phenomenal. We believe that the extent of the prevalence of venereal diseases in the army has been exaggerated. The Financial Secretary to the War Office stated on November 16th, 1916, that the admissions to hospitals at home from this cause represented a ratio of 48 per 1,000 per annum, which was slightly less than the ratio in peace time. The ratio in 1912 was 56.5. No information has been published as to the British army in France, but we believe that the ratio there also is lower than in the army in peace. The incubation periods are known, and it would be interesting and instructive to learn what proportion of the cases of venereal disease in France have occurred at a length of time after leave home, which makes it probable, or certain, that the infection was contracted in this country. If, as from a consideration of all the circumstances we suspect would prove to be the case, a very large proportion were so contracted, then there would be an added responsibility on public authorities in this country to institute preventive measures.

THE STUDY OF TUBERCULOSIS IN AMERICA.

THE study of tuberculosis owes much to those who have themselves been victims of the disease. In the honourable roll of those who have passed away, the name of Dr. Edward L. Trudeau, of Saranac Lake, in the Adirondacks, will always hold a prominent place. He was not a great scientist, or even a student, but a man of wide human sympathy who devoted his whole powers to the service of sufferers from the disease which persistently dogged his own footsteps. He died in November, 1915, after having raised the sanatorium which bears his name. A Trudeau School of Tuberculosis has now been founded, "to perpetuate his name, and to continue the scientific investigations that were a lifelong interest of the American pioneer in tuberculosis research." The school will be conducted on a broad scale, and special facilities will be offered in the way of fellowships to young physicians who are themselves suffering from tuberculosis. Governed by a council which includes the names of leading teachers and sanitary officials in the United States, the school will include four equipped laboratories and the use of 760 beds in various hospitals and sanatoriums in the district. Two sessions for special courses of instruction are held in January and July in each year, and the schedule of the session which is being held at the present time gives evidence of the very thorough and complete manner in which both the practical and the theoretical sides of the question are dealt with. A warm appreciation of Dr. Trudeau and a study of his character and life work appeared in a publication known as *The Medical Pickwick* in March last, from the pen of Dr. Allen K. Krause of the Saranac Laboratory. It has since been published in a pamphlet. The same writer has recently contributed the results of three courses of study on immunity, carried on by him in the Saranac Laboratory. The first of these deals with the question of cutaneous hypersensitiveness and its clinical indication. Observations upon this point have hitherto not been conclusive. Clinical investigation must of necessity be spread over long periods, and the experimental method of scarification as practised by von Pirquet has proved to be unsatisfactory. By employing the intracutaneous method, as used by Mendel and by Moussu and Mantoux, Dr. Krause succeeded in obtaining a much more uniform series of results. Cutaneous hypersensitiveness he found to be always set up by the presence or by the establishment of a focus of infection. It varied directly with the extent and intensity of the disease, and was diminished during the healing process. Never entirely lost (except in some cases of intercurrent disease and pregnancy), it was increased by reinfection, but entirely absent during the course of some cases of general tuberculin reaction. A second series of experiments, instituted to study the relation of the anaphylactic state to resistance to tuberculous infection, contains many points of interest. Although not as yet leading to any positive conclusions, they serve to show very clearly that cutaneous hypersensitiveness may be present in cases in which a focus of tubercle exists, although there may be no evidence that the host of such a focus is suffering from tuberculosis. It is now generally believed that the toxic effects of tuberculosis are not due entirely to poisons set up by the bacilli alone, but that an important part is played by the products of disintegration in the tissues generally. A study of the general reaction produced by tuberculin proved that the absorption of actual focal products is the main cause of it. An interesting fact is demonstrated by Dr. Krause that whereas the products of a tuberculous focus are highly toxic when introduced into the circulation, such toxicity is completely annulled if the extract of such a focus be filtered and the residue dried. Neither the filtrate nor the residue produced any evidence of poisoning. The active poison must therefore be present in the cellular elements, either living or in process of disintegration.

THE DOCTOR AS WHIPPING-BOY.

MR. MORLEY ROBERTS, in a recent issue of *Folklore*, has discussed with much curious learning applied in an interesting and ingenious manner the question why the Greek scapegoat or outcast of the festival of the Thargelia was called a Pharmakos. Professor Murray has suggested that the term "pharmakos," the scapegoat, has a different derivation from "pharmakon," a drug, and that it was probably a foreign word. Following the suggestion of a foreign origin, Mr. Morley Roberts sought for some other word in the same area that might suggest where it came from. He now believes that the original word and the two original roots which make it up came from the Turkic family of speech. What looks like the word in various forms is to be found in the Turkic

ongues. In Turkish itself it is spelt "vourmak," which means "to make blows" or "to whip." When it is remembered that in the Greek ritual the pharmakos was beaten with agnus castus, squills, and other flowers, that may have some significance. The real meaning of "pharmakos" seems to be a beaten or whipped person, and by a later evolution one who has been driven out with blows. Probably in the earliest time it meant a medicine man, equivalent to those found among the Africans and Central Asians. Thus the verb φαρμακεύειν would mean, to drive out evil spirits with a whip or with blows. Such a connotation, Mr. Morley Roberts says, is earlier than to give poisons. It is well known that the treatment of disease among savages consists in driving out the spirit which is supposed to cause it by noisy incantations, or by physical ill-usage of the patient. The unfortunate sufferer was beaten, starved, smoked with evil-smelling substances, and drenched with every foul thing that the most obscene imagination could conceive. On this theory, therefore, our word "pharmacist" would have for its early meaning exactly that of the ancient medicine man or exorcist. Another point connected with "pharmakos" mentioned by Mr. Roberts is that the word "farmacion" is used in Turkey and Asia Minor, and as far east as Afghanistan, with the meaning of an outlaw, and quite commonly with that of a cunning, blood-drinking enemy of religion, a man who is a Satanist or devil worshipper. He has no doubt that "farmacion" is the same word as "pharmakos." Since its readoption by Eastern races "farmacion" has taken on a new meaning, and now often indicates a Freemason, one who is looked upon by the orthodox as an outcast and a scoundrel. The verb φαρμάσσειν means, according to Liddell and Scott, first, to medicate, secondly, to enchant or bewitch by the use of potions. The word certainly goes back to the ages of magic ritual and again to the expulsion of people who brought ill luck. It is, as Mr. Morley Roberts says, a natural instinct to turn out of a community those who seem to bring bad fortune, even if there be no peculiar feature in such expulsion. We venture to throw out a suggestion which may help in the solution of the question as to the true meaning of "pharmakos." The untrained mind has a tendency to attribute phenomena to a wrong cause; hence in matters of disease there arises a confusion of thought which makes the doctor responsible for the evil which he is endeavouring to prevent or cure. "Pharmakos," therefore, might easily be transposed from "pharmacist," one who administers remedies, to one who for his own purposes causes the diseases they are meant to cure. We know that even in modern times epidemics of cholera in Russia, Italy, and elsewhere are attributed by ignorant people to the baleful agency of the doctor, who is therefore likely to be made a scapegoat on whom is visited the wrath of the afflicted people.

THE HATCHING OF THE YELLOW FEVER MOSQUITO.

THE eggs of *Stegomyia fasciata*, "the yellow fever mosquito," are laid singly, either on the surface of the water, usually so close to its margin as to become stranded by capillary action, or on the wet margin itself. Moist conditions after laying seem to be essential to incubation, which takes a period of thirty or forty hours, by which time the larva is fully developed within the egg. Having reached this stage the eggs may retain their vitality, when dry, for long periods. Four or five months are usual, but in exceptional conditions a small percentage may survive and hatch after twelve months. Mr. A. Bacot described to a recent meeting of the Royal Microscopical Society some experiments he had been making with Dr. E. E. Atkin of the Lister Institute. They found that in clean water hatching may be long delayed, but if a foul fluid be added all, or a very high percentage of the dormant eggs, hatch frequently within five or ten minutes. After sterilizing the eggs and transferring them to tubes containing sterile fluids, the eggs responded most readily to the introduction of living yeasts or bacteria; hatching also followed the introduction of sterile autolyzed extract of brewer's yeast. Killed cultures of bacteria and sterile watery extract of brewer's yeast exerted a much feebler stimulus. Sterile filtrates of bacteria were less effective than killed cultures. The addition of acid, sufficiently dilute to cause the same or a somewhat stronger colour reaction than that produced by a bacterial culture, which caused the eggs to hatch, was ineffective. The addition of alkaline solutions was either without effect or caused only a small percentage of larvae to emerge, whereas on the addition of a little of a bacterial culture the eggs which failed to respond to the alkaline solutions hatched in large numbers within a few minutes. The explanation suggested was stimulus of the larvae by the smell, or some closely analogous sensation, followed by its active use of its egg-breaking appliance.

THE CAUSAL AGENT IN TYPHUS FEVER.

OUTBREAKS of typhus fever in Germany have occasioned fresh attempts to be made to discover the micro-organism of this disease. Bofinger[1] has figured appearances in the red blood corpuscles, which bear a very close resemblance to Seidelin's "bodies" in yellow fever; in view of the findings in the third report of the Yellow Fever Commission (West Africa) these objects may safely be excluded as bearing any causal relation to the diseases under consideration. Goldenstein,[2] when investigating an epidemic due to Macedonian prisoners of war at Sofia, obtained a motile bacillus in pure culture from the blood of thirteen out of twenty-four patients during life. Unlike the organism of Plotz, it grows under aërobic conditions. It is a very short diplobacillus, and on agar forms small dry scale-like colonies of yellowish colour. On subculture a more definitely bacillary form is assumed, and the colonies become softer in consistency; it reacts negatively to Gram's stain. Gelatine is not liquefied. The serum of patients with fully developed typhus fever agglutinated this organism by the hanging drop method in dilutions varying from 1 in 50 up to 1 in 1,600 in one case. Injection of cultures into guinea-pigs caused only the unsatisfactory phenomenon of fever, which lasted for five to ten days and then disappeared. The author himself preserves an open mind as to whether he has found the true causal agent.

MEDICAL EXAMINATION OF MEDICAL MEN UNDER 41.

THE Central Medical War Committee is receiving many inquiries from medical men who come within the terms of the Military Service Acts as to the meaning of a request they have received from the military authorities to present themselves for medical examination. The position of enrolled men is not affected by this request, for the question whether they will be required to accept a commission in the R.A.M.C. or not is one to be settled by the Central Medical War Committee in consultation with the Local Medical War Committee concerned. So much delay has, however, been caused in connexion with past calls by the uncertainty as to whether the men warned as likely to be called for service were or were not physically fit that the War Office decided that all medical men of military age should be examined in order to settle this question, it is hoped finally. Medical men receiving such a notice from the military authorities must comply with it, but need take no further steps until they hear from the Local or the Central Medical War Committee that any other steps are needed.

[1] *Cent. f. Bakt.*, Bd. 78, 1916, p. 72.
[2] Ibid., p. 82.

THE WAR.

NOTES FROM GERMAN FIELD HOSPITALS.

A WAR supplement to the *Beiträge zur klinischen Chirurgie* is being published bearing the name of the late Professor von Bruns of Tübingen. A number issued last December (Heft xxx) contains several papers on the early treatment of wounds in the Feldlazarett.

In the series of handbooks on the Medical Services of Foreign Armies, issued by the War Office, it is stated, in the section on Germany prepared by Surgeon-General W. G. Macpherson in 1907, that a Feldlazarett, or field hospital, is directly under the Army Corps principal medical officer, who brings it up as required to the neighbourhood of the main dressing stations, and who can employ the personnel of those not open during an action to reinforce regimental dressing stations and to supply the requirements of the slightly wounded collecting stations. It was divisible into two sections, and was normally equipped for two hundred patients, but was intended to expand according to circumstances for the reception of a much larger number. Its functions are summed up as "those of a mobile medical unit for the temporary care and treatment of wounds and sickness in the field army pending their evacuation to stationary or permanent hospitals." From the same source it appears that the Kriegslazarett was a clearing hospital to take over those wounded in field hospitals unable to bear transport, though it might, in exceptional circumstances, receive wounded direct from the field. It was administered by a specially organized clearing hospital detachment which took over equipment from the field hospital and obtained subsidiary equipment as required, either from local resources or from the advanced dépôt of medical and surgical stores. A clearing hospital detachment was to be mobilized in the proportion of one for each army corps. It was intended to be the link between the mobile field army and the lines of communication, and differed somewhat from the hôpital d'évacuation of the French army and from the clearing hospital of the British army, since it was of the nature of a large detachment of mobile personnel without a fixed equipment ready to undertake the establishment of a hospital out of local or other resources at any locality and at any moment. Hospitals (Etappenlazarett) corresponding with the British stationary hospitals on the lines of communication were to be established in each post. As a rule, they were to be officered by civil local practitioners, but at the head of the line, and at such other posts as might be considered necessary special hospitals were to be opened. They were intended primarily for the reception and treatment of the sick and line of communication troops, or of troops passing through the zone, but were to be prepared to receive large numbers of wounded after great battles. Connected with them were to be departments for slight cases of sickness or wounds, for convalescents and for infectious cases.

It is, of course, probable that the German organization has been modified in these respects since the beginning of the war, as has happened with the British, but this short sketch of the German system arranged before the war will give a general idea of the functions of a Feldlazarett.

Gunshot Injuries of the Limbs.

One of the papers is by Dr. Henes (Stabsarzt), who writes from experience in a Feldlazarett. He begins by pointing out that in mobile warfare two factors dominate the activities of the field hospital: an order to clear the hospital may be received at any moment, and from time to time the machinery of the hospital is taxed to the utmost by the number of wounded. Hence the machinery of transport to the stationary hospital should be rendered very efficient, and only those operations should be undertaken which are immediately necessary.

Haemorrhage and asphyxia, in so far as these have not already received treatment at the front, stand, of course, in the first line. The prognosis of abdominal injuries, with wound of the intestine, is, in the conditions, so unfavourable that it is not justifiable to devote much time to them at the expense of other wounded who may be saved by treatment. Wounds of the bladder should not be classed among these hopeless cases. Wounds of the chest, in the absence of severe haemorrhage or pneumothorax, are best dealt with on conservative lines, though they should be retained under observation as long as possible. On the other hand, injuries of the spinal cord should be transported to the stationary hospital as soon as possible. In view of the extreme importance of early treatment in the case of gunshot injuries of the head, it is desirable that no case of the kind should leave the hospital without a thorough inspection of the wound.

Henes refers to the high mortality curve still prevalent in gunshot injuries of the limbs, even apart from the presence of gas phlegmon. Gas phlegmon, however, is the main factor; and since it usually makes its appearance in the field hospital—that is, on the second to the fourth day after wounding—it is there that successful prophylaxis and treatment must be looked for. Although there is little unanimity as regards details in dealing with gas phlegmon actually present—some recommending large, others small and numerous incisions, some using one disinfectant, some another, and so forth—it is generally recognized that the main point is to lay the affected part freely open, and especially the pockets and recesses of the wound, in order to ensure thorough drainage and free access of air. Henes recommends extensive incisions including the whole of the affected area, both superficial and deep, with free opening up of all the pockets of the wound; and free incision of fasciae and muscle sheaths where necessary, and of the infiltrated interstitial tissues of the part. Muscles were rarely excised, since they were frequently found to recover after their fasciae and interstices had been opened up; on the other hand, it is recommended to remove all obviously necrotic portions. In order to facilitate the outflow of fluid and gas, the skin at the edges of the incisions made in the area of subcutaneous oedema and emphysema is raised from the underlying tissues and gauze drains inserted. Prophylactic incisions into the healthy tissue on the central side of the affected part have been employed, but Henes has been unable to form any final estimate of their utility. Where gas phlegmon is complicated with fracture, amputation is recommended, as also when a main artery is wounded. With regard to the prophylaxis of gas phlegmon and other severe infections, the guiding lines of treatment are generally recognized: to open the focus of infection and to immobilize the part. Every gunshot wound is to be regarded as primarily infected, whether due to bullet or shell.

The importance of good fixation in preventing the spread of infection is insisted on. In the less dangerous bullet wounds of the soft parts it may suffice to place the limb in a suitable position. Shell wounds of the soft parts require splints at least, but are better treated with plaster bandages. Gunshot fractures, with the exception of those of the hand and foot, always require the plaster bandage. Immobilization alone does not suffice in all cases. If there is a likelihood that severe infection is present the bullet track should be thoroughly examined. This should be done in all gunshot injuries of the bones and in those of the soft parts caused by hand grenades. Shrapnel wounds of the soft parts require less energetic treatment, only the more readily accessible fragments being removed; bullets are extracted only if they can easily be reached. The examination of the wound will include the arrest of bleeding, the removal of foreign bodies and splinters of bone, the removal of sharp points, and the adaptation and wiring of fractured surfaces, provision for drainage by tubes, gauze, and counter-incisions, and the removal of lacerated shreds of soft parts. In deciding whether bony fragments which are still attached by bands of periosteum should be removed, the danger of their injuring the soft parts and hindering free drainage should be considered rather than the risk of a false joint. It is not necessary to adhere so rigidly to the line of treatment here indicated in the case of gunshot injury of the joints, always excepting the shoulder and hip joints. The course here, when strict immobilization has been secured, is often surprisingly favourable, owing, probably, to the slighter degree of comminution and the absence of bulky soft parts around the joint. Where the bullet is not retained and the wound does not appear to be gravely infected the plaster bandage should be used, with a window to allow of ready examination during transport. If it is necessary to drain the joint the incision should be small, though sufficient to ensure free outflow. Where the injury has opened the joint widely, fragments of bone and shreds of soft parts should

be removed, sharp points smoothed down, and separated fragments replaced in apposition. Apart from these special points the injured joint should be handled as little as possible. The treatment of nerves and tendons belongs to the stationary hospital.

Wounded vessels should be ligatured. Plugging is to be avoided; it may appear to be adequate at first, but with the recovery of the patient and the increase of blood pressure it may prove to be inadequate. Amputation should be performed for wounds causing arrest of the circulation through the popliteal artery; and the same applies to similar injury of the axillary artery below the origin of the circumflex.

Dr. Mertens (Oberstabsarzt), who also writes from a Feldlazarett, discusses conservative treatment of gunshot injuries of the limbs on the field. He distinguishes three classes of cases: (1) Those in which the indication for amputation is clear; (2) those in which amputation is clearly unnecessary, and (3) doubtful cases. Should conservative treatment be adopted in class (3) in the hope of obtaining a more useful limb than primary amputation would afford; or should amputation be resorted to with the object of saving life? Mertens endeavours to answer this question from experience of a series of thirteen cases belonging to class (3) and treated on conservative lines. These cases were of so severe a kind that many surgeons would have considered amputation to be imperative. The results of the treatment were that two of the thirteen cases died; these would have been saved by primary amputation. Of the eleven that recovered, the limb was saved in four, and secondary amputation necessitated in seven. Four of the latter had stumps which were better than primary amputation would have provided; in two the stump showed no advantage; in three it was less serviceable. Expressed in percentages the results are: Recoveries, 84 per cent.; limb saved, 30.8 per cent.; amputation with a better stump, 15.4 per cent.; amputation without any advantage, 15.4 per cent.; amputation with disadvantage over primary amputation, 23.1 per cent.; deaths, 15.4 per cent. Two of the cases were of especial interest; both were bullet wounds of the popliteal space without retention of the missile, and the symptoms were almost identical. The apertures of entry and exit were small, and there was little external haemorrhage. The leg from the knee to the ankle was swollen and brawny, the dorsum of the foot doughy, the foot itself perfectly cold, dead white, and devoid of sensation. Arterial pulsation was absent. Above the ankle the skin was purple as high as the tuberosity of the tibia, and cold and anaesthetic as far as the middle of the leg. The foot and toes could not be moved, and were the seat of attacks of extremely severe neuralgic pains. There was marked projection of the skin behind the knee joint due to a large non-pulsating haematoma in the popliteal space. The limb was elevated and surrounded with cotton-wool, and in the course of a few days the circulation became re-established as far as the junction of the lower and middle thirds of the leg. Amputation at this level became necessary owing to the onset of gangrene in the foot and lower part of the leg. Recovery was uninterrupted. It was, of course, impossible to ascertain the precise cause of the cessation of the popliteal circulation in these two cases, but Mertens considers that the vessels must have been damaged, and, in the absence of pulsation in the popliteal haematoma, that the injury must have been in the nature of concussion rather than wound.

Open Treatment of Wounds.

Dr. O. Braun (Stabsarzt), who is surgeon to a Feldlazarett, discusses the aseptic and open treatment of wounds in it. The conditions, he says, were especially favourable—a stationary, fully-equipped field hospital, having ready communication with the front, so that the men were seen a few hours after they were wounded; and the possibility of retaining the patients until their wounds were healed.

Since the open method depends largely for its success on the quality of light and atmosphere, the conditions will vary with the locality. No final judgement, therefore, on the value of the method can be reached until reports have been studied from all parts of the front. Braun adopted the method in all suitable cases; it is appropriate only in certain stages of wound treatment. The first requisite in all wounds is the aseptic dressing. To leave a wound, which will require treatment, open during the first days is dangerous. It is of importance, however, that this dressing be applied in such a way as to ensure (1) efficient drainage, and (2) adequate "wound respiration" or access of air. Too great a bulk of material, the use of moist dressings and of impervious outer coverings militate against the last named. The essential advantage claimed for the open treatment is that it is an auxiliary in preventing the spread of infection. Its therapeutic factors are light and air. The bactericidal influence of sunlight outside the body is well known; within the body, experimental proof of such influence is lacking, but it appears to have been established in practice. The therapeutic effect of free access of air to the wound depends upon the drying of the damaged and infected tissues, whereby the further growth of organisms is hindered; moreover, the absence of external pressure in the neighbourhood of the wound leads to exudation and so to mechanical flushing of the wound. Large infected wounds often show, after an abundant exudation lasting a couple of days, a marked and persistent diminution in the discharge. In suitably incised and drained phlegmonous wounds rapid subsidence of the inflammatory swelling takes place and the temperature falls. Soon fine fibrinous adhesions form, and a rapidly forming granulation layer shuts off the infection. At this point the open treatment should be discarded, for it is of no further use. In putrid infection and gas phlegmon the open treatment has proved no less satisfactory.

The presence of a progressive infection, as evidenced by clinical signs, is the indication for adopting the open method. The use of it in wounds that are free from irritation (as in many gunshot injuries of the head) or to ensure an uncomplicated course after extensive surgical treatment is not justifiable, since the danger of secondary infection is present. Moreover, even severe fractures with extensive damage to the soft parts often have a reactionless course with good drainage and aseptic dressing, provided good fixation and early surgical treatment are obtainable. It is not advisable to apply the open method during the first two days, since haemorrhage is often not immediate but occurs only when the commencing exudate loosens the thrombi in the vessels.

Technique.—A single layer of gauze is placed upon the wound surface, or, if the wound be deep, it rests upon its edges without entering its deeper parts. This prevents the formation of crusts on the raw surface and the possibility of secondary infection through dust, flies, and so forth. Once or twice a day the wound is irrigated with hydrogen peroxide or dilute boracic acid solution, high pressure being avoided. Drainage should be ensured by a tube in the deepest part of the wound or by a gauze tampon. Large wound cavities with much necrotic tissue should be filled with iodoform gauze for twenty-four to forty-eight hours; this should be followed by the use of drainage tubes, and from the third or fourth day on by the open treatment. Besides the layer of gauze on the wound, a second layer, not in contact with it, and supported on a simple wire-work frame or cradle, covers the part. Good immobilization is also of the greatest value. In cases in which the action of direct sunlight was employed (two hours' exposure of the wound daily, without any covering) the gauze was replaced, during the night, by a dressing of boracic ointment.

PARATYPHOID FEVERS.

An Epidemic of Paratyphoid A in a German Regiment.

KÖEHLER[1] describes a small epidemic due to *B. paratyphosus* A which affected specially two companies of a certain battalion in November and December, 1915. Typhoid and paratyphoid B infections had been met with previously, but this was the first experience of paratyphoid A. Other troops were not affected. As regards diagnosis, during the first and second weeks a very high percentage of positive cultures were obtained from faeces and blood; when the temperature began to decline organisms could no longer be recovered from the blood, but the faeces continued to be positive in about a third of the cases. The detection of bacilli in the urine was less constant. A faecal carrier continued to excrete bacilli continuously for six months.

[1] *Cent. f. Bakt.*, I, Orig., Bd. 78, p. 421.

The author agrees with Bieling that the only fermentation reaction which differentiates paratyphoid A with certainty from other members of the typhoid-paratyphoid group is that with galactose. Endo-agar containing galactose is used, and after twenty hours' incubation plates inoculated with typhoid, paratyphoid B, or Gaertner bacillus appear of a deep red tint, the colonies themselves having a golden sheen; on the other hand, the paratyphoid A plate is pale red, and there is no golden appearance of the colonies.

An Unusual Paratyphoid B Carrier.

Gildemeister[2] reports the case of a German soldier who was found to be excreting paratyphoid B bacilli in the discharge from a fistula in his forearm. The man had suffered from "typhoid" eleven years previously; during convalescence pus had been evacuated from incisions in the arm at the site of the fistula and in the leg below the knee. The latter healed, but the arm continued to discharge. Examination by the *x* rays showed expansion of the middle third of the radius and a sequestrum. The patient's serum agglutinated his own bacillus in a dilution of 1 in 200, but did not agglutinate a stock culture of *B. paratyphosus* B or *B. typhosus* in 1 in 50. Repeated examination of the patient's faeces and urine failed to show any paratyphoid bacilli.

Geographical Distribution of Paratyphoid A.

Lehmann[3] has made an extensive study of the literature of the geographical distribution and epidemiology of paratyphoid A infections in which he pays a tribute to the pioneer work of the British army services in India. The collected data emphasize the fact that the propagation of the disease is due to human carriers. In contrast to typhoid, paratyphoid A, under pre-war conditions, was a disease practically restricted to tropical and subtropical climates. It remains, he thinks, to be seen whether it will maintain a foothold in Europe after the war.

[2] *Cent. f. Bakt.*, I. Abt., Bd 78, 1916, p. 129.
[3] *Cent. f. Bakt.*, I, Orig., Bd. 78, 1916, p. 49.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

TEMPORARY SURGEON C. E. RECKITT, R.N.

Temporary Surgeon Charles Edward Reckitt, R.N., died at the Royal Naval Hospital, Haslar, on January 20th, aged 30. He was the elder son of Colonel J. T. D. Reckitt, R.A.M.C. (retired), was educated at Guy's Hospital, and took the diploma of L.M.S.S.A. in 1913. He subsequently filled the posts of clinical assistant at Guy's and of assistant house-surgeon, senior casualty house-surgeon, and ophthalmic house-surgeon at the Royal Infirmary, Hull.

SURGEON F. E. ROCK, M.D.

Surgeon Frank E. Rock, reported by the Admiralty as amongst the officers who lost their lives when the White Star liner H.M.S. *Laurentic* was sunk on January 25th, received his medical education at the Middlesex Hospital, and graduated M.B.Lond. in 1893 and M.D. in 1894. He entered the Royal Navy, and was with the fleet when it was mobilized in July, 1914, and was recalled for active service at the outbreak of the war. He took the D.P.H. of the Conjoint Board in England in 1904, and was for a time assistant M.O.H Huddersfield. In 1908 he became the first school medical officer at Edmonton, where there is a school population of nearly 14,000. In 1912 he was appointed assistant M.O.H. and assistant S.M.O. of Edmonton. His amiable character, combined with his professional qualifications, had endeared him to every one associated with him at Edmonton. Dr. S. C. Lawrence, the M.O.H. and S.M.O. Edmonton, writes: "The news of the torpedoing of H.M.S. *Laurentic* in Monday morning's papers came as a great shock to me. I feel Dr. Rock's sudden death as I would the loss of a brother. Since we became closely associated in 1912 our relations have been most cordial and harmonious."

ARMY.

Died on Service.

CAPTAIN B. D. GIBSON, R.A.M.C.

Captain Benjamin Digby Gibson, R.A.M.C., died on service on one of the Eastern fronts on January 14th. He was the only son of the late Henry Fisher Gibson, Deputy Registrar, King's Bench, and was educated in the school of the Royal College of Surgeons, Ireland, taking the L.R.C.P. and S.Ire. in 1904 and the D.P.H of these colleges in 1909. After filling the post of resident medical officer of the Westmoreland Lock Hospital, Dublin, he went to the Cape, where he served for some time as assistant district surgeon at Britstown, Cape Colony; but was in practice in Dublin prior to taking a temporary commission in the R.A.M.C.

CAPTAIN E. J. MCSWINEY.

Captain Eugene John McSwiney, who died of pneumonia at his home in co. Cork on December 26th, 1916, was educated at Trinity College, Dublin, and graduated M.B., B.Ch., B.A.O.Dublin in 1915. He at once joined the R.A.M.C., his commission being dated July, 1915. He had served with the British Expeditionary Force in France, but came home ill at the end of last year.

Killed in Action.

CAPTAIN H. L. JARMAN, R.A.M.C.

Captain H. L. Jarman, M.B., R.A.M.C., was reported as killed in action in the casualty list published on January 28th. He was attached to the South Wales Borderers. He was appointed a temporary lieutenant in the R.A.M.C. from the Canadian Army Medical Corps in May, 1915, and was promoted to temporary captain on May 31st, 1916.

Wounded.

Captain M. A. McDonald, M.C., M.B., Ch.B., R.A.M.C. (temporary).

Lieutenant J. A. Noble, M.B., R.A.M.C. (temporary).

Prisoner of War.

Major W. MacM. Pearson, I.M.S., previously reported believed taken prisoner at Kut-el-Amara, now reported as prisoner of war.

DEATHS AMONG SONS OF MEDICAL MEN.

Barlow, Patrick Basil, Private, Grenadier Guards, youngest son of Sir Thomas Barlow, Bt., Physician Extraordinary to the King, died of blood poisoning following trench feet on January 18th, aged 32. He was educated at New College, Oxford, and graduated B.A. in 1908, taking the M.A. two years later.

Frend, John Arthur, Second Lieutenant Royal Field Artillery, eldest son of Dr. Frend, of Rosario, Argentine, and of Eastbourne, killed on January 17th, aged 24. He was born in Rosario in 1892, and was educated at Petersfield and at Tonbridge School, where he was school praepostor, represented his school at rackets and boxing, and was a member of the Rugby fifteen and of the shooting eight. He was studying for the profession of civil engineer, and when the war began enlisted in the Honourable Artillery Company. In January, 1915, he was nominated for Woolwich, and there was senior under officer, and gained the Sword of Honour. In July, 1915, he was gazetted Second Lieutenant in the R.F.A., and went to the front in September, 1915.

Maurice, Charles Henry Pryse, Second Lieutenant Royal Berkshire Regiment, died on January 24th, at a casualty clearing station, as the result of an accident, aged 27. He was the eldest son of Lieutenant-Colonel W. J. Maurice, R.A.M.C., of Ealing.

Porter, Leslie, Captain and Flight Commander, Royal Flying Corps, son of Captain David Porter, R.A.M.C., of Donegal, missing since October 23rd, now reported to have died of wounds as a prisoner in Germany. He was a pioneer of the motor industry in the North of Ireland, and founded the firm of Leslie Porter (Limited). He was an ardent racing motorist, and took part in the Paris-Madrid race; in the race his car overturned, and his companion, Mr. Nixon, was killed.

Ward, Otho Charles, Captain Indian Infantry, second son of the late Major Espine C. R. Ward, R.A.M.C., killed on January 11th. He was born on February 17th, 1884, got his first commission on January 21st, 1903, joined the Indian army on April 20th, 1904, and became Captain on January 21st, 1912. He had served in the 124th Duchess of Connaught's Own Baluchistan Infantry since December 5th, 1905.

MEDICAL STUDENTS.

Craig, William Colston, Second Lieutenant South Lancashire Regiment, the third son of Mr. Wm. Craig of Partick, died on January 20th from wounds received in action. He was in his 23rd year, and was a medical student at the University of Glasgow.

Rennison, Walter Martyn, Second Lieutenant 3rd Battalion Royal Irish Regiment, was the son of the Rev. Canon Henry Rennison, Kilpatrick Rectory, Wexford, and was a second year medical student at the School of Physic, Trinity College, Dublin. On the night of December 30th, 1916, he was in charge of a patrol which came under machine gun fire. He was

eported wounded and missing at the time but has since been fficially reported killed in action. He is the twe·ty-seventh tudent of the School of Physic, Trinity College, Dublin, who as lost his life in the present war.

HONOURS.

THE following awards and promotions have been made to nedical officers for services rendered in connexion with he war:

D.S.O.

'emporary Captain Dyfrig Huws Pennant, R.A.M.C., attached head quarters, R.F.A.

For conspicuous gallantry and devotion to duty. He dressed and remained with three wounded men under the most intense fire. He has at all times set a splendid example of courage and coolness, and has on many occasions done fine work.

Military Cross.

Lieutenant Daniel Davies Evans, R.A.M.C.(S.R.), attached Royal Dublin Fusiliers.

For conspicuous gallantry and devotion to duty. He displayed great courage and determination in collecting and attending to the wounded under very heavy fire.

'emporary Captain Rupert Farrant, F.R.C.S., R.A.M.C., attached Shropshire Light Infantry.

For conspicuous gallantry and devotion to duty. During the whole day he tended wounded in an open trench, which was subjected to a violent bombardment. On one occasion he led a party into "No Man's Land," and brought in several wounded men.

'aptain Wilmot Fenwick, Australian Medical Corps.

For conspicuous gallantry and devotion to duty. He worked continuously for forty-eight hours under very heavy fire, tending and dressing the wounded. He set a splendid example of coolness and courage throughout

'emporary Captain Frank Anthony Hampton, M.B., R.A.M.C., attached Royal Scots.

For conspicuous gallantry and devotion to duty. He continually went out under very heavy fire and remained in the open attending to the wounded with the utmost bravery and coolness. He has previously done fine work.

'emporary Captain John Samuel Levis, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He displayed great courage and determination when in charge of stretcher-bearers under heavy fire. He has on many previous occasions done fine work.

'emporary Captain Francis Cromby Macaulay, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He displayed great courage and determination in collecting and attending to wounded under very heavy fire.

'emporary Captain Philip Hugh Rawson, R.A.M.C., attached S. Staff R.

For conspicuous gallantry in action. On several occasions he rescued wounded men under very heavy fire He set a fine example of courage and coolness throughout.

'emporary Surgeon George Lee Ritchie, M.B., R.N., attached R.N.D.

For conspicuous gallantry and devotion to duty. He displayed great courage and determination in collecting and attending to the wounded under very heavy fire.

'aptain Arthur Ashton Smalley, M.B., R.A.M.C.(S.R.).

For conspicuous gallantry and devotion to duty. He displayed great courage and determination in attending to the wounded, working continuously for forty eight hours under heavy fire. He set a fine example throughout.

'emporary Surgeon Geoffrey Sparrow, M.B., R.N., attached R.N.D.

For conspicuous gallantry and devotion to duty. He displayed great courage and determination in collecting and attending to the wounded under very heavy fire.

'aptain Herbert V. Stanley, M.B., R.A.M.C.

The Military Cross has also been awarded to the Rev. P. Ialding, R.N., Rev. M. G. J. Ponsonby, and the Rev. D. C. Villiams for assistance rendered to the Wounded.

To be Brevet-Colonels.

Lieutenant-Colonels H. A. Haines, M.D., R.A.M.C., C. J. acomb Hood, 2nd Eastern General Hospital, R.A.M.C.(T.F. Reserve).

To be Brevet-Colonel on the Retired List.

Lieutenant-Colonel A. W. Browne (retired pay), late R.A.M.C.

To be Brevet-Lieutenant-Colonels.

Majors B. A. Craig (temporary Lieutenant-Colonel), R.A.M.C., '. McLennan, M.B., R.A.M.C., A. H. Safford (temporary Lieutenant-Colonel), R.A.M.C., C. R. S. Bradley (temporary Lieutenant-Colonel), R.A.M.C., Commanding Training Centre.

To be Brevet-Majors.

Captains A. E. G. Fraser, R.A.M.C., and R. W. D. Leslie emporary Major), R.A.M.C.

CORRECTION.

The following is among the corrections made in the *London Gazette* announcements, issue of January 1st, 1917, p. 38: The ward of the Military Cross to temporary Captain Francis John Jorris, R.A.M.C., is cancelled and the following substituted: aptain John Morris, M.B., F.R.C.S., R.A.M.C.(T.F.), attached heshire Regiment.

MENTIONS.

In addition to the lists of medical officers mentioned last week (p. 129) and elsewhere in this issue, as the recipients of honours and promotions, the names of the following officers of the R.A.M.C. have been brought to the notice of the Secretary of State for War for distinguished services rendered in connexion with the war:

Lieutenant-Colonels G. M. Goldsmith, W. J. Macnamara, and T. B. A. Tuckey.

Major W. I. de Courcy Wheeler.

Captains P. J. Gaffikin and W. A. Robertson.

NOTES.

DISINFECTION BY A CURRENT OF DRY HOT AIR.

THE Vondran hot air disinfector depends for its action on passing a current of hot air under pressure through the disinfecting chamber. Tests of the apparatus under experimental conditions have been previously described (BRITISH MEDICAL JOURNAL, May 20th, 1916, p. 734). Baerthlein (*Cent. f. Bakt.*, I. Orig., vol. lxxviii, p. 527) now records the results of the use of a large apparatus capable of accommodating forty-five complete suits of clothes. He finds it very well suited for killing lice and nits, this being accomplished by a total exposure of 80 minutes at 63° C. or of 35 minutes at 85° C. Even fur and leather articles do not appear to be damaged under these conditions. On the other hand, as might be expected, bactericidal effects were less marked; typhoid bacilli were still alive after exposure to 100° C. for two hours, although some strains of staphylococci were killed. This failure does not appear to be due to deficient penetration by the hot air, but to the fact that moisture is essential in addition to an elevated temperature for the destruction of the life of most micro-organisms.

England and Wales.

LONDON COUNTY COUNCIL.

THE London County Council has arranged with the Commissioner of Police for messages summoning medical aid in cases of urgency, when required by certified midwives, to be transmitted by the police, who will be furnished with lists of practitioners willing to attend such cases. These practitioners are to be notified that neither the Commissioner of Police nor the Council can accept responsibility for the payment of fees, but that the boards of guardians in London are willing to pay the fees in cases in which the patients or their relatives are too poor to do so themselves.

Owing to the increase in the number of cases requiring treatment under the scheme of school medical service the Council has arranged with certain of the school treatment centres for provision for a large number of additional cases. Among other centres, Bermondsey is to provide for an additional 1,320 nursing cases a year, and the services of the doctor are to be extended for two half-days a week; Islington North for 440 additional cases a year; and Hammersmith for 440 refraction cases and 220 ear, nose, and throat cases a year. The "schools for mothers" which receive grants from the London County Council number 22; the average attendance at the 400 class meetings in the year was 15.

The Local Government Board has approved the scheme for diagnosis and treatment of venereal disease as formulated by the London County Council,[1] the Public Health Committee is now considering the steps to be taken under the scheme for the publication of information on all matters relating to venereal disease and its treatment.

It was reported to the Council that at the end of 1916 the numbers of cases actually being dealt with under the Mental Deficiency Act at the expense of the local authority in London were 536 males and 594 females. Of the remaining cases of alleged mental defect of which notice has been received since the Act came into operation, no action has been taken for various reasons in 182; 136 have been left to be dealt with under the Poor Law; 256 have been ascertained not defective or not subject to be dealt with by the local authority for London; and 253 are still under consideration.

[1] BRITISH MEDICAL JOURNAL, December 2nd, 1916.

VENEREAL DISEASE: A WOMEN'S MANIFESTO.

A circular, or manifesto, signed by a number of distinguished women, including members of the medical profession, was issued a short time ago containing the following paragraphs, which have a bearing upon questions of prophylaxis:

> Suggestions are sometimes made for dealing with this scourge by restrictions imposed only on women. Such efforts always have been and always must be futile. While men complain that they are infected by some woman, each woman may with equal certainty affirm that she was infected by some man, and it is usually by men that infection is carried to unsuspecting wives and innocent children.
>
> We urge the Government and Parliament, and all persons interested in the subject, to apply the following tests to every proposal dealing with this great problem:
>
> First, will it tend to strengthen or to weaken that sense of individual responsibility in relation to sexual conduct which is the strongest and most effectual bulwark against the spread of disease?
>
> And, secondly, can it, and will it in actual practice, be applied with impartial justice to both sexes and to all classes?
>
> Only by measures which can satisfactorily meet these tests will the eradication of venereal diseases be brought about.

Dr. Helen Wilson, 19, Tothill Street, S.W., is prepared to receive correspondence on the subject.

THE TREATMENT OF VENEREAL DISEASE IN LIVERPOOL.

The report of the Medical Officer of Health for the City of Liverpool shows the arrangements provided in conformity with the scheme of the Local Government Board for the diagnosis and treatment of venereal disease. A joint committee was appointed by the city council consisting of representatives of the Health Committee, the Port Sanitary and Hospitals Committee, together with two additional medical men nominated by the Liverpool Medical Institution, representing respectively the staffs of the various hospitals and the general practitioners in the city, to prepare the scheme. The medical faculty of the university has instituted a post-graduate course for medical men in modern methods of diagnosis and treatment. Dr. F. W. Wilson, the lecturer in venereal diseases, is now conducting the first course. The city bacteriologist, who is also the professor of bacteriology, has made full and complete arrangements to enable every medical man to obtain free of charge, and at the cost of the city council, a scientific report on any material from a patient suspected to be suffering from venereal disease. A detailed account is given of the arrangement entered into with the several hospitals, both general and special, within the city for the clinical treatment of the diseases. The arrangements seem to be similar to those being set up in other parts of the country. We notice one point of interest in the memorandum furnished by Dr. Mackenna of the Liverpool Skin Hospital: "Some years ago the experiment was made of having an evening clinic three nights weekly. This was continued for about six years, but it was not found that the evening hour specially attracted venereal cases."

THE TREATMENT OF VENEREAL DISEASES IN THE CITY OF LONDON.

At a meeting of the British Hospitals Association at St. Bartholomew's Hospital, on January 26th, a paper was read by Dr. William J. Howarth, M.O.H. for the City of London, on "The treatment and control of venereal diseases, with special reference to the voluntary hospitals." He said that the present position in respect to venereal diseases was that the information necessary to formulate a scheme of prevention was fully available, but the actual execution of the work was rendered difficult because of the circumstance that it was upon man himself that the success of the scheme depended. The fact that the diseases were due to a breach of the moral code made the community, as a sort of protection against further breaches of the code, attach a shame to them which in its turn caused the offender to hide his shame. Inadequacy of treatment was the direct effect of this, and with it much domestic misery and lifelong regret. The public must learn the seriousness of the consequences of this enforced privacy. After discussing the terms of the circular and regulations of the Local Government Board he gave an account of the city scheme. It is an independent unit, and has elected not to join in the combined arrangements entered into by the metropolitan counties and county boroughs. It has established its centre for treatment in connexion with St. Bartholomew's Hospital. A small building belonging to the corporation and designed for use as a hospital has been made the centre for out-patients, and some beds will be provided for ordinary routine work. Equipment and alterations to the cost of £1,000 will be made by the corporation, and the upkeep of the clinic to an estimated cost of £1,800 for the first year, exclusive of the cost of salvarsan or similar drug. For cases requiring special treatment beds will be provided in the great hospital. The clinic will be under the charge of a member of the hospital staff assisted by a whole-time non-resident officer and a resident medical officer. The part to be played in the working of the clinic by the general practitioner has not yet been settled.

Commenting on certain aspects of the work as affecting voluntary hospitals, Dr. Howarth said that in his opinion the difficulty of adjusting the financial arrangements was best met by a lump sum payment, by "an agreement with the local authority to guarantee a maximum sum, with the proviso that if expenses do not amount to that agreed, only the amount of expenditure actually incurred to be paid, meets the requirements." After a year revision would be possible. He emphasized the responsibility of the hospitals to make a greater effort than that entailed in the provision of treatment. They should become centres of medical life, each in its own area, and the profession ought to be attracted to the local institution and encouraged to visit it freely, with the object of keeping in touch with the latest progress. The staff should be leaders in matters of policy affecting the welfare of the profession as a whole.

He mentioned, as a matter of additional interest, that certain arrangements had been made at St. Bartholomew's Hospital apart from the City scheme, for putting into practice what may be regarded as a form of preventive treatment, such as has been urged by Sir Bryan Donkin (BRITISH MEDICAL JOURNAL, January 27th, p. 135). The facilities for this treatment are only used by soldiers.

Scotland.

THE TREATMENT OF VENEREAL DISEASE IN ABERDEEN.

The scheme of State provision for treatment of venereal disease was promulgated by the Scottish Local Government Board at a considerably later date than that for England. So that, whereas the scheme is already working in England, tentative plans are just now in progress of formulation in Scotland. It is proposed that the city of Aberdeen and the counties of Aberdeen, Kincardine, and Banff shall work a joint scheme of treatment for their areas. It is considered that the Royal Infirmary of Aberdeen will best provide the necessary centre, but that that should not preclude the extension of work to other centres if necessary. It is thought that eight to twelve beds will be necessary for in-patients and two day clinics and two evening clinics for out-patients. A special medical staff will be put in charge of the department, consisting probably of a physician and surgeon in consultative practice, who will rank on the staff of the infirmary and give part-time service, and a whole-time assistant medical officer, who will serve for a period not exceeding three years. The diagnostic work will be arranged for at the laboratories of the infirmary. It is proposed to indemnify the general practitioner for procuring and transmitting to the pathologist samples of blood and secretion taken from cases: 5s. for each sample of blood taken directly from a vein and 2s. 6d. for each sample of secretion or discharge. Further, there is a suggestion that the services of the special medical staff of the clinic that the medical practitioner may desire to consult shall be paid for by the patient on the usual terms, or at some fixed rate. It is proposed that the administration of the scheme should be under the direction of a special committee, to be elected yearly, of representatives of the several local authorities of the areas, the board of the infirmary, the medical faculty of the university, the medical staff of the infirmary, and of the medical practitioners of each area, together with the medical officers of health.

It will be seen that this tentative proposal differs from the general arrangements made in England in three

rticulars: There are proposals to pay the general prac-ioner for procuring pathological material, to pay con-ltants for their services, and to form a special committee administration including representatives of all bodies ected by the new scheme, and not to relegate it to existing standing committee.

THE HOUSING QUESTION IN SCOTLAND.

The crying need for some amelioration of the present nditions of living of the working classes in overcrowded ms in large industrial centres is recognized by every e. Medical officers of health have demonstrated the ect relation between overcrowding and death-rate, and results upon the spread of epidemic disease are vious.

The municipal authorities in Edinburgh and Glasgow ve recently been discussing the whole problem at a ngress, convened specially for the purpose, and agree-nt on certain points was reached.

This result may influence future legislation. Already a neme had been prepared by the President of the Local overnment Board in which local authorities were urged appoint local housing committees to investigate the cial needs of their own districts, but considerable ference of opinion was expressed by expert advisers as the general scheme of rehousing to be adopted. The nement or self-contained flat system is more in vogue in ottish then in English towns. The greater hygienic vantages of the small house or cottage surrounded by fficient air space cannot be disregarded and the balance opinion would seem to turn in favour of the latter, hough the convenience of proximity to factories and rkshops still inclines many people to perpetuate the ban tenement plan.

Apart from these considerations, which may be classed some extent as sentimental, the main question becomes inancial one. The complaint of high rentals for tene-nt dwellings is stated to be essentially caused by the ed for providing interest on the capital originally rrowed for building. If such interest could be eliminated e cost of acquiring land, erecting buildings, and main-ning them could be met without the imposition of a gh rent. By the substitution of public for private enter-ise it would be possible to provide the interest on rrowed capital from other sources. The working-man nant would directly benefit by the change of landlord. nder present conditions there is generally a covert tagonism between the two, and the tenant is apt to ffer in many small matters which tend to discomfort if t to deterioration of health. Experience in Scotland, as ewhere, is showing that the large sums of money nt on sanatoriums is not yielding the expected return. ie Medical Officer of Health for Edinburgh, speaking of e housing question in relation to tuberculosis, urged that e present method of dealing with the disease should be ersed, and that the money now expended on sana-iums should be devoted to the provision of healthy ellings. The time would certainly seem to be ripe for econsideration of the whole problem, and the opinions pressed at the Scottish Congress will doubtless carry ight in future discussions.

Ireland.

. E. COEY BIGGER, Medical Commissioner of the Local vernment Board for Ireland, has been appointed by the own to be a member of the General Medical Council, in cession to the late Dr. James Little.

THE BOYLE MEDAL.

The Boyle medal of the Royal Dublin Society was pre-ted to Dr. Henry H. Dixon, F.R.S., Professor of Botany the University of Dublin, at a meeting of the society r which the president, Lord Rathdonnell, F.R.S., pre-ed. A report from the Science Committee stating that ofessor Dixon's investigations into the long-standing oblem of the ascent of sap in trees had led him to mulate a theory which had met general acceptance. had also introduced the experimental method of aching botanical science in the University of Dublin. Professor Joly, F.R.S., said that Strasburger, to whose laboratory at Bonn Dixon had gone as a young man, had spent a considerable portion of his life upon the problem, but had left it unsolved. The society, he added, was most careful in awarding its Boyle medal, and at the present rate there would not be more than some twenty Boyle medallists in a century; but whatever names were added Professor Dixon's would be one of the most distinguished on the roll.

VENEREAL DISEASE.

At a meeting of the Executive Committee of the Ulster Branch of the National Council for Combating Venereal Disease, held on January 26th in the Belfast City Hall, Sir John Byers, M.D., in the chair, a resolution was unanimously passed asking the Local Government Board of Ireland to take the necessary steps to bring arrangements in Ireland into line with the Local Government Boards of England and of Scotland in dealing with the prevention of venereal disease.

MEDICAL CERTIFICATION UNDER THE INSURANCE ACT.

The duties of medical certification of sickness benefits under the Insurance Act in Ireland have been discharged for the past twelve months by the medical attendants of the insured. This arrangement, in addition to giving satisfaction to the profession in Ireland, has conferred great advantages upon insured persons who can now get the necessary certificates from their medical attendants at their own homes, or at the doctors' houses while undergoing treatment, instead of, as under the old arrangement, being under the necessity, especially in rural areas, of making a journey of perhaps ten or fifteen miles to meet a "medical adviser" who was appointed by the Commissioners to issue certificates for sickness benefits, and who was not the medical attendant of four-fifths of the insured persons for whom he issued certificates.

At the time the certification question was settled, as a basis for the remuneration of practitioners for certifying alone, the country, according to the density of the insured population, was divided into three groups:

1. In county boroughs and towns of 10,000 population and upwards one shilling and threepence per insured person.
2. In the sixteen county areas where the density of the insured population, excluding towns of 10,000 and upwards, equals or exceeds 0.02 per acre the sum of two shillings per insured person.
3. In the sixteen county areas where the density of the insured population is less than 0.02 per acre the sum of two shillings and sixpence per insured person.

Groups 2 and 3 were further subdivided into the already existing dispensary districts under the Medical Charities Acts, and the capitation fees for certification assigned to their respective groups or counties where payable. The sum available for distribution in any certification area is the total of the capitation fees of the number of insured and exempted persons in such area or district. This sum, when ascertained by the Commissioners, is divided amongst the medical attendants of the insured, who have signed agreements to certify for their sickness benefits in any particular insurance area in proportion to the number of certificates they have issued.

In Group 1 the capitation fee of 1s. 3d. works out, in a fairly typical insurance area of this group, at about 1s. per certificate issued. In Groups 2 and 3 the fee per certificate issued averages generally 2s. and 2s. 3d. respectively. Some approved societies require more certificates than others, and this causes much variation when the remuneration is calculated per certificate issued. The capitation fee, however, never varies in any insurance area, and was fixed on the assumption that approved societies would only demand certificates when necessary, and not insist upon their legal right to obtain weekly certificates in cases of long-continued disability where the cause of incapacity is only too apparent.

For the purpose of issuing many of these certificates for sickness benefits long journeys, in rural areas, have to be undertaken when the necessity to visit insured persons for the purpose of medical treatment has ceased; owing to this, and to the great increase in the cost of travelling, many doctors have found the amount of remuneration for certification altogether inadequate, and would have terminated their agreements for certification with the Commissioners at the end of last year only that they were

persuaded that representations would be made to the Irish Insurance Commissioners as regards the inadequacy of the remuneration, especially in those rural areas with a capitation fee of 2s., and in the borough and urban areas with a capitation fee of 1s. 3d.

At the end of the first quarter, when the Commissioners came to calculate each doctor's pay, they stated that they found several of the medical certifiers had omitted to give some items of information required on the counterfoils of the certificates to make payment on the dispensary district basis possible: the Commissioners informed the Irish Medical Committee that if certain doctors insisted on being paid in accordance with their agreements the payment would be deferred for a very considerable time until the necessary information was supplied. The doctors' representatives agreed to accept payment for one year on the county instead of the dispensary district basis, the Commissioners undertaking:

(1) That the arrangement would not in any way prejudice the agreements entered into between the Commissioners and the medical certifiers. (2) That the Commissioners should indemnify any doctor against any substantial loss by the calculation being made on the county basis instead of the dispensary district. (3) That all payments for certification should be made after January 1st, 1917, in accordance with the signed agreements, which provided, in certain areas, that the dispensary district should be the unit for the calculation of remuneration.

The Commissioners have now notified the Irish Medical Committee that all payments falling due from January 1st, 1917, will be made in accordance with the signed agreements between the doctors and the Commissioners, and that they would consider all complaints lodged with the Irish Medical Committee, up to September 30th last, by medical certifiers who claim to have suffered by the change made by the Commissioners in making payments calculated on the county basis instead of the dispensary district.

The arrangements made for the employment of temporary medical referees and their appointment by the approved societies have brought forth general protests from doctors in all parts of Ireland, as being a breach of faith on the part of the Insurance Commissioners, who had undertaken, when the certification question was being settled, to retain the appointment of medical referees in their own hands, and to select doctors of high professional standing who would be acceptable to the profession. At the time the certification dispute was settled the medical advisers passed a resolution demanding preferential treatment in recognition of past services in the capacity of medical advisers. This claim was warmly supported by certain approved societies which had shown themselves very hostile to the profession in their fight for the cardinal principle that the medical attendant should certify, in the first instance, his insured patients for sickness benefit. Under the present arrangements for medical referees the profession recognizes for the time the triumph of the ex-medical advisers' claim for preferential treatment which was only made possible by the Insurance Commissioners yielding on the question of the appointment of medical referees to the approved societies.

Correspondence.

THE PROPHYLAXIS OF VENEREAL DISEASES.

SIR,—The letter from Sir Bryan Donkin in the BRITISH MEDICAL JOURNAL of January 27th contains certain statements and expresses some opinions that may not commend themselves to many members of the profession and of the public who are interested in the important subject to which his letter refers.

In the beginning of his letter Sir Bryan states that the subject is essentially medical, and at its end he goes further and says that it is, and should be regarded as, exclusively medical. Are not the constitution and the report of the Royal Commission on Venereal Diseases a sufficient answer to and contradiction of this statement? The prophylaxis of venereal diseases is neither essentially nor exclusively a medical subject, and it is, I believe, an unfortunate and misleading suggestion that the problem can be successfully dealt with, if disconnected from the moral and religious factors in the case.

It may be argued that these have done little in the past in checking the gratification of sexual instinct by "irregular intercourse," but it is possible that they have done more in this direction than Sir Bryan is disposed to credit them with, and the ground is not obvious for his statement that they will not do better in the future than they have done in the past, and there is ground for thinking that the reverse may be true. The present war in its origin, methods, and issues might serve as an illustration of the growing weight and force of moral considerations and ideals. It is, further, advisable to reflect that things at present might be worse than they are, had moral and religious instruction not been employed and enforced in the past. There are some good points in the Mosaic Law.

Sir Bryan thinks that it is "mediaeval doctrine" that leads the public "to regard sexual diseases from a different standpoint from that which they maintain towards all others." Should he not qualify his statement by saying that the public regards the factors involved in the causation of these diseases as different from those of practically all other diseases, and, whether the doctrine is mediaeval or not, will he maintain that the public are not justified in so doing? In matters of diagnosis and treatment there is no need for any difference of view in regard to these diseases as compared with others, but in the matter of causation and prevention I submit the case is different.

The bearing on the question of the passages quoted from Sir James Crichton-Browne's letter is not very clear, but many will disagree with Sir James when he says that "the prevention of syphilis and the prevention of immorality should be kept wholly distinct from each other." They are not distinct, and the benefits of separating them are not obvious. If it is meant that the one is a material, and the other a moral question, and they should, therefore, not be associated, the suggestion is about as sensible as it would be to recommend that from the meaning of the terms "effort," "progress," "self-denial," and "aspiration," all moral significance should be excluded, or to assert that the causes of the falling birth-rate are exclusively physical or mechanical.

Sir Bryan makes no reference to alcohol as a factor in the causation of venereal diseases, or to its importance in the question of prophylaxis. The view of the Royal Commission is represented in the following sentences:

> Abundant evidence was given as to the intimate relation between alcohol and venereal diseases. Alcohol renders a man liable to yield to temptations which he might otherwise resist, and aggravates the disease by diminishing the resistance of the individual.
>
> Alcoholism makes latent syphilis and gonorrhoea active. It makes the treatment of syphilis and gonorrhoea much more refractory.
>
> The facts point to the conclusion that decrease in the use of alcohol will be an important factor in diminishing the prevalence of venereal disease.

The profession knows, and the public is perhaps beginning to realize, that alcoholic intoxication and drunkenness are among the great allies and procurers of sexual immorality and venereal diseases.

All will agree with the words of the *Lancet*, "preventive treatment is a logical step forward, and ought to be taken at once," but let us beware of an exclusively professional or scientific interest in the matter, and recognize that the prophylaxis of venereal diseases involves more than modern pathological or biochemical science alone can provide. To take a narrow and material view of the question might alienate the sympathy and support of many people in the country whose interest in the matter is not less than that of the medical profession but who view it from a different standpoint.—I am, etc.,

Inverness, Jan. 30th. T. C. MACKENZIE.

THE FUTURE OF THE MEDICAL PROFESSION.

SIR,—"Captain (T.F.)," in his letter from France dated January 12th, says, "The absence of conscription in Ireland leaves it open to young Irish practitioners to profit by the military service of English, Scottish, and Welsh doctors, and set up in the homes of the absentees to their obvious hurt. . . . How can we hope that the British Medical Association can right this wrong?"

While regretting that the same conditions, as regards medical service, have not been enforced in Ireland as in the rest of the United Kingdom, I would like to assure

aptain (T.F.)" that his fears are to a very large extent undless, as indeed your note to his letter indicates. eaking for the Medical School of Trinity College, blin University, I have ascertained that, omitting South icans, one hundred and sixteen (116) men qualified ce the war broke out. Of these one hundred and twelve 2) have volunteered and been accepted by the Royal vy or the Royal Army Medical Corps. Of the remain- four (4), two (2) volunteered but were rejected on unds of ill health, one is at present house-surgeon in a blin hospital, and one cannot be traced. Further, of seventy-one (71) men who qualified in the year pre- ling the war sixty-nine (69) are known to be serving in Royal Army Medical Corps, one is a medical ssionary, and one cannot be traced. As regards the ing practitioners of Dublin University, I am sure aptain (T.F.)" will agree that there is no "wrong," such he suggests, to be put right.—I am, etc.,

A. Francis Dixon,
University Professor of Anatomy,
Trinity College, Dublin.

nuary 24th.

Sir,—The two communications on this subject pub- ed in the Journal of January 20th must be of the atest interest to every member of the medical profes- n, and it is to be hoped that they will be read and read by all, and that many general practitioners may be ved to publish their views on this most vital question.

May I offer a few observations?

. Do not let us "label" ourselves "State Medical vice" men, or anything else. I always say of politics, e a man puts on his party colours he takes off his con- ering cap. There is much that is good in both articles. want to pick out the best points in each, and so struct a future medical service for the nation as a ole, with as few defects as possible, remembering what man nature is.

I. It is fairly certain that when the men come back y and their dependants will not be content with the ndard of pre-war medical treatment. No blame attaches the pre-war general practitioners; we did our best with dequate tools. The men when they come back will pect and demand that use be made of the most recent s to a correct diagnosis and to a rapid recovery— teriological examinations, vaccine and serum therapy, iograms, electrical treatment, and access to the services specialists, etc.

II. Medical practitioners must more clearly realize, and prepared to adjust their affairs accordingly, that the art medicine becomes more and more preventive; that in portion as success is obtained in this direction so neral practice will become less remunerative per head of pulation. Our present method of remuneration in private neral practice is simply Gilbertian! For a small fee we e our patients advice, which, if followed, may prevent ir ever having occasion to visit us again for that malady. ought to be paid so much per annum for preventing ess as far as possible, and treating it when it does se.

V. A fairly clear distinction must be kept between:

(*a*) *Services due to the Community as a Whole.*—Here we shall have medical officers of health, school officers, officers in charge of institutions, etc. (All part-time appointments to be abolished at once, as they ought to have been long ago.)

(*b*) *Services due to the Individual.*—Here we shall have the general practitioner responsible for the domiciliary treat- ment of the sick individual.

ween (*a*) and (*b*) we shall have:

(*c*) The bacteriologists, *x*-ray operators, and specialists, not forgetting the dental officers.

emuneration of (*a*) by State at fixed salary; of (*b*) on rance lines per capita, from insurance funds provided tly by the State and partly by contributions from the ured; of (*c*), drawn partly from State and partly from rance funds.

V. If the foregoing considerations are agreed to, it ows:

(*a*) That there will be a demand for a larger proportion of the population to be admitted to insurance benefit.

(*b*) That the general practitioner will be wise to agree to this, bearing in mind the progress of preventive medicine.

What the profession ought at once to do is to consider efully how far they are prepared to go in this extension nsurance, and to work out details of such an extension.

The more I think about it, the logical conclusion seems to be somewhat on these lines:

Universal Insurance.

Every individual to be insured against sickness. Every medical practitioner to have the option of working under the scheme.

The Insured Person.

Benefits.—Services of practitioner upon whose list he has been accepted; access to services of bacteriologists, *x*-ray operator, specialists, and, I hope, dentist, etc. Institutional treatment?

Contributions.—Workers, with wage below income tax limit, at fixed rate as at present. Those members liable to income ax to pay in proportion to income for self and dependants, the tax to be levied and collected with income tax.

The Medical Practitioner.

Duties.—To give domiciliary treatment to those persons accepted by him, he to have right of refusal. To make use of the services of bacteriologist, etc., whenever advantageous or necessary.

Remuneration.—Payment per capita from insurance funds. Note.—A limit should be placed to list of accepted persons. By way of example, the individual list to be limited to 2,000 at 10*s.* per head.

Dispensing.—Except in rural areas, this to be done by chemists or at special dispensaries. In towns, hospitals, dispensaries, clinics, *x*-ray work, etc., to be centralized as much as possible.

Mileage.—Some allowance to be made in rural areas, either by grant (which would require to be an increase on the present one) or by the rural practitioner receiving a slightly increased capita fee as compared with that of the town practitioner.

A few of the advantages of such a universal scheme would be—

To the Medical Profession.—1. Advance in preventive medicine and increase in number of whole-time officers under IV (*a*), would be welcomed by the general practitioner as making his burden lighter and not affecting his income. 2. Security of income, freedom from accounts. 3. (*a*) Whole-time health officers, independent of individual interests; (*b*) retention of relationship of family doctor to patient. 4. Incentive for the general practitioner to keep up to date, for in proportion as he does so he will be assured of a fair income and have increasing leisure—the quicker he gets his patients well the more time he will have for other interests.

To the State.—A satisfactory solution of a thorny subject.—I am, etc.,

January 26th. Rural G. P.

Sir,—There is a good time coming for those who live long enough: State service with "eight hours' work, eight hours' play, eight hours' sleep, and eight dollars a day." Severe cases will go to hospital; and all others presenting any difficulty will go to specialists. We shall all retire on our well-earned pensions at 55, and live as long and as happily as any other civil servant. But this blissful future is still ever so far away; and it will never come at all if we remain as modest in our demands as Dr. Gordon Ward.

I suppose the average age of qualifying is 24; Dr. Gordon Ward then proposes that each man should have two years' work at a good hospital, which every one must admit would be most desirable. Unfortunately, at the present time there are not enough hospitals to go round; and the authorities would certainly not be prepared to pay men even their present salaries if each had only half a dozen beds to look after.

Dr. Gordon Ward then suggests that the luckless young doctor who has spent ten years at hard labour and at least £1,000 in cash, should be employed by the State at the handsome salary of £300 a year, rising by decreasing instalments; so that at the age of 32 he will be getting £450 a year. Apparently this is the limit, unless he can gain favour by trenching on the work of the specialists. Out of this princely income he has to provide his car or carriage—or perhaps such luxuries are not permitted to a State doctor. Dr. Gordon Ward bewails the threatened shortage of doctors, but if the State has nothing better to offer there will not be much temptation to enter the profession. A young artisan has enough allowed him during his apprenticeship to pay for his board, and as soon as he is out of his time he has sufficient wages to marry and live comfortably. Surely a young doctor should be at least as well provided for, and this cannot be accomplished unless he has a commencing salary as soon as he is qualified of at least £500 a year net.

However, to descend to present-day conditions. Surely

the time has arrived to make public provision for all dependants of insured persons. With all its defects, and in spite of the low rate of the capitation fee, the Insurance Act has provided a much better service for the working classes than they had hitherto. To include the wives and families might cost the State four times as much as at present, but as we are cheerfully spending six millions a day on killing Germans, we can certainly afford to spend the same amount, or even twice the amount, in a year to preserve the health of British women and children. If this cannot be arranged during the war, it should be one of the first reforms put in hand after peace is concluded. In any case, such provision should be made at once for the dependants of our soldiers and sailors, instead of their being left, as at present, to the charity of the medical profession. We cannot very well refuse charity in such cases, but the more we give in the way of gratuitous service the more we are encroached upon, and similar services demanded of us on the pain of being accused of want of patriotism if we do not immediately assent.—I am, etc.,

North Shields, Jan. 22nd. F. C. MEARS.

MOBILIZATION OF THE PROFESSION.

SIR,—I wish to endorse very heartily the letter, signed "Rejected," which appears in your issue of January 27th.

In the town where I reside and carry on medical work the call to active service has met with a good response; those left behind are men who would be certain to break down under military stress; at home they work hard and efficiently. In addition, many of them are engaged in work with troops as civil medical practitioners. If they were removed to some other town, I fail to see what would be gained, and I question if their work would be as satisfactory as it is now.

The necessity to bring about a "general post" does not arise, and such a move would only cause confusion and disorder. It would not help on the war; the general public would suffer. In fact, no thoughtful person with any knowledge of medical work amongst the civil population at the present time would entertain the proposition for one moment.—I am, etc.,

January 28th. M.B.

SIR,—Week by week letters appear in the JOURNAL regarding mobilization of the profession generally; even if it be not true, there is something behind it all which is backed up by the constant cry from the Medical Department of the army of "More doctors wanted."

I have given the subject much thought and have been at the inner working of the department for recruiting medical officers as well as on a medical tribunal, and I pray for space to state a few generalizations and try and draw some conclusions.

I admit there are exceptions, but they cannot and do not alter general conditions. The bulk of the letters show that some men have had too much to do, others far too little. I have talked with many who have been at the front and are now home again, and only wish they were back in the army for a quiet time. The majority of medical officers in the army at the present time were civil practitioners before the war and were used to working longer hours, which leads to two generalizations:

1. Army doctors, on the average, work less than four hours a day in a closed area.
2. Private practitioners, on the average, work over twelve hours a day in an extended area.

Deduce from these two and it naturally follows that (1) private practitioners generally are making more money; (2) that the Army Medical Department is not making the best use of the material it has in hand.

When we get to this latter conclusion and we press for change we are told that those in authority know best. Granted they do know more than the outsider, yet outsiders can see a good way through a wood. Reasoning further from known facts and analogy with other Government departments, it is notorious that no other department has had more voluntary aid than the Army Medical Department as in (*a*) voluntary hospitals at home and abroad; (*b*) convalescent homes; (*c*) ambulances given and free carriage to wounded; (*d*) voluntary work by doctors in hospitals.

Every British workman has been asked and has given at a price, overtime, and work at his best speed, and craftsmen have allowed dilution of labour. No business man arranges his work on a basis of four hours' work a day. Why, then, should the Army Medical Department not alter? If army doctors are not available then those obtainable must be made to work longer hours. I do not think the profession will shrink from this, for a more patriotic body does not exist. We know many have made great sacrifices willingly and will continue to do so. Here I say the sacrifices of the army medical territorial officers have been unequalled. In private practice before the war and only doing medical war work as a side issue at a loss they were called in at the outbreak of war, and are still (although many are over 45 years) doing active duties. Surely we can relieve some of these back to their practices, or to the remnants of them, and replace them by forcing all men under 41 years into the service. True, it may be, we are a "starred" profession, but there is just as great a reason for the doctor to go as the labourer when the country calls him.

This brings one to the subject of medical examination for fitness for service. Scathing remarks are constantly being made in the press. There is an element of truth in them, and they are true even of medical men passed for service. We know that even C3 men are being called up for duty of some kind, why not doctors? I know some passed for home service, working their twelve hours a day for themselves, who could surely now, after two years and a half of piling up riches for themselves, sacrifice something for their country, and do hospital work at home or abroad and free a lot of elder men who are working in our hospitals to do locumtenent work—work they are used to and who can be spared from their own practices or they would not have entered such posts. Many other thoughts come to me, but knowing as we do the usefulness of the motor to the profession, surely more can be done by motor service.

Not a word do I say personally against the heads of our Army Medical Department. Well do I know their ability and their self-sacrifices in their country's cause. With them I want to rouse others to do their bit.—I am, etc.,

Woolwich, Jan. 23rd. J. CLARKE, M.B.

MEDICAL CERTIFICATES AND THE WAR OFFICE.

SIR,—There has been much discussion on this subject lately, and not a little blame has been meted out to our profession, much of it, I am persuaded, unfairly. Medical certificates are one of the nuisances of medical practice and with the exception of insurance certificates they are practically never paid for. Before the war they were a scandal and a nuisance. In most hospitals they are given out anyhow by the house-surgeons to any one who asks for them. The third party who may be injured by such a certificate has only himself to blame. If the employer, or other third party, wants an impartial certificate, he should himself apply for it, and pay for it, but that is just what he is not willing to do.

The truth is that, with the exception of insurance certificates, the ordinary medical certificate is worth nothing. It is asked for by the party concerned, read by the party concerned, and given to the party concerned, for nothing. No person of common sense would attach any importance to such a document. What have civilian medical certificates to do with the War Office? What are the Medical Boards for? Surely to decide as to the fitness of a man to enter the army or to go to the front. Why should they wish to shield themselves behind a civilian doctor's certificate? It has nothing to do with them; they are there to decide the question for themselves. Their proper course is to take no notice of any unofficial certificate. But if they are in doubt, as in some cases they must be, then let them refer the man to a specialist appointed and paid for this purpose by the War Office, for an opinion which should be confidential. If a mistake is made and a man is passed who should not have been, the War Office will then be able to say that they took every care, and they can refer whoever complains to the report of an eminent specialist, who will take all the blame and be quite willing to do so.

The truth is that many of the Medical Boards do not want to take the trouble of examining cases for themselves

nd prefer to accept the opinion of the patient's civilian octor, and then, when this works badly, they turn on the ivilian doctor and blame him for not doing their work for hem.—I am, etc.,

London, W., Jan. 18th. P. LOCKHART MUMMERY, F.R.C.S.

THE MEASURE OF THE POTENCY OF ANTISEPTICS—THEIR THERAPEUTIC VALUE IN WOUNDS.

SIR,—Captain Parry Morgan in last week's issue (p. 136) efers to our paper in the BRITISH MEDICAL JOURNAL of anuary 20th, and in regard to the antiseptics in common se he thinks that our figures do not apportion credit to hese substances "according to their utility." Had we not hared the doubt, so widely entertained, as to whether hey possessed any considerable measure of utility *qua* ntiseptics, in the treatment of wounds, we should not, at his time, have pursued the search further.

Captain Parry Morgan deals with the use of antiseptics nder two specified conditions, namely, (1) treatment of a vound by free irrigation, and (2) the application of the ntiseptic to the infected tissues in a dressing. For the irst he desiderates rapid bactericidal action; all will agree hat an instantaneously acting bactericide, devoid of harmful effect on the tissues, would be of inestimable alue. But on turning to the actual state of affairs one inds that, as we have already said, "the mechanical letergent action of a more or less continuous flow of fluid lays an important part; this can be accomplished by rrigation with some antiseptic solution, as in Carrel's rocedure." With what share in the process the antieptics hitherto available have been credited may be udged by the following quotations from Sherman[1] in his xposition of the most thorough application of the nechanical method devised by Carrel; he says: "It must e understood, however, that Dakin solution is not a anacea or 'cure-all,' and, while it has undoubted bacericidal properties and is an almost ideal antiseptic soluion, in that it is non-toxic and non-corrosive, it is not ffective unless used with discretion and judgement." gain: "The solution must be in constant contact with he tissues." And, finally: "It is possible that Dakin olution represents but 20 per cent. of the cure, and that he technique of Carrel represents 80 per cent."

Turning now to Captain Parry Morgan's second condiion, where an antiseptic dressing is applied to the infected issues, he states that test-tube experiments in which a elatively small volume of antiseptic is added to pus proluces conditions analogous to those in a wound, and uggests that he would base his conclusions as to the otency of an antiseptic according to its action in such a ixture. We would submit, however, that this constitutes s great a departure from the rational conception of the ractical problems involved as if it were suggested that the urgeon should content himself with the belief that he vas treating a suppurating wound adequately if he merely tirred up antiseptic into the pool of pus which bathed its urface.

We have clearly indicated our agreement with the view hat the removal of dead tissue and the conversion of the vounded area as far as possible into a free surface by urgical procedures, so as to promote drainage, are essenial factors in the treatment of infected wounds. But even vhen these objects have been achieved a potent and therapeutically desirable antiseptic will prove a valuable uxiliary in leading to the extinction of infection. We do ot believe that it is possible in any test-tube experiment o reproduce exactly the conditions in a wound, but we ave demonstrated that, taking the whole of the results in onjunction, the comparative inefficiency of the common ntiseptics under practical conditions has been paralleled y their behaviour in the tests to which we submitted hem. On the other hand, flavine and brilliant green xhibited such outstanding characteristics as seemed to varrant the conclusion that they marked a definite dvance in the search for therapeutic antiseptics. The ruth of this opinion has been confirmed by a very conderable mass of clinical evidence accumulated by a umber of experienced and independent observers. Therefore we have felt justified in bringing forward the details f our work in the hope that others may be encouraged to give these substances a trial, and also that it may prove of value in the discovery of still more efficient compounds.—I am, etc.,

London, W., Jan. 27th. C. H. BROWNING.

[1] *Proc. Roy. Soc. Med.*, 1916, x, Sect. Surg., p. 1.

THE INCOMPLETE CURE OF THE CONSUMPTIVE.

SIR,—I cordially agree with Dr. Camac Wilkinson concerning the use of tuberculin. I know that opinions are divided on this point, but after careful investigation and personal test I have decided that those who fail to obtain good results adopt a faulty technique. I personally begin with P.T.O., continue with P.T., and then in due course finish off with O.T. or B.E. I administer it hypodermically twice a week and increase the dose rapidly. My latest case is that of a girl suffering from tuberculous peritonitis. A consulting surgeon said the case was unsuitable for operation and advised open-air treatment. There were difficulties in the way, and she was treated at home in an ordinary house without the aid of a trained nurse. I gave tuberculin on the above plan, and she is now in excellent health. I have treated several other cases similarly, and all have benefited. In no case has there been any serious symptom such as profuse haemorrhage or a spreading of the disease as the result of the treatment.—I am, etc.,

Bournemouth, Jan. 30th. W. J. MIDDLETON.

ECONOMICS OF INSURANCE.

SIR,—On December 16th you published a letter in which I pointed out that there was more than a fear that the Insurance Act would check the fall in the tuberculous death-rate, specially by reason of its economic effects on the "borderland" class.

On January 20th you published a summary of the report of the M.O.H. for Manchester, which deplores the rise in that rate in Manchester in the years 1913, 1914, and 1915, and it is added that in the poorest classes "the disease was more fatal . . . than in previous years."

I had not expected so soon this startling illustration of my argument. Those of us who have made a study of economics, and of the effects of the policies of *laissez faire* and of paternalism on the wages, welfare, and the health of the poorer classes, argued in 1911 and ever since, that the Act must have this tendency. We made the prophecy, we pointed out the reasons why, and the people whom, it would harm. The report of the Manchester M.O.H. demonstrates every one of our positions. The onus of proof that the Act is not causing serious harm now lies on its advocates.

When we say "the Act" we do not mean that it is solely responsible, but we do say that it is the worst and the culmination of a long series of statutes which have results exactly contrary to their purposes, which all have as their pretext the amelioration of poverty by subsidies, and as their inevitable result the crushing of the poor by indirect and unseen taxation, the lowering of their health, and the sapping of their manhood.

I suggested that the British Medical Association rulers should appoint a committee to inquire into the effects of the Act on the nutrition of the poor. The mere announcement of such an intention would stay the hand of the Commissioners in their efforts to rivet the chains so strongly that they can hardly be removed. If such an inquiry were actually to be held, and its verdict was, as I believe it must be, very much in the terms of the Manchester report, it would be decisive.

With our predictions, with this report to hand, and with the rapid increase of wages and fall in death-rate (which in the case of tuberculosis was the most rapid in the world up to 1895), which were the feature of the reign of *laissez faire* and sound economies up to the retirement of Mr. Gladstone, no reasonable man will deny that we have a strong prima facie case. It is certain that the fears of increasing tuberculosis are not unfounded. Is it possible that the British Medical Association should stand as officially approving a law which may have that effect?

Until the doubt is set at rest, their attitude of acceptance of the Act at the valuation of party politicians, who, mistaking aspiration for achievement, think that the Act is good because they wish it to be good, is not only unscientific but highly unpatriotic.—I am, etc.,

Rayleigh, Essex, Jan. 22nd. B. G. M. BASKETT, M.B.

A TEMPORARY CLUB FOR TEMPORARY R.A.M.C. OFFICERS IN LONDON.

SIR,—Is it not possible to organize a club or meeting place where temporary R.A.M.C. officers passing through London could meet and know each other? They must have most interesting experiences to exchange as to war work.

If a committee could be formed and a small subscription asked for, it should be possible to hire some convenient house or make an appeal in the press for the use of a house, or some medical man or sympathetic outsider might loan a house to the committee suggested, say, for six months or so.

At such a centre a few emergency bedrooms might be provided, but lists of lodgings could be collected, and perhaps some friends might even give hospitality for a few days to such medical officers—most interesting guests!

Everything should be done on the quietest scale, and only light refreshments provided at first, to see if the place caught on. Letters, etc., could be received and kept for officers, and perhaps some ladies might attend in the afternoon and give help.

In my opinion experiences the most unique and valuable will be lost unless some such place is started.—I am, etc.,

GEORGE J. H. EVATT,
Surgeon-General (Ret.).

J.U.S. Club, London, S.W., Jan. 23rd.

Universities and Colleges.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

THE abridged University College *Calendar for 1916–1917*[1] contains all necessary information. The Faculty of Medical Sciences occupies some three dozen of its pages.

UNIVERSITY OF EDINBURGH.

UNIVERSITY COURT.

AT a meeting of the University Court on January 22nd letters were read from the University Courts of Glasgow and Aberdeen agreeing to send representatives to a joint conference on the subject of the compulsory retirement of Principals and Professors of the Scottish Universities on the attainment of a definite age limit or after a definite period of office.

The following additional Examiners were appointed: Professor W. D. Halliburton, M.A., F.R.S., King's College, London (Physiology); Professor Robert Howden, M.A., M.B., D.Sc., University of Durham (Anatomy and Anthropology); and Dr. Claude E. Ker (Medicine in its bearings on Public Health). Dr. John Mackie Whyte, University of St. Andrews, was reappointed additional Examiner in Practice of Medicine.

The Court finally adjusted the draft ordinance (Foundation of Chair of Tuberculosis), and directed that it should be duly signed and sealed, and forwarded in accordance with Section 21 of the Universities (Scotland) Act, 1889.

Dr. Alexander James and Dr. Claude B. Ker were reappointed Lecturers on Infective Fevers, and Dr. Graham Brown Lecturer on Neurology.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on January 25th, when Dr. Frederick Taylor, the President, was in the chair.

Admission of Member.

Vivian Bartley Green-Armytage, M.D.Bristol, L.R.C.P., having passed the necessary examination was admitted a Member of the College.

Licences.

Licences to practise physic were granted to eighty-three candidates who had passed the requisite examinations.

Diplomas in Public Health.

Diplomas in Public Health were granted, conjointly with the Royal College of Surgeons, to the following candidates: G. E. Beaumont, M.B.Oxon., M.R.C.P.Lond., M.R.C.S.; Vynne Borland, M.B., Ch.B.Glasg.; Seemampillai Francis Chellappah, L.M.S.Ceylon, L.R.C.P., M.R.C.S.; Una Griffin, M.B., B.S. Lond.; Sachchidananda Hoshen Paul, L.R.C.P., M.R.C.S.; Mary A. van Ingen, M.B., B.S.Lond.

Election of Councillors.

Dr. Michell Clark, Dr. W. E. Wynter, Dr. James Tayler, and Dr. Herbert Spencer were elected councillors.

University of Bristol.

Dr. Newton Pitt was elected a Representative Governor of the University of Bristol in place of Sir William Church, resigned.

Treatment of Venereal Disease by Quacks.

The President stated that at the invitation of the Association of Municipal Corporations he had taken part in a deputation to the President of the Local Government Board, urging that unqualified practitioners should be prevented from undertaking the treatment of venereal diseases.

Lectures.

The President also announced that he had appointed Dr. Saundby to be Harveian Orator, and Dr. E. S. Reynolds to be Bradshaw Lecturer for this year, and that the Council had appointed Dr. T. M. Legge to be Milroy Lecturer for 1918.

Reports.

A report was received and adopted from the Committee of Management recommending that Rugby School, which is already recognized for instruction in chemistry and physics, should also be recognized for instruction in biology.

After some further formal business the President dissolved the comitia.

The Services.

EXCHANGES.

CAPTAIN R.A.M.C. in charge of troops in Egypt desires exchange with M.O. on home station, hospital, or sanitary. Cardiff or London district preferred.—Address No. 250, BRITISH MEDICAL JOURNAL Office, 429, Strand.

Captain R.A.M.C.(T.F.), M.O. to Territorial battalion in Eastern Command, desires exchange with M.O. on Recruiting Medical Board, in or near London.—Address No. 450, BRITISH MEDICAL JOURNAL Office, 429, Strand.

Obituary.

WILLIAM OLDRIGHT, M.D.,

PROFESSOR OF HYGIENE, TORONTO UNIVERSITY.

BY the death of Dr. Oldright the profession of Canada loses one of its oldest and best known members. He was the son of Major Oldright of the 81st Regiment, and was born at St. Kitts in 1842. He was educated at the University of Toronto, graduating B.A. in 1863 and M.B. in 1865. When the writer entered the Toronto School of Medicine in 1868 he came in contact with young Oldright, who had begun practice, and was keenly interested in medical literature. He was a good linguist, and our teacher in physiology, Dr. Bovell, used his brains in the translations from German and Italian works. Many hours we spent together over Teichmann's monograph on the absorbent system, the beautiful plates of which served as texts for many lectures of our dear old teacher. To the stimulus of his example the writer owes his reading knowledge of medical German. Early in his career Dr. Oldright became interested in public health, and served for years as chairman of the Provincial Board. He was the first lecturer on the subject in the Toronto School of Medicine, and when the Medical Faculty of the University was organized he became professor of hygiene. His life-work may be said to have been the promotion of wise sanitation throughout the Dominion, and that the organization of the Provincial Boards has reached its present high standard is due in no small measure to his persistent advocacy of the needs of sanitation. Dr. Oldright had in high degree the sense of professional responsibility, and was an active supporter of the Canada Medical Association and of the local societies. There was in his character a fine fibre of earnestness, and a large circle of friends and patients appreciated the devotion with which he served their interests. Through men of his stamp is transmitted the Hippocrates tradition—in lives lived *caute, caste et probe*.—W. O.

HENRY HUMPHREYS, M.A., M.D.CANTAB., M.R.C.P.

DR. HENRY HUMPHREYS, who died at his house at Richmond on January 16th, at the age of 72, was a man of brilliant talents, who, had it not been for his weak health, might well have attained great distinction. He was the son of Mr. Charles Humphreys, an architect in the City of London, where he was born. Educated at the City of London School, he proceeded to St. John's College, Cambridge, where he graduated as fifth wrangler, proceeded to the M.A. degree in 1870, and became a Fellow of his college. He studied medicine at University College, London, took the diplomas of M.R.C.S. and L.S.A. in 1872, the degree of M.D. in 1875, and the M.R.C.P. in 1877. In

[1] *University of London: University College Abridged Calendar.* Session 1916-17. London: Taylor and Francis. 1916. (Demy 8vo, pp. 422.)

1873 he joined the Middlesex Hospital, where, after holding the posts of house-physician and obstetric house-physician, he was appointed medical registrar, and prepared the interesting and carefully compiled reports for 1875 and 1876. In 1877 he married a daughter of Dr. E. Duncan of Leadenhall Street, and in the same year went to reside at Manchester, having been appointed physician to the Pendlebury Hospital for Sick Children.

He threw himself into his new duties, and had already given promise of good scientific work, when, under unforeseen trials, his health broke down, and he was compelled to resign office, after three years' tenure, and abandon a career for which he was eminently fitted. For the next ten years he practised as a physician at St. Leonards, where he was attached to the hospital, and after that for five years at Fleet, and finally at Torquay, whither he removed in 1898. Here for another decade he spent a quiet and industrious life, not overburdened with practice, and taking much interest in the Natural History Society and Museum, of which he was president. His last work was to prepare an elaborate study of mosses for a meeting at Launceston, where the first symptoms of another breakdown occurred, which necessitated his retirement from active work. He never entirely recovered. For nine years he was devotedly tended by his wife. He died after a few days' illness from heart failure.

Dr. Humphreys was a man of fine character, modest and retiring, and thoroughly unselfish. During his hospital life he proved to be a shrewd observer, keen and enthusiastic in the pursuit of clinical medicine. It was a disappointment to his London friends, as it must have been to himself, that his career at Manchester was so abruptly cut short, from no fault of his own.

THE medical profession has lost one of its oldest members by the death of WILLIAM HENRY FREEMAN, M.R.C.S., L.S.A., which occurred at his residence at Hove on December 15th, 1916, in his 94th year. He was the second son of Joseph and Mary Bell Freeman and was born in 1823 at 20, Spring Gardens, London, where his father was a well-known medical practitioner. William Henry Freeman was educated at King's College School and at King's College, St. Thomas's, and St. George's Hospitals. He was apprenticed to his uncle, Joseph Henry Green, who was twice President of the Royal College of Surgeons and in after life the friend and literary executor of the poet Coleridge. W. H. Freeman became M.R.C.S. in 1845 and L.S.A. in 1846. He began in 1847 to assist his father, whom he ultimately succeeded, in his practice in Spring Gardens, then a residential neighbourhood, and they had to do with many interesting and important people. When Spring Gardens and New Street were given up to Government offices he moved to St. George's Square, and on retirement left London for Hove, where he passed the last eighteen years of his life, deriving fresh vigour from its sunshine and bracing air. He was a member of the British Medical Association and Governor of the Royal Medical Benevolent College, as it used to be styled, and had been a director of the Society for the Relief of the Widows and Orphans of Medical Men. He was fond of talking of old times, and of telling how the students used to sit outside the dissecting room at King's, which then opened on to the river, smoking their pipes and watching the boats pass by; of old St. Thomas's Hospital in the Borough, which in those days had three residents only—the apothecary and two house-surgeons, and how beefsteaks and porter were sent in for the delectation of the latter from the adjacent public-house—the forerunner of the Students' Club of our own day. He talked of the horrors of mercurial treatment in those remote days, when the efficiency of the drug was estimated by the amount of salivation it caused in the unfortunate patient. He had seen Sir Astley Cooper as a boy, and in later life he knew all the consultants of the period of Sir William Gull and thereabouts. He married in 1856 Emily, daughter of the late John Carrick of Southgate, and his widow and five children survive him. His eldest brother died a surgeon in the service of the Honourable East India Company, and his eldest son joined the R.A.M.C. as soon as he had qualified.

DR. JAMES GOWANS, who died at his residence at Broughty Ferry, Forfarshire, on January 15th, was the son of the Rev. James Gowans of Brechin, and was in his 67th year. He received his medical education at the University of Glasgow, where he graduated M.B., C.M. in 1876. He subsequently filled the offices of visiting surgeon to the Newcastle-upon-Tyne Dispensary and resident physician to the Glasgow Western Infirmary. He settled in Broughty Ferry in 1879, where his skill and genial manner won for him a large practice and many friends. Dr. Gowans, who was a warm advocate of outdoor recreation, was an enthusiastic golfer.

DR. CHARLES MATTHEW BRADY died on January 19th while proceeding on a tram car to the Royal Albert Edward Infirmary, Wigan, to which institution he was consulting surgeon. After receiving his education at the Ledwich School of Medicine, Dublin, he took the diplomas of L.R.C.S.I. in 1879 and those of L.A.H.Dub. and L.M. of Coombe Hospital, Dublin, in the following year. He subsequently held the post of resident surgeon at the Jervis Street Hospital, Dublin. He went to Wigan between thirty and forty years ago. He was a member of the British Medical Association and an ex president of Wigan Medical Society. For many years he had been a member of the old Wigan School Board, and was a member of the Wigan County Borough Insurance Committee. He was one of the founders of the Wigan Golf Club, of which he was a vice-president. He leaves a widow and three children.

Medical News.

THE Central Committee of the German Red Cross has undertaken to make a collection of pictures dealing with the activities of the Red Cross, including portraits of officials.

COLONEL CUTHBERT WALLACE, C.M.G., A.M.S., Assistant Surgeon to St. Thomas's Hospital and at present Consulting Surgeon with the British Expeditionary Force in France, has chosen gunshot injuries of the abdomen as the subject of the course of three Lettsomian lectures which he will deliver before the Medical Society of London next March.

MAJOR JOHN BRUCE, R.A.M.C., will give a short lecture and demonstration on the treatment of scabies with sulphur vapour at the meeting of the Dermatological Section of the Royal Society of Medicine, at 5 p.m., on Thursday, February 15th.

THE Ashby-de-la-Zouch Guardians have adopted a resolution urging the Government to promote legislation to ensure that a medical man shall not be liable to action for libel if he warns the responsible members of a family of a patient suffering from venereal disease of the nature of the disease and the danger of infection.

A NEW Italian periodical, dealing as its title, *Le Malattie del Cuore*, imports, with diseases of the heart, made its first appearance on January 1st. It is published monthly at Genoa (Via Frugoni, 13) under the direction of Professor F. Mariani. The issue of February 1st is entirely devoted to the cardiology of the soldier.

THE French Minister of the Interior has appointed a committee to investigate all questions relating to prostitution and the prophylaxis of venereal diseases. The chairman is Dr. Peyrot, senator and member of the Academy of Medicine. Among the other members of the committee are Dr. Chautemps, senator; Drs. Doizy and Delom-Sorbé, deputies; Dr. Faivre, inspector-general of administrative services; M. de Casabianca, deputy procurator-general at the Paris Court of Justice; M. Paoli, general secretary of the prefecture of police, with various officials of the departments of public assistance and hygiene in the Ministry of the Interior, and Drs. Chantemesse and Renault as technical advisers.

AN inquest was held at Paddington on January 27th with regard to the death of Lieutenant-Colonel C. W. F. Gorrell, C.A.M.C., aged 45. Dr. Spilsbury gave evidence that death was due to prussic acid poisoning. Lieutenant-Colonel M. Alexander, Assistant Judge-Advocate-General to the Canadian Force, said that an inquiry had been held last September into the administration of the Canadian Hospital at Cliveden, of which the deceased was commanding officer. Certain irregularities were discovered, and a general court-martial was held, but only slight breaches of discipline were established. At the request of the Red Cross Society instructions were given that

Lieutenant-Colonel Gorrell should not leave England, though as he had been relieved of his commission, having been asked to resign, he was anxious to return to Canada. It was stated in evidence that about a month ago he had a stroke, had suffered from sleeplessness, and was neurotic. A verdict of suicide during temporary insanity was returned.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediocera, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

LETTERS, NOTES, ETC.

DR. J. H. L. CUMPSTON, Director of Quarantine, Federal Quarantine Bureau, Spring Street, Melbourne, desires to complete a set of the annual reports of the Medical Officer to the Privy Council, issued prior to 1874. Through the courtesy of the Local Government Board he has obtained a number of the volumes, but the Board is unable to obtain the first report, and the third to the ninth inclusive. The Director is anxious to hear of the existence of copies of the missing reports.

APPENDICITIS AND ENAMELLED WARE.

DR. JOSIAH OLDFIELD (Bromley, Kent) writes: Your correspondents who draw attention to the possible relation between the modern use of enamelled ware and the great increase in appendicitis assume, I think rather unfairly, that any great amount of broken enamel gets into the food that is actually eaten. Owing to their weight, bits of enamel would fall to the bottom of the vessel, and generally be cast away with the dregs or be removed with the straining which takes place so extensively in cooking. None the less, the actual danger of swallowing for any length of time spicules of broken enamel can be adduced from one of the methods of poisoning in bygone ages, when powdered glass was administered with the food with fatal results. Those who have had to do with the management of horses in camp have learned during the last two years also the great danger of their picking up sharp sand with their oats and hay. While the danger of enamel ware would be real if carried to any excess, it seems hardly likely that an occasional spicule here and there would cause any serious injury, unless the intestine were filled with pathogenic material at the time when the actual scarification takes place. The moral, therefore, is to keep the intestinal contents physiologic by a correct dietary rather than give up the use of enamel ware.

INFLUENCE OF ABSOLUTE REST IN THE TREATMENT OF SYPHILIS.

DR. J. LEWIS THOMAS (Newport, Mon.) writes: As the treatment of syphilis is attracting much attention these days it is highly desirable to have simple facts in place of Continental hypothesis and dangerous complicated procedures, so the history of two cases may be of interest.

Some years ago a soldier, K., was discharged from the army with advanced and extensive tertiary syphilis. He was told that if the thorough treatment of the army surgeons had not been successful there was not much hope of a better result at the hands of the private practitioner. He was ordered a solution of mercuric chloride and potassium iodide with aromatic spirits of ammonia and tincture of nux vomica, and was told to lead an open air life and take a generous diet. His condition got steadily worse, and at last he took to his bed apparently to die. The usual "change of doctor" took place with no better result. Being called in again I put him once more on the same mixture, with the astonishing result that within three months the man was working in the mine with all his wounds healed. Within twelve months he rashly married and his wife gave birth to an apparently healthy child.

This case was vividly recalled by that of Mrs. T., who was sent to me as a case of advanced pulmonary and osseous tuberculosis. As the ulceration looked very much like tertiary syphilis the woman was put on the same mixture, which she took, there is every reason to believe, quite faithfully. Her case went from bad to worse, but at the request of her medical attendant she was taken into hospital to die as a tuberculosis case, although examination of the sputum for the tubercle bacillus was negative. The same mixture was prescribed and faithfully taken. In less than four months she was once more in the bosom of her family, having gained over 2 st. in weight and "looking the picture of health," as her surprised friends put it. Eighteen months have passed, and she still "enjoys very good health."

SUPERNUMERARY NIPPLES.

SURGEON-MAJOR NOBLE, V.D. (Kendal) reports that during his examination of over 5,000 recruits he met with two cases, within a few weeks of one another, of supernumerary nipples; both were on the right side, exactly 2 in. below the normal nipple, and each had a very faintly marked areola. This experience would seem to confirm the opinion expressed by certain authorities that supernumerary nipples are not so uncommon as is supposed. If serving no other useful purpose, they are, at any rate, valuable as identification marks for recruits!

THE TITLE OF "DOCTOR" AND THE "PERSONALITY."

DR. G. T. CREGAN writes: It cannot but strike one how often, when reports are given of medical evidence in newspapers, etc., or of lectures given or statements made by medical men, that the paragraph begins by "A doctor said . . ."; or "The medical officer certified . . ."; or "The doctor in attendance was of the opinion that . . ." We are all agreed that the medical profession is the silent profession, but this reticence is apt to become deteriorating instead of uplifting if carried too far. It is surely much more dignified to read that Dr. X., who was in attendance, said . . .; or that Lieutenant, Captain, or Major X., when asked his opinion, said . . . than to have nothing to represent one's personality than the mere trade-mark of the profession, which, after all, holds good in the case of a candlestickmaker or any other of the small callings which demand but little of one's initial brain capacity. Let every medical practitioner insist or instruct in inquests or similar cases that his evidence is not to be dismissed by a mere professional nomenclature, but that he is as much entitled—and, as all of us feel certain, a great deal more—to the insertion of his own name and surname in the report and so obviate the impression on reading that some one who is a three-named hall-porter has priority to the name of his christening before the medical man, who, when the case is sifted out, has always contributed to the crux of the issue.

THE PRICE OF SKILL.

DR. J. R. S. ROBERTSON (Hayling Island, Hants) writes: Your small article on the "Price of Skill" in your issue of January 27th reminds me of an answer given by the late Professor McHardy which bears out fully the purport of your article. The professor had just removed the eyeball of the relative (a wealthy woman) of a gentleman who had asked him the amount of his fee. He replied, "Five pounds." "Dear me," said the gentleman, "that is very little." The professor added, "Five pounds for doing the operation, one hundred pounds for knowing how to do it—one hundred guineas." This was paid without a murmur.

A PROLIFIC FRENCHWOMAN.

NAPOLEON, when asked by Madame de Staël whom he considered the greatest woman that ever lived, replied, to the discomfiture of the conceited lady, "The one who had the most children." The great captain, who used to go round among the women of his court with the exhortation *Faites-moi des soldats*, would have approved of the patriotic fecundity of a woman living in a small village of the Somme. Her story is told by Dr. Henri Raymondaud in *Paris médical* of December 16th, 1916. Marie Dehen was born at Monsures in 1847 and bore her first child at the age of 18 and her last at 49. The sum of her contribution to the population of France was thirty-two, of whom eighteen were boys and fourteen girls. Eight of the former and seven of the latter are still alive. The others died in childhood. She had three miscarriages. As her periods did not cease till she was 60, she might have continued her good work still further but for the death of her second husband. Only at the birth of her first child did she have the assistance of a doctor; his ministrations taught her all she wanted to know, and in all her subsequent confinements she managed for herself. She got up on the day after the happy event and carried the baby in her apron to church for baptism. Her experience has led to her employment as the local midwife, an occupation which she varies with that of tender of cows. Her surviving offspring, though quite healthy, have given no proof of remarkable fecundity, with one exception. A daughter who married at 25 and is now 35 has had ten children in ten years and now awaits the arrival of the eleventh. Marie Dehen is known among her own people as "the woman with thirty-five children." The facts may be accepted without question, as they are recorded in the registers of the *Mairie* and the parish.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE THERAPEUTIC ADMINISTRATION OF OXYGEN.

By J. S. HALDANE, M.D., F.R.S.,
OXFORD.

It is well known that the administration of oxygen often produces at least temporary benefit in cases of serious interference with the respiratory or circulatory functions; but sufficient attention has not hitherto been paid either to what precise benefit may be expected from the administration of oxygen, or to how it can best be administered. In the present paper I propose to discuss both these questions in the light of existing physiological knowledge, and to describe an apparatus designed for the clinical administration of oxygen.

Our knowledge of the physiology of respiration has advanced very rapidly within the last few years, and certain points which have been elucidated in this advance must first be referred to. Under normal conditions the breathing is so regulated as to keep the mean percentage of CO_2 in the air of the lung alveoli practically constant at a level which varies slightly for different individuals, but is about 5.6 per cent. The marvellous accuracy of this regulation was a revelation to physiology. A rise of about 0.2 per cent. in the mean alveolar CO_2 percentage doubles the amount of air taken into the lungs, while a fall of 0.2 per cent. produces apnoea. The rise in CO_2 acts through the blood on the respiratory centre in virtue of the very minute decrease in alkalinity which it causes; and the regulation of the blood alkalinity by the respiratory centre, kidneys, liver, and probably other organs, is so exact that no existing chemical or physical method of measuring variations in "reaction" (hydrogen ion concentration) can detect the more minute changes to which these organs are constantly reacting. For the present purpose it is, however, sufficient to remark that changes in the amount of air breathed are, under ordinary conditions, almost entirely dependent on the amount, not of oxygen, but of CO_2 in the blood leaving the lungs, and consequently passing to the respiratory centre. By reducing the CO_2 in the arterial blood apnoea can easily be produced in a person blue in the face from want of oxygen; and an animal from the blood of which sufficient CO_2 has been removed by forcible artificial respiration is not only apnoeic for a time, but will die from want of oxygen without drawing a single breath.

Want of oxygen does help to excite the breathing, but only in a very limited sense. If air containing a sufficiently low percentage of oxygen to cause slight cyanosis is suddenly breathed, there is an immediate great increase in the breathing; but this soon moderates, while the cyanosis increases and consciousness begins to fail. What happens is that the want of oxygen lowers at once the alveolar percentage of CO_2 which is required to excite the respiratory centre. In consequence of the presence in the blood, etc., of a considerable store of preformed CO_2 the breathing is greatly increased at once, and remains increased till the preformed CO_2 is reduced so as to correspond to the new level. The breathing then quiets down, and in consequence the alveolar oxygen percentage falls still lower, so that cyanosis and the other direct symptoms of oxygen want increase. If the lowering of the oxygen percentage in the air is gradual, or if oxygen want is gradually produced by gradual CO poisoning, or by a gradual ascent in a balloon or aeroplane, there is no evident hyperpnoea. The formidable symptoms (paralysis of movement and loss of consciousness) come on without warning from increase in the breathing. It is a mistake constantly made, but which ought now never to be made, to regard the breathing as a sufficient index of the existence or non-existence of oxygen want. If the breathing is greatly and persistently increased, some other cause is present than oxygen want.

The physiological effects, immediate and remote, of oxygen want must now be considered. When suddenly produced, oxygen want acts almost instantly in increasing the sensitiveness of the respiratory centre to CO_2, and so producing an urgent desire to breathe. The rapidity of this action, as compared with the normal and much slower reaction to accumulation of CO_2, is the explanation of periodic or Cheyne-Stokes breathing. To produce this sudden reaction (which is less readily produced in some persons than in others) the percentage, or rather the partial pressure, of oxygen in the alveolar air or blood supplying the respiratory centre must, however, fall below normal limits. At high altitudes, or in air with a greatly reduced oxygen percentage, the necessary reduction in the alveolar oxygen pressure occurs quite easily, and periodic breathing is a normal occurrence, which is stopped at once by increasing the oxygen percentage in the air breathed, just as Cheyne-Stokes breathing in a patient is stopped by administering oxygen. Periodic breathing, which is a sign of impending oxygen want, is simply the "hunting" of a too quickly acting respiratory governor, which is constantly overshooting the mark.

As already remarked, the initial hyperpnoea produced by rapid onset of oxygen want is soon relieved by the consequent washing out of CO_2 from the blood, provided that this washing out is free to occur. If not, the hyperpnoea will continue, even in spite of relief of the far more dangerous symptoms of oxygen want. Great hyperpnoea accompanied by oxygen want is characterized by marked rise in pulse-rate, palpitation, great rise in arterial blood pressure, and, what is still more remarkable, a simultaneous great rise in venous blood pressure. The latter phenomenon is indicated by distension of the lips, face, tongue, etc., with blue venous blood, distension of superficial veins in the neck and chest, and the other signs of "acute" cyanosis. The high venous blood pressure is very apt to lead to over-distension of the right side of the heart and consequent paralysis of the heart and death. For this reason, free venesection may be of the greatest service in conditions of acute cyanosis. The great and immediate benefit arising from free venesection in acute asphyxial conditions arising from irritant gas poisoning was, so far as I am aware, first pointed out by Drs. Irvine and Macaulay of Johannesburg, and was also independently observed by Dr. Hale White in a case brought to Guy's Hospital. In consequence of their experience, the utility of this mode of treatment in cases of acute cyanosis from chlorine poisoning was pointed out in France, and its success was recorded recently by Captain S. Hebblethwaite, R.A.M.C.[1]

If the washing out of CO_2 in the lungs is not interfered with, "acute" cyanosis and hyperpnoea do not occur at all, or are only temporary. The other effects of oxygen want then become more and more prominent. The lips become of a leaden or grey, rather than blue, colour, since they are not distended with blood. Sensibility, mental control, and memory begin to fail rapidly. At a further stage of oxygen want the legs are usually first paralysed, then the arms, and later the head and neck. The senses also go one by one, hearing being the last. If, as often occurs in CO poisoning, loss of consciousness from oxygen want has continued for some hours, ultimate recovery of the central nervous system is very doubtful, and the heart and other organs, such as the kidneys, may also suffer badly, great cardiac dilatation and valvular incompetence, lasting for weeks, being not infrequently observed. The mistake is often made of not grasping the serious, widespread, and lasting effects caused by want of oxygen. Even when the want of oxygen is completely removed these effects remain. This is very strikingly seen in CO poisoning. When an unconscious man is removed from the poisonous air the CO is very rapidly washed out of his blood; but he may still be unconscious, and in a dying condition, with his blood perfectly free of CO, and the cause of the oxygen want thus completely removed. The damage done by oxygen want depends partly on the degree of oxygen want but still more markedly on the duration of the exposure, and it is this latter factor which I wish specially to emphasize, as its importance is seldom realized.

If the degree of oxygen want is slight and only temporary the immediate symptoms are trifling, and may hardly be noticed except on muscular exertion, but if the exposure is continued for some time formidable effects are produced. These are severe headache, nausea, and extreme depression. They are seen typically in mountain sickness, and in the effects of a pretty long exposure to a comparatively low percentage of CO, and they are doubtless mixed up in the clinical picture of many cases of respiratory and circulatory affections. In cases of CO poisoning it is usually after the exposure that the symptoms develop, and in mountain sickness several hours'

exposure are usually needed. Those who have experienced the extreme depression of mountain sickness or CO poisoning will readily realize that such a condition may make all the difference between life and death to a patient battling with illness.

From the foregoing remarks it seems clear that a physician ought to make every effort to avert the effects of want of oxygen or cut them short. It may be argued that such measures as the administration of oxygen are at the best only palliative and are of no real use, since they do not remove the cause of the pathological condition. As a physiologist, I cannot for a moment agree with this reasoning. The living body is no machine, but an organism constantly tending to maintain or revert to the normal, and the respite afforded by such measures as the temporary administration of oxygen is not wasted, but utilized for recuperation.

Let us now consider in more detail how oxygen want is produced, what seems to be possible in directly combating it by oxygen administration, and what risks have to be avoided. We may begin with a simple and easily intelligible case—that of poisoning by CO, or by a nitrite, chlorate, or other poison which causes death by disabling the oxygen-carrying power of the blood. In such a case acute want of oxygen is produced by the poison disabling the haemoglobin, so that it is unable for the time to carry sufficient oxygen to support life. Normal human arterial blood carries about 18.1 c.cm. of available oxygen per 100 c.cm. of blood. Of this, about 17.75 c.cm. are combined with the haemoglobin and 0.35 c.cm. are in simple solution. In passing round the circulation during rest this blood loses only about 4.5 c.cm. of oxygen. In poisoning by CO and similar respiratory poisons, death occurs when about 80 per cent. of the haemoglobin is disabled. If the patient is still alive there will, therefore, still be 20 per cent. of his haemoglobin available. But by administering pure oxygen we can at once increase the amount of oxygen in simple solution to about 2.5 c.cm. This promptly averts any further danger from want of oxygen, and in CO poisoning the oxygen rapidly drives out CO from the haemoglobin, so that after fifteen or twenty minutes of continuous administration the oxygen may be discontinued. In poisoning by nitrites, etc., there is also a fairly rapid return of the blood towards the normal, consequent on the gradual elimination or destruction of the poison. Experiments on animals have shown quite clearly that oxygen actually does avert death in the cases just considered.

In acute inflammatory conditions of the lungs there is sometimes also want of oxygen, as shown by cyanosis; and where the inflammatory condition is accompanied by the presence of "oedematous" exudation throughout the lungs the cyanosis is often very great. This condition is seen typically in the acute stages of poisoning by nitrous fumes or chlorine. What is its probable cause? When a portion of the lungs, including even the greater part of both lungs, is entirely blocked by consolidation, as in croupous pneumonia, there is commonly no cyanosis. This indicates that very little blood is passing through the consolidated parts. What passes through the healthy portion is amply sufficient for respiratory requirements during rest. It must be borne in mind that the normal lungs and circulatory organs are adapted for meeting about ten times the respiratory requirements during rest, since the respiratory exchange is often about ten times as great during work as during rest. Hence during rest in bed a very small proportion of normal lung will suffice for meeting respiratory and circulatory requirements, provided there is but little circulation through parts which are useless. But when cyanosis due to a lung affection exists, in spite of the fact that air is entering the whole or a great part of the lungs freely, we seem driven to the conclusion that the entry of oxygen into the blood through the alveolar walls is impeded by exudation and increase in thickness of the alveolar walls.

It is very important to realize that this may occur without any serious impediment to the passage of CO_2 outwards. CO_2 is about twenty-five times as soluble in water as oxygen, and hence it passes through the alveolar walls far more easily, with a given difference of partial pressure, than does oxygen. Moreover, a comparatively slight increase in the breathing will enormously increase the small difference in diffusion pressure on which the passage of CO_2 outwards depends; but the same increase in breathing produces only a slight proportional increase in the diffusion pressure which drives oxygen inwards. Hence we may have cyanosis, and consequently very formidable effects from oxygen want, without marked hyperpnoea. The grey look of the patient's face will be a good index of this. There will probably be no increase of venous blood pressure with its accompanying full blue cyanosis.

If great hyperpnoea accompanies the cyanosis there must be some other complicating condition. This accompaniment is seen typically in the acute stage of poisoning by chlorine or nitrous fumes; and the results of *post-mortem* examination, together with clinical observation during the recovery stage, seem to reveal the cause. In the acute stage the alveolar walls become extensively torn in efforts to breathe despite the blocking of many of the bronchi by exudation or constriction. In consequence of this there is widespread emphysema, which is very evident on *post-mortem* examination. The areas round the emphysematous cavities are partially collapsed and very imperfectly ventilated, so that the CO_2 percentage rises in them to an abnormal extent. The emphysematous cavities are excessively ventilated, but this ventilation is of little use since the proportion of sound alveolar wall to air is far too small. In consequence of this the CO_2 content of the arterial blood is raised, and hyperpnoea, along with increased arterial and venous blood pressure, results. As the oedema clears up the cyanosis disappears, but the hyperpnoea remains for some days, since it takes a considerable time for the emphysema to heal up.*

When there is cyanosis (whether of the deep purple or grey type) due to hindered passage of oxygen through the alveolar walls, this can be combated by raising the percentage of oxygen in the alveolar air and so increasing the diffusion pressure. The normal alveolar oxygen percentage is about 14, or 7 per cent. less than in the external air. By raising the percentage of oxygen in the inspired air to 35 we raise the alveolar oxygen percentage to 28, and thus much more than double the effective diffusion pressure, since the oxygen pressure in the venous blood passing to the lungs will probably be at least 4 per cent. It will probably, therefore, require only a moderate increase in the oxygen percentage of the inspired air to remove the cyanosis. Even in ordinary cases of croupous pneumonia the alveolar oxygen pressure may be a matter of decisive importance. This is clearly shown by the fact that these pneumonias do very badly at high altitudes. At Cripple Creek (altitude about 10,000 ft.) in the Rocky Mountains I found that this was so well recognized that all cases of pneumonia were put in the train and sent down to the prairie level.

Where, in lung affections, an addition of oxygen to the inspired air is needed in order to combat want of oxygen, it is evidently desirable to continue the administration over long periods. It was shown by Paul Bert that oxygen at a pressure of about three atmospheres is capable of producing convulsions and rapid death; but Lorrain Smith found that, apart altogether from this action on the nervous system, pure oxygen at high pressures produces pneumonia pretty rapidly, and even at ordinary atmospheric pressure acts slowly on the lungs, ultimately producing fatal pneumonia after several days in animals. This effect was even occasionally produced in about four days by a mixture containing only 80 per cent. of oxygen. It is evidently desirable, therefore, to keep the oxygen percentage as low as possible during long administrations, and to know roughly what percentage is being breathed.

In cases where the source of danger is failure of the circulation, the inhalation of oxygen may also be of use, and I have seen the cyanosis in a case of valvular disease clear up at once on the administration of oxygen. The effect was so striking that it could hardly be attributed to the increased amount of oxygen going into simple physical solution in the arterial blood. It seemed more probable that owing to back pressure in the lungs and consequent exudation, etc., there was hindrance to the diffusion of

* It may perhaps be pointed out here that hyperpnoea means increase in the volume of air breathed per minute. The frequency of breathing is no reliable index of hyperpnoea. If in a normal person the frequency of breathing is voluntarily varied from three a minute to sixty a minute, the depth of each breath being left to itself, there will be not the slightest increase in the lung ventilation (as measured by the composition of the alveolar air) when the breathing is at sixty a minute. There are various causes of increased or diminished frequency of breathing, the vagus nerves being specially concerned with the regulation of frequency

oxygen inwards, and that with the increased oxygen percentage this was overcome. Nothing but practical trial, for which I have at present but few opportunities, will show to what extent, and under what conditions, the administration of oxygen is of use in various pulmonary and cardiac affections. Cyanosis may always be taken as an indication that oxygen inhalation should be considered.

The immediate effect of suddenly giving an abundance of oxygen to a cyanosed person may sometimes be unpleasant, as I well know from experiments on myself and others. The heart may become tumultuous in its action, and the breathing irregular for the time, or the patient may wake up to the realization of pain or discomfort. His respiratory centre may also wake up to reaction against accumulated CO_2. It is well, therefore, not to add oxygen too rapidly to the inspired air in cases of cyanosis.



Existing methods of giving oxygen are nearly always very crude and wasteful of oxygen, and it is not possible to graduate efficiently the percentage of oxygen administered. The simple apparatus now to be described is designed to remedy these defects and render practically possible the prolonged administration of air enriched with as little oxygen as will suffice for the purpose aimed at.

An ordinary 20-foot oxygen cylinder is fitted with a pressure gauge and adjustable governor of the type employed in mine-rescue apparatus. By means of the governor the delivery of oxygen can be varied at will from nothing to 10 litres a minute. The oxygen is delivered into a small bag of thin vulcanized rubber of about 2 litres capacity. From this bag there passes to a facepiece on the patient a flexible tube of about five-eighths of an inch in diameter. At its origin from the bag this tube is provided with a non-return mica valve. The last part of this tube is of light and perfectly flexible corrugated rubber tubing of the kind introduced by Mr. Fleuss for mine-rescue apparatus. The facepiece is of the ordinary type, fitting over the mouth and nose, but so designed as to leave a minimum of dead space when applied to the face. It can be secured in position by an elastic strap. Besides an inlet for oxygen, the facepiece has inlet and outlet valves for air, so that if no oxygen is turned on the patient can breathe air quite comfortably and freely. Some air will also leak in and out round the facepiece which need not be at all tightly applied.

When oxygen is turned on it accumulates in the small bag during expiration, since the very slight expiratory pressure in the facepiece closes the non return valve, and this prevents the issue of oxygen from the bag, and, of course, at the same time prevents expired air from entering the bag. During inspiration the bag is emptied, the oxygen passing into the facepiece and thence into the patient's lungs. If only a little oxygen is turned on the patient will be breathing mostly air, but by turning on more oxygen the proportion of oxygen can be increased till nothing but pure oxygen is being inspired, and the bag does not completely collapse till the very end of inspiration. Thus no oxygen is wasted, and enormous economy of oxygen results, so that prolonged administration of oxygen becomes practicable.

Where prolonged administration of oxygen seems desirable, the minimum quantity of oxygen which will remove the cyanosis should be carefully ascertained by observation of the patient, and the governor adjusted to give this minimum quantity, which is likely to be anything from 1 to 3 litres per minute. The quantity needed will of course depend on the weight and age of the patient; and if hyperpnœa due to CO_2 is present, a larger quantity will be needed to reach a given percentage. A man at rest usually breathes about 7 litres of air a minute.

The probable risks of prolonged administration of pure oxygen must be borne in mind, and if necessary balanced against the risks of allowing the oxygen want to continue. No fixed rule can be given. The proper course to pursue must be determined by the physician after careful observation of the patient, and in the light of experience and knowledge. Many points with regard to the utility of oxygen administration are still obscure, owing to the haphazard methods hitherto used in administering the oxygen.

The apparatus is shown in the accompanying figure, and is made by Messrs. Siebe, Gorman, and Co., Westminster Bridge Road, London, S.E. A simple resistance meter can also be supplied for rapidly checking the indications of the governor on the cylinder.

REFERENCE.
[1] BRITISH MEDICAL JOURNAL, July 22nd, 1916.

MINOR INJURIES TO JOINTS.

BY

FRANK ROMER, LIEUT.-COLONEL R.A.M.C.(TEMP.).

AT the Croydon War Hospital, where we receive every class of crippled limb, I frequently come across cases of ordinary sprains and dislocations where recovery has been delayed from want of suitable treatment in the initial stages. The conditions of active service render men particularly liable to such injuries, but when the medical officers have many serious cases requiring urgent surgical attention, those who are incapacitated by minor injuries are often unable to receive the attention they would otherwise get. It is in no carping spirit of criticism, therefore, that I refer to this point, but with the view of drawing attention to the importance of immediate treatment when dealing with men sustaining these injuries in England, since by so doing they can be returned to duty more quickly than by waiting for treatment at a later date. Delay not only renders recovery more difficult, but prolonged acquaintance with hospital life is apt to sap the *morale* of the men.

A sprain has been described as an incomplete dislocation, and is said to occur where a joint has been wrenched by a force sufficient to overstretch or rupture the controlling ligaments and tendons. It may vary from a condition where the joint is completely incapacitated to a mere deviation from the normal, where pain is only elicited by some particular movement.

Hitherto textbooks have made scant reference to the treatment of these common injuries, yet the disability caused by them often persists long after all active trouble has subsided. Treatment should be directed not only to the relief of the immediate pain but to the prevention of those common sequelae—weakness and stiffness of the joint.

If we examine the history of a sprain—and most of us have at some time or other experienced it—there is the curious sickening and painful sensation of its reception, followed by a sense of numbness, which is quickly followed by swelling of the joint and increase of pain. This pain is due to pressure of the extravasated blood and lymph on the sensory nerves, and the more quickly this effusion is absorbed the sooner may recovery be looked for.

For many years absolute physiological rest, combined

with various ways of applying either heat or cold, was considered the only method of treatment in cases of sprains and dislocations, and, in fact, this idea still holds good in many quarters. Nowadays, however, most surgeons have substituted massage as being a much quicker method of reducing the swelling and restoring soundness. In these days when there are so many well-trained masseurs and masseuses to be obtained it is not necessary to describe the various movements of massage; but it is as well to point out that in the early stages the gentle stroking movements of light effleurage must alone be employed, and should be performed daily for about twenty minutes.

As the swelling subsides, which should happen in the course of two days or so, the massage can become firmer. Deep massage and forced movements in the acute condition will do more harm than good, and unless the masseur can be depended upon it is wiser to postpone the massage to a later stage. I have seen a too energetic masseur cause considerable damage to a tense knee-joint by his misdirected efforts. In the intervals of massage the joint should be supported by a bandage and a certain amount of use encouraged. Little fear need be felt as to the patient doing too much; the difficulty is usually the other way.

The employment of massage from the commencement not only aids absorption of the extravasated material, but by so doing obviates to a large extent the formation of adhesions. Again, together with the gradually increasing use of the joint, after the first few days the wastage of the controlling muscles is to a large extent prevented,

In my own practice, as soon as most of the swelling has subsided, I am in the habit of strapping the joint with an adhesive non-irritating plaster in such a way that only normal movements are possible. I find that the plaster gives more support than a bandage, and consequently the patient uses the joint with more confidence.

In fact, in treating a sprained ankle, no matter how severe, I invariably strap it at once by the method described by Wharton Hood, and enjoin use. It is essential that in the early attempts at walking the ankle-joint be used. To permit the foot to be everted and walking accomplished with a rigid ankle is of no use, and this point must be impressed on the patient.

Those who have not yet tried or seen the effect of such treatment would be surprised at the rapidity of recovery. The plaster, by alternately slackening and tightening on the joint during the toe and heel motion of the ankle, goes through the action of massage, yet it is so adjusted that any untoward movement likely to injure the torn ligaments is checked.

The great point to remember is to apply the strapping so that it fits no tighter than a well-fitting glove. Too tight an application increases the pain, whilst if put on too loosely the massaging effect is lost and the joint is not sufficiently supported.

At the end of three days the plaster will need to be renewed, when it will be noticed that the swelling is considerably less, whilst the portions of the foot above and below the strapping will alone be discoloured by the extravasated blood. In the course of ten days to a fortnight the patient will be walking practically sound, but the joint should be kept strapped for a short time longer.

A sprain of the shoulder often proves most painful and troublesome, and here massage properly administered gives excellent results, since it helps to prevent adhesions in a joint which, above all others, seems most liable to be thus affected. This may probably be due to rotation of the scapula being mistaken for true movement of the shoulder-joint, which in consequence does not receive sufficient attention even by experienced masseurs.

The long head of the biceps not infrequently gets sprained, in such an action as throwing, producing most acute pain. The point to bear in mind is that the ensuing tenosynovitis is apt to spread along the tendon as it dips into the joint, and cause the whole shoulder to be affected.

Treatment for dislocation of the shoulder-joint should be on the same lines as an ordinary sprain, with the addition of a support to the capsular ligament by a strip of adhesive plaster encircling the joint, with a thin pad of cotton-wool in the axilla to prevent chafing. The patient wears his shirt and coat normally, and all underhand movements are permitted. The arm should not be lifted above the level of the shoulder for at least a week afterwards, and then only by the medical man or masseur. No fear need be felt as to the patient doing it himself. I have seen a very large number of these cases and not one expressed the least desire to do so, hence the more orthodox method of keeping the arm strapped to the side is not necessary. I have not only never seen any bad result accrue from allowing the arm to go free, but when the process of repair in the capsular ligament has been effected there are no wasted muscles and stiff joint to deal with.

Sprains of the elbow, apart from that condition of over-strained muscles commonly called tennis or golf elbow, are commonly troublesome in the later stages owing to the tendency of the biceps to spasm limiting extension. Flexion is rarely interfered with unless the resulting callus of some fracture causes the block. In dealing with sprains of this joint, therefore, the masseuse should gently extend the joint at a very early stage of treatment.

Injuries to the knee-joint are easily occasioned, and the ensuing synovitis is an ailment medical men are constantly called upon to deal with. Massage in the slighter cases, if efficiently administered, gives admirable results, but where the joint is tense preliminary aspiration of the joint may be advisable. At some hospitals in France all full joints are aspirated, and I have found these cases do much better than when the patient has had the leg kept rigid in a back splint and the absorption of fluid left to time. From anatomical reasons the position of greatest comfort for a really full knee is slight flexion, yet time after time one sees a joint tense unto bursting point firmly bound down in full extension.

If the condition is sufficiently acute to necessitate rest the joint should be bandaged to prevent any lateral movement, and a small pillow or cushion placed underneath the knee. As the swelling goes down the supporting cushion can be lowered or removed, and the joint painlessly adapts itself to the extended position.

When the pain is severe anodyne lotions can be applied in the intervals of the massage. Traumatic synovitis due to direct violence is more likely to cause separation or injury of the semilunar cartilage than when the condition arises from a twist or sprain. Sir Arbuthnot Lane experimented some years ago in the dissecting room, and found that heavy blows on the joint caused loosening and splitting of the cartilages.

It is not within the scope of this paper to discuss the pros and cons of operation in these cases of cartilage trouble; but there is another condition met with in the knee closely allied to displacement of the cartilage. It is that in which a hypertrophied fringe or fold of the synovial membrane gets nipped between the articular surfaces. Diagnosis is not always clear between genuine slipped cartilage and this condition of caught-up membrane.

In the cases mentioned by Sir William Bennett there was apparently no difference clinically between membrane and cartilage till operation revealed the true cause, and it was obvious that nothing but operation would have relieved the condition. In cases which I have seen the knee is not kept at nearly so acute an angle as in the true cartilage lesion. In fact, the majority only complain of an inability to brace the leg fully back without a sense of pain and discomfort over the front of the joint, and provided they are not called upon to undertake much physical exercise suffer but little inconvenience. Any attempt, however, to indulge in outdoor sports is followed by synovitis of the joint. It is in these cases that the modern bonesetter scores so freely. Treatment in these simpler forms of internal derangement should be by manipulation, much on the same lines as in replacing a cartilage, followed by massage, and at a later stage by strapping or bandaging the joint in such a way that only flexion and extension is possible.

It may be taken as an axiom that if a joint be injured the muscles in control of that joint will waste. By means of massage this wasting is undoubtedly obviated to a large extent, but even then, in comparison with the uninjured side, a difference in the bulk and tone will usually be detected. This wasting of the muscles in the upper limb will probably be righted, if slight, by ordinary use, but in the case of the lower limbs, which have to carry the weight of the body, further treatment by means of suitable gymnastic exercise is essential.

The knee joint is that most commonly rendered unstable as a result of injury; this is not surprising when we consider the enormous leverage brought to bear on it, and that the principal support of a knee-joint is the muscular structure of the thigh All the muscles in direct control of the knee join in the wasting, and not merely the extensor femoris. Any person having recovered from an acute synovitis of the knee, if attention has not been paid to the inevitable muscle wasting, is liable to get into a vicious circle. The knee joint gets overstrained from want of proper muscular support and swells, with the result that the wasting is accentuated during the abatement of the synovitis. Once more the patient proceeds to get about normally, and there is recrudescence of the trouble until the possibility of some internal trouble of the joint is suspected. Many a man has had his knee-joint opened on the supposition that the cartilage was defective when the whole trouble was due to the weak muscles being unable to support the weight of the body on a joint rendered flabby by repeated attacks of synovitis. Every case of recurrent traumatic synovitis is not necessarily due to internal derangement of the knee.

The exercises suitable for this class of weakened limbs must, to commence with, be of the lightest variety, and so arranged that no heavy strain is thrown on the joint. This can best be accomplished by means of one of the pulley and weight machines, as the amount of weight used can be regulated. Swedish and general gymnastics, though highly beneficial in other conditions of weak muscles, throw too much direct strain on joints to be made use of at the commencement where the joint itself is weakened.

In no circumstances should exercises be started till all signs of the acute condition have passed. For the first few days a certain amount of pain may be experienced after exercising in the whole limb, due to the waking up of lethargic muscles; this will pass off in the course of a short time, and may be ignored. Proper attention to the performance of these daily exercises will eventually restore soundness, even in cases of years' standing, where, in order to counteract the joint weakness, reliance has been placed on artificial support.

Most of the ingenious contrivances habitually worn as a support tend to accentuate the atrophy of the controlling muscles, and their use is to be deprecated. Of course, some of the knee trusses are of great value when the condition is one of slipping cartilage, but too often do we find people wearing elastic knee-caps, and even heavy mechanical contrivances, when proper attention to the muscle tone is all that is necessary.

Radiographs should always be obtained in all cases of severe sprains or injuries of joints, as the presence of some fracture will often be seen which might not be detected by ordinary methods of examination. For example, in sprains of the ankle-joint a small crack is often found in the lower end of the fibula which, though unimportant, somewhat prolongs recovery. Fractures of the scaphoid and "Bennett's stave" are often discovered in cases of alleged sprained wrist. Heavy falls on the shoulder sometimes cause an impacted fracture of the head of the humerus which is not infrequently mistaken for severe traumatic synovitis. If a large amount of extravasated blood be observed on the inner surface of the arm running from the axilla to the elbow, this condition should be suspected.

Radiographs should also be obtained in all cases where, for lack or in spite of more active treatment, stiffness of the joint remains behind, in order to eliminate the presence of any morbid condition. If treatment by radiant heat baths and massage fails to effect a cure, manipulation under an anaesthetic should be carried out provided the case is otherwise suitable. Properly performed, with attention to certain broad rules, this method of treatment gives excellent results.

Doubtless many have read in the press impassioned appeals for the admittance of bonesetters into the R.A.M.C. This is due to a belief that the medical profession are ignorant of this line of work. Attacks on the medical profession in the lay papers by advocates of bonesetting have been going on from the time of Mrs. Mapp of Epsom in 1787. The greater part of this recent outcry is undoubtedly biassed, as, for instance, the article in the *English Review*, which implies to anyone not cognizant of the facts that no surgeon of to-day understands or practises these methods. References are made to statements uttered by well-known surgeons to the effect that there is something to be learnt from the handiwork of bonesetters, but no allusion is made to the many surgeons who have written descriptions of these manipulations, and who practise this line of treatment in private as well as in the military hospitals. At the same time it must be admitted that hitherto *brisement forcé* has never been generally popular amongst medical men.

Nowadays, however, there are special departments attached to practically every command, where surgeons not only habitually break down adhesions when necessary, but superintend the massage, gymnastics, and other adjuncts so important to the after-care of ankylosed joints.

Lectures
ON
DISEASES OF THE MALE URETHRA.

BY
FRANK S. KIDD, B.C., M.B.CANTAB., F.R.C.S.,
ASSISTANT SURGEON, LONDON HOSPITAL, AND SURGEON TO THE GENITO-URINARY DEPARTMENT.

LECTURE V.—TREATMENT (*Continued*).

THE URETHROSCOPE.

THOUGH a fair percentage of cases can be cured by irrigations and prostatic massage alone, yet a certain number will be found which remain uncured, and which, if left alone, will relapse. These relapsing cases need for their cure an intelligent use of the urethroscope. Some of them will thus be seen to have soft strictures, and these will need for their cure dilatations by means of bougies and the Kollmann's dilators. Others will be found to have infected glands of Littre. These infected glands can be most quickly and easily cured by their destruction through the operating urethroscope.

The position I maintain with regard to the urethroscope is this: You can cure many cases without the urethroscope, but you can only cure all your cases if you are expert in the use of the urethroscope. But quite apart from the question of cure is the immense value of the urethroscope in training the eye in the clinical pathology of urethritis. It is a curious fact that, backward though the study of urethritis has been in England, yet the English urethroscopes are far in advance of any I have seen abroad. In this branch of the subject we have little to learn from foreign practitioners.

For some reason or other, foreign authorities have not taken kindly to the aero-urethroscope. They are content to use some modification of Valentine's or Luys's urethroscope, with which no air is used to distend the canal. In this way they have missed many refinements in diagnosis which are of great importance. In my experience the best urethroscope is that invented by my friend, Mr. Wyndham Powell, after years of patient study, and I cannot too warmly recommend it to your notice. There is not space in these lectures to deal with other instruments, and in what follows I shall assume we are using a Wyndham Powell instrument.

The Posterior Urethroscope.

I shall not discuss the posterior urethroscope in these lectures. The best posterior urethroscope is the irrigating urethroscope of Goldschmidt and Wassidlo. Such an instrument should be in the hands of all specialists, but its chief value is to teach the clinical pathology of the deep urethra. It is seldom required in routine treatment, as the large majority of cases of posterior urethritis can be cured without its use.

The Wyndham Powell Urethroscope.

A source of illumination suitable for small electric lamps is required, such as an accumulator or a rheostat working off a transformer. Do not use the direct current from the main, as it is dangerous. The instrument contains an electric lamp attached to a short vulcanite handle. In front of this is placed an adjustable focussing lens, and on top of this comes down a folding hood, which holds an adjustable pierced mirror, resembling the mirror of the ophthalmoscope. The mirror can be adjusted by a screw so as to direct the focussed light straight down the centre

LIBRARY OF THE UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

of the urethroscopic tube. The eye looks through the aperture of the mirror and is aided by a little telescope which is inserted at the top of the hood. Attached by an adjustable metal arm to the bottom of the lamp holder is a cone of metal, the top end of which is closed in by a glass window and the bottom end of which is moulded to fit the urethroscopic tubes. Into the side of the cone runs a small tube, to which can be attached the rubber ball which acts as an air bellows. Another cone is supplied, into which can be screwed the various instruments required for operations, such as a probe, a curette, and a knife.

When the instrument is used for inspection the cone is attached direct to the urethroscopic tube. When the instrument is used for operating a rubber chamber, rigid or collapsible at will by means of two screws, is attached by one end to the cone and by the other end to the urethroscope tube. By this ingenious device it is possible when the instrument is in place to collapse the rubber chamber and to bring the probe out of the urethroscope tube into the urethra and to direct it into the mouths and bodies of the infected follicles. Before use the probe is heated and run through a solid stick of silver nitrate. In this way the probe can be run into an infected gland and be made to destroy it completely. This can best be understood by referring to the diagrams.

The practitioner should practise the use of the probe on the palm of his own hand until he thoroughly understands the mechanism of the performance. Some months' practice is needed to obtain a mastery in the use of the silvered probe, but I believe there is no simpler or more satisfactory method of destroying infected follicles. I could publish dozens of cases cured by this means when all else has failed.

The curette and the knife are seldom required. The curette is used for warts and the knife for opening small urethral abscesses.

As regards choice of urethroscope tubes I advise as follows: A No. 24 and 26 Charrière 3 in. tube. A No. 24 and 26 Charrière 4 in. tube, and a No. 18, 22, and 24 5 in. tube. These will be found sufficient for most eventualities. Operations are performed with 3 in. and 4 in. tubes, so that two sets of instruments are required of a length suitable to these tubes.

The great advantage of an aero urethroscope is that the air drives out the walls of the canal away from the urethroscopic tube. Air distension enables you to observe accurately whether any part of the canal is dilating properly or not. This is the most vital fact you want to know. In the second place, it helps you to determine whether the urethral follicles are infected or not; and, more important still, it helps you to operate on and destroy the infected follicles rapidly and effectually. The instrument is not an easy one to master, and I shall assume that you are willing to give time and patience to practise its usage. It will take you at least six months to become any good at urethroscopy, and probably one to two years before you can be considered fitted to give a first-class opinion thereon. Do not be discouraged; persevere and you will find your reward in the added interest you will find in your cases, and in the great improvements in your results. The men who tell you that you do not need the urethroscope are men who have not had the patience to master the instrument. It is the same type of man who says there is no need for the cystoscope in the diagnosis and treatment of diseases of the bladder and kidney. Pay no heed to such false prophets. It stands to reason that if inspection by the eye is possible of any diseased portion of the body, then such inspection must be the best means for exact diagnosis and treatment, and must be mastered by the modern practitioner. It is the elaboration of such instruments of precision that has made necessary the development of specialities. Special instruments mean special doctors.

How to Use the Wyndham Powell Aero-Urethroscope.

Let the patient pass water and then recline upon the examining couch. Do not irrigate the urethra, as by doing so you spoil the pathological picture. See that the lamp is acting, and that the instrument is in focus. Attach the rubber bellows to the air tube, the tap being turned off, and blow up the bellows to full distension. Place the instrument on the table between the patient's legs, and get him to hold the air bellows.

Select a No. 22 Charrière tube 5 in. long and see that the obturator is working smoothly. Lubricate the tube and pass it gently into the urethra up to the hilt. Slowly withdraw the obturator, attach the urethroscope to the tube, and turn on the air. You should now see the bulbous urethra blown out by the air with the external sphincter lying at the deepest part. Examine this portion of urethra closely, and then gradually withdraw the tube, noting the condition of the penile urethra and the fossa navicularis. Pay particular attention to the roof of the canal. Note particularly the dilatability of the different portions of the canal, and the condition of the follicles.

Normal Appearances.

The external sphincter or compressor urethrae is seen in action at the extreme back of the bulb, alternately contracting and relaxing under the air pressure, and drawing up the mucous membrane into star-like folds. The bulb appears like a cavern viewed from the open end of the tube, the floor particularly bulging downwards away from the tube. The floor of the bulb is pale pinkish-yellow, with two longitudinal leashes of blood vessels running forward out of the deep urethra. The mouths of the ducts of Cowper's glands can seldom be distinguished. The floor of the bulb bulges downwards, so that this portion of the canal is ovoid in section. In the middle of the bulb the canal is more nearly circular in section, but still very dilatable. The rings of the involuntary circular muscles lying just under the mucous membrane are readily seen, specially under moderate air distension. They must not be mistaken for strictures. Pump in more air, which will flatten out the muscular rings so that they are no longer seen. The wall of the canal then appears perfectly smooth, glistening, and pale yellowish-pink in colour. The mouths of a few follicles may be seen on the roof of the bulb, but often there are none in this position.

The penile urethra is circular in section, and appears as a cylindrical tube much narrower than the bulbous urethra. Rings of muscle can be seen under low distension. Under high distension the wall is smooth, glistening, and a pale yellowish-pink. On the roof a large number of mouths of follicles or glands of Littre can be seen. They are usually arranged in a single row, longitudinally disposed one above the other. In some persons they are disposed in a double row. In a few persons they can be seen on the lateral walls, and even on the floor.

The fossa navicularis is lined by smooth pale yellow mucous membrane, and usually only presents one gland—the lacuna magna—which can be seen opening on the roof about one inch from the meatus. Rarely, large lateral or floor pits are seen. Having familiarized yourselves with the normal appearances of the urethra, you should then proceed to learn the appearances of disease.

The Urethroscopic Appearances of Diseased Urethral States.

As a general rule it is not wise to use the urethroscope in any given case till the urine is clear. That is to say, in early acute urethritis you wash out the urethra for five to ten days until all discharge is gone and the urine passed is clear. In subacute posterior urethritis with hazy urine, you wash out the deep urethra until the urine is clear, and then use the urethroscope. In chronic cases you can use the urethroscope at any time.

A. *Early Acute Cases.*

We will suppose that the patient came to you on the third day of a urethritis, that you irrigated daily for seven to ten days, and that all discharge has ceased and the urine is clear. You want to know if the case is cured. In such a case do not employ too great air distension for fear of driving disease, if still present, back into the deep urethra. You will probably find that the whole canal dilates properly, and that the mucous membrane is pale pink and glistening with mucus. In such a case you have obtained a cure. In other cases you will note that a tiny bead of yellow pus can be seen in the mouth of one or more of the glands of Littre, and that there is a red area round its mouth, and that the body of the gland is bulging into the lumen of the canal. This is the appearance of an infected gland of Littre (or follicle), and if left alone

the gonococci from the gland reinfect the urethra in a few days and set up a relapse of bright yellow discharge. Such an infected follicle must be destroyed (*vide infra*).

B. *Later Subacute Cases.*

We will suppose you are examining a case that has had a posterior urethritis, and that as the result of irrigations and prostatic massage at the end of six to eight weeks from the start you have rendered the urine clear and wish to know the state of the anterior urethra. Here you may find that the whole canal dilates well, and is pale pink, smooth, and glistening, or you may find a number of infected follicles as before. But in a number of such cases you will note that the walls of the bulbous or of the penile urethra do not dilate properly even under strong air distension, but that the walls bulge into the lumen of the canal, and are red, swollen, and oedematous. This condition is what I call a "soft stricture" or a "submucous infiltration." The pathology is that gonococci are lying in the submucous tissues of the canal at this place and are causing hyperplasia of the tissues, the tissue spaces being full of inflammatory fluid and inflammatory cells (pus cells, plasma cells, fibroblasts). Such a condition if untreated will keep up a discharge for a year or two, and eventually will become the site of a tough fibrous tunnel stricture. If treated at once by dilatation with Kollmann's dilators, not only is the urethritis soon cured, but no fibrous stricture can possibly follow.

C. *Early Chronic Cases.*

Suppose that you are examining a patient who has had urethritis for some six months, and that he still has a constant gleet with a tendency to relapse of bright yellow discharge. In such a case you may find on examining the urethra that a portion of the canal does not dilate properly, yet its walls are quite smooth and pale pink in colour. There is no longer any oedema or redness of the wall, yet a fibrous edge has not yet appeared. This is the intermediate type of stricture, and it is the one most liable to be missed by a careless observer. It needs for its treatment and cure dilatation by the Kollmann's dilator.

D. *Late Chronic Cases.*

Suppose that you are examining a patient who has had a gleet for two or three years and who passes threads in a clear urine. In such a case you are likely to find the beginnings of a fibrous stricture. Fibrous or hard strictures can be followed by the urethroscope in their varying stages from their birth to their death at the hands of a Kollmann's dilator. You can learn more about strictures with the urethroscope than by any other method. I teach that there is only one proper way by which to diagnose stricture, and that is by the aero-urethroscope. The old methods of diagnosing the stricture by means of a bougie should be relegated to a scrap-heap. Why trust to the sense of touch when it is possible to employ the sense of sight, especially as it is so easy to mistake spasm for stricture when using a bougie. Just as the cystoscope has relegated the sound to the scrap-heap in the diagnosis of stone in the bladder, so the urethroscope should entirely supersede the use of the bougie in the diagnosis of stricture. The urethroscopic picture of a stricture as presented by the aero-urethroscope is unmistakable, and the veriest tiro cannot fail to detect it. Yet in most of our hospitals the diagnosis of stricture is still made by the bougie, and there can be no doubt that the operation of internal urethrotomy is performed yearly on dozens of cases in these hospitals in which no stricture is present at all, but merely spasm. Another advantage gained in the diagnosis of stricture by using the urethroscope is that you can at once get a fair idea as to the calibre of the stricture, and as to what size of instrument it is likely to take when you start dilatation treatment.

TYPES OF FIBROUS STRICTURE.

The simplest type of stricture is seen as a small crescent or fibrous tissue forming an arc about a quarter the circumference of the canal, and in the centre of which can be seen the open mouth of a follicle. Undoubtedly these arise from long-standing inflammation of a gland of Littre.

The next type is seen as a white fibrous crescent taking in about two-thirds of the circumference of the canal. This is the so-called bridle stricture, and it arises from a small submucous infiltration which involved originally only a part of the circumference of the canal.

The third type of stricture is seen as a complete circle of white fibrous tissue, with a large lumen, represented in longitudinal section as a complete fibrous diaphragm with a large central aperture. This is the commonest type of stricture, and it progresses until only a narrow pin point opening can be seen.

The fourth type of stricture arises from an extensive submucous infiltration which originally involved an inch or more of the length of the urethral cylinder. The face of a dense mass of white fibrous tissue can be seen with a pin-point opening near the centre, and, in addition, there can be felt a thickened cylinder of fibrous tissue along the length of the corpus spongiosum. This type, therefore, can not only be seen, but can be palpated from the outside. I have named it the "tunnel" type of stricture. It is far more rebellious than any other kind, and usually needs urethrotomy before it will yield to dilatation.

RARE URETHROSCOPIC APPEARANCES.

In a few cases, but only in a few, you will find other lesions.

1. *Warts.*

These appear exactly like little septic warts which are so commonly seen under a septic foreskin. They must be curetted away through the operating urethroscope, and the bases touched with silver nitrate fused on to a probe.

2. *Pouches.*

Congenital pouches are occasionally seen on the floor of the bulb. I have several instances in my records. I believe they arise from maldevelopment of the ducts or glands of Cowper. They are of little pathological interest in keeping up a urethritis, but they may give rise to difficulty in the passing of an instrument unless their presence has previously been determined by the use of the urethroscope.

3. *Leucoplakia.*

I have seen typical leucoplakia, white patches of thickened epithelium, in chronic cases which have received prolonged treatment with strong caustics. The urine is usually loaded with threads like the wings of aeroplanes. The condition needs no treatment, and should not be irritated by further strong applications. In very rare cases I have seen it end in primary carcinoma of the urethra, one of the rarest of diseases.

4. *Inflammatory Polypi.*

These are very seldom seen in the anterior urethra, though they are not so uncommon in the deep urethra. They should be curetted and their bases cauterized with pure silver nitrate fused on a probe.

5. *Multiple Millet Seed Bodies.*

In a few cases that have received prolonged treatment an appearance is seen as if the whole canal were dotted over with tiny grey bodies, the size of a millet seed. These are, I believe, new growths of lymphoid tissue beneath the mucous membrane. The best treatment I have found in such cases is to use Kollmann's dilators for a time, then to paint the canal several times with strong silver nitrate (20 grains to the ounce of distilled water), and then to leave alone for some time, when the bodies will disappear.

6. *Angeiomata.*

These are very rarely met with in the male urethra, but may prove very troublesome. I had one patient who developed urethritis, and one day he suddenly noticed that his boots were soaking wet. On examining his clothes he found his pants and socks soaked with blood, which was issuing from the urethra. Examination revealed an angeioma on the floor of the penile urethra, with a tiny septic ulcer at one portion from which the blood was issuing. Under an anaesthetic I was successful in applying an electric cautery to the angeioma, which I destroyed completely, and shortly after I was able to send the patient away completely cured of his urethritis and his angeioma. This is the only occasion on which I have seen an actual ulcer caused by gonorrhoea.

In the vast majority of cases of urethritis ulceration of the urethra never occurs, and you will not be likely ever

LIBRARY U. OF I. URBANA-CHAMPAIGN

to see an ulcer from this cause. Yet the textbooks and some books written by specialists are continually talking of ulcerated patches in the urethra as if they were of common occurrence. If you use gentleness in passing the urethroscopic tube I will vouch for it that you will not see a true ulcer in one case in a thousand.

The same holds true of "patches." I always know that a man has not really studied his urethroscope when he tells me he has seen a patch which he has painted. I do not recognize such a thing as a patch or a "granular patch" in the urethra. I can see a submucous infiltration, or a soft stricture, and perhaps this is what is meant when people describe having seen a patch. But if this is what is meant by a patch, then I can only say that the worst possible treatment for it is to paint it with strong chemicals. These only irritate it and make it worse. Treat such areas by means of dilatation, not by means of paints. I always distrust the "patch painter." There are many about. For instance, a student came under my care who for six months had attended a certain practitioner twice a week, and had had a patch painted through the urethroscope without any relief. When I came to examine the urethra I found that it was not at fault, but that the man had a chronic infection of his prostate. The prostate had never been examined by the patch painter. Two months' massage of the prostate twice a week completely cured the patient without any more urethroscopic treatment.

Summing up, I strongly urge you to lose no time in acquiring a good urethroscope and in using it constantly. Only by constant use can you train your hand and eye and obtain first class results.

THE CHARACTERS OF THE ENTEROCOCCUS.

BY

R. DONALDSON, M.A., M.B., F.R.C.S.E., D.P.H.,

BACTERIOLOGICAL SPECIALIST, WAR HOSPITALS, READING, AND PATHOLOGIST, ROYAL BERKS HOSPITAL, READING, ETC.

DURING the present war reference has been made by one or two writers to the enterococcus which is so frequently met with in wounds and other infections. No mention of this organism is to be found in pre-war English textbooks, and its characters are perhaps little known to many who are at present engaged on laboratory work. Reference, however, to French and German medical journals will show that it has been frequently written about, while special mention is made of it in French textbooks of bacteriology. A summary of this literature and the bibliography will be found in a paper in the *Journal of Pathology and Bacteriology*.[1]

While the organism would appear to be a saprophyte capable of assuming virulence under certain conditions, there is some divergence of opinion as to its constant presence in normal stools.

French writers hold that it is a constant inhabitant of the normal intestine, where its seat of election is the small gut. It is said to be specially common in the intestine of infants, where it has been found along with *B. coli* and streptococci as early as the third day after birth. On the other hand, one of the German workers, who examined the stools of 3,530 persons, found enterococci in fifteen cases only, and none of these were in normal health. Six of them were suffering from "enteritis," or were convalescent from typhoid or paratyphoid fever; two, from whom the organism was obtained from the gall bladder, were cases of suspected typhoid; from another case of suspected typhoid the enterococcus was obtained from the urine; in five the same organism was recovered from collections of pus in relation to the pelvic or abdominal viscera, and in one case labelled "sepsis" it was recovered from the blood. In order further to corroborate the French statement that this organism is fairly common in the mouth, he investigated the mouth flora of 321 cases without once finding the enterococcus. He suggests, therefore, that it is not usually found either in the mouth or in the gut of healthy adults.

Whether this be strictly true or not there can be no doubt of its frequent association with morbid processes, more especially in relation to the intestine. It is of interest to note that many of the cases from which it has been isolated have been suffering from, or have had, typhoid or paratyphoid fever.

This is illustrated in a case of puerperal septicaemia of moderate severity which I investigated in 1913, the details of which are published elsewhere.[1] This patient had suffered from enteric fever in India, and had also had what was termed an attack of dysentery some years before. The enterococcus was obtained in pure culture from the interior of the uterus, and recovery followed the administration of a vaccine made from the strain isolated. It may be of some value at the present time to record again the characters of the strain isolated on that occasion.

Motility, Staining, and Morphology.

The organism was non-motile, stained easily with the usual dyes, and was definitely Gram-positive. It occurred as diplococci, or in short chains of two, four, or six pairs of cocci. In films made from the living tissues the cocci were surrounded by an unstained area suggestive of the presence of a capsule. In this respect they closely resembled pneumococci.

In shape the elements were somewhat pleomorphous—a feature which is said to be characteristic of the enterococcus. In films made from a twenty-four-hour-old agar slope the organism appeared mainly in the form of isolated diplococci, the individual elements of which were oval, lanceolate-shaped, or quite round. Capsules were absent. The two elements composing the diplococcus were frequently inclined to one another so as to form an obtuse angle.

In films made from a three-day-old glycerine agar culture pleomorphism was still more marked. Many appeared as elongated ovoids apparently linked together by a fine thread or filament. The outer ends were generally pointed. Others were more uniform in shape, and resembled short diplo-coccobacilli. The two elements of the diplococcus frequently varied in size.

Chain formation was more marked in broth than on solid medium, the chains being short, and resembling in this respect *Streptococcus faecalis*.

Cultural Characters.

Broth in twenty-four hours at 37° C. became turbid, and a slight deposit was found at the bottom of the tube. After longer incubation the broth became clear, and a whitish deposit was found to have settled at the bottom. On gently agitating the tube this deposit rose up spiral fashion.

In *peptone water* and in *hydrocele fluid* respectively, much the same appearance was found, but the turbidity was less marked, and even after several days' incubation the deposit was not so copious.

In *peptone water*, to which 1 per cent. *glucose* had been added the turbidity and the deposit were both very marked.

Neutral red broth showed no change, apart from a deposit, after three days' incubation.

Agar Slope.—In twenty-four hours minute, discrete colonies, very similar to colonies of streptococci, were seen. These were translucent and showed a greyish-blue sheen. In shape they were round, with sharply-defined edges, and in the centre of each a pin-point speck more opaque than the rest of the colony. With a low power the colony presented a somewhat granular appearance. In older cultures the colonies became rather more opaque. The water of condensation was turbid.

On *glycerine agar* the growth was more abundant, so that, instead of discrete colonies, there was a thin bluish-grey film along the needle track.

On *blood agar* the growth was still more copious, mainly confluent, but where isolated colonies were present these were larger and more opaque than on plain agar. No haemolysis was observed.

According to Besson, growth in liquid serum is very feeble.

On *gelatine slopes* incubated at 18° C. very minute, clear, transparent, discrete, round colonies were seen within thirty-six hours.

In *gelatine stab* culture at the same temperature, small discrete whitish colonies were found along the needle track within forty-eight hours.

No liquefaction was observed even after eight weeks' incubation.

Indol was not produced.

Milk became acid, but no clot was formed except in one tube, and that after eight days' incubation.

According to Besson, growth in milk is poor and coagulation is not a constant phenomenon. *Streptococcus faecalis*, on the other hand, generally produces clot in milk.

Sugar Reactions.—Acid production was found in glucose, lactose, maltose, saccharose, raffinose, glycerol, mannite, and inosite litmus peptone water. In dextrin there was only weak acid production, to judge from the feeble red colour resulting after incubation. In dulcite litmus peptone water the colour was discharged, but no reddening occurred, while arabinose, inulin, and adonite remained unchanged. After the lapse of some weeks the sugar reactions were repeated with the same result, except that in the raffinose tubes the colour was simply discharged after three days' incubation without the red colour appearing. The acid change, however, was found to be rather slow in appearing, not only in the raffinose tube but also in saccharose, inosite, and dextrin. No gas was formed.

Judging from the sugar reactions, the organism corresponds most closely with *Streptococcus faecalis*, except as regards raffinose, which is unaffected by *Streptococcus faecalis* as a rule. It grew easily on most media which had a somewhat alkaline reaction. On markedly acid medium I was unable to obtain a growth. It grew well both aërobically and anaërobically, but rather better in the presence of air.

According to Besson, some strains can only be isolated by growing the material anaërobically in the first instance, but once growth is established further subculture can be carried out in the presence of air. It is possible that failure to obtain a growth of the organism may be due to the fact that the observer omits to put up anaërobic as well as aërobic cultures of the material under investigation. This is a point of some importance in looking for the enterococcus.

As regards temperature, it was found to grow quite well as low as 18° C., and was found alive after eight weeks' incubation at this temperature. Growth at a low temperature and prolonged vitality are both considered by French writers to be characteristic of the enterococcus. Indeed, it is said to be capable of remaining alive for years in anaërobic fluid culture.

Agglutination reactions were not thoroughly investigated, but, while the patient's blood and that of inoculated animals caused definite agglutination in certain dilutions, there was an indication that normal blood serum was capable of agglutinating the enterococcus when the former was used in the undiluted condition.

Pathogenicity.

The organism was pathogenic to rabbits and mice, since all but one died about the fourteenth or sixteenth day, and from some of them the organism was recovered from the blood or other fluid.

Opinion appears to be divided on the question of pathogenicity, as very different results have been got by various men. The explanation probably is that the virulence varies in different strains, and the increased virulence of some may be due to a symbiosis with other more pathogenic agents such as *B. typhosus* or *B. paratyphosus*. The virulence probably becomes diminished after repeated subculture.

Several points about the enterococcus still remain to be cleared up. This ought not to be difficult in view of the frequency with which the organism is being found amongst the wounded. The organism is probably at most but a variant of the *Streptococcus faecalis* group.

REFERENCE.

[1] *Journal of Pathology and Bacteriology*, 1914, vol. xviii, p. 469.

DELAYED TETANUS IN CONNEXION WITH INJURIES TO BONE NOT PRESENTING OBVIOUS SIGNS OF SEPSIS.

BY

CAPTAIN M. FOSTER, M.D., F.R.C.P., R.A.M.C.(T.).

BETWEEN November 22nd, 1916, and January 8th, 1917, only three cases of tetanus occurred amongst the troops in the six and a half counties which comprise the administrative area of the Bedford district. In all these cases the incubation period was prolonged, all three had sustained gunshot wounds with fracture, and so far as could be ascertained a primary prophylactic dose of serum had been given in every instance.

CASE I.

Pte. A., Royal Sussex Regiment. Gunshot wound with fracture of right humerus on June 30th, 1916. Discharged from 1st Eastern Hospital, Cambridge, to convalescent home on October 6th, with good union and only a small sinus. This sinus subsequently closed. On November 12th he fell down in the street, and re-fractured the humerus. On November 20th he developed bronchopneumonia. He was readmitted to the Cambridge Hospital on November 21st. On November 22nd twitchings of the limbs were first noticed, followed by trismus. With intrathecal and intramuscular injections of antitetanic serum he completely recovered. A primary injection of antitetanic serum had apparently been given in France, but no subsequent injection in this country. In this case the period of incubation was 146 days.

CASE II.

Pte. B., Bedfordshire Regiment, sustained a gunshot wound with fracture of the left humerus on September 15th, 1916. While on leave at his own home from Bradford War Hospital on December 14th he fell on his arm, which became very painful. He was admitted to the 1st Eastern Hospital, Cambridge, on December 15th. There was then a good bony union, with a small sinus on the inner side of the arm with serous discharge. On December 30th he complained of twitchings and trismus was noticed. With intrathecal and intramuscular injections of antitetanic serum he completely recovered. Subsequent exploration revealed no sequestrum. The period of incubation was 106 days.

CASE III.

Pte. C., Canadians. Gunshot wound with fracture of right femur on October 8th, 1916. On admission to the Northamptonshire War Hospital, Duston, there was about three-quarters of an inch of shortening, with much callus about the seat of fracture. There was a small granulating wound over the great trochanter; no sinus. This wound had healed on December 14th. On January 3rd spasms began in the injured limb, and on January 6th these became general. With intrathecal and intramuscular injections of serum he completely recovered. Shortening of the injured limb increased, and signs of fluctuation appeared; a considerable quantity of pus was evacuated. One primary injection of serum had been given in France, but none subsequently, owing to the absence of any sign of sepsis. The period of incubation in this case was 86 days.

A survey of these cases illustrates the fact that tetanus can lie dormant for a long time in a wound not obviously septic. In two of these cases the direct injury of a fall would appear to have lighted up a quiescent focus. The injury, moreover, occurred at a time when the immunity conferred by the primary injection had presumably worn off. From a practical point of view, the conclusion to be drawn is, that in injuries of bone the absence of obvious sepsis in the wound affords no surety against the development of tetanus. Regarded in its bearing on the necessity for continued prophylactic injections, this fact points to equal consideration being given to the nature of the injury as to the degree of sepsis present in the wound. The aim of this communication is that repeated prophylactic injections should be given in all cases of gunshot wounds with fracture, irrespective of the amount of suppuration present in the wound.

SMALL-POX VACCINATION BY PUNCTURE.

BY

CAPTAIN H. W. HILL, M.D., D.P.H.,

DIRECTOR, INSTITUTE OF PUBLIC HEALTH, LONDON, CANADA.

YOUR issue of November 4th, 1916, p. 620, carries an account of a method of aseptic vaccination which is good, but we are using a method here in Military District No. 1, Canada, which is still better. It was introduced amongst the civilian population first in 1915,[1] and subsequently became the official military procedure in this district. The method is as follows:

1. The sleeve is rolled up.
2. Orderly 1 washes the arm with soap and water.
3. Orderly 2 washes the arm with rectified spirits.
4. Orderly 3 washes the arm with ether.
5. Orderly 4 breaks the capillary tube of glycerinized vaccine and sets the rubber bulb or other method of expelling contents, handing it to Orderly 5.
6. Orderly 5 expels the vaccine at three (or four) points on the arm, making a triangle (or square) having not less than 2 in. between the points.
7. Orderly 6 sterilizes an ordinary sewing needle and hands it to the medical officer.
8. The medical officer punctures the arm through the drops of vaccine. Six tiny punctures, drawing no blood, are made through each drop, each set of six occupying a space of not more than ¼ in. square. The needle is held almost parallel with the surface. Not over one-thousandth of an inch enters the epithelial layer. A peculiar little "snick" is felt as the needle point goes in.
9. Orderly 7 wipes off the vaccine.
10. The sleeve is pulled down.

Notes.

(*a*) The total time from pulling up the sleeve to pulling it down again need not exceed one minute.

(*b*) After the orderlies have had a little practice three men per minute can be vaccinated without haste or carelessness.

(*c*) No after-treatment whatever is required; none should be used; the only direction to the men is *leave it alone*.

The results are:

I. In those not previously successfully vaccinated (and who have not had small-pox) nothing is found for several

days; then develops a typical vaccinal lesion, consisting of one, two, three, or four firm pustules corresponding with the areas punctured. If *left alone*, without bandage or shield, etc., these remain firm and whole; then dry down into hard "buttons," which finally detach themselves, leaving a clean healed base, constituting a typical vaccine scar. If bandages, shields, etc., are used, the moisture from the perspiration, etc., thus retained, macerates the otherwise firm wall of the pustule, which then breaks, creating an ulcer open to infection.

II. In those who have been previously successfully vaccinated (or who have had small-pox), a raised red papule develops in a few hours; itches a little, sometimes develops a number of tiny vesicles over its surface, then dies down and disappears. This is the anaphylactic or accelerated reaction, indicating that immunity exists, sufficient to prevent typical vaccinal lesions.

III. Occasionally a mild reaction of this kind, instead of disappearing, develops into a typical vaccinal lesion, the anaphylactic papules developing into ordinary vaccine pustules instead of receding and drying up. These pustules then run the ordinary course described under II. Evidently here the immunity from the previous vaccination, while sufficient to give anaphylaxis, was not complete enough for protection.

IV. Very occasionally no reaction of any kind follows the puncture. Only in such cases need revaccination be done. The probable explanation in the few cases observed was improper technique or old vaccine.

Notes.

(*a*) Certain rare cases showed the anaphylactic reaction (II) although, according to the history given, they never had been successfully vaccinated and never had had small-pox. They showed history of "chicken-pox," however. We investigated two of these cases, communicating with the mother of each and securing from her a detailed account of the alleged attack of "chicken-pox." In one case it was quite evident from the mother's description that the attack was really small-pox; in the other, it was extremely probable that it was small-pox.

(*b*) The only "bad arms" out of many hundreds done that have come to my attention were constituted by slight inflammations about the bases of ulcers, due to prematurely knocking off the dried "buttons" after the vaccination process was quite complete, the buttons having become somewhat loosened but not ready for removal. It must be added, however, that some arms which had been bandaged despite instructions to the contrary flared up more than was necessary, and in a few instances the pustules opened.

For civilian practitioners, not able to employ eight or nine assistants to do the washing, etc., the technique, nevertheless, is so simple that no one vaccination operation need take over five minutes. Its great advantages in civil life are:

(*c*) Not even adolescent girls object to the punctures; there is no fainting, etc.

(*d*) There is no waiting, after the vaccination is done, for the vaccine to dry. The instant the puncturing is finished the surplus vaccine is wiped off and the sleeve pulled down.

(*e*) No bad arms, and no loss of time due to bad arms.

(*f*) In all open methods of vaccination (scraping, scarifying, cross-hatching, etc.) one obvious source of "bad arms" is infection of the open wound, during and after the removal of the epidermis, from the mouth spray of the vaccinator, his assistants, and the patients themselves, especially if there be a number of the latter, crowding the office and all talking at once, as often happens. In the puncture method no epidermis is removed; moreover, the process is so rapid, and the exposure of the arm so short, that this really serious source of infection in the older methods is almost completely eliminated.

REFERENCE.
[1] *Canadian Medical Journal*, March, 1916.

THE twenty-fifth meeting of the Italian Congress of Surgery, which is to be held this year at Bologna on March 4th, 5th, and 6th, under the presidency of Professor Durante, will practically be given up to war subjects. The programme consists of communications on wounds of bones and joints; of vessels, nerves, and spinal marrow; of the head; of the chest, and of the abdomen.

THE TREATMENT OF MALARIA AND MALARIAL COMA BY INTRAVENOUS INJECTION OF QUININE URETHANE.

BY

LIEUT. RICHET AND WALTER B. GRIFFIN, F.R.C.S.,

SOUTH AFRICAN AMBULANCE, SOUTH OF FRANCE.

THE cases of malaria that reached this hospital from Salonica were of a severe type; in all anaemia, loss of weight, and exhaustion were marked; there were rigors in which the temperature reached 107.8°. Most of the men had received numerous intramuscular injections of quinine, some as many as ten or twelve, and all had been treated with quinine by the mouth. In the severe cases quinine by the mouth and intramuscularly had little effect in controlling the fever or the recurrence of rigors.

The type of case in which the patient passed into a state of coma in twenty-four hours was new to most of us. The men were usually markedly anaemic and wasted, but the temperature rarely exceeded 102°. Quite suddenly the patient would complain that he had difficulty in swallowing, rapidly followed by inability to speak, loss of power in the limbs, coma, and incontinence of urine and faeces. The pupils were dilated, reacting sluggishly to light, pulse feeble and quick, and respiration resembled the Cheyne-Stokes characteristic. The spleen was enlarged and tender, knee-jerks diminished, Babinski's sign was absent, and there was no ankle clonus. Examination of the blood showed the presence of numerous gametes and schizontes.

These symptoms all came on within twenty-four hours, and it was for this type of case that intravenous injection of quinine urethane was first tried.

The injection was made with a fine needle mounted on an ordinary serum syringe of 15 c.cm. capacity, and the solution was made up as follows:

Chlorhydrate of quinine	0.40 c.cm.
Urethane	0.20 c.cm.
Distilled water	1 c.cm.

To this solution in the syringe was added 14 c.cm. of physiological serum well warmed. The skin was sterilized with tincture of iodine and alcohol and a bandage applied above the elbow to render the veins more prominent. When the needle enters the vein blood will flow back into the syringe, and this sign will prevent the solution being injected into the tissues. Remove the bandage and inject the solution very slowly; conscious patients noticed a bitter taste in the mouth, buzzing in the ears, and slight giddiness within a minute.

The results in cases of coma were remarkable. In five hours the patient became more conscious, and in periods varying from twelve to twenty-four hours he had recovered completely and all symptoms had disappeared.

For some cases one injection was sufficient, and for weeks after there was no further rise of temperature; other cases were given a second injection within twelve hours if the return to consciousness appeared slow.

In no case had the injection any ill effect; only one patient in a series of seventy cases had slight thrombosis of a vein for a few days. Within twelve hours of the injection Lieutenant Richet found evidence of disintegration in the gametes and schizontes, and it was difficult to find any after forty-eight hours.

Two cases of coma only proved fatal, both complicated by dysentery. Each case had two attacks of coma, recovering from the first after intravenous treatment, but relapsing three days later into a second, from which no effort could restore them. Intravenous injections of serum and adrenalin, oxygen by the mouth and subcutaneously, proved of no avail. All cases had been treated with quinine by the mouth and intramuscularly over long periods at Salonica, and we continued to give them fifteen grains daily by the mouth after intravenous injections. An attempt was made to treat all cases of malaria with continued high temperature and constant rigors with intravenous injections of quinine urethane, and the results were more than satisfactory. Practically every case yielded to this treatment, and the rapid improvement in the physical condition of the men was most marked.

Sometimes it was necessary to give two or three injections before the temperature remained normal and the gametes disappeared from the blood, and every endeavour was made to give the injection six hours before the rigor

was expected, according to the type of malaria from which the patient suffered. In Salonica as much as 18 grains of quinine were injected at one dose, but we never found it necessary to give more than 6 to 10 grains in one injection.

Several cases of pleurisy with effusion, but without any fever, occurred in malarial patients, and the fluid rapidly absorbed after intravenous injections. For the anaemia arsenic was given by the mouth or sodium cacodylate injected hypodermically.

Many men arrived at the hospital with the chronic form of malaria which had well-marked symptoms. Chronic headache, often diarrhoea and sickness, anaemia, lassitude, with an evening rise of temperature to 100°, occurred in nearly all these patients, and the symptoms rapidly yielded to intravenous treatment.

The conclusion arrived at was, that intravenous injection of quinine urethane was the only treatment of malarial coma and a valuable remedy for persistent fever and chronic forms of malaria; it was also painless.

Intramuscular injection of quinine was painful, and often cases arrived with indurated lumps in the buttocks from the effect of injection which later broke down into abscesses.

We are much indebted to Colonel Casalis, R.A.M.C., for permission to publish these notes.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE PERSISTENCY OF VENEREAL DISEASE.

THE persistency of gonorrhoea and its complications are not a little neglected by the great men of the profession. A German professor declared some years ago that the disease was "never cured." This statement, although a great exaggeration, is corroborated to an unfortunately wide extent. The histories of the following cases that have been through my hands in the last few years support the dictum of the enemy professor:

A man of 30 came with a very copious gonorrhoea. He was a highly respected tradesman. He declared that ten years ago, long before he was married, he had become infected. After coitus with his wife the "running" had relapsed, although he had seen nothing for some years. There was no reason of any kind to doubt this man's bona fides.

A man of 35 summoned me to attend him for an attack of rheumatism. I soon found that it was gonorrhoea; his knees and ankles were severely affected, and he was an invalid for over two months. This was due to a relapse of the disease, as he suffered from a slight discharge more than seven years after the original attack. He was a perfectly straightforward man, and endeavours to shake his statement always failed.

An officer returned from France, where he had been isolated from all female society for fifteen months. He slept with his wife, and next day had some discomfort. In the evening there occurred a copious purulent discharge, and next morning he appeared in my consulting room. I found a few undoubted gonococci in the pyorrhoea. This was ten years from the original infection, and he believed himself to have been free from all symptoms for many years.

The last is a striking case at present under treatment. An officer, aged 32, called me in to relieve him from some painful swellings of both ankles. He was a very stout man of rather alcoholic tendencies. Gout was confidently diagnosed, but after two days there was little improvement. Talking to him on the third day, he said that nine years and two months ago he had a bad attack of gonorrhoea, followed immediately by arthritis and iritis. Every symptom entirely left him after a few weeks. Four years ago he had a very mild iritis and penile discharge for two days, and since then no symptom of any kind. There was now a drop of pus which showed quantities of gonococci. This discharge has been visible in the form of a drop about once a week since. He has now been ill for two months, but has greatly improved on the Phylacogen of Parke Davis. There has been a monocular iritis, with a mild hypopyon.

A very rare case of syphilis has also come into my hands:

A child was born to a very robust-looking couple. In the third week typical condylomata developed on its buttocks. The diagnosis was corroborated by two other doctors. Vigorous treatment with grey powder soon cured this and greatly improved the baby's condition. The Wassermann reaction was very well marked in the father. Syphilis was contracted by the father *nineteen* years previously, well treated, and apparently absolutely cured.

Such a history is entirely outside my experience, and, indeed, the universal experience as evidenced by the text-books in general. Dr. Graham Little recently published in the *Practitioner* a paper on gonorrhoeal rheumatism, in which were enumerated a large selection of cases. He had only been able to find in the literature one which had occurred many years after the original attack. The general practitioner is non-communicative, for I feel sure that relapses and arthritis are not very uncommon phenomena.

East Sheen. VAUGHAN PENDRED.

SCIATIC HERNIA.

THE patient whose case is here related was sent to me by Mr. George Cole of this city. It seems to me to be worth putting on record because of the unusual site of the hernia.

The patient was a male child, 10 weeks old, very poorly nourished, although the mother was feeding it from the breast. She was 33 years of age, and this child was her eighth. A swelling the size of a large nut was found on the left side near to the sciatic notch. I was told that it disappeared entirely at times. The swelling was easily pressed back into the pelvis, gurgling being very noticeable. The case was obviously one of hernia which contained bowel.

I have referred to what literature I possess on the subject of congenital hernia with the following result, namely: Mr. T. Holmes recorded a case of vaginal hernia in his *Surgical Diseases of Children;* Mr. Edmund Owen, one of lumbar hernia; Mr. J. Hutchinson, jun., four cases of lumbar hernia; Dr. W. T. Wilkins, of Kansas, a very interesting case of lumbar hernia the result of injury to the mother before the birth of the child. With the exception of Mr. Holmes's case, all are to be found fully described in Keating's *Encyclopaedia.*

Nottingham. LEWIS W. MARSHALL.

HOT SAND AS A PREPARATION FOR MASSAGE AND MANIPULATION.

IN his excellent article on "Contractures and allied conditions" in the BRITISH MEDICAL JOURNAL of January 27th Dr. George Cooper makes the following remarks:

> Hot sand has been recommended as a useful method of imparting heat to the tissues. It is, however, rather painful, and the skin is found to have been rendered much too tender for subsequent massage. It has no advantages over other methods, and is but seldom employed.

Dr. Cooper's experience is quite contrary to mine, and the explanation is easy. He has used the sand too hot. If he will try it again, applying it at a comfortable temperature, as I always do, he will find it as valuable as I have. I should be sorry to see the method discredited, knowing how good it is, and discredited through an error in the mode of application; for it has this great advantage over other methods, that almost every patient can readily avail himself of it where more elaborate means of heat cannot be obtained. At the present moment it is being employed by a rheumatic patient of mine with the greatest benefit in a place where electric light does not exist.

Exeter. W. GORDON.

THE shortage of rubber in Germany is responsible for severe restrictions on the sale of babies' comforters. Parents can be sure of obtaining them only on the presentation of a birth certificate, and they are granted only to children less than a year old. Not more than two comforters can be allotted to a baby on first application, and before a comforter can be replaced the old one must be returned to be repaired. No restriction is, however, put on the sale of comforters made of substitutes for rubber.

WE learn from the *New York Medical Journal* that the deans of ninety-five American medical schools met recently at Washington on the invitation of the Secretary of State for War to discuss plans for co-operation with the Council of National Defence, and adopted a resolution to the effect that a system of universal military training would be of great benefit to the health, development, and proficiency of the youth of the United States. A petition was sent to the Secretaries for War and the Navy asking that each medical school should be supplied with an instructor in military sanitation and medicine.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

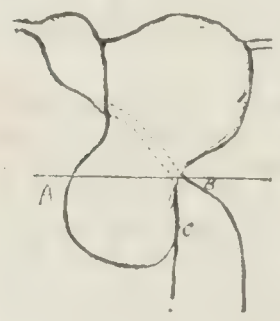
COVENTRY AND WARWICKSHIRE HOSPITAL.

UTERUS BICORNIS.

(Under the care of Mr. HARMAN BROWN; reported by J. H. DOVE, M.B., Ch.B., Senior House-Surgeon.)

A GIRL, aged 19, presented herself at the out patient department of the Coventry and Warwickshire Hospital complaining of diffuse abdominal pain which came on with increasing severity at each period. A large tense swelling could be defined lying in the pelvis, rather to the left of the middle line, and hardly to be dissociated from the uterus; no os could be discovered. Mr. F. L. Harman Brown operated; the median abdominal incision exposed a dark brown mass in the pelvis, almost as large as a child's head. On the right of the mass, and fused to it, was a smaller swelling, resembling a large Fallopian tube, which proved, however, to be a small independent uterus. The larger mass was opened; it contained a great quantity of dark-brown viscid material, retained menses, and was found to terminate as a blind sac deep in the pelvis, being, in fact, a separate uterus with a congenital stenosed vagina, and, as the uterus functioned at the periods, a haematometra had developed.

The smaller uterus was functioning, but from its abnormal appearance and situation it was decided to be useless. Its cavity, when exposed, was seen to be continuous with a long, narrow cervical canal which passed behind the larger swelling, opening into a normal vagina. From the accompanying diagram it seems clear that there was a double uterus and double vagina—the condition known as uterus bicornis.



Both horns of the uterus were removed at the level indicated by the line AB, and the two vaginae were closed and covered over with peritoneum. The imperforate vagina was thus converted into a completely closed sac. The question was raised whether an opening should be made at the point C, so as to drain the closed through the open vagina; but, as the corresponding uterine horn had been removed, it seemed improbable that the closed vagina would fill again. It was therefore left intact, but an opening will be made should any trouble develop. At the end of thirty-eight days the patient, after an uneventful recovery, left the hospital in good health.

Mr. Harman Brown has kindly consented to the publication of this case.

Reports of Societies.

PNEUMONIA WITH HYPERPYREXIA AND HEART-BLOCK.

AT a meeting of the Section for the Study of Diseases in Children of the Royal Society of Medicine on January 26th, when Dr. ROBERT HUTCHISON was in the chair, Dr. J. PORTER PARKINSON related the case of a boy aged 14 years, admitted to the hospital on the fifth day of his illness with pneumonic consolidation of the lower lobe of the right lung. The temperature was 104° F., but rose a few hours later to 110° F.; it was taken in the rectum with two other thermometers, in both of which the mercury rose to the highest point for which they were calibrated, 110° F. The patient's general condition remained good, and he was neither comatose nor delirious. He was treated at once with towels wrung out in iced water and applied to the chest and abdomen. Some hours later the temperature rose to 109.6°, and was lowered in the same way. After remaining at about 105° F. for four more days it fell by crisis. During the fever the pulse-rate varied between 100 and 120 and after the crisis fell to 70. Two days later it fell to 44, and it was demonstrated that a condition of 2 to 1 heart-block was present. After two days it rose to between 50 and 60, and became irregular, showing that the conductivity of the heart muscle had improved, and a week later it had become regular and of normal rate. The boy made a complete recovery. The case was interesting owing to the presence of two rare complications of lobar pneumonia—hyperpyrexia and heart block.

Reviews.

"THE PANEL DOCTOR."

THE little book on *The Panel Doctor*[1] by Dr. TIBBETTS is readable and instructive. Those medical practitioners engaged in panel work will learn something to their advantage, and those who have nothing to do with this kind of work will also gain by its perusal; they will learn how one large section of our community works, and besides they will find much to their own profit in the chapters that deal with certification, a matter of great and growing importance. Dr. Tibbetts writes with no air of apology. He states that:

> The National Insurance Act of 1911 embodied the most serious and comprehensive effort on the part of the British and probably of any other Government to minimize and remedy the damage from ill health and injuries among the working classes.

The Act, he considers, combined an attempt to alleviate evils that exist, and to prevent greater by redressing the lesser. Throughout he makes it clear that he at least views the work in which he is engaged as one of real national importance.

The book begins with a statement of the methods of working of the Act, the relation of the doctor to members of societies and to deposit contributors, the difficulties that arise with each class of insured person, and the manner in which changes of relation between doctor and patient may be effected. Then come sections on certificates and incapacity for work. Dealing with law and ethics, the medical curriculum and literature of student life is, he thinks, "perhaps too dogmatic, and the first year's experience of the newly qualified of too limited a range for the fullest cultivation of a judicial mind." He suggests that "if students and junior practitioners spent some of their leisure hours in the law courts, especially when compensation cases are being tried, they would acquire familiarity with the grounds on which legal decisions are based, and learn to recognize and eliminate pre-judgement and bias."

The author holds that the greatest appeal of the Act to the general populace was its manner of dealing with tuberculosis and maternity. His statement of the methods of dealing with tuberculous patients is full, and he has no doubt that with all its faults advantages have accrued to the community through the administration. He writes that "there is reason to believe that the public generally, and some practitioners, overlook the fact that sanatorium benefit is not restricted to consumption or lung tubercle, but is due to insured persons suffering from all varieties of tuberculosis, including caries, joints, kidneys, and other organs, the Insurance Committee being equally responsible for their welfare."

That there are difficulties Dr. Tibbetts admits, and for some of these he suggests remedies. The anomalous position of the doctor with regard to the drug bill is one of these; the chemist has been freed from liability, it now rests wholly with the doctor, whereas at least it should be shared by the authorities. Another he finds in the handicap to the keen man who wishes to secure special investigations of clinical material for the benefit of his patient, owing to the fact that "the cost of posting pathological specimens seems to belong to the practitioner, as part of his contribution towards the diagnosis"! A defect of the maternity provision lies in the unequal treatment produced by payment by "results."

Whether a fee is due or not will be decided by the issue: a live birth—fee positive, a stillbirth—fee negative. This

[1] *The Panel Doctor: His Duties and Perplexities.* By T. M. Tibbetts, M.D.Lond., M.R.C.S., L.R.C.P., D.P.H. Birmingham: Cornish Bros., Ltd. 1916. (Cr. 8vo, pp. 57. 1s. 6d. net.)

weakness of the law needs amendment. The doctor, if legally bound to attend, should have his fee legally guaranteed.

The position of the panel doctor able and willing to provide "professional attendance beyond that performed by general practitioners of ordinary capacity, training, and experience" is carefully stated. Dr. Tibbetts suggests as a safeguard, in case of doubt, that it would be well to obtain from the patient a written acknowledgement that he has been duly informed and consents to the proposed charge for the extra service.

On the subject of "remuneration" the author writes:

> What on first appearance was the simplest of the many problems arising from the working of the Act—namely, the methods of remuneration of the doctors—has on application proved to be, without doubt, the most involved. The nine shillings basis, seven for attendance and two for drugs, subject to the contingent interest in a contained floating sixpence, made possible, by the simplest calculations, a definite estimate of his annual income, but for many reasons, some foreseen, others unforeseen, this comforting mirage soon vanished.

Six causes of this defect are enumerated; chief of these is held to be the unwarranted application of patients for the services of doctors when they are not entitled to medical benefit. In many cases this is not the fault of the patient, but of the system. The author suggests that if a provisional medical card were issuable by the agent with the first stamped card and taken to the doctor for treatment until the permanent one arrived the difficulty would in the main be met.

The book includes statements of the work and personality of the many committees which have been constituted under the Act.

HUMAN TEMPERAMENTS.

DR. MERCIER has written a book on *Human Temperaments*,[2] which probably many of our readers have already seen. Those who have not should presently lay out the small sum demanded, for, like most of the author's writing, it is wisdom salted by wit. It is the sort of book which makes the elderly think of the French proverb as to the ignorance of youth and the powerlessness of age, for if the young man who has just taken a brilliant degree could really assimilate its wisdom he would be on the high road of a brilliant career. The only quarrel we have with Dr. Mercier is as to his definition of "temperament." He defines it as a man's "mental constitution, the order of mental architecture to which his mind conforms, the way in which his mind is put together, the absolute and relative magnitude of its ingredients, and the general composition of its structure." He contrasts it with what the mediæval physicians, who relied more on such generalities than the modern, termed the "corporature," which is the bodily constitution of the man—his physique or build. We suggest that this definition is too narrow, and that the elder physicians associated a type of body with a type of mind, making the definition given in the *Concise Oxford Dictionary* nearer the mark: "Individual character of one's physical organization permanently affecting the manner of acting, feeling, and thinking."

Of the dozen essays in the book the most amusing is that on the faddist, of whom it is said that "if he cannot attain distinction, he will at any cost attain singularity, and this may lead to notoriety." The essay on the suspicious temperament is very agreeable to read, but leaves a feeling of incompleteness; it deals with only one species. The most informing essay is that on cleverness and capability; it puts into clear perspective two types of character or temperament often confused, though most of us have vaguely felt the difference. The most original essays seem to us to be those on the artistic temperament and the temperament of the artist. They are of real value, because they draw a distinction, so far as we know not as clearly drawn before, which will greatly help to the understanding of many things in literature and art.

FOOD AND FEEDING.

THE first edition of Dr. HUTCHISON'S well-known book on *Food and the Principles of Dietetics*[3] came out in 1900. The fourth edition, now before us, is a model of what such books should be. It is well arranged, clearly written, and full of useful information, facts, figures, and tables. Dr. Hutchison writes with an impartial pen, and on vexed questions—like that of the use of alcohol in health and sickness—gives a very fair summary of what may be said on each side of the matter, and a very good presentation of the facts upon which the widely divergent views of the teetotalers and others are based. There are excellent chapters on such subjects as cooking, digestion, the principles of feeding, certain dietetic cures, and artificial foods and feeding, at the end of the volume, which concludes with a satisfactory index. The book should continue to enjoy its present wide popularity. It is suitable for readers of many classes—for the intelligent layman, for the housewife whose soul is in the kitchen, but especially for medical practitioners and students of medicine.

An excellent account of how to feed people and families both scientifically and well is contained in Dr. ROSE'S *Feeding the Family*.[4] The book begins with a general account of foods and their individual qualities. Then follow chapters on the special dietaries suitable for different individuals at different ages, in health and sickness. Three chapters are given to the subject of feeding the family. There are nine appendixes, containing all sorts of information useful to the scientific cook and housewife. Illustrations are inserted to put various practical points clearly before the reader, and there is a good index. Throughout the text many of the foods mentioned are measured in "cupfuls," but nowhere, so far as we can see, is the exact size or capacity of the cup mentioned. The book is well designed; it has been written for use in American households, and one may imagine that non-American cooks might be at a loss if asked to provide dishes composed of "popovers," "penouche," "pecans," or "samp baked with cheese" for the table.

Mr. JAMES LONG'S book on *Food and Fitness*[5] is a temperate plea for a diet mainly vegetable in origin, written by a layman who has practised and, he believes, profited by what he preaches. He holds that in middle life at any rate animal food should be partially, or even wholly, given up, milk and cheese being retained. His authorities are for the most part Professor Chittenden, Dr. Benner of Zurich, and Dr. Hindhede, all of them well known for their advocacy of diets relatively poor in protein and rich in vegetable food. Mr. Long writes in a practical style, and his book may be commended as a reasonable presentation of one point of view.

SANITATION IN WAR.

THE first edition of *Sanitation in War*,[6] by Major P. S. LELEAN, C.B., F.R.C.S., R.A.M.C., assistant professor of hygiene, Royal Army Medical College, founded upon a course of lectures which we were permitted to report in our columns at the time, was published in May, 1915; it was reprinted in July, 1915; the second edition has now appeared. The author, in a preface dated from "somewhere in Egypt," says that in spite of the small facilities for literary work and consultation of references existing in the Sinai desert, he has been able to revise the whole text, and add some new material, especially to the chapter on conservancy in the field, into which descriptions of various methods evolved during the present war have been introduced. A new chapter on the part played by insects in the war has been contributed by Major E. E. AUSTEN of the British Museum. It describes briefly mosquitos, house flies, and the apterous ecto-parasites (fleas, bugs, lice), with the completeness and accuracy that might be expected from the author. These descriptions are followed by practical notes on protective measures. The whole book is compactly written, compactly bound, and adequately illustrated with really useful diagrams and drawings. There can be no better companion for the military medical officer.

---

[2] *Human Temperaments: Studies in Character.* By Chas. Mercier, M.D., F.R.C.P. London: The Scientific Press, Limited. 1916. (Post 8vo, pp. 91. 1s. net.)

[3] *Food and the Principles of Dietetics.* By R. Hutchison, M.D.Edin., F.R.C.P. Fourth edition. London: E. Arnold. 1916. (Med. 8vo, pp. 637; 3 plates, 33 figures. 16s. net.)

[4] *Feeding the Family.* By Mary S. Rose, Ph.D. New York: The Macmillan Co. 1916. (Post 8vo, pp. 456; illustrated. 9s. net.)

[5] *Food and Fitness, or Diet in Relation to Health.* By J. Long. London: Chapman and Hall. 1917. (Cr. 8vo, pp. 212. 5s. net.)

[6] *Sanitation in War.* By Major P. S. Lelean, C.B., F.R.C.S., F.C.S., D.P.H., R.A.M.C.; with an introduction by Surgeon-General Sir A. Keogh, K.C.B., M.D., F.R.C.P. Second edition. London: J. and A. Churchill. 1917. (Fcap. 8vo, pp. 341; 54 figures. 6s. net.)

NOTES ON BOOKS.

BOOKS ON BABIES.

THE sixth edition of Dr. CROZER GRIFFITH'S popular book on the *Care of the Baby*[7] has been revised and brought up to date. It has circulated widely in America, and is as good a book on the subject as any lay reader could hope to find; there is little in it that the anxious mother could misinterpret, and it is full enough to satisfy the most exigent. The subject of infant feeding is one that is much discussed nowadays, from both the practical and the scientific point of view. Adjunct Professor R. H. DENNETT has written[8] an account of the subject from the practical point of view, and he quotes a number of illustrative cases that add not a little to the didactic value of his book. In addition he details methods of treating the digestive disorders to which infants are prone; this part of his work will appear particularly valuable to the practising physician. The treatise on *Diseases of Nutrition and Infant Feeding*,[9] by Professor MORSE and Dr. TALBOT, is a more academic volume. It is stuffed with facts and figures and percentage values. It gives a detailed description of the scientific basis of rational infant feeding, and an account of the method of infant feeding taught in the Harvard Medical School. It is a book for the study rather than the nursery, and contains a great deal of valuable information. Dr. W. R. RAMSEY'S manual on the *Care and Feeding of Infants and Children*[10] is said to be a textbook for nurses. It appears to be designed for nurses who have received a thorough hospital training, with instruction in the elements of anatomy, physiology, chemistry, medicine, and surgery. It contains thirty-one chapters and covers the ground in a fairly satisfactory manner. The illustrations are well chosen; the text rather stands in need of revision. Thus, on p. 69 it is stated that the "two lateral central incisors" erupt at the age of 6 to 9 months; on p. 151 it is said of the bones of the head in rickets that "They are sometimes so soft that they can be dented like the case of a watch," a sentence that would give a wholly erroneous impression to any one unacquainted with the general excellence of American watches. On p. 243 general vaccinia is described as "general vaccination"; on p. 268 the sixth paragraph contains an excellent specimen of dittography.

[7] *The Care of the Baby.* By J. P. Crozer Griffith, M.D. Sixth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1915. (Post 8vo, pp. 463; 101 figures. 6s. 6d. net.)

[8] *Simplified Infant Feeding.* By R. H. Dennett, B.S., M.D. Philadelphia and London: J. B. Lippincott Co. 1915. (Med. 8vo, pp. 359; 14 figures. 12s 6d. net.)

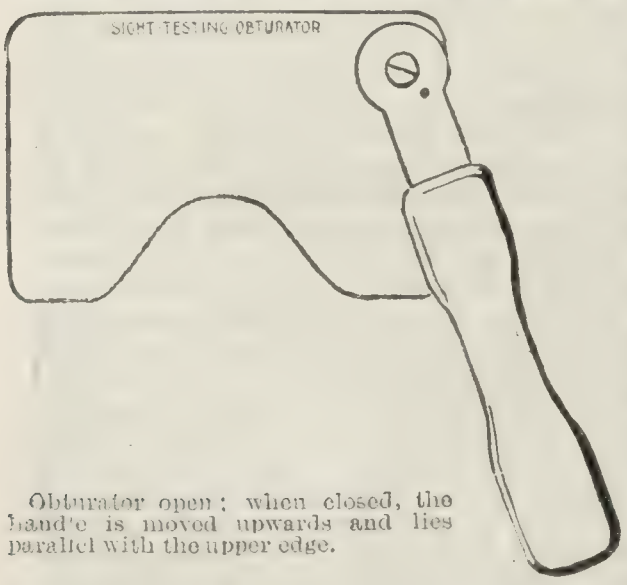
[9] *Diseases of Nutrition and Infant Feeding.* By J. L. Morse, A.M., M.D., and F. B. Talbot, A.B., M.D. London: Macmillan and Co., Ltd.; New York: The Macmillan Co. 1915. (Med. 8vo, pp. 354. 10s 6d net.)

[10] *Care and Feeding of Infants and Children: A Textbook for Trained Nurses.* By W. R. Ramsey, M.D. Including Suggestions on Nursing, by Margaret B. Lettice and Nann Gossman. Philadelphia and London: J. B. Lippincott Co. 1916. (Post 8vo, pp. 300; 122 figures. 9s. net.)

MEDICAL AND SURGICAL APPLIANCES.

Sight-Testing Obturator.

MAJOR A. R. GALLOWAY sends a description of a sight-testing obturator, consisting of an opaque screen with handle attached and a spring clip to fix it in position for use. The opaque screen is of such size, and has a curved portion of such shape and size cut out of its lower part, that the eyes of a person under examination can be alternately occluded and uncovered, and their separate vision determined, while that person has no knowledge as to which eye is being tested at any given moment. When not in use, the handle folds along the screen, and the obturator may be kept in the ordinary lens case, to which it makes a very useful addition.



Obturator open; when closed, the handle is moved upwards and lies parallel with the upper edge.

When in use, the handle is sprung into position, the examinee is asked to keep both eyes open, and to read Snellen's distance type from above downwards at the test distance. The screen is lowered from above downwards over one eye and the vision of the other noted. Then, by slight lateral movements of the obturator, the eyes may be alternately occluded and uncovered without conveying any information as to which eye is being examined at any one moment. Certain would-be malingerers imagine they are looking through glasses and think it safe to read an extra line or two; others say they cannot see through the dark "glass" when the instrument is in use. The principle of which the obturator takes advantage is that, under ordinary circumstances, an individual cannot say what is seen by the right and what by the left eye.

The advantages claimed for the appliance are that it affords: (1) Great facility in testing the visual acuity of each eye separately and of both together when dealing with a large number of persons in rapid succession. The position of the examiner's arm is much easier when using the obturator than when holding a card or other opaque object first in front of one eye and then the other. (2) Easy detection of malingering, as the person examined does not know which eye is under examination. (3) Rapid demonstration of latent deviations, of slight squints, and of amblyopia ex anopsia. (4) In artificial illumination the obturator forms its own shade for the eyes that are being tested.

MEDICAL EXAMINATION OF RECRUITS IN FRANCE.

THE efficient medical examination of recruits is a much more difficult task than the average layman understands, and its complexity was not fully understood by many who raised battalions at the beginning of the war in response to Lord Kitchener's appeal, or by some of those appointed to the command of battalions and other units more recently raised. It must also be admitted that the majority of the medical men invited to undertake these examinations had no experience of work of the kind, and that the instructions they originally received as to the degree of physical fitness for which they must look in an acceptable recruit may have left them in some doubt as to the scope of their duties, and in some instances as to the defects which should lead to the rejection of men. Lastly, in the first rush, medical examining officers were expected by enthusiastic recruiters to get through a greater number of examinations in a given time than was physically possible if each man was to receive the careful examination theoretically desirable. The instructions have now been made more precise, and medical officers are now no longer asked simply to reject or pass a man as fit for service as a soldier. They can class any man who comes before them in one of several grades of efficiency.

To answer the question whether a man who is not fit for general duty abroad is fit for garrison duty abroad or at home requires a certain amount of experience of military life and an estimate of the degree of physical strain imposed by each of the various classes of military work. The duty of a medical examiner of recruits is therefore still difficult, and it may be interesting to give a short statement of the manner in which the examination of recruits has been systematized in France, where, of course, experience in examination of large numbers of men for a citizen army is more widely disseminated.

The general question as to what should be done with the conscript or recruit in France is divided into two parts, the first of which concerns the physical and mental suitability of the individual for any kind of military duty whatever. The second part deals with the much finer question of the kind of work on which a man passed as fit for a soldier shall be employed. This is left for leisurely consideration at a later date.

The decision on the first question is delivered after consultation with his colleagues, and after consideration of the medical evidence on the point, by the president of a board appointed for the purpose. Such president is always the prefect or chief representative of the Government in the department where the board is sitting, the other members consisting partly of civilian officials, partly of military officers. The medical evidence given is partly as to facts, which the board may or may not be able to see for itself, and partly as to deductions which may be based on those facts. There is provided for the joint use of the board

and of the recruiting medical officers a code which shows what decision should be reached in the presence of certain given facts. Besides deciding whether a given individual shall be admitted to the army or rejected entirely or temporarily, the board also decides to which of the two main forms of military service, armed or auxiliary, the accepted man shall be assigned.

The general procedure is as follows: The members of the board sit at a long table at the end of a room, and facing the entry. Each proposed recruit in his turn comes into the room already stripped to the skin. As he walks up to the table, the board and the medical men attached to it have an opportunity of judging to what class he apparently belongs, and as soon as his name has been identified on the register his technical examination begins.

It is conducted usually by three or four medical men, each of whom pays attention to some particular point—for example, the formation of the feet, the condition of the heart and lungs, the teeth, the eyes or the ears—and as a rule it is completed forthwith in the presence of the board. Should, however, a doubt arise on any point, the case is put back for further examination by a specialist if need be, and completed later on; the flow of other recruits through the room thus remains uninterrupted. The technical examination concluded, each medical man who has taken part in it states his opinion, together with his reasons, as to whether the individual should be accepted or rejected temporarily or finally, and, if accepted, whether he should be assigned to the armed or the auxiliary branch of the service. These opinions given, and any questions which members of the board may choose to put having been answered, the decision of the board is reached, and recorded by the president forthwith.

The leading points to which the medical examiners have to address themselves are these:

Is the proposed recruit a healthy, well-built individual, likely to be capable of using his limbs in the fashion required by a soldier?

Does any peculiarity of his conformation render him liable to suffer from the wearing of uniform, or from carrying weapons or equipment?

Does he present any evidence of morbid predisposition such as will render life as a soldier directly dangerous to him?

Is he the subject of any malady or defect which, although it does not lessen his own capacity for service, makes him unfit for enlistment because it will make intimate association with him disgusting?

Comparatively few men are altogether free from defects; and though some defects may suffice by themselves to decide all the points on which the board has to make up its mind, in other cases it may be necessary to weigh up their individual or aggregate importance, and in this task also the medical examiners assist. Experience shows that the boards are inclined to overestimate the importance of defects that they themselves can see, and underestimate those which are revealed solely by technical examinations. Consequently the preface to the code of instructions prescribes that the medical witnesses shall always give the reasons for the opinions they express, taking care in particular to bring out clearly the reasons why they attach importance to such defects as may not be visible to the board itself, and stating, if necessary, why too much importance should not be attached to those which are plain to everyone.

A proposed recruit can bring with him if he pleases a certificate from a private medical practitioner, but it is received merely as a statement of alleged fact, or, in other words, as a statement that the individual to whom it relates is the subject of this or that defect, or has had at some time past an illness presumed to have left behind it a condition rendering him unfit for any form of service, or fit for service solely in the auxiliary branch of the army. There is a strict rule against any medical man who lives in the same town, or even in the same department, as a proposed recruit taking any part in the proceedings of the recruiting board before which the latter appears.

Men not accepted forthwith for either the armed or auxiliary branches of the service are classed either as exempted or adjourned. The former are men deemed not likely to be ever fit for service, and the latter those who, either on account of existing illness or immaturity, it is thought should not be enlisted for some time. Men of both classes are told to present themselves again for examination after the lapse of a certain period. A man twice classed as exempted used to be free from military obligations altogether. Under a recent regulation, however, he is now liable to be re-examined from time to time. A recruit whose enlistment has previously been adjourned on account of immaturity, and who when he comes up again is found still to lack the muscular development necessary for the armed branch of the service, passes automatically into the auxiliary branch provided his general health is sound.

The second part of the main question only concerns, as a rule, those accepted for the armed branch of the service. The point now to be decided is for what form of military work the recruit is best fitted, and it is sometimes not finally settled until the recruit has been under observation for some little time. He then goes before a small board, which, guided to some extent by medical opinion, assigns him definitely to one or other of the numerous branches into which all armies alike are divided.

This board is formed of experts intimately acquainted with the kind and degree of the physical strain imposed by the work of various corps. A man, for instance, whose feet are questionable may get on very well in the cavalry or artillery but would inevitably break down if put into a line regiment. Another may have defects which would make riding difficult for him but would not interfere with his utility in the engineers. A third may present defects unfitting him either for the cavalry or infantry but yet possess the vigour and strength desirable in a recruit for the medical department.

The code of instructions mentioned in the early part of this article sometimes includes invaliding as well as recruiting questions and has been modified on several occasions during the past two years without being entirely revised. Consequently the guidance afforded is not equally direct throughout. The following are some excerpts:

Heart.

Cyanosis resulting from malformation of the heart or the large blood vessels justifies total rejection.

Hypertrophy, if sufficient to cause decided increase of the area of cardiac dulness, justifies total rejection. Mere displacement of the apex or of the edge of the dull area is insufficient to establish a diagnosis.

Lungs.

Pulmonary tuberculosis, however slight, entails total rejection.

Asthma is compatible with auxiliary service, but justifies rejection if severe and obstinate.

Skin.

Eczema, if it affects a large extent of surface and is proved to recur frequently and be obstinate in character, justifies total rejection.

Sycosis is compatible with general service, but, if of frequent recurrence, justifies allocation to auxiliary service.

Obesity, when so marked as to involve difficulty in walking and other movements, may justify total rejection, but in ordinary cases the subject is fit for auxiliary service.

Larynx.

Chronic laryngitis, not of tuberculous origin, is compatible with general service, even when accompanied by mucous thickening.

Nose.

Chronic rhinitis of all kinds, including hay fever, is compatible with general service unless accompanied by ozaena.

Mucous Polypus.—Nasal polypi are compatible with general service.

Tumours.

Simple tumours and horny growths are incompatible with general service, if of such size or so placed as to be likely to interfere with the soldier's movements or carriage of weapons; but they are compatible with auxiliary service.

Ranula is compatible with general service unless very large.

Abdomen.

Inguinal hernia, whether single or double, is compatible with general service, provided that it is easily reducible and capable of being kept reduced.

Femoral hernia, being generally difficult to keep reduced, and especially dangerous when strangulated, is compatible only with auxiliary service.

Chronic infections of the stomach and intestines, when their existence is well demonstrated, and is accompanied by emaciation, justify total rejection.

Varicocele justifies total rejection only when it is of such a size as to cause real difficulty in walking.

Lower Extremities.

Varicose veins, provided they are not the seat of phlebitis and are unaccompanied by swelling of the feet or by ulceration, are compatible with several forms of general service.

Hammer toe, when so developed as to bring the dorsal surface into contact with the ground and produce painful projection of the joints, unfits the subject for general service, but is compatible with auxiliary service.

THE PREVENTION AND ARREST OF VENEREAL DISEASE IN MEN.

A lecture on "The prevention and arrest of venereal disease in men" was given by Dr. C. J. Macalister, of Liverpool, at the Royal Institute of Public Health, on January 31st. Lord Sydenham, who occupied the chair, emphasized the need for active measures in view of the excessive incidence of venereal disease which, to judge from all previous experience, might be expected to follow the war.

Dr. Macalister said that the history of venereal disease was intertwined with the history of English morals, and the history of English morals was the history of the English woman. In Chaucer's England a state of things approximating to polyandry must have existed. The rise of chivalry gave a place to feminine virtue, and from the middle of the sixteenth century the status of woman began to be recognized. The nineteenth century was better than the eighteenth, and the eighteenth century better than the sixteenth, but even down to 1866, when the Contagious Diseases Act was abolished, the tendency had been to condone immorality in men, and even to sanction it. The subject was a bisexual one, and the means taken to stem the disease in the one sex must be applied to the other. Every war in the past had been followed by an increased incidence of syphilis in the belligerent countries. In lecturing to medical men in the smaller towns on the subject, he had been informed that although there might be a good deal of illegitimacy there was no disease to speak of, but the danger was that men coming back from the war might act as diffusing agents. From all other forms of infection people endeavoured to escape, but here they were willing to take risks. Ignorance accounted for much of the evil, and the first weapon was a policy of education. The war had made it possible to reach, not only large bodies of youths, but of young married men, fathers of families, of high and low degree. In many of the large camps he had visited, not more than two men per 1,000 were under treatment—a ratio which must compare very favourably with pre-war conditions, in or out of the army. After dealing with the education of the boy before and at adolescence, Dr. Macalister passed on to consider the subject of marriage. Early marriage, he said, might be regarded as a physiological remedy, but people of the present day were obsessed with ideals of luxury which had the result of postponing marriage. The leavening influence of the war and the relative poverty that would follow in its wake might possibly lead to a more modest ideal of happiness, and early marriage would help the cause. As to prophylaxis, there was some sentimental opposition, but it was only right that preventive treatment should be employed in cases which had recently been subjected to infection. Metchnikoff's experiments showed that the syphilitic organisms might be destroyed by the application of calomel ointments even hours after inoculation, but it had to be remembered that the experimental work was in the hands of experts, who were able to apply the calomel to the actual point of infection. That a considerable proportion of people got syphilis in spite of prophylactic measures was certain. He had also seen men severely injured by using too strong a solution of permanganate as an irrigation against gonorrhœa. The fact that there was no safety short of chastity should be insisted on. In conclusion, he indicated some deterrent methods. It would greatly help matters if seduction under promise of marriage at any age were made a punishable offence. Every case of illegitimacy should be inquired into by law, whether the child were born alive or dead, with the object of establishing the responsibility of the man as well as of the woman. He thought that notification would be inadvisable at the present moment; it would be time for this when education had done its work and the quack had been cleared away. Everything should be done to induce sufferers to get treatment at the earliest possible moment. He also urged that the medical profession should play its part in the marriage contract. The clergy dealt with the rites of holy matrimony, and the lawyer presided over the legal formularies, but the doctor was left out. There was no sanctity in any marriage unless freedom from infectivity was regarded as an essential.

Dr. F. W. Mott agreed as to the efficacy of much prophylactic treatment, and said that while, of course, the great thing was to prevent men having promiscuous intercourse, fear of consequences was not always effective, for in some individuals the sexual instinct was stronger than life itself; it was necessary to look facts in the face. He went on to speak of the discovery of salvarsan, by which, he said, syphilis was cured in a great number of instances. In his own practice recently a very remarkable case occurred. A woman, aged 26, was admitted to one of the London asylums. She had a healthy boy, aged 8, but after his birth she had had a succession of miscarriages. During another pregnancy, after admission to the asylum, in which the child was born dead, she had convulsions. He examined the cerebro-spinal fluid, and diagnosed the case as general paralysis of the insane. She was very young to have that disease, but she died within a few months, and on examination it was found that her brain, while showing no evidence of the disease, contained spirochaetes, which had produced the reaction. In this case it was probable that the woman had been infected by her husband after the birth of her first child. The child gave a negative Wassermann reaction, and she herself a positive. Dr. Mott mentioned one or two instances of innocent infection, by way of the mouth, which had come under his notice,

Sir Bryan Donkin disagreed with Dr. Macalister's notion that education was going to do so much more than it had hitherto in diminishing what had been referred to as vice. Even before the evils of syphilis had been brought so graphically before the public as the result of the Royal Commission a large number of people were aware that syphilis was an exceedingly dangerous disease, and he could not see that the addition of this recent knowledge was likely to do very much more. With regard to Metchnikoff's treatment, Dr. Macalister had mentioned some failures, or probable causes of failure, but this ought not to be brought in argument against a series of experiments which had shown the method to be efficacious. It was perfectly true that there were no bodies of statistics to show the difference in the percentage of infection among the general population, but there was good reason to believe that a considerable diminution had taken place among soldiers. It seemed that but little importance had been attached to the preventive treatment proposed and experimented on by Metchnikoff, and the wider spread of this knowledge had been discouraged. Surely a sufficient case was made out for medical men as a body to investigate it for themselves before it was thrown back into obscurity. This was the only disease which people seemed afraid to touch at the source. Dr. Macalister said that people who would take extreme care to avoid scarlet fever would take risks with regard to venereal disease. But the motives at work differed *toto coelo* in the two instances. It was the duty of the medical profession to see what there was in the proposed method of prevention and publish the knowledge of it when satisfied that it was efficacious.

The Hon. R. B. Rees, M.P., of Melbourne, complained of the temptations to which Australian soldiers were exposed in Britain and in Egypt.

Dr. Otto May said that from the point of view of moral responsibility there might be little or no difference between the two sexes, but it was not to be doubted that as an agent of infection woman was much more dangerous than man. As to preventive treatment, he quite acknowledged, with Dr. Macalister, that education was a most important factor. At the same time, he thought it was necessary to have some clear thinking on the subject of prophylaxis. Prophylactic means had been made available by the military authorities for men in the army, and he thought that such means ought to be placed at the service of the civilian population as well. Was there, after all, any great difference ethically between taking prophylactic measures and maintaining such a chastity as was merely inspired by fear of consequences? A morality which was merely bolstered up by fear was a morality not worth talking about. He was well aware that any popular propaganda on the subject of prophylaxis would meet with

a good deal of opposition in many quarters, but all the same he thought it ought to be persevered with. The sooner the whole question of morality was divorced from methods of treatment of the disease the better. The two aspects—the moral and the medical—must not be confused.

DR. SALEEBY pointed out the difficulty of having to warn men as to the consequences of contagion, and at the same time being compelled to inform them of prophylactic means. The only real thing to appeal to was their respect for womanhood.

Professor H. R. KENWOOD, as one who was concerned with dealing with the scheme in a rural area—Bedfordshire—said that he found that almost everybody who got venereal disease went not to the doctors but to the chemists, and also wrote to quacks in London and elsewhere. Once the scheme of treatment of venereal disease had been started in any part of the country, all quack practice, and all chemist's practice, must be stopped. In reply to Mr. Rees, he said that venereal disease, so far as could be estimated, was probably as rampant in Australia as it was in this country. The high pay of the colonial soldiers contributed to their downfall.

DR. MACALISTER, in replying on the discussion, agreed that the point as to prophylaxis must not be put on one side; it was absolutely essential, but he did not agree with Dr. Otto May that the matter could be separated from morals.

THE MEDICAL SERVICE AND THE ARMY COUNCIL.

NEED FOR ADDING THE DIRECTOR-GENERAL, ARMY MEDICAL SERVICE.

THE following letter, which appeared in the *Times* of February 3rd, is of importance as coming from the chairman of the committee which placed the supervision of medical and sanitary matters under the Adjutant-General of the Forces, so that the office of the Director-General Army Medical Service became one of the departments of the Adjutant-General's office.

Sir,—The honour bestowed by the King upon Sir Alfred Keogh will rejoice all those who know the true tale of the Royal Army Medical Corps during the war. Some day the full story will be told. The English-speaking world will know what happened in September, 1914, and understand the events that led to the recall of Sir Alfred Keogh from the educational work upon which he was engaged to his old post of control at the War Office.

If the Secretary of State for War wishes to recognize the work of Sir Alfred Keogh and that of the R.A.M.C. under his control, there is a method that would appeal to him and them more than any personal honour or distinction. When the committee of which I was chairman was reconstituting the W.O., and proposed to put the Director-General of Medical Services under the Adjutant-General, I had a visit from Sir Alfred Keogh, who in warm and almost impassioned language tried to induce me to reconsider the proposal. At that time, when we were still under the influence of South African experience, and when only one or two prescient soldiers foresaw the inevitable European war, all military influences were brought to bear upon us to limit the numbers of the Army Council. No one except Sir Alfred Keogh could envisage the R.A.M.C. other than an important but small branch of the "services" attached to an army in the field. It was not realized that to keep a force in the field was at least as vital a necessity as to recruit it.

September, 1914, swept away this illusion—but the mischief was done. How much of the suffering undergone by our soldiers then and since was due to the shortsightedness of my committee, and notably of myself, will never be known. Certainly the control of the Adjutant-General's branch over the R.A.M.C. was and is responsible not only for the early failure to grip the medical factors of the war, but for the hampering conditions under which Sir Alfred Keogh has worked. His triumphs, and those of the R.A.M.C., have been achieved in spite of obstacles that the subordination of science to ignorance, of elasticity to military discipline, explains but cannot justify.

I would appeal to Lord Derby to strengthen the Army Council by placing upon it the D.G.M.S., and to free from the control of a purely military officer (admirable as is Sir N. Macready in the sphere congenial to him) a body of men mostly volunteers from highly trained professions and dealing with technical difficulties altogether outside the orbit of vision in which the soldier pure and simple habitually moves. Thus would the work of Sir Alfred Keogh be happily recognized, to the infinite advantage of our sick and wounded to-day and to-morrow.

Yours faithfully,
ESHER
(Sub-Commissioner, British Red Cross in France).

France, 1917.

The committee to which Lord Esher refers was the War Office (Reconstitution) Committee, which published the third part of its report—that dealing with the medical service of the army—in March, 1904. The committee consisted of Lord Esher, Admiral Sir John (now Lord) Fisher, and Colonel Sir George Clarke (now Lord Sydenham). When the committee reported the office of Commander-in-Chief had disappeared, and the Army Council had become the supreme governing body of the army.

The Army Council, as then established, consisted of the Secretary of State for War (president), the chief of the Imperial General Staff, the Adjutant General, the Quartermaster-General, the Master-General of the Ordnance, the Parliamentary Under Secretary of State for War (civil member), and the Financial Secretary (finance member), with the Permanent Secretary of the War Office as secretary. To it has since been added the Director-General of Military Aeronautics, and the deputy chief of the Imperial General Staff.

According to King's Regulations (1912) the duties of the department of the Adjutant-General were divided among and dealt with by the Director of Recruiting and Organization, the Director of Personal Services, the Director of Mobilization, and the Director-General Army Medical Service. The main function of the Adjutant-General is the raising, organization, and maintenance of the military forces, including all matters relating to personnel, and administrative arrangements connected with training and education.

Lord Esher's committee reported that too much importance could not be attached to the sanitary service of the army in peace and war, and stated that it had been represented to it "that a place on the Army Council ought to have been provided for the Director-General of Army Medical Services, who was a member of the defunct War Office Council." The committee continued as follows:

10. We cannot accept this view. The Army Council is not, and cannot be, a representative body as regards the several arms and departments. The Royal Army Medical Corps exists to serve the army in a most important capacity, but the first object must be to create and to maintain an army, and this is the function of the Army Council. To admit the principle of representation would destroy the character of the Council.

11. Sanitation in war and in peace is closely bound up with discipline, and we therefore consider that the proper position of the Director-General of Army Medical Services is, as we have laid down, under the Adjutant-General, whose duties are specially connected with the person of the soldier.

12. We do not admit that, under this arrangement, the status and the power of the head of the medical services will be lowered. We believe, on the contrary, that his position will be considerably strengthened in peace and in war.

13. The Council as a whole is now responsible for the welfare of the soldier. It has full powers over the whole range of military requirements and there should be no danger that sanitary considerations will be neglected. The Adjutant-General, as a member of the Council, occupies a far stronger position than his predecessors, and will be able to represent effectively the medical needs of the personnel of the army with which he is specially charged. Moreover, the Director-General, if necessary associated with a civil representative of the Army Medical Services Advisory Board, should be summoned to the Council whenever his advice and specialist knowledge are required.

We need not discuss the cogency of these arguments at present, for they have been answered by Lord Esher himself in the letter quoted above, but we may note that immediately after the issue of the report the British Medical Association called attention to this defect in the recommendations of the Committee and strongly urged that the Army Medical Service should be represented on the Army Council by an officer of that service, who would personally represent the sanitary requirements and general and medical needs of the army. The Association went on to point out that the proper method of dealing with the Medical Service of the army was to give it responsibility and power, and that to secure this essential its direct representation on the Army Council was of vital importance to the army and to the nation.

British Medical Journal.

SATURDAY, FEBRUARY 10TH, 1917.

THE FOOD SUPPLY OF THE UNITED KINGDOM.

THE report on the food supply of the United Kingdom, drawn up by a committee of the Royal Society at the request of the President of the Board of Trade, which was issued last week, is a document so full of matter that it is difficult to give any adequate account of it in a brief space, and the difficulty is not diminished by the rather disjointed manner in which the information is presented. The first part contains an estimate of the annual food supply of the United Kingdom, imported and home produced, in the period before the war (1909–13). After consideration of the dietary requirements of a nation for the most part engaged in active work, the Committee is convinced that they cannot be met satisfactorily on a less supply in the food, as purchased, than 100 grams protein, 100 grams fat, and 500 grams carbohydrates, which yield approximately 3,400 calories per "man" per day, a "man" being an average workman doing an average day's work; the Committee has adopted this as the minimum standard. Generally speaking, a woman or child requires less food than a man, and to convert the population of men, women, and children into units, or "men" as defined above, the total number must be reduced by 23 per cent. In reckoning diet 100 men, women, and children equal 77 units, that is to say, "men." The data upon which this estimate is formed are given in an appendix.

The total quantities of foodstuffs available during the period 1909–13 provided 4,009 calories per "man." There has thus been a certain margin, and the Committee calculate, taking the minimum physiological standard mentioned above, that there has been either wasted or consumed in excess of requirements, of proteins 11 to 14 per cent., of fats 25 to 30 per cent., of carbohydrates 10 to 14 per cent. It is to be noted that the figures for quantities of food are for weights as purchased; no attempt has been made at correction for loss during distribution, nor for digestibility. Benedict is quoted for the statement that in a mixed diet about 92 per cent. of the total protein is digested, 95 per cent. of the total fat, and 98 per cent. of the total carbohydrate. In Langworthy's diet for moderate work the energy value of the total food (protein 115 grams) as purchased is 3,800 calories, as eaten (protein 100 grams) 3,500 calories, as digested (protein 95 grams) 3,200 calories.

The second part of the report deals with the food supply in 1916. Writing at the end of July, 1916, the Committee state that down to that time the supply of food had provided a general margin of about 5 per cent. above the minimum necessary for proper nutrition and rather more as regards the supply of energy, so that a reduction to this extent would still furnish amounts of the essential food constituents conforming to the standard adopted. Such a reduction could be borne without serious injury to the community, provided that steps were taken to ensure the equitable distribution of the available food throughout the population. The Committee state that the rise in prices had then already accentuated the inequalities of distribution and that any curtailment of supplies, even to a limited extent, would result in the poorer classes obtaining less than was needful for safety. Speaking as physiologists the members of the Committee lay stress on the fact that in buying food the labouring population is buying energy, that is, the power to do work. If the rising prices curtail for any class of the community its accustomed supply of food, its output of work will of necessity be reduced, and it is added that "it is important to remember that a slight reduction of food below the necessary amount causes a large diminution in the working efficiency of the individual."

In an appendix to this part of the report particulars are given of army rations. For the present purpose the army rations at home are the more interesting. The weekly rations issued in kind are as follows: Beef, 84 oz. (5 lb. 4 oz.); bacon, 14 oz.; bread, 112 oz. (7 lb.); sugar, 14 oz., yielding an energy value of 2,521, but the men purchase various articles of food from a long list, yielding on an average 1,510 calories a day, giving a total energy value for the diet of a man in the home army of 4,031 calories a day. The recent letter of the Food Controller suggests voluntary reduction in the amount of meat, bread, and sugar; meat, it is said, is to include bacon and other food prepared from the pig, as well as game, rabbits, poultry, and tinned meat. The meat is to be the uncooked weight, including bone and fat. The allowance of bread is 4 lb., or, in the alternative, 3 lb. of flour for bread-making, and the amount of sugar 12 oz. a week. The amounts are, however, for a mixed population of men, women, and children, whereas the army ration is for men doing fairly hard physical work. To get the equivalent of these articles of food issued to the army at home to which the civil population would be entitled, if it were rationed at the same rate, we may make a reduction of 23 per cent. We then get, for the three classes of food mentioned in the army at home, beef and bacon about 4 lb., bread about 5½ lb., and sugar about 11 oz., as the amounts a head to which the civil population would at that rate be entitled. This would yield an energy value of about 1,844 calories a head a day. The voluntary ration, assuming that the 2½ lb. of meat consists of 2 lb. of beef and 8 oz. of bacon, would yield energy value of about 1,357 a day. As has been said, the soldier at home adds various articles of food, yielding on an average 1,510 calories a day. If the civil population exercised the same privilege, it would get a total diet yielding an energy value of about 2,867 a day. Comparing this with the standard taken by Atwater of 2,700 calories for a man doing no muscular work, and of 3,000 calories for a man doing light muscular work—probably rather high estimates—it would appear that the voluntary ration supplemented from the list of extras would, when a suitable deduction is made for a mixed population of men, women, and children, be sufficient. The difficulty of ensuring equality of distribution so that all members of all classes receive the minimum will be great. It would seem to be one of the rocks on which the German organization has split.

INDIAN MEDICAL SERVICES.

II.

THE subject dealt with in the ninth chapter of that part of the report of the Royal Commission on the Public Services in India which refers to the Medical Services is of great importance, for it concerns the staffing of the Government medical colleges. There

e five such colleges—at Madras, Bombay, Calcutta, cknow, and Lahore respectively. At present there e thirty-seven whole-time professorships in these edical colleges, and of these thirty-three are or-narily reserved for officers of the Indian Medical rvice, while four are open to all comers. There are so seven chemical examiners, who, in addition to eir ordinary duties as Government analysts, in most ses also teach chemistry to the students at the edical colleges; of these, six are officers of the Indian edical Service. The Commission received written atements from certain private practitioners object-g to this system, on the ground that officers selected r professorships might not have the necessary alifications for teaching, but the Commissioners te that this position was not sustained by them in entirety in their oral examinations. The Com-ssioners are satisfied that, "viewing the question oadly, the qualifications of the present officers are rly good, whilst there is no question but that veral of them are distinguished specialists in their bject, and thoroughly efficient teachers." They nsider, however, that there are indications that the mber of applications is limited, and that the supply those with suitable qualifications is unduly re-icted. They distinguish between the clinical chairs medicine, surgery, clinical surgery, ophthalmology, d midwifery on the one hand; and what are scribed as the scientific chairs of physiology, thology, anatomy, materia medica (or pharma-ogy), and biology on the other. The restriction the field of suitable candidates is said to be specially marked in the case of the scientific airs." It is pointed out, on the other hand, that e great experience accumulated in their ordinary urse of practice is in a special degree calculated to officers of the civil medical service for the highest m of clinical teaching, and the opinion is expressed t "since the clinical chairs can always be well ed by members of the Government services, the se of medical education has little, if anything, to n from opening them to the general public," but t, on the contrary, "there would be a distinct loss medical progress were such a course adopted, since assurance that these chairs are reserved to the vices is one of the most powerful attractions for n of scientific tastes and aptitudes." They accord-ly recommend that the clinical chairs and their nected posts should be reserved, so long as a fit son is available, for officers of the civil medical vices, however recruited. They also recommend t officers holding the clinical posts should be wed private practice, but that this should be ricted to consulting practice in their own subject, e term consulting practice being interpreted in sense understood by London practitioners." The mmendation to allow occupants of chairs in these jects to engage in consulting practice is in accord h the practice, if not the theory, not only in this ntry but on the continent of Europe, although the posed restriction to "consulting practice in their subject" will obviously prove unworkable if lay ials are to be allowed to attempt rigidly to enforce There is no such rigid demarcation between, for ance, medicine and surgery, or between medicine ophthalmology, as is assumed.

With regard to the scientific chairs in medical eges and their connected posts, it is recommended t they should be thrown open to all comers, and t officers of the civil medical service should com-e for them on the same terms as others. It is mmended also that an officer who has specialized scientific subject should be kept to this class of work; here, again, a rigid rule rigidly enforced would not make for efficiency. There is no reason why a man who has specialized in pathology should not, if he so wishes, go to a clinical post in medicine; as pathologist he ought to be given charge of beds, otherwise he would be apt to get out of touch with practical medicine, and some years' work in pathology is perhaps the best of all trainings for a professor of medicine. So, again, with anatomy; there can be no sound reason why a teacher of anatomy should not be eligible to be appointed professor of surgery or clinical surgery. The proposal that these posts should be thrown open to all India is probably sound, and the same would apply to connected posts —those of assistants to the professor in various capacities. The reason given by the Commissioners for appointing specialist assistants to the more important professors, though sound, is not the strongest that can be advanced. The reason given is that at present, when officers go on leave, temporary arrangements have to be made which are sometimes of an unsuitable character, and that for this reason a central reserve of specialist officers who could be employed in the various provinces as occasion arose should be formed. The really strong reason for appointing specialist assistants is that they should have had the training in teaching their subject which only a considerable period of work in such a department can give. It would be desirable to allow a good deal of elasticity here and to provide that aspirants to teaching appointments should have the opportunity of working in more than one university. "Home-keeping youths have ever homely wit," and the majority of men who desire to become teachers of scientific subjects find it desirable to study in several schools in different countries. All future incumbents of scientific posts should, it is recommended, be debarred from private practice, but, if medical practitioners, given a monthly allowance instead.

It is recommended that the recruitment for posts of medical examiners and alienists and for the bacteriological department should follow similar lines, and the occupants of such posts appointed in future should not be allowed to take any private practice of a medical nature at all. It is advised, however, that the Government of India or any local government should, where no qualified private chemist or alienist was available, be entitled to call upon officers serving in these departments to give to the public their services in their own special line, but that the fees so earned should be credited to Government, and a suitable monthly allowance made to the officer concerned. This plan has been followed by some local authorities in this country but has little to commend it. It deters many men of superior talents from entering the public service.

THE ANNUAL REPORTS OF TUBERCULOSIS SANATORIUMS.

Year by year a fresh supply of experience is being accumulated as to the actual value of sanatorium treatment to the community. In all the reports issued by medical or lay authorities the statistical tables of results apparently achieved, hold a prominent place. But in the case of a disease so chronic as tuberculosis such statistics are apt to be very misleading. This fact is frankly acknowledged in a very full report, prepared by its clerk, for the information of the Insurance Committee of the Burgh of Glasgow. Great pains have evidently been taken to ascertain the present condition and whereabouts of

all patients discharged from sanatorium treatment within the jurisdiction of the burgh during a period of two and a half years ending in December, 1914. Very many patients who figured in the statistics of cases leaving the sanatoriums as "improved," or even as "disease arrested," were found to be dead. Taking capacity for work as the crucial test, it was found that as many as 70 per cent. of the early cases could be included, but that no less than 19 per cent. of such early cases had died. The proportion of deaths in the later stages of the disease was correspondingly higher, but many of them had been previously recorded as having been benefited by treatment. A considerable number of persons with advanced disease were found to be still capable of remunerative work, and herein also may be traced a statistical fallacy. Many cases, classed as advanced, have a better expectation of life than others with small local lesions. Prognosis depends more upon the virulence than upon the extent of the disease. But in Glasgow as elsewhere the need for getting hold of the cases earlier is very manifest. Unless treatment can be applied at the outset, it is very doubtful whether the lasting benefits obtained are in any way commensurate with the cost of obtaining them.

The continued outpouring of funds for the temporary repair of permanent damage is a serious matter at the present time. The physical salvation of the young adult is of greater importance now than at any other period. To hope for further legislation is futile, and it only remains for the local authority to use to the full the powers that it already possesses to enforce notification and to deal with early disease promptly. The admission of any but incipient cases into sanatoriums should be sternly discouraged. Sentiment must give way to national needs.

In the first annual report of the tuberculosis officer for Walsall the question of the treatment of the disease in children holds a prominent place. Overcrowding within the county borough tends to throw the children into close relation with acute and advanced cases, and a considerable proportion of them are found to be already infected. Failing any means of segregating the infecting agents, the institution of open-air schools is strongly urged and the partial conversion of schoolrooms for open-air classes is suggested. Many of the local industries are attended with the production of fine dust, especially in the metal works. In spite of warnings and instructions to the contrary, the workmen in such places continue to spit freely, although many of them are known to be consumptive, while the use of the spitting-flask is objected to as indicative of an infectious person whose company must be avoided. It is instructive to note in this report that in many instances the period of time between notification and death is remarkably short. There seems to be need for a stricter observance of regulations, and the question of overcrowding should be dealt with firmly by municipal authorities.

The third annual report on tuberculosis in the county of Hertford, for the year 1915, by Dr. H. Hyslop Thomson, contains evidence of much valuable work, in spite of difficulties incidental to the outbreak of war. The dispensary system would appear to be well organized, and to be closely associated with the County Nursing Association. With five dispensaries and nine visiting stations a good deal of ground has been covered. Domiciliary visitation, undertaken by the association without cost to the Insurance Committee, has proved to be effective in weeding out the early cases, and in localizing the more obvious centres of possible infection. This very liberal action may well be commended to other counties; it should be noted that the money thus saved by gratuitous service has been utilized to supply milk to patients needing it. After-care committees have been doing good work, and the need for the segregation of infective cases is recognized in a very practical way by the provision of houses to which patients can be removed for treatment on hospital lines. This is a step in the right direction, and though it must involve considerable expenditure it would seem to be a more effective means of checking the spread of the disease than any other that has yet been adopted. The fact that tuberculosis does not entirely depend upon heredity, or infection by contact, is shown by the results of statistical inquiry into these points. Less than half of a group of 550 patients gave evidence of family disease, while one-third only appear to have been subjected to possible infection by association within the home. While thus providing liberally for the care of actual sufferers, the county council, as may be judged from the report of its tuberculosis officer, is fully alive to the need for active preventive measures, and the methods already put in force bid fair to yield very satisfactory results, and are well worthy of imitation by some of the less enterprising authorities in other counties and county boroughs.

NATIONAL SERVICE AND THE MOBILIZATION OF THE PROFESSION.

IN his speech at the meeting in Westminster on February 6th the Director-General of National Service made only a short reference to members of the medical profession, following on a similar reference to the position of ministers of religion. He said:

There are two classes which seem to stand a little apart from the rest of the community in this matter of national service, because their services are required in a particular and special direction. I refer to doctors and ministers of religion. So far as the clergy of the Church of England are concerned, I have been in communication with the archbishops on this subject, and we have formulated plans which I hope will enable many of the clergy to give effect to what I know to be their particular desire and to offer themselves for national service other than that connected with their parishes. Others, again, will be put to do work of a special character, perhaps in different parts of the country. That will be done through the bishops and by their consent.

As for doctors, I have been in touch with the President of the General Medical Council, and although my plans are not yet completed I hope it will be possible for me to arrange something with them on analogous lines. What we have to do is to see that the doctors are so mobilized and distributed that the needs both of the civil population and the army can be met, and that so far as possible specialists shall be put to do work for which they have taken pains to fit themselves in particular. With this exception I am going to appeal to the whole male population of this country between the ages of 18 and 61. I am glad to say that in this great national work Ireland will have an opportunity of taking her full share with the rest of the country. (Cheers.)

The proposed scheme has not, we understand, come in any formal manner before the General Medical Council or its President, nor before the Executive Committee of the Council, which, in the ordinary course, will not meet until February 26th, but prior to Mr. Chamberlain's speech the Central Medical War Committee for England and Wales had resolved to invite the profession to take action in the direction indicated, and had drafted a letter to Local Medical War Committees, making certain suggestions with regard to the manner in which the further call which is being made for medical men to accept commissions in the Royal Army Medical Corps, either for general service or for garrison duty, can best be met. It is realized that this further call will

but a great strain on the remaining members of the profession, and that it will entail cutting down the medical services rendered to the civil population; but it must be remembered that the military authorities have a legal claim on the services of every man of not more than 41 years (on the dates appointed by the Military Service Acts), and that the public must be prepared to put up with less medical attendance, as they have to put up with less of many other services and many commodities. The urgency of the present situation has been impressed by the Committee upon Government departments which employ or control the employment of medical practitioners, and the departments have been urged to induce local authorities to release every possible man. We understand that the Insurance Commissioners are notifying the Insurance Committees throughout the country that they must be prepared to deal promptly and effectively with the demands made upon them for the release of all practitioners under contract with them who can be spared. On the other hand, there is with regard, generally, to the position of local authorities of all kinds, an obligation on the medical profession to give those authorities definite assurances that the medical practitioners who remain will undertake to do the work, for which the authorities have contracted with the medical officers who have gone, as well as it can be done in the circumstances. It will, undoubtedly, prove necessary to institute special arrangements which may not infrequently place a considerable strain on the patriotism of those medical practitioners who remain. Different towns vary very much, for instance, in the distribution of population and of doctors. In some places the distribution of doctors is fairly even, in others a comparatively small number actually reside in the most populous workmen's districts. Moreover, it often happens that the practitioners in such districts are young men liable to military service, many of whom have already gone or will be affected by the present call. It may therefore be necessary on the one hand to arrange for the attendance of patients at central surgeries, and, on the other, for doctors living in other parts of a town to come to some arrangement by which they will undertake to attend at these central surgeries, and possibly, in some cases, to reside temporarily in the houses at which the medical men who have gone into the army practised. This would, of course, involve an arrangement among the medical practitioners in residential districts by which the patients of a practitioner who spends the whole or most of his time in what we have called the workmen's districts shall be attended by others who do not shift. If central surgeries were established it might even be possible for older men or those in infirm health to undertake a certain number of hours' work a day at the centre, liberating younger or more active men for attendance on patients who must be seen in their own homes. In any scheme of the kind it would be necessary to make arrangements for night and emergency calls; it might be found possible to arrange for one man in a certain district to be on duty for one or more nights in a week, on the same principle as one of the house surgeons of a civil hospital, or the orderly officer of a military hospital, is on duty on certain nights. We would repeat, however, that the public must second the efforts of the medical profession. The Central Medical War Committee and the corresponding committee for Scotland have made very careful inquiry, and have full details of the medical personnel of every town and district in Great Britain; the study of this material leaves no doubt that the number of medical men who can be called away for the service of the army is now very small. When the best possible is done in the way of redistribution and division of work, it will still be impossible to provide peace-time facilities for obtaining medical advice at any time or place that may happen to suit the patient, and it is the duty of the public to do everything in its power to make it as easy as possible for the remaining members of the medical profession to render to the community the services of which it stands in real need.

THE FUTURE OF BRITISH SPAS.

IN a paper on the future of British spas, read at the Royal Society of Arts on February 7th, Dr. Fortescue Fox said that, though the British spas did not form a large group, it was now possible to indicate more definitely than heretofore the place they should hold amongst the health resorts of Europe. First and foremost were the thermal waters, like those of Bath and Buxton. The waters at Bath were the most remarkable of their kind in Northern Europe. That spa was preferable in the colder months and for thermal and hyperthermal action, and Buxton in the summer, and for subthermal and tonic action. Of sulphur waters there was no group in any country more remarkable than those of Harrogate, and there were many less known sulphur waters in Britain. Of the British salt or saline waters those of Droitwich were too strong for internal use, but furnished a powerful means of surface treatment; weaker but valuable brines were available at Nantwich and Stafford, and salt water of potable strength was found at Woodhall Spa containing chlorides of magnesium and calcium and also iodine. Cheltenham had abundant springs of a mild saline water well adapted to digestive and gouty disorders. He anticipated a revival of the use of chalybeate waters, of which there were many in this country, and also the use of many springs which had recently been comparatively little used. At Malvern all the necessary elements of a first rank spa existed. After recording what had been accomplished during the last two years in the treatment of wounded soldiers at the various spas, he pleaded for a greater number of medical men to study the principles and practice of hydrological medicine, and urged that the time had come to lay the foundation of a British school of hydrology, which should embrace in its scope not only the British islands but the British empire. Sir Thomas Barlow, who presided, pointed out that almost every geological formation occurred between the North-West of Scotland and the South-East of England. The wonderful coast line of our islands also afforded splendid opportunities for recuperation after the use of the mineral waters. The circumstances at the time accentuated the need for greater appreciation of our inheritance. Representatives from Bath, Leamington, and Droitwich took part in the discussion, which was mainly devoted to criticism of the unprogressive methods of spa municipalities, and to some extent of the medical profession, in relation to hydrology and climatology.

LARREY AND INFECTIOUS JAUNDICE.

A CHARACTERISTIC example of the "peaceful penetration" by which, in the realm of science as in other fields of human enterprise, the German appropriates to himself the achievements of other nations, is afforded by the disease variously known as infectious jaundice, and spirochaetosis icterohaemorrhagica. The Germans call the affection after Weil, who described it in 1836. But M. Chauffard, in a report on a communication by MM. L. Martin and Auguste Pettit, which he presented to the Académie de Médecine on November 7th, 1916, points out that the clinical features of the affection had been described by Budd in 1845, by Ozanam in 1846 and 1849, Monneret in 1859, by Lancereaux and Landouzy in 1882, and by A. Mathieu in 1886, some months before Weil published his paper. Dr. A. F. Hurst says in the *Guy's Hospital Gazette* of January 27th that the association of Weil's name with infectious jaundice is simply due to the superior advertising ability of German physicians. As a matter of fact, a disease of very similar if not identical character was observed by Larrey in Egypt at the beginning of the nineteenth century, and described in his *Mémoires de chirurgie militaire et campagnes* (Paris, 1812).

He said that the fatal symptoms which occurred in a large number of wounded at the battle of Heliopolis and the siege of Cairo in 1800 made the soldiers fear that the enemy's bullets were poisoned. It was not difficult to remove this impression from their minds, but it was less easy to deal with the disease, which presented all the symptoms of a "yellow fever" prevalent in the American War of Secession. The men had scarcely received first aid or undergone operation when they fell into a condition of depression and anxiety. There were slight shiverings all over the body, chiefly in the lower limbs. In the period of invasion the eyes were dull, the conjunctivae yellowish, the face coppery, and the pulse slow and compressible. The patient felt pain in the right hypochondrium and the wounds remained dry or yielded only a reddish serosity. These symptoms were followed by a general feeling of heat, burning thirst, with violent pain in the intestines and the head, accompanied in some cases by delirium. Sometimes epistaxis, followed by copious vomiting and purging, produced a salutary crisis; most often, however, the fever became more intense. Thirst increased, the tongue was dry and as it were burnt up, the eyes were red, the urine scanty and high coloured; sometimes there was complete suppression or retention. The skin took on a yellow tint, the pain in the hypochondrium became more intense, the lower part of the belly was painful and swollen, and the patient was very restless. If the disease ran this course it usually ended in death. From the second, sometimes the first, day the wound became gangrenous. All the fatal symptoms manifested themselves within the first twelve hours following the injury, and the patient died on the first, second, or third day. In some cases the symptoms were milder; insomnia and nervous excitement were replaced by general depression and drowsiness; the constipation and hypochondriac pain by bilious or bloody evacuations. The jaundice was more intense and the disease was prolonged to a fortnight; if it lasted longer a favourable crisis generally occurred ending in recovery. Healthy suppuration took place in the wounds, which quickly healed. The rapidity with which the disease appeared in men with slight wounds who were placed in beds that had been occupied by others who had died convinced Larrey that it was contagious. As Martin and Pettit, who quote Larrey's account, say, while it would be rash to accept his cases of "yellow fever" as examples of icterohaemorrhagic spirochaetosis, it is interesting to note that he described a form of jaundice presenting the outstanding features of contagiousness and haemorrhage.

PERIODICITY OF MEASLES EPIDEMICS.

DR. JOHN BROWNLEE, in continuation of his study of epidemics by modern statistical methods (several papers on which he has contributed to this JOURNAL), read a paper to the last meeting of the Royal Society on an investigation into the periodicity of measles epidemics in London from 1703 to the present day by the method of the periodogram. The work was carried out in three sections, the first two dealing with the data between 1703 and 1830, and the third with the epoch of registration since 1838. The statistics for the third epoch gave the main periodicity of measles in London for the last seventy-two years as almost exactly ninety-seven weeks. The amplitude of this period was considerable, being 0.4 of the mean number of cases. Periods with amplitudes of about one-half of this were found for one year and for six months. Dr. Brownlee considered it probable that these periods reflected the influence of the weather upon the deaths from measles, though the evidence was not complete. Another important period was that of 114 weeks, but it had not been uniformly present throughout the seventy years in question. In addition to these periods, which seemed all independent, there were two sets of periods grouped on either side of the main period in such a way as could be explained by interference with long waves of prevalence or severity of the disease. There seemed, however, to be no evidence of the existence of these long waves, and the etiology of these symmetrical pairs thus remained obscure. The statistics for the earlier periods showed much more irregular results, and were more difficult to interpret. Comparison was made with some of the large towns in Scotland and on the Continent. Dr. Brownlee's interpretation of the evidence was that these periodicities were the expression of something in the life-history of the organism causing the disease.

TRANSPORT OF LICE THROUGH THE AIR.

THOUGH the transmission of typhus by lice is generally accepted as proved, yet the disease has been acquired under conditions in which there was no intimate contact with patients and the mode of passage of the sluggish louse from the infected to the healthy individual appeared inapplicable. Schilling,[1] finding that Turkish officers entertained the belief that lice could be borne through the air for a considerable distance, tested this belief by an experiment which consisted of standing in a moderate wind a short distance to leeward of infested men who had stripped. Small lice, measuring about one-twelfth of an inch, appeared on the outer surface of the clothing of the observers, and it was concluded that they had been detached and carried along by the wind. The adult louse is usually anchored to the under surface of the shirt, but young lice are more active and would therefore be the more readily detached. The observation, if confirmed, may help to clear up some difficulties in explaining the spread of typhus fever in certain circumstances.

THE PROPHYLAXIS OF VENEREAL DISEASES.

MR. HUGH ELLIOT'S letter (p. 209) will be read with interest as the expression of the views of a thoughtful layman on a matter with which the medical profession, as he admits, is intimately concerned; but we would like at once to take exception to one of the grounds—perhaps the chief ground—on which he rests his conclusion. He alleges that there is no department of science in which knowledge is so much closed to the public as in the sphere of medicine, and that every kind of obstacle is placed in the way of the layman who desires to study medical science. This is an accusation very frequently made, and as Mr. Elliot has now made it in our columns we should like him to tell us where he thinks the obstacles lie. It is quite true that a long course of study is necessary to enable a man to learn enough of the sciences upon which medicine rests to apply them in practice, and to avoid the fallacies with which prophylaxis and therapeutics are beset. It is true also that the State requires candidates for a degree or licence qualifying for admission to the *Medical Register* to show that they have studied diligently certain prescribed subjects for the prescribed periods. Finally, it is also true that the State does not permit certain appointments to be held, nor certificates of the cause of death to be given, by persons not so registered. But this is all the State does, and it certainly does not amount to conferring upon the medical profession the exclusive right of knowledge in medicine. It is open to any one to study medical writings, and from them to make himself acquainted with, for instance, any methods of prophylaxis—just as much open as it has been for Mr. Elliot to make himself an authority in biology. Anybody, for instance, of any scientific training could easily understand and appreciate the value of Metchnikoff's papers in the *Bulletin* of the Academy of Medicine in Paris,[2] and in the *Annales de l'Institut Pasteur*[3] in

[1] *Muench. med. Woch.*, No. 32. 1916, p. 1176

[2] May 8th, 1906, quoted BRITISH MEDICAL JOURNAL, 1906, i, p. 1183.

[3] October, 1907, p. 753, quoted BRITISH MEDICAL JOURNAL, 1907, ii, p. 1846.

which he described and justified the method of prophylaxis he and Roux had devised. The rest of Mr. Elliot's letter raises an interesting point. It is one upon which two opinions may be held, and as to which a medical man conscientiously desirous of doing his duty towards the public may hesitate. We do not think that any medical man would be justified in refusing to give his best advice to a person who applied to him after known exposure to the risk of infection. It is a rather different thing to say that there is an equal obligation on a medical man to tell an inquirer how he may expose himself to infection without risk, or with greatly diminished risk, of contracting it. This, we submit, is the question which is most exercising the medical profession at the present time. Some light is thrown on it by the discussion published at p. 196.

THE PLACENTA AS A GALACTAGOGUE.

In the *Gazzetta Italiana delle Levatrici* for July, 1916, Teresa Bianchini reports five cases of placentophagy which came under her notice in the Italian Marches. The afterbirth was taken to increase the secretion of milk, which in all the women had failed without obvious cause after previous confinements. The placenta was cut up and washed, cooked in salt water, except in one case, in which broth was used for the purpose, and eaten mostly in large pieces. Except for the cooking the method of administration was practically that naturally followed by some animals—for instance, the bitch, which swallows its own afterbirth immediately after expulsion. The treatment is said to have been successful after other methods of stimulating the milk secretion had failed. The placenta was used in antiquity and in the Middle Ages as a remedy in difficult labour, and in our own day the human afterbirth and that of the sow has been used in extracts given in pills and other vehicles to stimulate the mammary function. In all parts of the world there are many places where the women still hold by the old tradition. In Morocco it is believed that eating the placenta prevents barrenness and hastens delivery. Preparations of the placenta hold a considerable place in Chinese therapeutics. It is regarded as the best remedy for chlorosis and is useful in cases of anaemia following parturition. It is thought to be most efficacious when taken fresh, but is also given dried and in pills. Madame Louise Toussaint, a French midwife, quoted by Cabanès in his *Remèdes d'autrefois* (Paris, 1905), speaking of women in labour, says, "Notwithstanding the disgusted protests which will come to the lips of many of you, O accoucheurs and midwives, in reading me, give them, believe me, some fragments of their own placenta and you will tell me what happens. You will see how much you will in this way promote rapid recovery and with what abundance and rapidity the milk will come on. Do not forget that even in non-pregnant women and in virgins the milk secretion may be made to appear by simple placental feeding." The same lady affirms, from her own experience, that there is nothing like the ingestion of sheep's placenta, dried and then triturated with powdered sugar, for making the milk come abundantly in women who had none, and also for doubling the daily output in nurses. Cabanès tells us that at the fourth French Congress of Internal Medicine, held at Montpellier in April, 1898, Dr. Iscovesco presented a communication on the therapeutic action of the placenta illustrated by more than a hundred cases. He used sheep's placenta in tablets, each representing 0.25 gram of the fresh substance; the daily dose never exceeded 1.50 grams. This seemed to have a favourable effect on the secretion of milk. The treatment was also said to have brought about remarkable improvement in chronic metritis with hypertrophy of the uterus and concomitant catarrh even when the appendages were diseased, and in cases of abnormal involution of the womb after delivery.

PITFALLS IN DARK-GROUND ILLUMINATION.

THE great value of dark-ground illumination for the detection of such organisms as *Sp. pallida* and *Sp. icterohaemorrhagiae* has been universally recognized, and the method is certain to be even more widely applied in attempts to solve the numerous problems of infections of unknown origin which the war has brought into prominence. The fallacies which beset the examination of blood for organisms by dark-ground illumination are reiterated by Knack,[1] who refers to the excellent work on this subject by Aynaud and Jeantet in Gilbert and Weinberg's *Traité du sang* (Paris, 1913). He emphasizes anew the fact that spirochaete-like bodies may appear as artefacts in preparations of normal blood, in which they are found either free or attached at one end to red blood corpuscles.

SCIENCE IN THE SCHOOL.

UNDER the title *Science in the School*,[2] Sir Clifford Allbutt has reprinted the three letters he published in the Educational Supplement to the *Times* last autumn. We gave some account of the main line of his argument in a leading article published on October 14th, 1916, p. 529. He speaks of the value of the letters as transitory, but they caught the attention of many readers, and we believe that the principle they contain—that the kinaesthetic method of education is valuable not only as a method, but as, in a way, the realization of the boy in performance—is one which will not be forgotten. They contain another point, which may best be explained by some sentences from the last paragraph of his third letter. Let us, he says, jealously "vindicate the freedom of the school, which is not only in peril, but even in distress. All examinations, including leaving and scholarship examinations, should be conducted by the school, if with the countenance of university assessors. Big examinations should be broken up into more frequent revisions. Our scholarship system, with its prize boy and specialized or half-baked boy products, needs radical reform. With careful leaving certificates all compulsory subjects should be discarded by the universities. Why, indeed, should not any rights us man repair to a university if he thinks he can get good out of it? Why bar the door?"

THE Council of the Royal Society of Medicine extends a cordial invitation to the commissioned officers of the Naval and Military Medical Services, when in London, to make free use of the society's rooms (which include writing, smoking, tea, conference, and dressing rooms), and to use the library for purposes of reading and reference. They are further welcome to attend any of the meetings held for discussions and reading of papers, which are announced in the medical journals each week. The society's house (1, Wimpole Street, Cavendish Square, W.) is open from 11 to 6.30.

[1] *Cent. f. Bakt.*, I, Orig., Bd. 78, 1916, p. 158.
[2] *Science in the School.* By Sir Clifford Allbutt, K.C.B. 1917. Cambridge: W. Heffer and Sons, Ltd. (6d. net.)

IN a small book, entitled *Suffering Relieved*, the Society for the Propagation of the Gospel in Foreign Parts has brought together from its magazines a number of encouraging reports of medical mission work all the world over. Good work is being done by the society's missioners in India, Malaya, China, Corea, South Africa, and many other distant parts of the world.

DR. ISIDORO RODRIGUEZ, of Montevideo, who died recently, was a graduate of the medical faculty of Paris. He had been working since last year in the hospital of the Franciscans at Pau, and had gone home for a holiday, when he met his death by the accidental discharge of an automatic revolver which fell out of his pocket. He lived eighteen hours after the injury, settled his affairs with perfect calmness of mind, and drank a toast to the success of France. He left £200 to the hospital at Pau in which he had worked.

THE WAR.

TREATMENT OF PARALYSIS AND STIFF JOINTS.

In a paper on the treatment of paralysis and stiff joints resulting from gunshot wounds contributed to Bruns's *Kriegschirurgische Hefte* (*Beit. z. klin. Chir.*) Gustav Fischer (Heft xxvi) shows that he has assimilated much of the work of British and American orthopaedic surgeons as applied to war surgery. He labels the operations with the names of various German surgeons, but this characteristic weakness rather adds to the value of his confirmatory evidence.

Paralyses, he says, are either neurogenous or myogenous in origin, and of the former the great majority are caused by wounds of the peripheral nerves. The ideal treatment in these cases is to remove the cause—to loosen adhesions or to unite the partially or completely severed nerve. An operation of this kind can be undertaken only when the wound is free from infection. On this account it can only rarely be performed in recent wounds, a matter for regret since the cicatrization of the nerve ends necessitates the removal of a larger part of the nerve in the later operation. For the slighter nerve injuries the author speaks favourably of Stoffel's operation of endoneural neurolysis; where loss of substance has to be made good he recommends Edinger's tubes, which consist of portions of the arteries of the calf, hardened in formalin and filled with agar, which forms a suitable medium for the outgrowing nerve fibrils. Fischer admits that the value of the method is still a matter of discussion, but of the six cases in which he made use of the tubes complete and rapid re-establishment of nervous conduction resulted in five. As an example may be mentioned a case of median and ulnar paralysis following bullet wound of the right axilla. Five months after the injury the median nerve was found to be completely severed; its ends were bulbous and embedded in cicatricial tissue. After freeing the nerve from adhesions and removing the ends, the defect, which measured 6 cm., was bridged by an Edinger's tube. On the ulnar nerve, which was embedded in cicatricial tissue, neurolysis was performed. Sensation returned in the median area after fourteen days, and in four weeks there was marked improvement in movement, with commencing electrical irritability of the muscles on nerve stimulation. Of the preparatory treatment and after-treatment, which both are of importance, Fischer says of the former that a favourable position of the limb should be chosen as soon as possible after the injury; as regards the latter, he advises the use of electricity, massage, baths, and apparatus for ensuring due exercise of the muscles.

Where an operation on the nerve has failed, or its result is incomplete, and in cases with much damage to the muscles, a plastic operation on the tendons, especially the implantation of tendons, is often attended with very beneficial results. The tendons may be united laterally or implanted directly on the bone. Detachment of the tendon of a healthy muscle from its insertion and anastomosis to the tendon of the paralysed muscle is termed the "total descending" method, whereas splitting the tendon and implanting one half only is called the "partial descending" method; detachment of the tendon of the paralysed muscle and implantation on to the healthy muscle is spoken of as the "ascending" method. To obtain good results from these methods it is important, Fischer thinks, to separate the whole muscle high up from its surroundings, especially if the muscle passes round the bone from one side of the limb to another. It is equally important, in the partial method, that the tendon be split up well into the fleshy belly of the muscle, and, in all methods, that the tendons be united somewhat short, in order to allow for subsequent stretching which always occurs. The stretching is less marked when the tendon is transplanted directly into bone.

The applicability of operations of this kind, which have hitherto been limited because they could only be used where the sound and paralysed muscles lie near together, has been greatly enlarged by the plastic treatment of the fasciae, in which not only is the exchange of tendons carried out within the fascial sheath, but the tendon is carried from one sheath into the other. This is effected through an incision in the sheath, which, however, is very liable to result in adhesions, which may be avoided by forming a flap of fascia by means of two longitudinal incisions in the muscle septum, rolling the edges outwards and uniting them by suture, thus producing a smooth pillar having a natural surface, over which the tendon can glide without any tendency to the formation of adhesions.

As an example of treatment on these lines may be mentioned a case of bullet wound of the forearm with extensor paralysis of the thumb and index finger. The extensor tendon of the index was united by operation to that of the middle finger; the tendon of an extensor of the hand was implanted into the tendons of the extensor pollicis longus and brevis, and abductor pollicis. A serviceable hand resulted. Fischer has learnt also that those cases of paralysis in which functional groups of muscles are involved, as in pes equino-varus from peroneal paralysis, are also amenable to treatment, though such operations as those mentioned above are of no service. The measures to be adopted are the shortening of the tendons of the paralysed muscles and their attachment to fasciae and to the periosteum of adjacent bones, with the object of bringing the foot into a normal position. Where defective mobility is due to the embedding of a tendon in cicatricial tissue, he found it necessary not merely to separate the tendon from the scar tissue, but to provide against the recurrence of adhesions. With this object Spitzy, after freeing the tendon, surrounds it with semisolid sterile lard applied with a syringe. The skin is then carefully sutured. The lard takes several weeks to become absorbed, and from the second day onwards movement of the part should be systematically carried out. Rehn recommends that the tendon be surrounded with a layer of adipose tissue, and Biesalski finds particularly suitable for this purpose the areolar tissue above the inner malleoli, upon which the tendons glide without the intervention of a sheath.

Fischer insists on the importance of prophylaxis in dealing with stiff joint. With the endeavour to preserve the movements of the joint the precaution should be taken, in every case of joint wound, to place the parts in such position as will interfere as little as possible with the usefulness of the limb should ankylosis result. The inconsiderate use of the plaster bandage often does harm. In wounds of the arm, the hand and fingers may be found stiff solely because provision has not been made for movements. Nor is complete immobilization to be justified because there is a suppurating wound near the joint, for movements in the joint are not contraindicated unless recent severe infection exists. Plaster bandages should be as small as possible, and generally it is possible to replace them early by splints, which allow movements and inspection of the wound.

In the operative treatment of contractures caused by the cicatrization of muscles, Fischer thinks it best not to interfere with the muscle itself but to lengthen the tendon by "step-form freshening," followed by mechanical treatment.

For cicatrices of the skin and fasciae the injection of fibrolysin or cholin chloride may be used in the first instance. Should these fail the scar should be excised and a skin flap brought into the wound

In fibrous ankylosis of the joints involving the capsule only Fischer advises massage, electricity, hot air, baths, and active and passive movements. He mentions the numerous measures devised for deeper ankylosis, varying with the joint affected, and having for their object the stretching of the fibrous bands, and, in suitable cases, a careful *brisement forcé* performed under anaesthesia. And here Fischer refers to the use of simple improvised apparatus, which, if intelligently devised and applied, give satisfactory results. The value of the complicated apparatus of the present day is easily overestimated.

In dealing with bony ankylosis resulting from comminution, Fischer frees the ends of the bones by removing the intervening tissue, thus forming a wide space between them. Into this he inserts a double flap of fibro-fatty tissue, without removing the capsule and ligaments of the joint. In this way he has obtained a good movable joint. He has realized, however, that the nature of the patient's calling should be considered, for in some cases a stiff joint in a good position would be a preferable result.

WOUNDS OF THE THORAX.

Dr. Widenmann, writing, in Heft xxv of the same special blication, on wounds opening the pleura or involving the ng, refers to the altered views now held regarding these juries. Earlier statistics based on cases observed in spitals behind the war zone and concerning injuries oduced mostly by small-calibre bullets gave too favour- le a prognosis, when applied, as was sometimes done German surgeons, to chest wounds generally. He has und that the nearer the front the cases were observed e more unfavourable was the prognosis, and that the ognosis of bullet wounds is essentially different from at of shell wounds. In the 217 cases that came under s observation some of the deaths were due to multiple juries; putting these aside, he reckons the mortality m bullet wounds at 6.5 per cent.; and, since the graver ses only were retained in his lazarett, he concludes at, if the slighter cases be included in the computa- n, the prognosis must be extremely favourable. It not so with shell wounds; he places the mortality of ese at 20.99 per cent. In them the projectile is more equently retained and the danger of severe infection greater. In diagnosis too much reliance should not, he nks, be placed on the absence of haemoptysis as an lication that the lung is intact. The absence of haemo- orax is of much greater importance. It was absent in o only of his cases of undoubted perforating chest unds; and he regards it as the most important sign of ury of the lung. On the other hand, it may follow uries to the chest wall in which the lung has escaped. ch injuries are, however, frequently associated with ntusion or rupture of the lung itself, and being especially ble to severe infection, empyema is likely also to be sent. He found that tangential wounds of the chest ll, with or without fracture of the ribs, were generally companied by contusion of the lung, evidenced by tem- rary haemoptysis, slight dullness, bronchial breathing, ist râles and, if haemothorax were present, diminished cal fremitus.

Pneumothorax, which he recognized to be one of the st important evidences of perforating wound, the costal ura alone or both layers being involved, might be found occur also in tangential wounds, without perforation, e costal pleura alone being involved. He thinks it bable that this frequently happens on the actual field battle, but he found even farther from the front it was siderable, amounting in his own cases to 31.6 per cent. found the diagnosis of closed pneumothorax often ended with much difficulty, varying with the seat and gree of tension. All the recognized clinical signs might absent, and the most valuable aid in its diagnosis was be got from radiography, which was altogether superior reliability to auscultation and percussion. Urgent sym- ms in cases of closed unilateral pneumothorax arose y when great pressure was present; cases of perforating unds, with pneumothorax over a haemorrhagic effusion, re frequently met with showing no appreciable sub- tive or objective alteration in the respiration.

n the treatment of recent uncomplicated bullet wounds, aseptic dressing, rest, elevated position, and morphine, re unanimously adopted. As to the treatment of haemo- rax there was less agreement. The older view that erference should be avoided, appeared to be yielding to noval of the effused blood, unless the quantity were all, in order to avoid the formation of adhesions and sequent retraction of the chest. Where rapid absorp- n did not take place, Widenmann, after the eighth day, orted to paracentesis, which he thought promoted ab- ption; haemorrhage was never found to recur. The ctice has, he thinks, the additional advantage of owing a bacteriological control, by which means the urrence of empyema could be detected at its onset. An ection of morphine was given before each paracentesis order to restrain the obstinate cough often present. He ommends the employment of respiratory exercises to mote absorption of the effusion.

The treatment of empyema or pyopneumothorax varied ording to the mode of development of these complica- ns. In presence of secondary infection of a haemo- rax or closed haemopneumothorax the usual method of resection was adopted. It should, Widenmann thinks, performed as soon as paracentesis discloses the presence pus or pyogenic organisms. In presence of an open pneumothorax, with empyema or pulmonary abscess, connected with an infected wound of the chest wall, good drainage must be established through the wound. It was often found that the wound in the pleura was at a distance from the external wound and infected splinters of bone might lie in the track; in such cases extensive and deep incisions might be necessary, and in the planning of these radiography was of great service. If an empyema was localized, resection over it was found to suffice; but if it involved the whole sac, resection at the lowest point, with the insertion of a large tube reaching to the top of the cavity, was resorted to. Recent open pneumothorax and rupture of the lung were treated by suture of the lung and fixation to the thorax; such cases, which must necessarily be treated very early, did not come under Widenmann's observation.

The deleterious effects of transport over bad roads in cases of chest wound were generally recognized; it was found that haemorrhage, dyspnœa, cyanosis, heart failure, exhaustion from cough, fever, pleurisy, might arise from this cause. Quite otherwise was it with the railway transport of cases which had been retained in hospital for the first eight or ten days, and had shown no signs of complications.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

LIEUTENANT-COLONEL R. C. MCLEOD, C.A.M.C.

Lieutenant-Colonel Roderick Campbell McLeod of the Canadian Army Medical Corps, whose death was announced in the BRITISH MEDICAL JOURNAL of January 13th, died at Bramshott Camp on January 7th, after an illness lasting only twenty-four hours, of anthrax, supposed to have been communicated through an infected shaving brush. He was a Nova Scotian of Scottish extraction, and before the war was in practice in Cape Breton Island. In December, 1915, he joined the Canadian A.M.C. at Halifax, and was appointed to the command of No. 9 Stationary Hospital of the Canadian Expeditionary Force, a unit given by the Roman Catholic University of St. Francis Xavier in Nova Scotia.

ASSISTANT SURGEON F. K. HOLMES, I.S.M.D.

The casualty list published on January 29th reported the death on service of Assistant Surgeon Frederick Kendrick Holmes of the Indian Subordinate Medical Department. He was born on December 19th, 1878, attained warrant rank on February 17th, 1900, and was promoted to second class assistant surgeon on February 17th, 1912. Before the war he was serving in civil employ in the Central Provinces as civil surgeon of the district of Buldana.

Wounded.

Captain C. H. Lilley, R.A.M.C. (temporary).
Lieutenant Balkrishna, I.M.S.

Prisoners of War.

A casualty list published on January 29th gave the names of a number of officers of the Indian departments taken prisoners at Kut last April, whose names apparently had not been published before. Among them were the following assistant surgeons of the I.S.M.D.: J. W. Newbold, W. A. de Souza, S. Duckworth, C. B. Holt, D. I. Mackay, A. J. Hixon, R. P. Lewis.

DEATHS AMONG SONS OF MEDICAL MEN.

Brannigan, E. E., Second Lieutenant West Yorks Regiment, son of Major J. H. Brannigan, R.A.M.C.(ret.), killed on September 3rd, 1916. He was born in 1876, educated at St. Bede's School, Manchester, and at Munich, and, after spending a short time in a broker's office at Liverpool, went out to the Transvaal. He served in Bethune's Mounted Infantry throughout the South African war, receiving both medals, with eight clasps. During the present war he served through the campaign in German South-West Africa, and after its conclusion came to Europe, and got a commission in the West Yorks Regiment.

McLintock, Arnold, Lieutenant Duke of Wellington's Regiment, second son of the late Dr. James McLintock, F.R.S.Ed., of the Scottish Local Government Board, reported missing on September 3rd, 1916, now presumed killed on that date. He enlisted at the beginning of the war, got a commission on October 10th, 1914, went to the front in April, 1915, and had twice been mentioned in dispatches. He was a partner in the Ramsden Mill Company, Linthwaite.

McNeill, William Alexander, Lieutenant R.N.R., third surviving son of the Rev. W. McNeill, M.D., of Edinburgh, formerly of Holm, Orkney, lost in H.M.S. *Laurentic*, January 25th.

Moir, John Elliot, Major Indian Cavalry, youngest son of the late Surgeon-Major Robert Moir, I.M.S., of St. Andrews, died on January 26th, aged 40. He was born on August 13th, 1876, got his first commission on January 20th, 1897, joined the Indian army on March 26th, 1898, became captain on January 20th, 1906, and major on January 20th, 1915. He was a squadron commander in the 10th Duke of Cambridge's Own Lancers (Hodson's Horse).

CORRECTION.

In recording the death on service of Captain Eugene John McSwiney last week it should have been stated that he died in the Military Hospital, Devonport, and was buried at his home in county Cork.

HONOURS.

THE following awards have been granted to medical officers for services rendered in connexion with the war:

To be C.B.

Colonel (temporary Surgeon-General) George Douglas Hunter, C.M.G., D.S.O., A.M.S.

To be Companions of the Distinguished Service Order.

Lieutenant-Colonels (temporary Colonels) Francis Ernest Gunter, M.B., R.A.M.C., Charles Arthur Johnston, C.I.E., M.B., I.M.S., Gerard William Tate, M.B., R.A.M.C.

Lieutenant-Colonels John McKie, M.B., R.A.M.C., Henry Alford Moffat, S.A.M.C., William Booth Skinner, M.B., S.A.M.C., Reginald George Turner, F.R.C.S., I.M.S., John Herbert Whitehead, S.A.M.C.

Temporary Lieutenant-Colonel Charles Herold Muller, M.B., S.A.M.C.

Major (temporary Lieutenant-Colonel) Wallace Benson, M.B., R.A.M.C.

Captain Gerald Joseph Keane, M.D., R.A.M.C.

Awarded the Military Cross.

Captains Harry Fayle, M.D., S.A.M.C., Robert Siggins Kennedy, M.B., I.M.S., Conyngham Vernon Thornton, M.B., R.A.M.C.

Awarded the Second Class of the Indian Order of Merit.

Sub-Assistant Surgeons Hukam Singh, I.S.M.D. (attached K.A. Rifles), and Mula Singh, I.S.M.D.

Awarded the Indian Distinguished Service Medal.

Sub-Assistant Surgeon Abdul Ghafur, I.S.M.D., and Saiyid Muhammed Ejaz, I.S.M.D.

MENTIONED IN DISPATCHES.

The name of Major W. C. Croly, R.A.M.C., has been added to the list of officers mentioned in General Sir John Nixon's dispatch regarding the operations in Mesopotamia, published in the *London Gazette* of April 5th, 1916.

In the Mediterranean dispatches published in the *London Gazette* of July 13th, 1916, for Major W. Jones read Major W. W. Jones, M.D., R.A.M.C.(T.F.); and for Captain R. Robeson read Captain R. Robison, R.A.M.C.(T.F.).

In the British Army in France dispatches published in the *London Gazette* of January 4th, 1917, under Canadian Army Medical Corps, for Major E. H. Blaylock read Quartermaster and Hon. Major H. W. Blaylock.

NOTES.

ARTIFICIAL LIMBS AND SURGICAL APPLIANCES FOR INVALIDED SOLDIERS.

AN Army Council Instruction of January 24th, 1917 (No. 144), directs that soldiers who have been invalided from the army for disabilities sustained during the present war and who in consequence require artificial limbs, artificial eyes, surgical boots, trusses, splints, elastic stockings, or other surgical appliance, or the repair of such appliances already supplied to them, are to report at the nearest military hospital. The officer in charge will carefully investigate the case, and if the supply or repair can be carried out locally and does not involve any considerable expense, he will arrange to have it done and will forward a certificate to that effect to the Secretary, Royal Hospital, Chelsea. If the appliance cannot be supplied or repaired locally, he will forward a report of the case, giving a full description of what is required, to the Secretary of the Royal Hospital, Chelsea, who will make arrangements for the supply or repair of the appliance and for it to be forwarded to the officer in charge of the hospital. That officer will then arrange for the attendance of the soldier in order to ascertain that the appliance is in every way satisfactory. Where a man requires an artificial limb refitted the secretary of the Royal Hospital, Chelsea, will, when necessary, arrange for the man's attendance at a limb-fitting hospital. The travelling expenses of the soldier incurred for attendance at a military hospital will be defrayed.

England and Wales.

INFANT WELFARE AND MATERNITY CENTRES.

A DEPUTATION from the Association of Infant Welfare and Maternity Centres, representing the majority of the eight hundred existing centres, was received by the President of the Local Government Board on January 31st. It urged the extension of the present Government grant of 50 per cent. of the approved expenditure incurred by the welfare centres, to cover the cost of supplying milk for children under school age, and nourishment for expectant and nursing mothers in necessitous cases. Dr. Eric Pritchard pointed out the difficulty mothers found in providing especially out of separation allowances, the necessary 1½ pints of milk a day for babies that had to be bottle-fed and the still greater difficulty in affording as much milk as was really needed for children from 9 months to 3 years; a small quantity of sugar was vitally necessary for children under 18 months of age, but was now difficult to get. Dr. Flora Shepherd referred to the importance of providing nursing and expectant mothers with adequate nourishment, and stated that her experience of the provision of suitable meals at centres for mothers (supplied at a cheap rate where prescribed by the doctor) was that the number of cases in which the babies were breast-fed was thus largely increased. In the course of a sympathetic reply Lord Rhondda foreshadowed early legislation, as a war measure, with a view to increasing the powers of the local authorities in helping the welfare of infants and of expectant and nursing mothers. He referred to the recommendations of the Food Prices Committee in favour of the supply of milk for infants and food for mothers as suggested by the deputation.

AFTER-CARE OF TUBERCULOUS PERSONS.

An informal conference between representatives of various Government departments and public bodies was held, under the chairmanship of Lord Balfour of Burleigh, on January 30th, when a proposal by the Medical Adviser to the Insurance Committee for the County of London for a national scheme for the after-care and employment of tuberculous persons was discussed. A small committee was nominated to consider what further action should be taken in the matter.

Scotland.

THE annual report of the Scottish Burial Reform and Cremation Society states that during the last twelve months 71 cremations were carried out in Glasgow, as compared with 54 in the previous year. The number of cremations since the opening of the crematorium is 654.

THE FALLING BIRTH-RATE IN EDINBURGH.

In speaking at the annual meeting of the Edinburgh Infants' Home last week Dr. Maxwell Williamson, M.O.H., said that the birth-rate of Edinburgh was decreasing to an alarming degree; there were 5,700 births in Edinburgh in 1913, and only 5,300 in 1915. The death-rate was 16 per 1,000, and the general uncorrected birth-rate 16.3, so that the population was stationary. The illegitimate birth-rate had risen from 7.6 in 1913 to 8.4 in 1915; this compared with 6.9, the rate for the whole of Scotland. It must be remembered that illegitimate children had a much poorer prospect of life than legitimate. The Rev. Professor W. P. Paterson, in proposing the adoption of the annual report, said that a special commission of the Church of Scotland had been appointed to deal with the question of unsanctioned relations between the sexes.

GLASGOW SICK CHILDREN'S HOSPITAL.

The annual report of the Royal Hospital for Sick Children, Glasgow, states that in the four wards requisitioned by the military authorities 686 sick and wounded officers had been treated during the year. The loss of these four wards had caused an unprecedented and regrettable pressure on the other wards. The number of children treated in the hospital—2,249 (694 medical and 1,55 surgical)—was nearly the same as in the previous year

but the increase in the number of very small children was noteworthy. The medical and nursing staff absent on naval and military service included eight physicians, five surgeons, and four specialists. In addition four physicians, four surgeons, and two specialists were engaged on military duty in Glasgow, which interfered with their work at the hospital and dispensary. If the depletion of the staff were carried further, some departments of work in the hospital and dispensary would have to be closed.

SCOTTISH POOR LAW MEDICAL OFFICERS' ASSOCIATION.

The report presented to the annual meeting of the Scottish Poor Law Medical Officers' Association in Glasgow on February 2nd, stated that the committee had found that the Medical Service (Highlands and Islands) Board was not carrying out what the committee had believed to be statutory requirements as to the provision of a suitable dwelling-house, rent free, for necessary outlays in connexion with the working of the district, and for a minimum income of £300 a year. The committee had been informed by the secretary of the Board that a guaranteed income had been granted in certain districts, and that no medical men could be found for certain others for which the Board was willing to give a guarantee. The result of the correspondence was to convince the committee that it would be necessary to return to its old practice of warning applicants, so that they might not go blindfold into a district unsatisfactory as regards income, area, and facilities for working. On the advice of the secretary, a member had successfully appealed to the Local Government Board with regard to vexatious difficulties placed in his way by a parish council in respect to the payment for attendance on paupers boarded out in another parish. The financial statement showed a satisfactory balance. The report was adopted unanimously and the office-bearers were re-elected. The secretary is Dr. W. L. Muir, 1, Seton Terrace, East Glasgow.

Ireland.

THE election of a parliamentary representative of the University of Dublin resulted in the return of Mr. Arthur Samuels, K.C., who received 1,481 votes. Sir Robert H. Woods, F.R.C.S.I., received 679 votes.

The Dunshaughlin guardians have granted their medical officers a war bonus of £25 each for the year 1916, and an increase of salary of 10s. a week each from January 1st, 1917, for the duration of the war.

The Local Government Board has refused to sanction the appointment, temporarily or permanently, of Dr. T. C. MacGowan as medical officer of Brideswell Dispensary, on the ground that he is of military age; the Athlone guardians have again requested the Board to sanction the appointment or to accept the responsibility of leaving the dispensary district without a doctor.

COLLEGE OF NURSING.

A meeting to consider the proposals for the establishment of the Royal British College of Nursing was held at the Royal College of Physicians, Dublin, on February 3rd, under the chairmanship of Dr. Joseph O'Carroll, president of the college. The nature of the proposals, which was fully explained in the JOURNAL of January 27th, p. 133, was set forth by Miss R. Cox Davies, matron of the Royal Free Hospital, London. Miss Rundle, secretary of the college, said that it was a mistake to suppose that Irish nurses would be required to go to London for lectures and examinations. The scheme, she said, proposed that the Irish nurses would be educated in Ireland and examined in Ireland by examiners nominated by the Irish Board, with the co-operation of the council; this plan had already been approved in Scotland. Dr. O'Carroll took exception to the name of the college on the ground that it did not include Ireland. He added that Ireland must be represented on the council by at least one sixth of the total number of representatives. The meeting concluded by votes of thanks to Miss Cox Davies and Miss Rundle, and to Dr. O'Carroll and the Colleges of Physicians and Surgeons for sympathy they had always shown in movements for the benefit of nurses.

GRADED MEDICAL SALARIES.

The Armagh board of guardians have adopted a graded scale of salaries for their medical officers. The scale was made retrospective in the case of existing officers, and the minimum or initial salary was fixed in each case at the old salary. The scale was fixed as follows: For the medical officers of Blackwatertown, Loughgall, Markethill, Richill, and Tynan dispensary districts, and for the workhouse, an initial salary of £120 a year, with quinquennial increments of £5 until a maximum salary of £140 per annum is reached. In Kealy dispensary district the maximum salary was fixed at £150 per annum. For the Armagh dispensary district the initial salary was fixed at £150 per annum, with two quinquennial increments until the maximum of £160 was reached.

THE DUBLIN RAINFALL OF 1916.

Sir John Moore has been good enough to send us a note on the preliminary report on the rainfall of the British Isles in 1916, contributed to the *Times* by Mr. Hugh Robert Mill, D.Sc., Director of the British Rainfall Organization, as follows:

He says the report reflects great credit on the energy of Dr. Mill's staff, and on the enthusiasm of his corps of observers—now numbering 5,000—all over the British Isles. In almost all parts of Great Britain and throughout the whole of Ireland the rainfall of the past year was above average. Dr. Mill selects thirty-three rainfall returns in Ireland for discussion in his report. He shows that for the fifth year in succession the general rainfall of Ireland has been above the average, but 1916 was by far the wettest of the five years. The excess was scarcely appreciable at Lota Lodge, Glanmire, co. Cork. At that station the yearly average is 44.08 in.; in 1916 it was 44.28 in. Dr. Mill counts this as 100 per cent. of the average. In Dublin the excess was 39 per cent. The area over which the excess was 30 per cent. and upwards, stretched inland from Dublin Bay. Dr. Mill points out that this is the part of the country with the lowest average fall, about 30 in., so that its wetness in 1916 accentuates the uniformity in the distribution of rainfall which always distinguishes Ireland from Great Britain.

The rainfall in Dublin was 38.609 in., or as much as 10.609 in. over the average annual measurement of the thirty-five years 1871–1905 inclusive—namely, 28.000 in.

The rainfall in 1887 was very exceptionally small—16.601 in. In 1870 only 20.859 in. fell; in 1884 the measurement was 20.467 in.; in 1883 it was 20.493 in.

The scanty rainfall in 1887 was in marked contrast to the abundant downpour in 1886, when 32.966 in.—or as nearly as possible double the fall of 1887—fell on 220 days. In 1900 the rainfall was 34.338 in., or 6.338 in. in excess of the average for the thirty-five years 1871–1905. In 1910, also, the rainfall was very large, 35.439 in. on 219 days. Only once since these records commenced has the rainfall in Dublin exceeded that of 1910—namely, in 1872, when 35.566 in. fell on 238 days.

Seeking for a possible cause of the very unusual downpour of 1916, the inquirer naturally thinks of the widespread great war. In the closing paragraph of his most interesting report, Dr. Mill answers this "inevitable question" with a somewhat dogmatic "No." "The data," he writes, "do not justify us in attributing the wetness of the past three years to the war." He bases this opinion on two facts: "For amount of rain, 1912 was much more remarkable; while, as to distribution of rain in the south east of England, where, if anywhere, the effect of gunfire on rainfall should be clearest, the same general type of distribution has prevailed since 1909, and the years 1910, 1912, 1915, and 1916 are remarkable for their similarity, and must I think, owe that similarity to similar conditions in the flow of the great rain-bearing air currents over the Atlantic."

Sir John Moore agrees with Dr. Mill that "gun-fire" *per se* has probably had little to say to the wetness of 1915 and 1916. He is not so sure that the vast quantity of dust thrown into the air by the myriad explosion of shells and bombs has not had a causal relation to the extraordinary prevalence of cloud and consequent abundant precipitation during the past two or three years. It is to be remembered, as proved experimentally by Mr. John Aitken of Falkirk, that each particle of dust in the atmosphere acts as a condenser of aqueous vapour, and rivals Zeus as a cloud-compeller.

Canada.

ANTERIOR POLIOMYELITIS IN MONTREAL.

AT a meeting of the Montreal Medico-Chirurgical Society on October 20th, 1916, when papers on anterior poliomyelitis were read by Dr. Blackader, acting Dean of the Medical Faculty of McGill University, Dr. Charles F. Martin, and Lieutenant-Colonel A. MacKenzie Forbes, C.A.M.C., about 100 physicians were in attendance at the meeting, who together reported that they had seen from 60 to 70 cases of infantile paralysis during the previous three weeks. The Montreal epidemic first made its appearance in August, and, though it did not attain to any great proportions, caused a good deal of anxiety while it lasted. The cases did not appear in the poorer localities of the city, but in the best residential parts of Montreal. They occurred in groups, but in only one instance did two cases occur in the same family. The danger of infection at public gatherings was pointed out, and the following instance related: Two young boys, who had not been together for some time previously, went to a picture show together; a week later both developed infantile paralysis, and died within forty-eight hours. They did not live in the same district.

During the months of August and September 25 patients suffering from the disease, of whom 23 were under 5 years of age, were admitted to the Alexandra (Isolation) Hospital. Of these 5 died, death in every case being the result, directly or indirectly, of paralysis of the respiratory muscles. There was a history of vomiting at onset of illness in 7 cases, convulsions occurred in 2 cases, and profuse sweating, which continued for a number of days, in several instances. In one case there was continuous fever for about three weeks; another patient finally died of hyperpyrexia. There was paralysis of one extremity in 9 cases and of more than one extremity in 16 cases. A marked feature was the occurrence of pain upon movement of a limb. Dr. Boucher, the medical officer of health of Montreal, stated that during the year 67 cases of anterior poliomyelitis had been reported to the Health Department—10 in August, 21 in September, and 28 in October. He thought that hospital treatment was the only means of preventing the spread of an epidemic. It was probable that owing to the difficulty of diagnosis the number of cases which really occurred was greater than the number reported.

ADVISORY COUNCIL ON RESEARCH.

As a means of stimulating the industrial development of Canada on scientific lines an honorary advisory council of industrial and scientific research has been appointed by the Canadian Government. Its members are: A. Stanley MacKenzie, Ph.D., President of Dalhousie University, Halifax; F. D. Adams, Ph.D., D.Sc., Dean of the Faculty of Applied Science, McGill University; R. F. Ruttan, M.D., Professor of Organic and Biological Chemistry, McGill University; J. C. McLennan, Ph.D., University of Toronto; A. B. Macallum, M.B., Sc.D., University of Toronto; Walter C. Murray, LL.D., President of the University of Saskatchewan; R. Hobson, of the Steel Company of Canada, Hamilton; R. A. Rose, Consulting Electrical Engineer, Montreal; and Tancrède Bienvenue, General Manager of La Banque Provinciale, Montreal. A subcommittee of council, consisting of Sir George Foster, the Minister of Mines, the Minister of Inland Revenue, the Minister of Labour, and the Minister of Agriculture, has also been appointed to secure the co-operation of other bodies in the work of scientific and industrial research and to submit the most pressing problems presented by industrial necessities to the Research Committee for solution. The utilization of waste products, the discovery of new processes, and the development of the unused natural resources of the country are all subjects that will be investigated.

THE trustees of the Rockefeller Institute of Medical Research recently resolved that, in view of the decreased purchasing power of fixed salaries caused by the increased cost of living, an additional special compensation, equivalent to 15 per cent. of the current annual salary, be paid to each regular officer and employee on January 5th. This compensation was not to be regarded as an increase of salary or as creating a precedent for the future.

Correspondence.

THE INDIAN MEDICAL SERVICE.

SIR,—In your article on the Indian Medical Service in relation to the findings of the recent Commission you make two statements which are of very great importance to any medical man who proposes to enter the Indian Medical Service, namely, (1) the Commissioners "assert that the claim to take fees as a right conferred by statute is mistaken," and (2) they recommend that "steps should be taken to make clear to all officers at the outset of their careers that the permission (to take private practice) is given at the pleasure of Government, and to meet the needs of the country, and not as a matter of right."

The manner in which this recommendation is to be carried into effect is made clear in paragraph 18 of the summary of recommendations, which says, "Civil surgeons and officers holding similar posts . . . should enjoy the privilege of private practice *at the pleasure of Government.* Should it be found necessary to withdraw this privilege in individual cases, a *suitable* monthly allowance should be granted." The italics are my own.

With regard to the first statement, I submit that the question is one of facts. The right is claimed to rest (1) on the East India Company's Act of 1772 (13 Geo. III, c. 63, paras. 24 and 25), quoted at length in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL, February 7th, 1914, under the statement submitted by the British Medical Association to the Secretary of State for India; (2) on the inducement held out to applicants for commissions in the Indian Medical Service by the Secretary of State for India in the words, "medical officers are not debarred from taking private practice so long as it does not interfere with their proper duties"; and (3) on the fact that the pay of Indian Medical Service officers was fixed on the assumption that they could considerably augment it by private practice (V, para. 44, Report of the Commission on the Indian Medical Service, Calcutta, March 7th, 1866).

Medical men have entered the Indian Medical Service in the past putting an obvious interpretation on plain statements. If it is true that they have been mistaken, and if it is not the Commissioners who are mistaken, the situation is a very serious one, and it behoves the British Medical Association to watch it most closely in the interests of the officers of that service, who are debarred by discipline from moving in the matter themselves.

Then with regard to the Commissioners' recommendation; it is essential that the young man who proposes to enter the Indian Medical Service should understand clearly what he is committing himself to. There has been, and is, a very strong feeling in that service against the alleged interference with private practice on the part of Government. If it is true that such interference occurred freely at a time when the right to practise was not openly disputed, what will the medical officer of the future have to expect, if the conditions the Commission proposes are brought into force? Let there be no misunderstanding of the position! Indian service is exile. Expenses in the East have gone up by leaps and bounds, and are still going up. The pay of an Indian Medical Service officer to-day does little more than cover his actual living expenses. Any savings he might otherwise make are swallowed up in steamer fares, in sending his wife to the hills, and in the upkeep of an establishment for his children at home. Whether or no the Indian Medical Service is worth an able man entering, turns entirely on whether or no he can make private practice. Even if the right is assured him, it is probable that most men who can do well in India can do better elsewhere. The whole matter is clearly and fairly dealt with in the excellent statement published in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of February 7th, 1914, to which I have already referred. At the request of the Association, I appeared before the Commission when it sat in London in defence of that statement, and no serious attempt was then made to shake or to dispute any of the assertions therein made.

There is another point of very great importance on which careful attention should be focussed. It is dealt with in paragraph 37 of the introductory chapter on the medical services, which refers to the private practice of professors of the Indian medical colleges, etc. In that paragraph we find the following recommendation: "The

officers holding the clinical posts . . . should be allowed private practice, but this should be *restricted to consulting practice* in their own subject, *the term consulting practice being interpreted in the sense understood by London practitioners.*" Again the italics are my own. It is not necessary for the moment to enter into what lies behind this recommendation. The inner meaning of it is well known to officers of the Indian Medical Service. All that need be said is that it contains potentialities for the wreckage of what remains of private practice to the I.M.S. officer. Whether those potentialities develop will depend on the nature of the action taken on the above recommendation. The terms used are too vague for the formation of any definite opinion on this point, but it behoves the British Medical Association to watch with the greatest care the next move in the matter.

In conclusion, I desire to make it clear that I am far from wishing to dissuade any young medical man from entering the Indian Medical Service, but I would warn any who think of doing so, very carefully to read your statement of the position, and I would urge on the British Medical Association the necessity of watching very closely any step that is taken to alter the *status quo* in regard to "the right to private practice" of the Indian Medical Service officers. It is not possible to prevent the Government from altering the *status quo;* but it is possible to ensure that the profession clearly and fully comprehends how the I.M.S. officer of the future stands. It then rests with the young doctor to make his choice of entering the service or of passing it by, with his eyes wide open to the consequences.—I am, etc.,

R. H. ELLIOT,
London, W., Feb. 5th. Lieut.-Col. Indian Medical Service (ret.).

PROPHYLAXIS OF VENEREAL DISEASES.

SIR,—Dr. T. C. Mackenzie, in his letter to the BRITISH MEDICAL JOURNAL of February 3rd, maintains the view that the prophylaxis of venereal diseases is not exclusively a medical question, but also a moral and religious one. Will you permit a layman, Sir, to take him at his word and express a lay view of the moral aspects of this important problem?

There is no department of science in which knowledge is so much closed to the public as in the sphere of medicine. For one reason or another every kind of obstacle is placed in the way of the layman who desires to study medical science. The powers of science in this most vital department are limited to the close corporation of the medical profession; and knowledge which is of the most fundamental importance to humanity is a monopoly of one of the most powerful trade unions in the world. Now, this exclusive monopoly conferred by society upon the medical profession carries with it responsibilities of a correspondingly stringent character. If we confer upon you the exclusive right to knowledge in medicine, it is because we trust you to exercise that knowledge to the best of your power for preserving us from the horrors of disease. But we do not confer upon you as a profession the option of withholding from us the means of preventing or curing disease. Some members of the medical profession may consider it undesirable to use the powers of medical science in the prevention of certain diseases. To them I reply: You have no right to intrude your personal opinions on the matter. You are not the proprietors of medical science; you are trustees for the public; we have conferred upon you no guardianship over our morals or our consciences; the great position of trust which you occupy is based wholly on your knowledge of medicine, and not upon your theories of social life, as to which some of us may think we are as competent judges as you are. When we come to you for medical advice, we do not think it necessary to inquire first to what denomination you may belong, or what your social theories may be; for we are prepared to argue those problems with you on equal terms. We come to you for your medical knowledge, and for your medical knowledge alone; we come to you to draw the interest on that capital knowledge of which you are the trustees, and you have no right or option to withhold from us the proceeds and benefits of medical knowledge, which are our property and are due, at least as much as they are yours.

Dr. Mackenzie's letter seems to me to show a totally deficient understanding of the duties of the medical profession towards the public. His argument amounts in effect to this: "We are in a position to furnish you with a simple formula, which will protect you effectively against the infection of syphilis. But, if you do that sort of thing, we are not sure that you don't deserve to get syphilis; we know, indeed, that men and women will continue to do that sort of thing; very well, they shall continue to have syphilis." Well, Sir, I contend that no doctor has a right to intrude his personal opinions on a matter of public controversy while he is in the exercise of his professional duties. Many doctors have a profound knowledge of social science; some, however, have none at all; and no qualifications or studies of this character are exacted from those who enter the profession. If we desired you to be the custodians of our souls as well as of our bodies, we should assuredly demand that you passed some special qualifications in this subject before beginning to practise. We have not done so, because it is throwing an impossible burden upon the profession; and because, if any action is required, we prefer to act through our elected representatives in Parliament, who are supposed (absurdly enough, no doubt) to possess some knowledge of social problems.

Let me not be misunderstood. I hold prostitution in at least as great abhorrence as does Dr. Mackenzie, but, I think, for a different reason. That fundamental instinct of humanity which when perverted results in the propagation of syphilis, and which never can be extinguished by all the preaching in the world, should be exercised only in association with true love. In this world, where the daily round is almost exclusively of labours and anxieties, varied by *ennui*, love furnishes the one anchorage of unspeakable happiness and pleasure which redeems life from the flat routine of work and boredom, and constitutes it a blessing of priceless value. Men who are addicted to prostitution know nothing of all this. They are vandals, who drag in the mud the most inestimable gifts of Nature; they have missed all the fullness and greatness of life; they are emotional cripples, who throw away diamonds in their eagerness for paste. Are we, then, to say that, in addition to having missed life and lost a happiness with which no other can compare, they shall also be the victims of an atrocious physical malady which might have been obviated by the slightest medical knowledge? Surely in this matter the verdicts of justice and of kindness are at one.—I am, etc.,

London, S.W., Feb. 5th. HUGH ELLIOT.

MEDICAL CERTIFICATES AND THE WAR OFFICE.

SIR,—I cannot agree with the views expressed by Mr. Lockhart Mummery *re* medical certificates. It gives one the idea that because they are given free of charge by him they must necessarily be of no value "to any one concerned." I maintain that they are of the greatest value to every one concerned and of most value to the medical boards in accord with the War Office instructions, and (if properly worded and bona fide) of the greatest service to the military authorities and medical boards to enable them to arrive at a correct conclusion as to the fitness of men for service in categories.

If clients do not pay directly for certificates they pay for the consultation which includes them. I have been acting as medical examiner of recruits since mobilization until the work of the regimental medical officer was taken over by boards. In the early days of the war all were volunteers and were anxious to join up. Every trick and subterfuge was practised by unfit men to join—bribery, corruption and impersonation were the order of the day. I was frequently called on to examine a hundred men in an hour. No wonder the hospitals were filled with malingerers and sick men. If every man had brought a certificate from his family doctor (a bona fide certificate) at that time the Government might have been saved thousands of pounds.

The same applies now to the boards. They are composed of men of average training; they cannot be expected to be up to date in every branch of medicine. The limit of examinations is forty a day. Why should they not welcome any genuine information given by the family doctor and specialist? I could recount many cases in which gross injustice might have been done to the individual—his home broken up, his livelihood gone—and

expense to the state simply from want of information from the family doctor as to previous medical history. Does Mr. Mummery in his speciality not look to a previous medical history for information and guidance in making his diagnoses? Does he always examine the lungs and sputa for tubercle bacilli, the urine for sugar, urea, etc., and would he not welcome any information given by the family doctor? I presume his position is that of a consulting specialist. I have frequently asked my patients to be *x*-rayed before presenting themselves at the boards, and the conditions shown by this means were so obvious as not to require a medical examination; in many such cases no symptoms were indicative of the patients' condition.

I have been thanked by medical boards for drawing their attention to mistakes in diagnosis, and I submit that the War Office instruction to medical practitioners has saved all concerned time, trouble, and expense.—I am, etc.

February 5th. MAJOR R.A.M.C.T.

I append War Office instruction.

Circular Letter.

War Office, London, S.W.
June 13th, 1916.

24 General Number 5032 A (A.M.D.3).

Sir,

I am directed to inform you that Army Council Instruction No. 972, forbidding the issue to individual officers and soldiers by officers of the Royal Army Medical Corps and civil practitioners employed on military duties of certificates prejudging questions which have to be decided by medical boards, does not refer to statement of cases required for the information of these boards in order to enable them to arrive at a decision. Such statements should be given as hitherto, but officers and civil practitioners giving them should refrain from expressing their opinions on the questions which the board has to decide.

I am, Sir, your obedient servant,
(Signed) M. W. RUSSELL,
Surgeon-General for Director-General
Army Medical Service.

The Deputy Director of Medical
Services, London District.

THE MOBILIZATION OF THE PROFESSION.

SIR,—The Manchester Medical War Committee and the London Panel Committee are anxious to mobilize other people—a frame of mind not uncommon in wartime—and in that spirit the former body has thought proper to draw up a memorandum for the purpose of conveying information to the Director-General of National Service. What right has this committee to recommend the mobilization of the medical profession without obtaining a mandate from the members of the same? I, personally, was unaware of its very existence until the week before last. There seems to be a crazy notion prevalent that medical men can be moved about the country as easily and usefully as bricklayers' labourers by their trade union. The very reverse is the case. As is properly pointed out by "Rejected," a man may be quite useful "in the place he has chosen because of his limitations," but of greatly reduced value when moved into a strange one. Further, is there sufficient need for it, if American practitioners, well approved of their universities, are willing to undertake duty in this country "for the duration of the war"? In any case, a "referendum" of the profession as a whole should first be taken.—I am, etc.,

January 31st. PANEL PRACTITIONER.

SIR,—I would like to confirm Dr. Clarke's letter regarding men, under military age, remaining at home. I know some who are making largely increased incomes because of the absence of their colleagues on active service. To-day I have received a letter from one who has been two and a half years serving with the colours, and he writes most bitterly. He has received from these colleagues (who were supposed to be looking after his patients) the magnificent sum of 15s. for the two and a half years' work.—I am, etc.,

Plymstock, Feb. 5th. S. NOY SCOTT.

THE FUTURE OF THE MEDICAL PROFESSION.

SIR,—In reply to Dr. Richard Kay's query (January 27th, p. 153), I can only answer as emphatically as possible—yes.—I am, etc.,

February 3rd. CAPTAIN R.A.M.C.(T.F.).

THE MEASURE OF THE POTENCY OF ANTISEPTICS—THEIR THERAPEUTIC VALUE IN WOUNDS.

SIR,—I do not wish to question the utility of flavine, for if we accept the figures which Dr. Browning gives, even judging by the tests I suggest, it ought to turn out one of the best antiseptics we have. I write to point out that in his reply he has not answered my criticism that his tables do not give a practical estimate of the potencies, not only of the antiseptics in common use, but also of flavine. Instead he ridicules—and ridicule is a powerful weapon—my suggestion that an antiseptic to be effective in a dressing must at least prevent the growth of organisms in pus, and even considers it a "great departure from the rational conception of the practical problems involved" in adequately treating a wound. On the other hand, I would submit that in estimating the antiseptic potency, the leaving out of account the infected cells clearly indicates a failure even to approach a rational conception of those problems.

Wherein does my experiment differ from the actual conditions in the pus-coated superficial tissues of a wound? For practical purposes chiefly in this, that in my experiments the antiseptic is mixed with the cellular elements, and comes into action immediately, whereas in the wound we have to wait for diffusion to take place before the antiseptic can take effect. My experiment is deficient because it does not take into account the uncertainty due to diffusion. Rather than being too severe a test, it therefore favours the antiseptic. Of course the potency of an antiseptic cannot be tested in a wound by mixing it with the infected cells of which the surface of the wound consists; but by taking the antiseptic and mixing it with pus, we can find out how effective it would be if, by diffusion, it got into the granulation tissue or into the surface pus. If therefore an antiseptic cannot prevent the growth of organisms in pus *in vitro*, it certainly is not going to do so in the infective tissues and pus of a wound. Since in pus Dr. Browning finds flavine four times as effective as carbolic acid, although in serum 800 times, for practical purposes, I consider the reasonable inference to be that, other things being equal, flavine is, not 800 times, but four times as effective as carbolic acid.

The practical problem of finding an effective antiseptic for irrigation, Dr. Browning does not touch. Dakin's solution, he agrees, is a suitable fluid, but in virtue of its mechanical detergent action and not its antiseptic properties. This is clear, for he couples it with saline, and then speaks of the "advantages which would be gained by the employment, in addition, of an efficient antiseptic." As Dr. Browning's experiments do not deal with this problem, I do not think he is justified, especially when advocating another antiseptic, in passing this adverse judgement on Dakin's solution without giving a better reason than a mere opinion. There is a whole mass of opinion to the contrary, and this I consider is justified experimentally.

For these reasons I maintain that Dr. Browning's experiments do not give a practical estimate of the potency of antiseptics.—I am, etc.,

Warrington, Feb. 3rd. WM. PARRY MORGAN.

AUXILIARY R.A.M.C. FUNDS.

SIR,—The committee of the above funds is now prepared to receive and consider applications for assistance from the guardians of orphans in straitened circumstances, of officers of the auxiliary R.A.M.C. (the Special Reserve, Territorial Force, and the new armies), who are eligible, their fathers having been killed in action, died of wounds or disease contracted in the service, or have held their commissions in the auxiliary R.A.M.C. during the present war.

The object of the Officers' Benevolent Branch is to afford relief to those orphans of commissioned officers who may be left under circumstances of peculiar distress, or who may be enabled by a small addition to their incomes at a certain period of their lives to procure a better education than their limited means would otherwise admit.

As the committee expect to receive a large number of applications it is hoped that all those officers who have not yet become subscribers will kindly do so, and so help with

timely assistance to give a start in life to the orphans of their brother officers.—I am, etc.,

124, Victoria Street, S.W., February 2nd.

F. W. H. DAVIE HARRIS, Lieut.-Colonel (R.F.), Secretary.

OFFICERS' BENEVOLENT BRANCH.

The following further donations have been received during 1916 in addition to those acknowledged in our issue of November 18th, 1916, p. 704. (Donors of £15 15s. become life members under Rule II.):

Sum of £140.—Per Lieutenant-Colonel Sir William Osler, Bt.[1]
Sum of £105.—Messrs. Holt and Co.
Sum of £53 10s.—Lieutenant-Colonel Sir W. Arbuthnot Lane, Bt.
Sum of £50.—Medical Insurance Agency.
Sum of £26 5s.—Captain E. D. Telford.
Sums of £20.—Major A. H. Griffith, Dr. F. Kennedy (New York).
Sum of £11 11s.—Major B. W. Broad.
Sums of £10 10s.—Lieutenant-Colonels A. G. Hay, A. F. Harst, Sir William Osler, Bt., J. W. Smith: Majors E. J. T. Cory, T. K. Monro, J. D. Slight; Captains A. B. Kelly, E. I. P. Pellew; Lieutenant W. MacDermott.
Sums of £10.—Colonel G. F. Rowcroft, Drs. A. F. Gardner and A. Lynden.
Sums of £6 6s.—Lieutenant-Colonel W. F. Haslam, "Sigma."
Sum of £6 5s. 11d.—Captain F. G. Thomas.
Sums of £5 5s.—Colonels F. S. Penny and H. Tooth, C.M.G.; Lieutenant-Colonels F. A. Southam and Sir Nestor Tirard; Majors R. J. Abrahams, F. Charlesworth, A. Lucas, R. P. R. Lyle, J. W. Russell, T. S. Short, R. Stirling, G. G. Turner, R. B. Wild; Captains A. Donald, Ellwood, S. H. Hay, C. P. Lapage, D. S. Page, H. R. Sedgwick, C. Singer, W. Stobie, H. H. Taylor, W. Turner; Drs. D. Bower, H. W. Gardner, J. C. M. Given, G. D. Laing, O. May, G. C. B. Mieville; Mr. A. Winkfield, F.R.C.S.
Sums of £5.—Lieutenant-Colonel D. G. Crawford; Captains B. E. A. Batt, F. A. Dick, W. E. C. Lunn, A. H. Manfield, H. H. Smith, J. B. Woodrow, R. B. Yates; Surgeon W. H. Butcher, R.N.; Drs. A. Atkinson, C. C. Coles.
Sums of £4 4s.—Lieutenant-Colonel R. W. E. Roe, D.S.O.; Captain J. A. Liley.
Sums of £4.—"J. G. P.," Drs. L. Paulley, A. Thomson.
Sums of £3 3s.—Lieutenant-Colonel J. Michell Clarke; Major C. Lewis; Captains J. E. Cook, J. Laurie, G. E. Neligan, T. J. Mills; Drs. E. S. Cooke, L. C. Dobson.
Sums of £3.—"Anonymous"; Lieutenant-Colonel W. Brooks.
Sums of £2 2s.—Lieutenant-Colonels C. W. Mansell-Moullin, R. Pratt; Majors P. Davidson, C. B. Turner; Captains W. E. Alderson, F. G. Armstrong, P. S. Clarke, C. E. Droop, R. C. Leonard, H. C. Martin, N. I. Spriggs, R. Thomson; Lieutenant S. E. Bethell; Drs. A. Bagshawe, J. M. Bennion, A. Cohen, R. Crawfurd, W. J. Dewar, F. Hinds, Mary Hunt, J. B. Hurry, R. Kay, Miss Stirling; Messrs. A. K. Barrett, C. J. Evers, R. Pye-Smith, H. Willson.
Sums of £1 1s.—Lieutenant-Colonel A. E. Wear; Majors O. L. Appleton, C. W. Buckley, S. R. Gibbs; Captains F. Darlow, A. Latham, J. Macfarlane, C. D. Lindsay, D. J. McAfee, A. C. Robertson, T. S. Slessor; Dr. A. Cox; Miss Mary Barrett.

[1] A portion of this sum was included in the previous list.

Obituary.

DR. RICHARD LIEBREICH, distinguished as an ophthalmologist, a painter, and a sculptor, died in Paris on January 9th. He had been a naturalized Frenchman for more than fifty years. He was born at Königsberg on June 30th, 1830, and was therefore in his eighty-seventh year. He studied medicine at the university of his native city, at Berlin, and at Halle, where he took his doctor's degree in 1853. He afterwards worked under Donders at Utrecht and Bruecke at Berlin, and was assistant in von Graefe's clinic from 1854 to 1862. He gave special attention to ophthalmoscopy, and in 1863 published the first atlas of the subject, a third edition of which appeared in Berlin in 1885. He settled in Paris as an ophthalmologist in 1862, but left that city on the outbreak of the war in 1870, and came to London, where he became a member of the Royal College of Surgeons in 1871, and was appointed ophthalmic surgeon to St. Thomas's Hospital. After some years he gave up hospital work and limited his private practice, devoting himself more and more to art. He applied his knowledge of the eye to the elucidation of the technique of painters, and showed much subtlety in tracing peculiarities of colouring in various masters to defects and changes in the visual apparatus. As an instance may be cited his study of the works of Turner and Mulready, whose growing eccentricities of colour in their later years he contended were due to corresponding changes in the eye; by the use of appropriate glasses, reproducing the condition of the artist's eyes at different stages in the development of the defect, the strange colouring was made normal. These studies were embodied in a lecture entitled "Turner and Mulready: the effect of certain faults of vision on painters, with especial reference to their works." This lecture, with two others on the real and ideal in portraiture and on the deterioration of oil paintings, delivered in 1875 and 1878, was published in a volume which appeared in 1888. Liebreich returned to Paris, where he spent the last years of his life. He was an officer of the Legion of Honour. He was the author of a monograph on school life in its influence on sight and figure, published in London in 1872; of a description of a new method of cataract extraction (Berlin, 1872); of papers on leukaemic retinitis and embolism of the cerebral artery of the retina, on the predisposition to retinitis pigmentosa shown by children born of consanguine marriages, and on accommodation; of articles on amaurosis and amblyopia, and of various contributions to von Graefe's *Archiv für Ophthalmologie*. He invented an instrument to prevent poisoning by atropine.

COLONEL THOMAS HOLDEIN HENDLEY, C.I.E., Bengal Medical Service (retired), died at his residence in London, after a long illness, on February 2nd. He was born on April 21st, 1847, and educated at St. Bartholomew's Hospital, where he was junior scholar in anatomy and physiology and senior scholar in medicine, surgery, and midwifery, and attracted the favourable notice of Paget, Savory, and other distinguished teachers. He took the diplomas of L.R.C.P., M.R.C.S., and L.S.A. in 1869. Entering the I.M.S. as assistant surgeon on October 1st, 1869, he became surgeon on July 1st, 1873, surgeon-major on October 1st, 1881, brigade-surgeon lieutenant-colonel on April 1st, 1894, and colonel on April 1st, 1898, retiring on April 1st, 1903. He spent the greater part of his service—from 1873 to 1897—as Residency Surgeon of Jeypore, for the last three years of that period being also Administrative Medical Officer of the Rajputana States. In 1897 he was appointed to act as Inspector-General of Civil Hospitals in the North-west Provinces, and on April 1st, 1898, was appointed to the same post in Bengal, which he held till he retired in 1903. He received the C.I.E. on January 1st, 1891, and the Volunteer Officer's Decoration on June 18th, 1896. He had no war service, but was well known as an authority on Indian art. In 1883 he organized the Jeypore Exhibition, and afterwards the Jeypore Museum; he was one of the founders of the *Quarterly Journal of Indian Art*, and was the author of several works on that subject: *Ulwar and its Art Treasures*, *Handbook on Jeypore and its Arts*, *Jeypore Enamels*, *Damascening on Steel in India*. He was also the author of *Rulers of India and Chiefs of Rajputana*, a *Medico-topographical Account of Jeypore*, and of the *Medical Gazetteer of Rajputana*. Colonel Hendley worked with enthusiasm for the Ambulance Association of St. John of Jerusalem, and was appointed a Knight of Grace. He was made a Fellow of the University of Calcutta, trustee of the Indian Museum, and vice-president of the Bengal Asiatic Society. On his return to England he took an active interest in the meetings of the West London Medico-Chirurgical Society, of which he was elected president in 1908. Colonel Hendley led a very strenuous life, and will rank among those who have really understood India and the true significance of mid-Eastern ideas and art.

IT was with great regret that members of the profession in Montreal learnt of the sudden death of Dr. HENDERSON, which occurred on New Year's Day from pneumonia. John Alexander Henderson was born in Paris, Ontario, on October 28th, 1868. He was educated at Orangeville, and before embarking upon the study of medicine taught for two or three years. He then entered the faculty of medicine of McGill University, won the Sutherland gold medal in his third year, and graduated in 1893 as first prizeman. After a year spent as house-surgeon in the Montreal General Hospital, Dr. Henderson went into practice in Montreal. He was appointed demonstrator in anatomy at McGill University in 1894, and in 1913 assistant professor of anatomy, and for the last two years,

during the absence on active service of Dr. A. C. Geddes, he had taken full charge of the work. He was a great favourite with the students, his kindly disposition and genial manner endearing him to everbody. Dr. Henderson married in 1896 Miss Vesta Hersey, who with three children survives him. She is closely connected with many of the women s associations in Montreal, and only recently returned from England, where she went with a party of Volunteer Aid Detachment nurses from Montreal.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Domville Memorial Gift.

A RECIPIENT of the Domville Memorial Gift of £6 yearly for three years will be elected on March 14th, 1917. The recipient must be the child of a deceased naval medical officer in necessitous circumstances and under 15 years of age. Further information can be obtained from the Honorary Secretary, Domville Memorial Gift, Haslar Hospital, Gosport, to whom particulars of claim and birth certificates must be forwarded on or before March 12th.

ROYAL ARMY MEDICAL CORPS.

Removal of the Dépôt from Aldershot.

WE understand that the War Office has decided to remove the Royal Army Medical Corps Dépôt from Aldershot, where it has been for some five-and-thirty years. The ground assigned is, we believe, that the site is required for other military purposes. The decision is the cause of very great regret to officers of the Royal Army Medical Corps, who have regarded the existence of a training school in a great military centre such as Aldershot as very conducive to the efficient training of officers and men of the corps. It is said that the dépôt is to be established at Blackpool, Lancashire.

EXCHANGES.

CAPTAIN R.A.M.C.T., 1st Northern General Military Hospital, Brighton Grove (Venereal) Section, Newcastle-on-Tyne, desires to exchange with M.O. in military hospital in South of England.—Apply to Captain A. H. Davis, 1st Northern General Hospital, Brighton Grove Section, Newcastle-on-Tyne.

M.O. in charge troops Northern Command, wishes to exchange with M.O. in charge troops Western Front.—Address No. 549, BRITISH MEDICAL JOURNAL Office, 429, Strand

INDIAN MEDICAL SERVICE.

LIEUTENANT-COLONEL PATRICK BALFOUR HAIG, M.B., I.M.S., has been appointed to be a Companion of the Bath.

Medical News.

CAPTAIN JULIUS HENRY BEILBY, R.A.M.C., of Bromsgrove, who was killed in action in Egypt on April 23rd, left estate valued at £36,574.

MR. JONATHAN HUTCHINSON, F.R.C.S., will give an Hunterian Lecture before the Royal College of Surgeons of England, on Monday next, at 5 p.m., upon Dupuytren's contraction and Dupuytren's life and surgical works.

AT a general meeting of the Medico-Psychological Association at 11, Chandos Street, London, W., on Thursday next, at 3 p.m., Dr. Robert Armstrong-Jones will read a paper on dreams and their interpretation, with reference to Freudism.

As announced in our advertisement columns, applications for foundation scholarships, pensionerships, and annuities at the June election of the Epsom College must be delivered at the office of the college, 37, Soho Square, London, W., by February 28th.

DEMONSTRATIONS of the methods of administering drugs having the same therapeutic effect as salvarsan will be given at the London Hospital on Tuesdays, at 1 o'clock. Further particulars can be obtained on application to the secretary of the London Hospital Medical College.

THE first Portuguese National Congress on Physical Education was held at Lisbon in June, 1916. Resolutions were passed urging that a normal institute of gymnastics should be created; that together with compulsory physical training in schools a system of medical inspection, including services of oto rhino-laryngology and psychiatry, should be organized; that swimming should be taught in primary schools, and that playgrounds, swimming-baths, and shooting ranges should be established and maintained by the municipalities. It was further resolved that in all schools and lyceums chairs of physical training should be created, and that attendance at the courses should be compulsory; and that in all universities and secondary schools arrangements should be made for the preparatory military instructing of officers.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediscera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

INCOME TAX.

WHILE "P. E. M." was acting as honorary surgeon to the Red Cross in France his salary for a local appointment was received by him in full, but he paid his own substitute. Can this payment be deducted by him for income tax purposes?

*** Yes. It may be arguable on a strict interpretation of the Acts that "P. E. M." should pay on the full salary and deduct tax *pro rata* from his substitute, but in practice the necessity for this is obviated by reducing the original charge and dealing separately with the liability of the deputy. This is especially convenient under the present system of graduated rates of duty. We suggest that "P. E. M." should place the facts before the local surveyor of taxes, and request an adjustment of his assessment on the lines indicated above.

CHILBLAINS.

DR. E. B. HAZLETON (Sheffield) writes: Thousands of young people in this part of the country (South Yorkshire) are suffering on hands and feet from a severe form of chilblains. I attribute this to the almost complete absence of eggs from the daily diet. I usually prescribe a mixture containing liq. calcis sacch. ʒj and calc. chloride gr. v, to be taken in milk thrice a day, and pil. aloes et ferri gr. iv once daily, but should be glad of the experience of others.

LETTERS, NOTES, ETC.

A MILITARY CORRESPONDENT writes to suggest that the pages of the different pamphlets issued from time to time by the War Office for the use of medical officers should be of uniform size, so that they could be kept together in a reading case and bound for reference.

COMPOSITION OF "LUBAFAX."

MESSRS. BURROUGHS WELLCOME AND CO. (London) write: In the report of Mr. Frank S. Kidd's third lecture on diseases of the male urethra, printed in the BRITISH MEDICAL JOURNAL of January 27th, p. 114, it is stated that "Lubafax" is copied from Casper's formula, which contains oxycyanide of mercury. We think it desirable to state that "Lubafax" is an entirely original preparation, it is not copied from Casper's formula, and it contains no poisonous substance as an antiseptic.

SUPERNUMERARY NIPPLES.

DR. STANLEY C. JELLICOE (Totnes) writes: When examining Derby recruits I had three men in four days with supernumerary nipples. One had one, another two, and the third three. All were in a line with the normal nipple. I have not seen one before or since.

DR. A. J. YOUNG, of Whitefield, Manchester, sends a photograph of a native woman of Northern Nigeria, taken a few years ago, and showing two supernumerary nipples, or mammae, disposed symmetrically, the lower on each side being a little interior to what appears to be the main nipple.

CAPTAIN T. W. LEIGHTON, R.A.M.C., writes to record two cases of supernumerary nipples in recruits appearing at Mill Hill, both on the same day, a week or two ago. Both were on the left side about one inch below the normal nipple; there was in each case a distinct areola and hairs.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Hunterian Oration, 1917,

ON

THE INFLUENCE EXERTED BY THE MILITARY EXPERIENCE OF JOHN HUNTER ON HIMSELF AND ON THE MILITARY SURGEON OF TO-DAY.

BY

SURGEON-GENERAL SIR G. H. MAKINS, K.C.M.G., C.B.

THIS day one hundred and eighty-nine years ago witnessed the birth of John Hunter. Since the year 1814 it has been customary for a member of the Council of this College to deliver at stated intervals an address recalling the memory of that illustrious man.

The speakers on these occasions have in turns devoted the short space of time at their disposal to either a philosophical disquisition, an attempt to form an estimate of the influence exerted by Hunter on the surgical thought of his time, or to dwell upon some portion of the writings he has left us.

My own powers are unequal to the first task, while my knowledge of the state of surgery as Hunter found it is too limited to allow me to essay the second. I therefore propose to deal briefly with his work as a military surgeon, and to try and show what influence this may have had on his successors and upon himself, and how far the views which he held and taught deviate from those which guide the military surgeon of to-day. I think the divergence is not a very wide one, for although some of the most modern surgical practice has been spoken of as a *Revolution*, yet the general tendency has rather been in the direction of a *Reaction*. I believe that this reactionary character has been as striking in the surgery practised during the present war as it has been in the military methods employed. I may instance the return to the direct transfusion of blood, the performance of excision of joints in the early stage of acute arthritis, the extensive operations for head injuries, and the character of the methods of wound treatment advocated by some. Even in the case of the chief triumph of recent military surgery—operations for injury of the hollow abdominal viscera—the advance has depended rather on the favourable conditions furnished by the nature of the warfare than on any change in surgical principles.

Of John Hunter's actual life and doings in the field we know little. In the year 1760 he went as surgeon on the staff to Belleisle and Portugal, his term of active service amounting to two years, while in 1790 he was appointed inspector-general of hospitals and surgeon-general of the army.

It is perhaps not astonishing to find that not a small share of the meagre correspondence at our disposal is devoted to matters regarding promotion, pay, the character of his seniors, and the social qualities of his colleagues. The world and military life have no doubt altered but little in these respects.

With the exception of his own writings nothing remains of the surgical history of the wars in which he took part. This is to be explained by the fact that the wounded men were transferred on board ship as quickly as possible and sent to England. Hence Hunter, as is the case with his successors of to-day, was afforded but small opportunity of following out the complete history of the majority of the patients who may have come under his care. His own brief mention of his work is characteristic enough; he says in one of his letters:[1]

> Thank God I have succeeded in everything I have attempted, but my practice in gunshot wounds has been in a great measure different from all other, so that I have had the eyes of all the surgeons upon me, both on account of my supposed knowledge and method of treatment.

How far Hunter's immediate colleagues agreed with his opinions and practice it is impossible to tell, but that his influence at a later date was great is evident from the comments of the next great military authority belonging to our own College. Mr. Guthrie says:[2]

> Hunter served for a few weeks in 1761 at the siege of Belleisle, and it is much to be regretted that his opportunities were not sufficiently numerous to enable him to draw such inferences from them as would have left but little to desire. The greater part of what he did leave was from this cause found not to accord with the observations made by his successors, while the prestige attached to his name was so great, as much to impede their progress on many essential points.

An examination of Guthrie's writings does not, however, appear to afford much support to this statement, except in so far as Hunter's disinclination to perform either primary or intermediate amputations is concerned. We shall perhaps do better, therefore, to shortly examine for ourselves the material which Hunter left behind him, and judge how far his opinions and teaching differ from those of to-day. While, however, confining ourselves for the most part to the two lectures especially devoted to the treatment of gunshot wounds, we must bear in mind that Hunter states that his "extensive opportunities of attending to gunshot wounds" drew his attention to the subject of "inflammation in general" and enabled him to make observations which formed the basis for his *Treatise on the Blood and Inflammation*.

The two lectures on the treatment of gunshot wounds differ considerably in character from the series devoted to general surgery. They are more simple and direct, less overlaid by theory, and consist for the most part of clinical observations and practical instructions. Perusal of them furnishes some support to Guthrie's criticism, in that the illustration of some of the statements made is found in descriptions of cases met with at a later date in civil practice. An equally satisfactory explanation of this occurrence is, however, offered by the fact that for these lectures, as in all Hunter's writings, the material on which they are based was collected many years before the time at which it was utilized for publication.

In the second lecture, devoted to gunshot injuries of the special regions of the body, little is included which is not equally applicable to the subject to-day. In dealing with the subject of injuries to the head Hunter belonged to the active school—any injury appeared sufficient excuse for trepanning the skull. He dwells on the necessity of raising a sufficiently extensive flap to allow of proper exploration of the injury to the skull, and speaks of the propriety of incising the dura mater in some instances. With regard to the latter procedure, however, he says: "Whenever I have seen the dura mater opened, the brain has worked through the opening, and the patients have died";[3] hence he recommends caution.

The favourable prognosis attendant upon wounds of the chest is recognized, also the importance of collapse of the wounded lung in restraining primary haemorrhage, and the tendency of the blood effused into the pleural cavity to clot. Hunter[4] made a number of experiments on the production of pneumothorax, etc., on dogs, and recommends "the operation for the empyaema" in cases of haemothorax. It does not appear, however, whether he ever performed this operation.

In the section on injuries to the abdomen the expectant method of treatment is imposed, and this perhaps especially because Hunter was familiar with the favourable course which followed the formation of a secondary faecal abscess and fistula when the colon had been injured. In the matter of diagnosis no great advance has been made since his time, except that dependent on the use of the x rays in localizing the seat of foreign bodies. The value of localized pain and tenderness as a diagnostic aid is dwelt upon, also the various haemorrhages as signs indicative of injury to special viscera. Again, it is interesting to notice that he dwells upon the absence of any certain sign denoting injury to the spleen, also the fact that either the spleen or spleen and liver may be wounded without any obvious adverse result. The often rediscovered fact that there is little tendency for the contents to escape from a wound of the small intestine was also impressed by Hunter. In view of the modern treatment of septic peritonitis it is instructive to note that the suggestion is made of placing the patient in a tepid bath in order to supply fluid to the general constitution. Directions for treatment consist, however, mainly of instructions how to deal with the secondary consequences of injuries to the abdominal viscera; as to primary lesions he says, "I should suppose the very best practice would be to be quiet and do nothing, except bleeding, which in cases of wounded intestine is seldom necessary."

Conservatism is impressed in the matter of primary removal of bone fragments in gunshot fractures, and the

too early interference with the sequestra. Hunter, in fact, takes the same line in dealing with these as he lays down in the case of retained missiles. "In general there can be no better way of coming to a part or extraneous body than by waiting for the formation of an abscess there."

The one point on which Hunter's immediate successors appear to differ most freely from him is as to the line to be followed when an amputation has to be considered; he says, "I have already observed that few can support the consequences of the loss of a lower extremity when in full health and vigour"; hence he avoided primary amputation whenever possible, condemned operations of an intermediate nature, and preferred those of the secondary class.

We may now pass on to the question of the treatment of gunshot wounds in general, dealt with in the first lecture and throughout the whole *Treatise on the Blood and Inflammation*.

Wound Treatment.

Hunter's methods of treatment were guided by the views held by him on the pathology of the healing of wounds, and these methods were limited in consequence of his ignorance of the part played by infection as a cause of inflammation. Hence he is not concerned to differentiate between the process of repair and that of inflammation.

He says:[5] "The injury done has in all cases a tendency to produce both the disposition and the means of cure. The stimulus of imperfection taking place immediately calls forth the action of restoration"; yet "injuries often excite more action than is required."[6] Then inflammation is excessive, and this "may arise from a vast variety of causes with which we are at present unacquainted; nay, which we do not perhaps even suspect."[7]

While he regarded suppuration as an unavoidable consequence of many wounds, yet he says, "suppuration may be considered a resolution, but it is the mode of resolution we commonly wish to avoid."[8] Hence his attempts to diminish the degree of general reaction by blood-letting, and locally to effect an immediate closure of the wound. "In parts which have been divided and exposed the inflammation is in great measure prevented by bringing them together," and when this cannot be done, "Nature attempts to prevent inflammation by covering the wound with blood and forming an eschar."[9] Thus a power of resolution is shown "even in cases where the parts have been exposed."

It is of interest in this relation to recall that he combats the opinion promulgated by Ambroise Paré and held long after, that exposure to the air was in itself a cause of suppuration. "Exposure to air certainly has not the least effect on parts exposed, for a stimulus would arise from a wound even were the part contained in a vacuum." Air takes no part in the formation of an abscess, cellular emphysema is not attended by suppuration, the air itself in a pneumothorax is not a source of danger, nor is air necessary for the development of a gonorrhoea.

In describing the special characteristics of gunshot wounds, contusion is the feature upon which he lays most stress.[10] He observes that the degree and extent of the contusion varies inversely with the velocity retained by the missile. Thus, the greater the velocity retained by the ball the cleaner it wounds the parts, yet they slough; if the velocity is low the mischief is less and the ball more easily deflected. If the velocity be high, blood vessels are divided instead of being contused, if it be very low they are torn.

The contusion of the tissues and the resulting slough prevent healing by the "first intention" "from which circumstance most of them *must* be allowed to suppurate."[11] Hunter observed that the tissue devitalized by contusion temporarily protected that lying beneath, and hence the advent of inflammation (infection) was retarded, an observation which still retains its force in the case of more modern projectiles. Hunter deprecates the practice handed down from Ambroise Paré and Wiseman of routine enlargement of gunshot wounds, and ascribes its origin to anxiety on the part of the surgeon to remove a foreign body. He then points out the difficulty often accompanying the attempt to extract foreign bodies, the fact that experience had shown that these might be left without evil consequences, and concludes that the custom of opening up wounds had been continued in ignorance of its primary object. He does not appear to have realized that the practice afforded an advantage, not then properly appreciated, of supplying drainage to an infected area.

Still the rule "that it should not be opened up because it is a gunshot wound, but because there is something necessary to be done which cannot be executed unless the wound is enlarged"[12] is sound enough, as also the statement, "this is common surgery and should be military surgery respecting gunshot wounds," and is certainly to be preferred to that of Baron Percy, enunciated so late as 1792, "The first indication is to change the nature of the wound as nearly as possible into an incised one."[13]

Hunter, however, improperly undervalues the argument that enlargement of the wound takes off the tension arising from the inflammation, because he considered inflammation a necessary consequence of gunshot wounds, and "any increase in the size of the wound was to be considered as an extension of the first mischief, and must be supposed to produce an increase of the effects arising from that mischief."[14]

He then proceeds to enumerate a number of conditions which call for enlargement of the wound which obviously hold good to-day; but "if none of these circumstances has happened I think we should be very quiet."

Nevertheless he recognized the danger of a contour wound, and recommended an incision over the centre, or the laying open of the entire track, to avoid the danger of abscess formation and the occurrence of extensive suppuration—a danger not always appreciated as it should be in dealing with contour wounds of the head, chest, and abdomen even to-day.

Local Treatment of the Wound.

The injury done has in all cases a tendency to produce both the disposition and the means of cure. The stimulus of imperfection taking place immediately calls forth the action of restoration.[15]

The first and great requisite for the restoration of wounded parts is rest, as it allows that action which is necessary for repair to go on without interruption.[16]

In these two axioms we find the theory upon which Hunter's treatment of wounds was based. The dominating factor in the healing of the wound he held to be the vital process or action of the body, a principle dwelt upon in equal measure by his great successor Lister, and one to which perhaps too little attention is given even to-day by the originators and advocates of various local methods of wound treatment.

He drew little distinction between the process of repair and that of inflammation, regarding both as the consequences of an "operation" in which the blood vessels took the major share, since in the state of knowledge then existing he was ignorant of the important part taken by increased activity of the fixed tissue elements in addition. Again, his ignorance of the common dependence of inflammation on infection hampered him in devising any local form of application to the wound. Hence we find him mainly occupied with discussing the relative merits of a cold or hot water dressing, and the advantages to be obtained by the use of the poultice which required to be less frequently reapplied and could be removed more easily and with less pain to the patient.

Regarding the healing of a wound as a natural "vital operation," Hunter saw no greater mystery in this process than in the growth and development of the infant to the man. So to-day in apportioning its relative value to any special form of wound treatment, we must bear in mind that it is difficult—aye, impossible—to prevent the healing of a wound, much as the process may be interrupted or distorted by extraneous causes.

During the past two years the local treatment of gunshot wounds has given rise to as lively and ardent discussion as that accompanying the introduction of the antiseptic principle by Lister during the earlier part of the last half-century. It appears as if the steady development of the "aseptic principle" and its obvious success in civil practice had lulled the modern surgeon into a happy dream, from which he was suddenly awakened to the terrible spectacle of wounds infected in a proportion and to a degree to him almost incredible.

As a ship which passeth over the waves of the water, which when it is gone the trace thereof cannot be found, neither the pathway of the keel in the waves.

So, indeed, the experience of the pre-antiseptic surgeon seemed to have vanished and left no trace in the minds of men. This is perhaps the less remarkable in that the simple wounds inflicted by the bullet of small calibre in recent wars, had proved themselves of little consequence in affording either a ready pathway for the entrance of infection or a fertile ground for its extension.

The antiseptic measures suited to meet the limited demands attendant on the practice of aseptic surgery, and in which trust was at first reposed, proved impotent when applied to the treatment of the severe and grossly infected wounds produced by the altered forms of missile employed in the present warfare.

This disappointing experience was followed by a brief acute reaction in the direction of attempting an immediate and complete primary sterilization of the wound by the application of powerful antiseptic media such as liquefied carbolic acid and strong solutions of mercurial salts.

It appears strange that attempts at complete primary sterilization of the wounds should have found so much advocacy. No surgeon has ever succeeded in procuring immediate sterilization of extensive infected areas of tissue, and the striking statement made by Lister [17] on this subject seemed to have been completely forgotten:

> If, for example, a pair of forceps is handed to the operator with the intervals between the teeth occupied by dry septic pus, and a portion of this dirt becomes detached and left in the wound, the evil cannot be corrected by any antiseptic wash that is now at our disposal or that the world is ever likely to see.

This being Lister's view regarding the ill effects liable to follow the detachment of particles of infective matter from the teeth of a forceps, we may readily assume what his opinion would have been as to the feasibility of complete primary sterilization of gross infections dependent on the passage or impaction of fragments of shell and dirty clothing.

The complete failure of attempts at effective primary chemical sterilization led to increased resort to mechanical cleaning of the wound by removal of devitalized and infected tissue by the knife and scissors, and to the employment of counter incisions for drainage, both to prevent extension of the infection and to effect a cure. These procedures remain measures of primary importance whatever subsequent method of treatment may be adopted.

Bacteriological investigation of gunshot wounds during the process of healing has shown that, whatever method of treatment may be adopted, a certain primary sequence of bacterial growth and development is maintained.

Examination of "smear" preparations taken during the first twelve hours reveals the presence of no organisms although cultures prove positive. This incubation stage is followed by the appearance first of micrococci and a highly varied flora of other organisms. These latter, in a properly drained wound, tend to die out rapidly, and in the course of five or six days micrococci alone may persist. This is the crucial period for the completion of sterilization, and success depends on two factors: (*a*) The vitality of the natural process; and (*b*) the efficiency of the method of treatment adopted.

As to the first factor, in a certain proportion of instances the vital powers will suffice, but in a considerable number either the primary reaction is deficient, the infection too gross to be efficiently dealt with, or the infection regains ascendancy when the initial reaction commences to fail in power.

Determination of the degree of activity and efficiency of the vital powers in any given case is impracticable, hence some general plan of treatment must be adopted for all. Opinion has been to some extent divided as to the most desirable method, and the chief differences have arisen in connexion with the antiseptic system as laid down by Lister and the physiological or phylacagogic system of Wright.

The question obviously resolves itself into that of the secondary sterilization of wounds; in the one method an attempt is made to supplement the natural vital powers from without by the employment of chemical media to inhibit or destroy bacterial growth in the wound; in the second an attempt is made to modify and strengthen the vital powers by the local application of a simple physical process.

In proceeding to a consideration of the comparative value of these two methods from the point of view of the surgeon it is well to first inquire what is to be hoped for by the use of chemical antiseptic media. Lister proved beyond any possibility of doubt the absolute efficiency of such media as prophylactic or preventive agents, yet both his teaching and writings indicate that he viewed the question of dealing with an established infection from an entirely different standpoint. Of this no better illustration can be found than in the sharp distinction which he drew between "bactericidal" and "inhibitory" media and the way in which he employed them respectively.

We may first ask, Is it possible by chemical means to effect the sterilization of tissue lying beneath the surface of the wound?

It has not been proved that any chemical antiseptic can penetrate the tissues in sufficient quantity or to a sufficient depth to exercise bactericidal powers, unless it is at the same time sufficiently powerful to destroy the tissues themselves. As in other methods, the deeper tissues must depend upon the vital process for sterilization, or, as Lister terms it, the co-operation of the "natural antiseptic"—that is, the constituent parts of the blood.

Before leaving this part of the question, we may also ask whether a complete clearance of organisms from the tissues deep to the surface of the wound is a necessary preliminary to closure of the cavity. This question may be answered in the negative. Evidence is offered by the common observation that many wounds, the surfaces of which are free of organisms, may be safely and definitely closed if the surface be not disturbed or injured in the course of the operation, while others in which disturbance of the surface is necessary for the completion of the operation often flare up with a fresh infection. Moreover, experience of the safety with which a serous cavity such as the peritoneal may be closed in the evident presence of a definite degree of infection also supports this view; again, a less satisfactory observation, the long period during which the organisms which have given rise to an attack of osteomyelitis or enteric fever may remain latent is familiar enough. A certain number of organisms may no doubt be safely left to their fate and for the tissues to deal with.

The virtues of chemical antiseptics are restricted to the power to render sterile the wound surfaces and the cavity included by them. If this sterilization be effected the patient is protected from the dangers of a renewed direct extension of the infection and from the risk of absorption of toxins formed by the bacteria which may collect under pressure in the recesses of the wound cavity. Further, the dangers and ill effects of prolonged suppuration may be avoided.

To effect this purpose Lister's essentials of a thoroughly trustworthy unirritating antiseptic, so stored up that it cannot be dissipated to a dangerous degree before the dressing is changed, must be fulfilled.[18] It is of interest to recall that Lister in 1870 [19] made a suggestion for the primary treatment of gunshot wounds, consisting in the provision of an abundant supply of external dressing soaked in an oily solution of carbolic acid, and again, during the Boer war, suggested [20] the use of a powder of the double cyanide of mercury and zinc as an antiseptic reservoir; but neither of these methods were largely employed or successful in application.

The phylacagogic or physiological method of Wright seeks to attain the same objects as the antiseptic method by the local application of a physical process to regulate, modify, and alternately augment the strength of the various factors involved in the normal vital reaction. It seeks:

I. To maintain the patency of the opened up lymphatic vessels and spaces which normally undergo closure in the same manner as the wounded blood vessels, and to encourage an increased flow of lymph from the wound surface with the following objects:

(*a*) To effect a natural lavage of the tissues.
(*b*) To maintain an outward current in the flow, and thus oppose the entrance of microbes into the tissues.
(*c*) To utilize the bactericidal properties of the fluid.
(*d*) To remove exhausted lymph from the tissues in place of leaving it to return by the normal route of the lymphatic circulation.
(*e*) To maintain a moist surface to the wound, and wash away débris of devitalized tissue and bacteria. In this

last particular simple irrigation on the part of the hypertonic or isotonic solutions plays an important part.

II. At a later date to encourage and increase the number of migrating leucocytes, both with the view of increasing phagocytosis and providing a sufficient supply of active trypsin to aid the separation of sloughs.

The normal outflow of lymph is increased by the physical ("drawing") process induced by continuous irrigation of the wound with a hypertonic solution of sodium chloride, and the augmented migration of leucocytes by similar alternate irrigation with "isotonic" solution (normal saline).

Before attempting to gauge the relative value to be assigned to the antiseptic or to the phylacagogic methods respectively, it may be at once allowed that in some instances the unaided normal vital reaction may attain parallel results when treatment with simple dressings or mere exposure to air and sunlight is adopted; but, unfortunately, such results form rather the exception than the rule. Hunter, in referring to the good results which may follow primary closure of the wound, or closure by scab formation, deals with them as an exception, and tells us "thus a power of resolution is shown, even in cases where the parts have been exposed."

It may be proper here to offer some preliminary criticism as to the validity of the theory upon which the phylacagogic method is based. Hunter[21] says, "yet injuries often excite more action than is required." It is indeed indubitable that in a large proportion of all wounds the activity of the reaction exceeds that necessary for the process of repair, or for sterilization of the tissues, proceeding in some even to the undesirable degree of acute inflammation and tissue destruction. In fact, in the process of repair, as in the normal physiological processes of the body generally, a large margin of excess is allowed to meet possible accidents in the course of the closure of the wound.

I think we may, therefore, assume that the normal vital reaction is not, as a rule, deficient in activity, and that even in a wound that heals normally by granulation both the outflow of lymph and the migration of leucocytes tends to be wasteful of the vital powers of the patient. Again, it must not be forgotten that an excessive lymph flow is in itself a serious drain upon the powers of the patient, a fact illustrated in a remarkable degree by the rapid emaciation seen to occur in the subjects of the multiple superficial wounds which have formed so strong a feature of the surgery of the present campaign. Lastly, any interference with the coagulation which limits the primary flow of lymph following the wound tends to remove one of the most important barriers afforded by Nature for the protection of the system from the dangers of the entrance of organisms and their toxins from the infected area.

The most useful practical test of the efficiency of any method of wound treatment is furnished by observation of the date at which micro organisms disappear from the surface of the exposed tissues, and at which the wound may be safely and permanently closed by suture or other means. When subjected to this test, the antiseptic method has proved itself more rapid and more trustworthy than the phylacagogic.

As an example of the antiseptic method, that known as the Carrel-Dakin is chosen because it appears to fulfil the conditions already laid down, and because in the hands of its originator it has afforded admirable results, which have, moreover, been repeated by other surgeons and in our own camps.

It may be at once allowed that the method demands special care and exactitude in application, but such objections as may be raised as to its suitability for military surgery are of a practical and not of a theoretical nature. Such are the necessity of strict supervision of the standard composition of the solution of the hypochlorites employed, the need for care and judgement in locating the instillation tubes, the necessity of regularity in the instillations of the fluid, and the difficulty in some cases of ensuring that the patient's clothing and bedding do not get soaked. All these problems are more difficult of solution in military than in civil practice, but they are not insuperable, while the last trouble attends equally the irrigation forming a part of the phylacagogic method.

Allowing these practical difficulties we find in compensation that the wound cleans more rapidly, firmer and healthier granulations form, the organisms die out more promptly, the occurrence of suppuration is reduced to a minimum, or actually avoided, secondary wound complications are rarer, and the wounds are fit for closure at a much earlier period. The treatment, moreover, attains success even when applied to suppurating wounds of some standing.

The special success which has attended the use of this method depends mainly on the highly ingenious plan of maintaining the constant supply of the antiseptic medium by specially devised tubes and on the character of the antiseptic employed. Other antiseptic methods, however, have attained results which, while less striking, yet are superior to those observed with the phylacagogic. Of these latter, the most satisfactory have been the dressing with solution of hypochlorous acid (eusol) and the iodoform bismuth compound of Rutherford Morison. The latter, which combines a maximum amount of rest to the wound, a "persistent storage" of an efficient inhibitory antiseptic, and a minimum of attention on the part of the surgeon, has much to recommend its employment in military surgery, where economy of time and labour are so important. Its employment as a primary method of treatment of all gunshot wounds is, however, not free from serious risks, and therefore, in the absence of further experience, not advisable.

In application the phylacagogic method fails to realize the merits which have been claimed for it. The increased flow of serum from the tissues has proved of small value from the bactericidal aspect; the "fluid" "drawn" has been shown by other observers (Parry Morgan,[22] and others) to be deficient in organic constituents and hence incomparable to the normal lymph furnished in response to the stimulus of the original injury and resulting infection; and, either in the "fluid" itself or admixtures of it with hypertonic salt solution, organisms such as the streptococci grow freely. This deficiency in the quality of the "fluid" drawn is intelligible if it be regarded as the product of a local physical process exerted on the wound itself. Such a process can hardly be relied upon to induce great additional activity either in the fluid or cellular elements which are normally provided as a response to the combined stimulus of injury and subsequent infection on the organism as a whole, in which case we have to deal with a general vital reaction of the entire system the whole intensity of which is directed towards the infected region. The phylacagogic method, in fact, while attempting to increase the normal vital reaction within the tissues, an object not always to be desired, deals inefficiently with the extraneous elements in the wound cavity which form the main obstacle to normal healing.

In practice it is found that with the phylacagogic method the initial changes in the wound are slow, the tissues tend to become sodden, the separation of sloughs is delayed, and a longer period is required before the wound surface can be regarded as having reached the stage at which secondary closure can be effected. Hence the period in which secondary wound complications may arise is prolonged; moreover, in cases treated by the phylacagogic method which fail to reach the "closure" standard, a few days' treatment with an antiseptic often suffices to attain the result desired.

In passing from the subject of the local treatment of wounds, we may conclude with Hunter that "the stimulus of imperfection taking place, immediately calls forth the action of restoration"; further, that the vital operation may be most effectively aided, not by attempting to regulate and modify the process, but by striving to nullify the extraneous influences which tend to distort and interrupt it.

I can scarcely leave the subject of wound treatment in the present war without a word of mention of the most serious wound complication that has had to be dealt with—gaseous cellulitis or gas gangrene.

I can find no evidence that Hunter was familiar with this scourge. In the lectures on gunshot wounds a case is quoted in which "air came out of the wound" during the process of removal of a ball from the abdominal wall, but no mention is made of any special condition of the tissues, and it may well have been a *Bacterium coli* infection secondary to a minor injury of the colon.

Hunter was certainly conversant with the rapid decomposition with development of cellular emphysema which sometimes follows death as a result of a general anaërobic infection of the body, hence we must conclude that he

would have been quick to detect a similar form of cellulitis during life.

It seems more than doubtful whether gas gangrene has ever before assumed such a serious aspect during war. The writings of Ambroise Paré make no mention of emphysema as a sign in the gangrenous wounds observed by him, neither do the more modern writings of Guthrie suggest that the hospital gangrene seen in the wars in the early part of the last century in any way resembled the "gas gangrene" of to-day.

It is clear that Lister, when speaking of hospital gangrene, referred to a process similar to that described by Guthrie, and surgical textbooks generally have based their descriptions of hospital gangrene on a complex of identical signs.

On the other hand, anaërobic gangrene under the title of acute traumatic gangrene has for many years been individualized as a definite disease, and its pathology to some extent elucidated.

It is clear that the form of hospital gangrene observed during the American War of the Rebellion coincided in character with that described by Guthrie, and in the reports special stress is laid on the observation that the process did not involve the muscles. Lastly, no mention of "gas gangrene" has been made in any of the more recent campaigns.

Hence I think it must be allowed that the frequency of gas gangrene is to be regarded as a peculiarity of this war, referable perhaps to the nature of the soil, and perhaps to the abundant diet of the men and irregularity in defaecation. In the latter relation it is a striking fact that of a small series of patients who died as a result of wounds of the colon, in every case a rapid general *post-mortem* anaërobic infection of the blood took place. On the other hand, hospital gangrene of the classical types has been conspicuous only by its absence; during a period of two and a half years I have only seen one or two cases which seemed to resemble the spongy form, although the membranous type has been occasionally seen.

Hunterian Ligature.

No individual procedure originated by John Hunter has preserved the freshness of his name to a greater degree than the operation for the cure of popliteal aneurysm. Every student of medicine at an early date of his career makes acquaintance with Hunter's canal, and later with the principle of proximal ligature.

In one respect the influence exerted on military surgery by the knowledge of the ease and safety with which proximal ligature can be performed has not been for the good. It has encouraged the employment of proximal ligature at the seat of election for secondary haemorrhage and even for primary bleeding from a wounded artery. Both these practices are to be condemned, except in rare instances of absolute necessity.

It is to be regretted that Hunter himself did not write the paper describing his operation and the grounds upon which he was led to undertake it, but the paper by Sir Everard Home included amongst Hunter's writings opens up one question of considerable interest to-day.

In at least one of the cases there described,[23] possibly in the first three, both the femoral artery and vein were included in the ligature; in the fourth we are definitely told that the artery only was included. From that period onwards surgical opinion has been definitely to the effect that the greatest care should be taken when occluding a main artery to avoid all injury to the vein. In fact, every operation for the ligature of an artery has been so devised that the aneursym needle is passed in a direction away from the vein in order to minimize the risk of injury to that vessel. This, not alone to avoid the technical inconvenience of immediate haemorrhage, but also with the definite object of preserving the venous circulation intact.

Observation of a large number of coincident wounds of large arteries and veins has in no way endorsed the view that simultaneous occlusion of both artery and vein exercises any deleterious influence on the subsequent collateral arterial circulation and the vitality of the limb.

In support of this statement a few examples illustrating the innocuous nature of operations for the occlusion of veins in general may be first given. Operations for the cure of varicose veins have demonstrated the case with which a compensatory balance is attained when the blood is diverted from the larger channels. Occlusion of the internal jugular and other large venous trunks effected in order to prevent the diffusion of septic emboli (the process of septic thrombosis was, I believe, first observed and described by John Hunter himself[24]) has not given rise to obvious permanent trouble.

In a very considerable proportion of gunshot injuries to large arterial trunks the neighbouring vein is contused and becomes thrombosed, and this has not been shown to give rise to increased risk of gangrene of the limbs. Ligature of the common carotid artery, together with the internal jugular vein *en masse*, has been performed in cases of emergency without increased risk of the development of the cerebral anaemia and softening so often a consequence of ligature of the artery alone. Further, where simultaneous ligature of both artery and vein in other parts of the body has been obligatory on account of wounds of both vessels untoward events have not been observed.

Evidence, moreover, exists that under certain conditions simultaneous occlusion of both artery and vein is a preferable procedure. The first example, not an unmixed or simple one, may be sought in the results observed to follow the application of a single proximal ligature to the artery in cases of arterio-venous aneurysm or aneurysmal varices of the femoral or popliteal vessels. In patients so treated during the South African campaign, gangrene of the limb followed in more than 50 per cent. of the cases.[25] The frequency of this accident finds a simple explanation if we consider what actually results from the operation. The main vessel being occluded and the direct arterial pressure from behind being practically abolished, blood which has been carried by the arterial collaterals to the distal portion of the injured trunk, instead of passing to the peripheral circulation, takes the course of least resistance backwards into the vein through the arterio-venous communication, and thus the limb practically bleeds to death much in the same way as if the distal end of the wounded artery opened on to the surface of the limb. Hence, the comparative safety of removal of the communication *en masse* and occlusion of all four openings by ligature.

A more striking example is offered by the result of ligaturing the popliteal vein alone for the treatment of senile gangrene of the foot.[26] W. A. Oppel,[27] ascribing the good results occasionally observed to follow arterio-venous anastomosis for the cure of this condition to obstruction of the venous circulation and consequent rise in the blood pressure of the limb, was led to substitute simple occlusion of the popliteal vein to produce the same effects. In six cases thus treated the extremities were seen to recover not only their warmth and colour without the development of oedema, but also a certain degree of hyperaemia of the feet and toes.

On these and other grounds it must be admitted that the balance of the collateral circulation is likely to be more efficiently maintained if the vessels which carry it on more nearly correspond in size and consequent equality in the blood pressure and rate of flow. The elimination, in fact, of the capacious main vein is a real advantage, since this for the time affords a too ready channel of exit for the diminished arterial supply as well as an undesirable reservoir for stagnation.

These considerations lead me not only to regard obligatory simultaneous occlusion of a main artery and vein as a negligible factor in the risk of gangrene of a limb, but to hold, further, that the procedure is preferable whether the vein be wounded or not. The result of the combined procedure being to maintain within the limb for a longer period the smaller amount of blood supplied by the collateral arterial circulation, and hence to improve the conditions necessary for the preservation of the vitality of the limb.

Effects of Military Service on Hunter Himself.

We may now turn from the question of how far the work of John Hunter has influenced that of the military surgeon of to-day, to that of how his experience gained in the field may have influenced his own life's work.

Hunter was emphatically a student of nature; his early years were, as we know, spent mainly in the fields around his home, where he sought out such secrets as he could from his surroundings. This fallow period, while responsible

for depriving him of a facile pen and literary style, yet, no doubt, opened his mind, developed habits of thought and observation, and affords some explanation of the superhuman task to which he set himself with such devotion in the later periods of his life.

The whole world was his book, and it is of some interest, in passing, to contrast the character of his upgrowth and surroundings with those of his greatest successor, Joseph Lister. Hunter gained his earliest inspiration from the limitless field of nature with naked eye and unbridled freedom. Lister, born into a home the cradle of the modern microscope, passed through a blameless career at school and college in a continuous atmosphere of scientific thought and investigation. Both great men devoted their whole energies to the cultivation of science throughout a busy and industrious life—Hunter throughout with a yearning for the pedestal, Lister concerned only with the success of his labours.

Hunter died in the midst of an incompleted and impossible task, while Lister had the incomparable satisfaction of witnessing the success of his own efforts, the goal reached, and the benefit to mankind immeasurable.

Each illustrious man, however, perhaps found his proper field. Hunter in a life of continuous stress, immoderate labour, a struggle for his daily bread and the means to pursue his researches, and a tragic death not unsuited to the fiery nature of the man. Lister, in a more equable existence, spent in steady and industrious pursuit of the one great object he had in view, and, after attaining a success duly appreciated by the whole world, passing quietly away in the zenith of his fame.

The abrupt change from a boyhood of untrammelled freedom to the life of a hard-worked demonstrator in a school of anatomy, than which no greater contrast can be conceived, laid heavy hands on Hunter; his health began to fail, and hence his transit to the field of war.

To join an army in the field is to enter the most intimate school of human nature. The most admirable features of man's character and the meanest are alike displayed. Unsuspected strength is revealed, long concealed weakness exposed, and in a year's campaign the events of a whole lifetime of ordinary existence may be passed through. Hunter entered this school at a turning point in his career after two periods—the one of comparative idleness, the second of drudgery; and little doubt can exist as to both the sobering and inspiring effect it had upon his nature. As a result of his experiences he emerged a stronger and a better man, with a vastly wider outlook on the world, and doubtless capable of forming a juster estimate of his own powers and capacity to undertake the line of life for which he felt himself to be fitted.

The life of a military surgeon on active service, however, offers advantages beyond the mere acquisition of worldly wisdom and a knowledge of men. An army is not always fighting, and the surgeon between periods of active and unceasing work has intervals of quietude which are rare in any other path of professional life. Freedom from the cares of ordinary business and the manifold duties of practice allow uninterrupted opportunities for following out lines of thought and the prosecution of research. There can be no doubt Hunter utilized these opportunities to the utmost, for throughout his writings references are made to observations and investigations made during his period of service. He tells us, in fact, that his most comprehensive and complete contribution to scientific literature—the *Treatise on the Blood Inflammation and Gunshot Wounds*—was the direct produce of the experience gathered at that time. The long period which elapsed between the conception of the work and its publication is characteristic of Hunter's method—a method founded on the desire to complete his knowledge on any subject before submitting himself to public criticism; a method desirable in itself, but when adopted by a man whose aims are of the scope of Hunter's, too often, as in his own case, robs the world of receiving the benefits of a wealth of critical observation and knowledge, which passes together with its owner to the grave.

While considering the opportunities of research his military life afforded to Hunter, one cannot help comparing them with those enjoyed by the present generation.

During this campaign laboratories, both of the clinical type and those fitted for more extensive research, have been provided not only for the base hospitals but also in connexion with the casualty clearing stations, which have performed so much of the duties of stationary hospitals near the front. A number of active young observers have been engaged in a research on every problem which the wounds and diseases of the soldiers have raised, and it may be confidently expected that a weighty harvest of new facts will have been garnered when opportunity arises for their collation and digestion.

The pathological anatomy of the lesions produced by gunshot injury to the brain, the spinal cord, the lungs, heart, and the abdominal viscera has been worked out to an extent that will leave little to desire.

New facts regarding cerebral localization and the functions of the spinal cord have been noted, while others founded on animal experiment alone have been confirmed by injuries comparable to the knife of the physiologist. Observations regarding the fevers of the field have been accumulated, an enormous practical experience of the value of the protective inoculation for enteric fevers has been acquired, while the prophylactic value of tetanus antitoxin and its influence in modifying the character of a subsequent attack has been placed beyond the region of doubt. It is not perhaps too much to expect that not only the acquisition of this extended knowledge, but also the manner of its acquisition, will exert an enduring influence upon the workers to whom we are indebted for it, and a resulting benefit will be conferred upon the community as a slight return for the misery and suffering which has been imposed upon the present generation.

May we not hope that many of the workers may be influenced as John Hunter was, and remain to the end of their careers active searchers after and exponents of the secrets of Nature, as well as better practitioners of medicine?

Many of my predecessors have striven with a varying measure of success to portray Hunter as a man and member of society; yet, the strange paucity of material at command appears to render any estimate of his personality from this point of view incomplete and uncertain.

I prefer to ask my audience to study his presentment as it hangs upon the wall before us, and from its inspiration to try and form a true conception of the man and the soul that was within him.

The concrete labour of his hands is still exhibited within these walls, while the germs contained in his writings have served to incite and direct the minds of the many searchers in the wide field of biology who have followed in his footsteps. If but one lesson could be learnt, the secret of his untiring industry, and this pressed home on those whose privilege it is to follow in his path, great indeed might be the result to mankind. The problems that to-day await solution are no less numerous or less vital than those John Hunter sought to unravel, while the constantly increasing means of investigation at command lay a growing responsibility upon the student.

The memory of John Hunter is fresh within these walls, and it is still green without, and I cannot, perhaps, better close this unworthy effort to sustain that memory than by quoting the words of one of his bitterest foes regarding the period of Hunter's life immediately following his return from the wars:

"During this time he found himself at leisure for meditating plans of life that plainly denote an intrepidity of mind and a vigour of application which, natural obstacles unsurmountable by most, could not suppress in him: (plans) which few have attempted although supplied by the completest aid of academic learning." [28]

Mr. President, posterity has judged how far Hunter succeeded in his aims, and has within the walls of this College awarded him a standing memorial which would, I think, have satisfied the man himself.

REFERENCES.

[1] S. Paget, *Life of John Hunter*, p. 75. [2] Guthrie, *Commentaries on Surgery*, p. 5. [3] Palmer, *Works of John Hunter*, vol i, p. 495. [4] Vol. iii, p. 353. [5] Vol. iii, p. 239. [6] Vol. iii, p. 260. [7] Vol. iii, p. 407. [8] Vol. iii, p. 369. [9] Vol. iii, p. 369. [10] Loc. cit., vol. iii, p. 545. [11] Loc. cit., vol. iii, p. 543. [12] Loc. cit., vol. iii, p. 549. [13] Vol. iii, p. 550. [14] Loc. cit., vol. iii, p. 552. [15] Loc. cit., vol. iii, p. 239. [16] Loc. cit., vol. iii, p. 260. [17] On the Principles of Antiseptic Surgery, *Virchow's Festschrift*, 1891, vol. ii, p. 344. [18] Loc. cit., vol. ii, p. 358; An address on the antiseptic management of wounds, 1893. [19] Loc. cit., p. 161: A method of antiseptic treatment applicable to wounded soldiers in the present war. [20] Loc. cit., p. 331: Notes on the double cyanide of mercury and zinc as an antiseptic dressing. [21] Loc. cit., vol. iii, p. 260. [22] BRITISH MEDICAL JOURNAL, 1916, vol. i. p 685 [23] Loc. cit., vol. iii, p. 604, Case 3. [24] Loc. cit, vol. iii. p. 581. [25] Reports on the Surgical Cases noted in the South African War, 1899-1902, Surgeon-General W. F. Stevenson. [26] K. Saigo, Traumatische Aneurysmen in japanisch-russischen Kriege, *Deutsch. Zeit. f. Chir.*, Bd. 85, 1906, S. 577. Leo

Bornhaupt, Gefassverletzungen und traumatische Aneurysmen in russiche-japanischen Kriege, *Arch. f. klin. Chir.*, Bd. 77, 1905, S. 590. [21] *Zentralbl. f. Chir.*, vol. ii, 1913, SS. 1241, 1242. [22] Jesse Foot, *Life of J. Hunter*, p 82.

ROTATION OF THE LIVER ON ITS VERTICAL AXIS.

BY

JOHN HOWELL, M.B., B.S.LOND., F.R.C.S.ENG.,

HONORARY SURGEON, CHELTENHAM GENERAL HOSPITAL.

ON June 23rd last I was asked by my colleague, Dr. Hebblethwaite, to perform cholecystotomy for the removal of gall stones on a female patient of his, aged 33, in the hospital. The history and symptoms were the usual ones in a case of this kind, and the physical signs gave no clue either by their presence or absence of the difficulty that was shortly to be encountered. There was tenderness and rigidity of the right upper rectus and pain on pressing the twelfth rib about an inch from the spine.

On opening the abdomen in the right upper semilunar line by the usual gall bladder incision, which discloses the liver in its upper third, on this occasion the liver could not be seen until a fold of peritoneum which covered it and separated it from the diaphragm and upper abdominal wall had been lifted up. The hand was then introduced to explore the gall bladder, but no gall bladder was to be felt or seen, the only thing that bore the remotest resemblance to it was soon found to be the lower pole of the right kidney, which therefore must have been projecting forwards unduly. I then passed my hand up to the transverse fissure, but I could not find the foramen of Winslow, and though I could identify the anterior pillar and its contained structures, the common bile duct, the hepatic artery and portal vein, yet the "feel" of it seemed in some indefinable way to be not quite normal. There was nothing left to do but to trace the edge of the liver both ways; towards the left nothing could be identified the whole way round; towards the right I came upon the liver notch in a position corresponding to the anterior axillary line. Here was something definite at last. The fold of peritoneum which covered the edge and upper surface of the liver was found to be tied down at this notch and so was identified as the suspensory ligament, and this was confirmed by tracing its free edge to the umbilicus; its attachments to the diaphragm occupied the normal position. On tracing the edge of the liver further round still I came upon a small flaccid sac containing calculi suspended hammock-like by a mesentery from the under surface of the liver in a position corresponding to the posterior axillary line and in front and to the outer side of the upper part of the right kidney.

The riddle was now almost solved: the liver had rotated on its vertical axis through an angle of approximately 90 degrees; the lobe opposite the incision and covered by the suspensory ligament was the left with the characteristic omental tuberosity on its under surface, and the quadrate lobe, instead of being opposed to the abdominal wall between the mid and right semilunar lines, was related to the right hypochondrium between the anterior and posterior axillary lines. It was impossible to see the gall bladder through my present incision, though it extended from the margin of the ribs to opposite the umbilicus. I tried to rotate the liver back again to its normal position, grasping it with both hands to make the attempt, but I found that it was immovably fixed in this position, nor could the gall bladder be made to present in the incision. I therefore made a transverse incision at right angles to my first incision back as far as the mid axi lary line. The gall bladder could now be opened in the corner of this incision, and I evacuated eighty-one small calculi. A tube was put in and brought out at the same place.

The patient made an uninterrupted recovery.

I regret that the condition of the patient after the transverse incision was made permitted us to do very little more than complete the operation we set out to do—namely, to relieve her of her gall stones—otherwise more time would have been spent in examining the relation of the liver to the neighbouring organs and viscera. I did make another attempt to pass my finger through the foramen of Winslow, but was no more successful. The stomach, pylorus, duodenum, and hepatic flexure of the colon seemed to occupy their normal positions, and the liver seemed to be of the size to be expected in a female patient. The gastro-hepatic omentum seemed to be more superficial than is ordinarily the case, but I made no examination of the cardiac orifice of the stomach.

It is, I think, significant that the rotation of the liver is from left to right, and through the same angle, namely, 90 degrees, that the stomach and duodenum rotate early in fetal life, and at first it was a tempting theory to suppose that it took place at the same time.

In the meantime, however, I have had the benefit of a note from Professor Arthur Keith, who has set me right on this matter. It appears that this rotation is an extreme degree of prolapse of the liver, occurs only in women, and in women over 30 years of age. It is usually accompanied by evidence of visceroptosis. My patient was certainly on the spare side, and was such a patient as one would not be surprised to find a movable kidney in, but the right kidney, at any rate, was fixed with its lower pole projecting forwards under the liver. The only other evidence of visceroptosis was the gall bladder mesentery, which was about an inch long.

THE EFFECTS OF CINEMATOGRAPH DISPLAYS UPON THE EYES OF CHILDREN.

BY

N. BISHOP HARMAN, M.A., M.B., F.R.C.S.,

SENIOR OPHTHALMIC SURGEON TO THE WEST LONDON HOSPITAL, AND OPHTHALMIC SURGEON TO THE BELGRAVE HOSPITAL FOR CHILDREN.

THE following observations refer only to the direct effects of the cinematograph display upon the eyes, and ignore indirect effects that may be held to arise from undue excitement, confinement within a place the atmosphere of which may be injurious, and the fatigue caused by the late hours at which children attend exhibitions.

In general, it may be said that the effects on the eyes of children do not differ from those experienced by adults. There are few, if any, adults who do not experience some annoyance, very many of the more sensitive or impressionable feel considerable strain; children may be taken to be in the same class as the more impressionable of adults, owing to their lesser power of resistance and readier experience of fatigue.

The unpleasant effects associated with the cinematograph exhibition, so far as they affect the eyes, are due to the following conditions: (1) Glare; (2) flicker; (3) rapidity of motion; (4) concentration of attention; (5) duration of exhibition.

Some of these conditions are peculiar to the cinematograph, others are found in the same or some degree in other optical exhibitions. But none of them are natural, and the more they depart from the conditions of natural phenomena the greater is the adverse influence on the eyes.

1. *Glare.*

Though the human eye has a wonderful power of adapting itself to varying conditions of illumination, it is wellnigh incapable of adapting itself to a single light in a dark place. The light may be feeble, but if the space in which it is exhibited be dark, it will be relatively intense, and therefore irritating to the eyes.

These conditions are found exemplified in the highest degree in all optical lantern exhibitions. To enhance the effect of the show the room is made as dark as possible, the light of the lantern as bright as possible, and the transparency as strong as possible. The light from the lantern is projected on to the whitest possible screen, and therefrom it is reflected directly into the eyes of the observer. All these necessary conditions of the show are bad conditions for the eyes; they all tend to produce the maximum of fatigue. The effects of glare are further intensified in the cinematograph show by the programme screens shown between the films. These slides are often far too brilliant in the contrast between the white print and the dark background; particularly bad are the impromptu slides made by scratching the writing on a screen of coloured gelatine. These slides should be prepared so that the contrast between the print and the background is the smallest necessary for visibility. In a

few badly managed shows there are occasions when the film is entirely withdrawn from the lantern. Then the watchers are exposed to the full glare of the reflected light of the lantern.

Glare cannot be dissociated from the shows. It can be reduced by providing a sufficient illumination of those parts of the room or hall removed from the immediate region of the screen; by attention to ordinary details connected with the use of fixed slides; and by care in the degree of illumination of the hall during the interval.

2. *Flicker.*

Most people will acknowledge that the flicker of the cinematograph is peculiarly irritating. Flicker is of two kinds. First, there is the effect of the rapid change of the moving film. Sensitive people—those whose "reaction time" is high—appreciate this more than those whose senses are duller. The effect is irritating according to the slowness of the flicker. The more rapid the change of the film, the less is the effect upon the eye; if the film can move at a rate slightly greater than that at which the keen eye is able to perceive variations of light, this sort of flicker will cease to worry. There is already a great improvement in the newer films and machines. The defect is most evident now in the coloured films, where attempts are made to give a natural colour to the scenes by the rapid alternation of different coloured films.

There is another kind of flicker due to bad films. Scratches and patches produce faults in the films which allow of the sudden exposure of the eyes to bright flashes of light; when these flashes follow in rapid and irregular succession, as in a badly damaged or worn film, all the irritable effects of flicker are intensified.

3. *Rapidity of Motion.*

This defect in the cinematograph is to some extent connected with the previous defect. With the intent to reduce flicker, films are moved though the machine at a rate greater than the natural rate of progress of events depicted. The eye has a habit of work, just as any other part of the body or the whole organism, and there is a resentment expressed in terms of fatigue when it is required to work at a rate different to the habitual rate. The defect in the film is most evident in those scenes which depict movement near at hand; when the scene is a distant one the variation in speed is little noticeable.

4. *Concentration.*

Work is arduous according to the concentration of effort. The cinematograph requires a concentration of attention greater than that necessary to follow any other kind of show, and the effort is a conscious effort. At the play there is sound as well as sight, and the sight to be seen is a slower moving scene in a full perspective and of solid proportion. The players have individual points of interest, in their persons and clothes; the eye wanders over these points at an habitual rate of work, and it is not unduly exhausted. At the cinematograph there is no adjuvant sound which carries on the sense of the screen when the eye is not engaged. For the whole duration of the scene the eye must be fully alert and constantly varying its condition according to the variation of illumination of the screen. Children are well aware of the difficulty of concentration of sight. They have a game of competition in concentration. Each tries to stare the other out of countenance without a blink of the eyelids. The one that blinks first loses the game. The effort required to refrain from blinking on such a short concentration of vision is some indication of the effort of concentration required to follow the cinematograph picture. Such a concentration of effort is quite unnatural, especially for children. Ordinarily the eye wanders freely over objects, the time of concentration on any one object is very short. One can gain some idea of the frequency of variation of movement of the eye by looking at some object in the sky near enough to the sun to cause the sensation of after-images of the sun. Although the eye was apparently engaged in looking fixedly at the object, the number of after images of the sun will prove that even for that short space of apparent perfect concentration it had moved several times.

5. *Duration of Exhibition.*

Cinematograph shows commonly last from one and a half to three hours. During that time, save for the short intervals, the eye and the mind are on the stretch. The attention of the child is not naturally capable or willing to concentrate for any but the shortest time. It is common knowledge with teachers that lessons to be effective must be short, and the shorter the more youthful the child. With a lesson longer than half an hour the attention of the small child flags, and the time is lost and the child tired. Conversely, if the attention can be forced by the thrill of the picture show for a longer period than is natural, the nervous effort is increased out of all proportion.

These are the main defects associated with cinematograph shows. Some of them are peculiar to this show, others common to it and other shows produced by the optical lantern. Some are remediable, others may be mitigated by an alternation of the exhibition with other kinds of entertainment. All of them may be reduced in intensity by shortening the duration of the show and preventing small children from attending two shows in direct succession.

Some other ill effects may be experienced according to the position occupied by the observer in relation to the screen. The "optimum" position is as nearly as possible in a line with the centre of the screen and as far away from the screen as thrice its full height. In this position and at such a distance the picture appears more natural than in any other. If the observer is too near all the defects of the film are exaggerated and the movements of head and eyes to cover the field of the screen are fatiguing. If the observer is too far to one side of the centre of the screen the distortion of the image thrown on the screen is great. If the observer is too far away from the screen the effort of concentration to catch the drift of the show is exaggerated.

It will be asked, What evidence is there that children's eyes suffer from the picture shows? The evidence is of such a nature that it cannot be presented by figures and percentages. It is difficult to answer the question whether permanent defect arises out of attendance at the shows. But there is a recent observation which I am inclined to think has some bearing on the point.

The examination of the case papers of a large number of school children, who have been referred to eye clinics on account of failure to pass the standard vision tests at the schools, shows that there is an increasing number of children who on examination at the clinic are found to have nothing the matter with them. At the school they did not pass the test; at the first examination at the clinic they did not pass the test; but when their eyes were examined nothing amiss was to be found, their eyes objectively were normal, or so nearly normal as to be quite capable of passing the standard test; at a later subjective examination they did pass the test satisfactorily. Several causes may be at work to account for these occurrences. The children may fail to appreciate what is wanted of them at the first test, but against this it is to be observed that the occurrences are not confined to the small children. The children may be "making game" of the matter to get a half holiday at the hospital; possibly this is so in a few cases. But by far the most likely cause is a condition of fatigue in the children so that at the time of the test they were incapable of putting out sufficient energy, either ocular or mental, to read the standard types. Every one is familiar with the fact that in a state of fatigue ordinary feats, easily accomplished in health, cannot be accomplished. In some cases I have ascertained that children of this sort were in the habit of going to picture shows, and it is possible the increasing attendance at these shows may be associated with the increase in the number of those children who fail at the vision tests without objective cause. If the normal-eyed children suffer, it is certain that the result will be more serious in those with defective eyes, and possibly lead to permanent aggravation of those defects.

The best protection for the child will be secured by the following provisions: (1) The reasonable illumination of all parts of the hall not directly beside the screen. (2) The improvement of the movement of the film so as to reduce flicker, and the withdrawal of films immediately they are damaged. (3) An improvement in taking the picture so as to bring the rate of motion of the objects depicted more nearly to the natural. (4) The increase in the number of intervals in the show, and the interposition of exhibitions other than that of the optical lantern. (5) The limitation

of shows for children to one hour, and the prohibition of "repeats." (6) The reservation of the children's seats to the "optimum" position in the hall.

With such provisions the indulgence in a show once a week should do no harm to the eyes of a normal child.

PUERPERAL FEVER TREATED BY VACCINE.

BY

RICHARD KAY, M.B.LOND.,

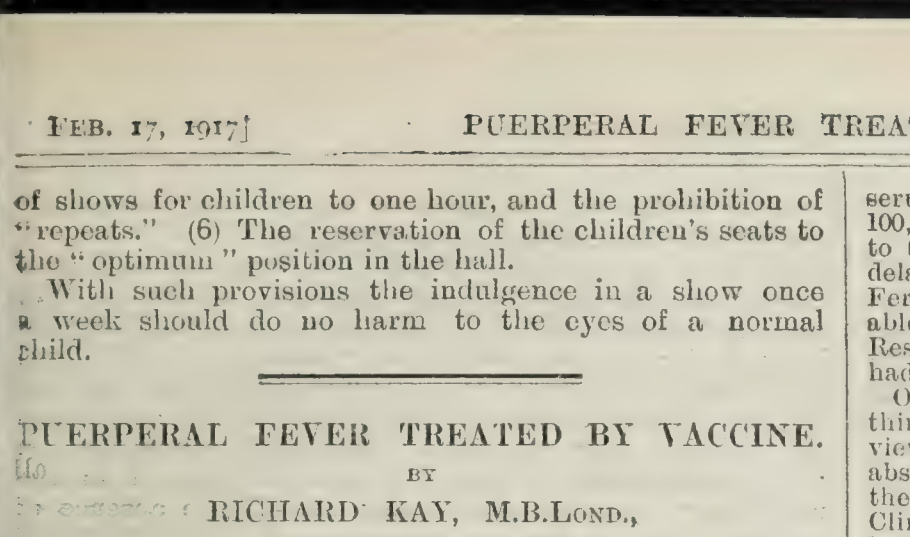
HARTLAND, NORTH DEVON.

THE following case may be of interest in connexion with that recorded by Dr. Grier in the BRITISH MEDICAL JOURNAL of September 30th, 1916, p. 454.

Mrs. H., a young primipara, was confined on March 27th. I had been called to see her three days earlier as she had an erythematous rash, without fever or other symptoms. It had almost vanished when she was confined, and there was no subsequent peeling. The head was at the vulva when I arrived, and I was told it had been there some time. The presentation was occipito-posterior unreduced. The child was born in half an hour, and there was a considerable tear of the perineum. The placenta was long in coming and was incomplete. While I was preparing to explore the uterus the patient, who was well and cheerful when the child was born, complained of faintness, and I found her pulseless. There was no marked external haemorrhage, and the uterus was contracted, but she was pale and restless and had sighing respiration. For two hours I tried to rally her, with no success. As she then passed a large clot, I gave chloroform and removed the rest of the placenta, which was lying loose at the internal os; the uterus was then douched and pituitary extract was injected; saline was injected per rectum and afterwards into the axillae, but with no result, and I left her six hours after the birth of the child still practically pulseless. Twelve hours later she had rallied; she was warm, her pulse was 120, and the temperature normal. She had an angry blister, the size of half a crown, on the left buttock, three or four inches from the vagina, and stated that she had felt some discomfort there for several days. To this I attribute the fever which followed.

Next morning she felt better, but had a headache; the pulse was still 120, the temperature was 99°. In the evening the temperature was rising, and the perineal tear looked sloughy. Remembering the rapid and possibly inadequate exploration of the day before, I explored the uterus again after cauterizing the perineal tear with carbolic acid. I found nothing, but caused a rigor.

Next day, as the patient was obviously worse, Dr. Pearson of Bideford kindly saw her with me; he also found that the uterus was empty. I then injected antistreptococcic serum,



A = Rigor; temperature not taken. B = Consultation. C = Serum, 30 c.cm. D = Serum 20 c.cm. E = Cough; serum, 30 c.cm. F = Urticaria. G = V.E swab from cervix H = Measly rash; delirious. I = Polyvalent vaccine; negative phase. J = Sweating.

with excellent results as shown by the chart, for a few days; the pulse came down to about 100, and the patient was indomitably cheerful. She then developed a slight cough, the temperature began to rise in the evenings and presented a septic character. A few days later the morning temperature also gradually rose, and she developed an urticarial serum rash, ten days after the first injection of the serum, and on the thirteenth day of the illness. The cough continued, but all that I could find was slight diminution of entry of air and diminished resonance at the base of the right lung; the breathing was not quickened. The perineal tear was clean, there was a slight discharge from the cervix, but no smell; the blister was still angry and painful. Aspirin had been prescribed for a few days, and afterwards quinine, and a vaginal douche was given twice daily.

When the urticaria disappeared and the morning temperature remained high, it became evident that the latter was not a serum phenomenon. Moreover the pulse began to rise above 100, and the patient lost her pluck. I was unwilling to put her to the expense of an autogenous vaccine, but I felt further delay would be dangerous. A swab was taken through a Fergusson's speculum, and this apparently caused a considerable increase in the fever. Three days later the Clinical Research Association reported that so far no virulent bacteria had developed.

On the twentieth day of the illness the patient developed a third rash which was measly in type and doubtless septic. In view of the negative bacterial report I tried to find an internal abscess, but failed, nor could Dr. Pearson discover anything of the kind. Next day the patient became delirious, and the Clinical Research Association reported that a few streptococci had developed and that they were sending a stock vaccine at once. The marvellous result of that stock vaccine, after a slight negative phase, is shown by the chart. The patient had a crisis and was well. The cough, never troublesome, cleared up. Only the obstinate sore on the buttock remained, and when the autogenous vaccine arrived and was injected that cleared up at once; evidently the vaccine was specific as regards the blister.

The patient, I think, must have had a low form of septic pneumonia, although the physical signs were never definite. A septic pneumonia does not usually end by crisis, but apparently the vaccine stimulated it to do so. The initial collapse was puzzling. In the absence of cyanosis and struggling for breath I hesitated to diagnose embolism of the lungs; perhaps there was some embolism of the heart, or a massive septic infection. There was a little more bleeding than usual, but not much. There were never any abdominal symptoms except slight tenderness over the uterus.

A CASE OF "TRENCH FEVER" CONTRACTED IN ENGLAND.

BY R. D. MACGREGOR, B.A., M.B.OXON.,

CAPTAIN I.M.S.(RETIRED).

THE case of "trench fever" here described is recorded because the patient has never been out of England, and has contracted the disease while in hospital in attendance upon cases of trench fever from France. As has been the case in a number of instances occurring abroad, the patient is an R.A.M.C. orderly.

Pte. A., R.A.M.C., has been employed for some months at this hospital as a ward orderly, and bears a good character. He is 54 years of age, and has had no serious illness except appendicitis, for which he was operated upon. He has never had rheumatism.

On August 30th, 1916, he had acute pain in his legs all night. For three days before this he had had some aching in the legs, but had carried on with his duties. On the morning of August 31st his legs were so acutely painful that he could not stand, and was brought to the hospital on a stretcher. The fronts of the legs were found to be very tender, the tenderness being most marked along the inner border of the tibiae. There was headache, and some tenderness and pain over the front of the thighs. The temperature in the evening was 100°; the next evening it was 101°, the symptoms continuing the same. On the fourth day the temperature came down to normal, and remained so thereafter, but there was little remission in the pain. He was not able to stand with ease until about the seventh day. In addition to the leg pains, headache was frequent, and pains began to be experienced in different parts of the body—transversely across the chest below the nipples, in the neighbourhood of the hips and of the shoulders. On November 5th there was pain, which he described as "cruel," in the left shin, but none in the right. There was pain also in the right shoulder. The pains were usually worse at night and in damp weather. Throughout the illness there were no pathological signs except the initial pyrexia.

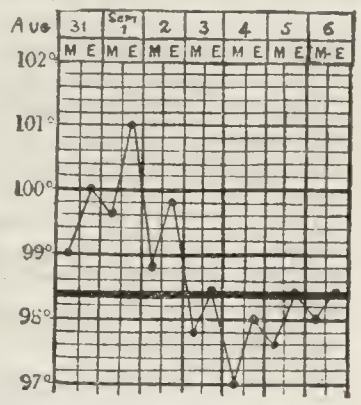


CHART 1.—Pte. A.; "myalgic" type of trench fever (contracted in England).

The case is fairly typical of the "myalgic" type of trench fever. Trench fever, as so far described, has no completely uniform character, but presents a symptom-complex easily recognized and divisible into a number of well-marked types. McNee, Renshaw and Brunt,[1] and Hurst[2] have described a "long" and a "short" type of

trench fever. To these Houston and McCloy[3] have added the "myalgic" type, as well as a "septicaemic" type.

The case described above belongs to the "myalgic" type, which in general characters is very similar to the other types, but differs in having a short duration of pyrexia with a long duration of the pains. The myalgic type and the "long" trench fever type in this hospital

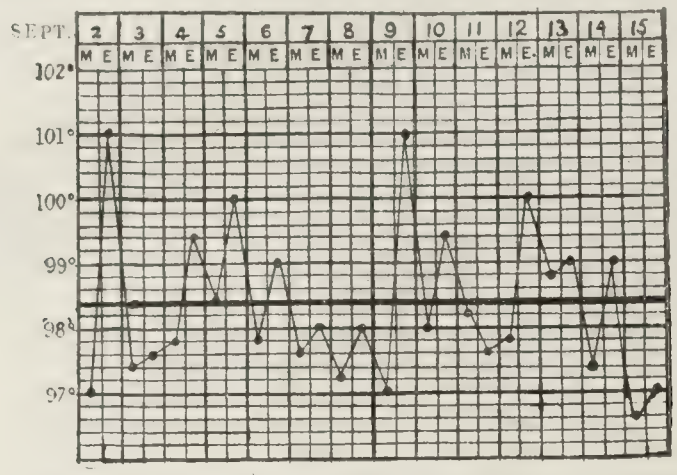


CHART 2.—Twelfth week of "long" type of trench fever.

differ only in the temperature chart, which in the first named shows only a few days' pyrexia, while in the second there is a course of low irregular pyrexia extending over many weeks, with occasional spikes rising a degree or two higher.

The "short" type of trench fever has not been seen in this hospital, possibly because such cases do not find their way over from France. The "septicaemic" type of Houston and McCloy has also not definitely been established here.

The various types merge into one another, showing the essential identity of the symptom-complex of trench fever. There is no catarrh nor definite joint pains, but a variety of exceptional symptoms may occasionally give rise to diagnoses of "gastralgia," "influenza," "rheumatism," etc.

The excessive duration of fever and pains in the "long" type and of pains alone in the "myalgic" type were at first a source of concern, because weeks went on without any end to the condition becoming apparent. The physical state of the patients seldom gave cause for anxiety, but no form of treatment appeared to effect a cure. The passage of time, however, has shown that the most obstinate case finally yields, though the longest case took as many as fifteen weeks to do so. There is a gradual amelioration of the pains, the malaise disappears, and the temperature gradually settles upon the normal line.

In the case of Private A., given above, the pain latterly occurred in the left shin only. This is exceptional, only one other case with this peculiarity having been seen, for the leg pains are in almost every instance bilateral.

REFERENCES.
[1] BRITISH MEDICAL JOURNAL, February 12th, 1916. [2] *Lancet*, October 14th, 1916. [3] *Lancet*, October 7th, 1916.

NOTES ON SO-CALLED "TRENCH FEVER" AS SEEN IN ENGLAND.

BY

JEFFREY RAMSAY, M.D.LOND., B.S.,
CAPTAIN R.A.M.C.(T.),
EAST LANCASHIRE CASUALTY CLEARING STATION.

THERE is much similarity between so-called "trench fever" and a short pyrexia which is prevalent at present among the troops in England.

The signs and symptoms of "trench fever" were described recently[1] in an able article by Captain J. Muir, R.A.M.C.(T.). On reading his remarks, the medical officers of this hospital said to themselves: "Here is a description which tallies almost exactly with the cases which we are admitting daily from a large camp here in England—cases which have not been overseas at all. Are we justified in calling our cases 'trench fever'?"

Between October 1st and December 31st, 1916, the number of cases admitted to our wards from the neighbouring camp with a diagnosis on their sick reports of either influenza or pyrexia was 199.

Of those men who were under my care, all had, to a greater or less extent, symptoms associated with pyrexia from any cause, such as headache, pains throughout the body, and a general feeling of "rottenness." But (and this is what I wish to emphasize) many of them showed the two principal features which Captain Muir mentions as differentiating the cases from influenza—namely: "(1) The absence of any symptoms of catarrh in the respiratory tract (or elsewhere); and (2) the absence of all complications such as so commonly follow attacks of influenza."

The average temperature of the cases on admission was 102°. In nearly all it fell to normal within thirty-six, or at the most forty-eight hours. As Captain Muir points out in the overseas cases, the sooner a man is taken to hospital after the onset of the attack the sooner will his temperature fall. Here we are exceptionally fortunate in the facilities for rapid and comfortable transport.

Our cases showed no constant remission on the third or fourth day, though in some the temperature did not settle completely until a few days had passed. This is the only particular, and it is a very slight one, in which our cases show any difference from the cases recorded from overseas.

The cases which were investigated fully were taken from those which showed no catarrh of the respiratory tract (or elsewhere), so as to exclude from our survey those that might be diagnosed rightly as influenza.

Of the cases so investigated, nasal and pharyngeal swabs showed, in one case only, the presence of a large number of influenza bacilli. In the remainder we found many of the usual organisms associated with the naso-pharynx (*M. catarrhalis*, pneumococcus, Friedländer's bacillus, Hoffmann's bacillus, etc.), but no organism was found to be present constantly in all the cases.

Most of the men showed a considerable leucocytosis at the beginning of the attack—from 18,000 to 21,000, or even higher, was not uncommon. Differential counts showed a constant tendency to increase in the polymorphonuclears. A usual feature was the continuance of leucocytosis for at least twenty-four hours after the temperature had fallen.

The pulse-rate showed great variability, and was not constantly increased, or diminished, in proportion to the temperature. There is nothing to remark with regard to the systolic or diastolic blood pressure, and the kidneys were unaffected.

My colleague, Captain Crawshaw, and myself tried three plans of treatment: (1) Keeping the patient in bed on a milk diet without medicine; (2) giving a dose of calomel; (3) treating with sodium salicylate every four hours. We do not think that recovery was hastened materially by any medicinal treatment.

As a rule the patient is allowed to get up when the temperature has been normal for twenty-four hours, and complications are unknown.

SUMMARY.

It seems, therefore, that in the training camps of England we have a disease which for all practical purposes is indistinguishable from the "trench fever" of the overseas troops. It occurs in men who have never been in the trenches, and who are not infected with lice. Captain Muir has laid stress on the fallacy of the term "trench fever." The army authorities, like the relations of a patient in private practice, wish for an exact diagnosis of every morbid condition, and it should be our business to see that the diagnosis is as accurate as is possible. In the present state of our knowledge (or ignorance) it seems to me that the term "short fever" is the most honest title to give to the condition to which I have referred in the above notes. It is quite as accurate as "scarlet fever"; neither term implies a knowledge of the causative agent. And if it rings the death-knell of the indiscriminate use of the word "influenza," it will have rendered a service to medicine.

I am much indebted to Miss Hubbard, of the hospital laboratory, for help in the preparation and examination of specimens.

REFERENCE.
[1] BRITISH MEDICAL JOURNAL, November 11th, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE APPLICATION OF SURGICAL METHODS TO THE TREATMENT OF CEREBRO-SPINAL MENINGITIS.

I DESIRE to suggest the application of surgery in the treatment of cerebro-spinal meningitis. Up to the present its partial application is universal, that is, by intermittent tapping, and this, if a reasonable flow takes place, is always followed by some amelioration of the patient's condition, even if it be only temporary. This alone seems to me prima facie evidence of the advantage of getting rid of the infected fluid, more especially as the symptoms of toxaemia and pressure only reappear on the reaccumulation of the fluid. In the majority of cases a certain amount of serum is introduced with the object of combating the injurious influence of the toxic material, but from the evidence adduced, it does not appear that this is more effective than simple tapping without it.

As all agree that the tapping is essential, and as it has to be repeated a number of times, each time with temporary benefit, may I suggest that a large amount of suffering and trouble might be avoided by using continuous aseptic drainage? the cannula would need to be especially strong and would be protected by a shield, and the flow could be regulated to suit the case. I would suggest the application of continuous drainage for "simple" cases.

There remain those cases in which the flow is at first enough in quantity and then becomes insufficient, whilst the symptoms become aggravated, or those in which the flow is from the first purulent and too inspissated to flow at all—those cases, in fact, to which the treatment of tapping, let alone injection of antitoxin, is impossible. They are the unfavourable ones and practically supply most of the deaths. It is these cases to which I think surgery could be applied with advantage—where, in fact, partial laminectomy might be done, for the purpose of direct drainage and perhaps lavage with saline, in order to establish a flow of spinal fluid which has been interrupted by adhesions.

I cannot understand how a small amount of antitoxic serum injected into the spinal canal after draining off a certain amount of spinal fluid can even reasonably be expected to counteract the evil effect of a more or less completely contaminated cerebro-spinal fluid, which it cannot even reach unless forcibly injected in quantity sufficient to produce dangerously injurious pressure.

But drainage, even imperfect drainage, has been proved to be beneficial; therefore I venture to press that perfect drainage would be even more satisfactory.

I hope by this note to direct the attention of those interested in the treatment of cerebro-spinal meningitis to the possibilities offered by surgery towards diminishing the death-rate in this disease, especially in affording a chance of rational treatment to those desperate cases which, without its aid, apparently must succumb.

H. V. DREW, F.R.C.S.,
Captain R.A.M.C., Tidworth Military Hospital.

LATE TETANUS.

PRIVATE A. M. was wounded on October 22nd, 1916, on the Somme, by shrapnel, in the posterior axillary line, left side, and received prophylactic injection on that day and on October 30th. On November 22nd there was slight rigidity of the left arm. On December 8th he was sent on leave, the wound being completely healed. On December 15th he returned to duty, and was fit and well, except for some bronchial catarrh and slight rigidity of the left arm.

On January 5th, 1917, he complained of pain in the head, and was admitted to Dunfermline Auxiliary Hospital on January 9th. On the 11th, when seen by the inspector of tetanus, he had retraction of the head, pain and stiffness in the muscles of the neck, and trismus was moderately marked. The knee-jerks were exaggerated, but there was no ankle clonus. There was slight arching of the back and difficulty in swallowing, and persistent cough and sputum. Antitetanic serum 3,000 units was given intrathecally, 1,500 units intramuscularly. The injections were repeated next day. He died on the morning of January 13th.

Post-mortem examination showed evidence of chronic alcoholism and bronchopneumonia of both lower lobes. Cause of death, pneumonia *plus* tetanus poisoning.

This case emphasizes the necessity for medical officers being on the look-out for local rigidity and contraction of limbs in relation to wounds, however late these signs may be in appearing. If the rigidity is not otherwise accounted for, it is an indication for immediate antitetanic treatment.

JAMES MILLER, Captain R.A.M.C.,
Inspector of Tetanus, Edinburgh.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

BATLEY AND DISTRICT HOSPITAL.

GANGRENE OF SMALL INTESTINE: LAPAROTOMY: RECOVERY.

(By W. AIRLIE OGILVY, L.R.C.P. and S.Edin., Surgeon to the Hospital.)

MRS. G. W., aged 34, was admitted at 12 noon on May 22nd, 1916, suffering from acute and constant pain across the lower abdomen. She stated that she had had no previous illness, had been married eight years, and had one child five years old. Her family history was excellent. She had been suddenly seized with severe intermittent pain across the lower abdomen at 2 p.m. on May 21st. When seen at 7 p.m. she was in the knee-chest position in bed in a paroxysm of pain. The pulse was 75, the temperature normal; there was some tenderness and the abdomen was rather rigid. She had not vomited; the bowels had acted once during the afternoon. She was in the third month of pregnancy and had seen a little blood. She thought she was aborting. The uterus was less movable than normal; the external os was closed and patulous. Morphine gr. $\frac{1}{3}$ was given hypodermically.

Next morning she stated that she had had a fairly comfortable night, but had not slept much. The pain was returning and was more constant in character; the abdomen was rather distended and more tender than before and very rigid; the pulse was 90. She was removed to hospital forthwith.

At 3 p.m. the abdomen was opened in the middle line below the umbilicus. On opening the peritoneum a small quantity of blood-stained fluid escaped and a coil of distended gangrenous bowel presented. On enlarging the opening in the peritoneum, a second and a third coil presented in the same condition. They proved to be about the junction of jejunum and ileum. A large calcareous mesenteric gland, as large as a bantam's egg, was found, from which a very short, thick band extended to the mesenteric attachment of the bowel, causing a very acute kink at the distal end of the distended bowel. The gland and $3\frac{1}{2}$ ft. of bowel were removed, a side-to-side anastomosis made, and the abdomen closed.

The patient made an uninterrupted recovery, but aborted on the eighth day after the operation. In ten weeks she was doing her housework and feeling in excellent health. Previously her bowels were rather constipated, now they are perfectly regular.

I am indebted to Dr. Eley for his able assistance at the operation.

A CHAIR of oto-rhino-laryngology has recently been founded in the University of Geneva. Dr. Amédée Pugnat has been appointed professor.

A NEW monthly periodical entitled the *American Review of Tuberculosis* is to be published by the (American) National Association for the Study and Prevention of Tuberculosis. The first number will appear in March.

AT its annual general meeting held on November 26th, 1916, the medical syndicate of the Seine department decided that in future medical fees should be increased by 25 per cent. for all persons whose resources had not been diminished owing to the war.

Reports of Societies.

NAVAL MEDICINE IN THE GREAT WAR.

At a meeting of the Medical Society of London on February 12th, the President, Lieutenant-Colonel D'Arcy Power, being in the chair, Surgeon-General H. D. Rolleston gave an address on this subject.

After describing the manner in which the medical service of the navy had been expanded, and the arrangements for the transport of wounded and sick, he discussed the health of the navy during the war. The shore dépôts and training establishments had proved more liable to epidemic disease, owing to contact with the civilian population, the influx of new entries, and the massing together of youths in the boy training establishments. Out of 274 cases of cerebro-spinal fever during the first two years, 252, or 92 per cent., occurred on shore.

The Service Afloat.

The general health of the Grand Fleet had been extremely good. The average daily percentage of sick in the whole fleet in 1913 was 2.37 and in 1914 2.03. Since the beginning of the war the rate in the Grand Fleet had been almost always under 1 per cent. It would have been even less had it not been for the higher rate of sickness among the reservists and pensioners. Most of the sickness was of a minor character, such as seasonal influenza and boils. An interesting point was the severity of measles among the Shetlanders, both in the fleet and among the reservists at Lerwick, where there was a severe epidemic early in 1915. In ordinary times measles was rarely seen in the Shetlands, but when introduced an epidemic resulted. He had seen a relapse of measles in a Shetlander on the twenty-eighth day of the disease—an extremely rare event. No case of small-pox occurred in the fleet. Small outbreaks of enteric fever in three ships were traced respectively to infected oysters, to a carrier, and probably to contaminated water taken on board at Montreal.

In the Eastern Mediterranean Squadron during August, October, and November, 1915, almost every ship was attacked by epidemic gastro-enteritis, which died down in December, 1915. There was a fair number of cases of typhoid, paratyphoid, and dysentery between August and the end of December, 1915. The dysentery was mainly amoebic, and in many cases associated with jaundice. The infection was probably conveyed by flies and by men returning from the beach. The health of the Adriatic Squadron at this time was excellent, and the average daily sickness for the whole Mediterranean Fleet from August 15th, 1915, to October 31st, 1915, was 2.24 per cent., and from November 1st, 1915, to January 31st, 1916, 1.52. From February 1st to April 30th, 1916, the health was even better, with a daily percentage of 1. Between May 1st and July 31st, 1916, it rose slightly to 1.14 per cent. Sandfly fever was prevalent in Salonica in May, and appeared in some of the ships in the Eastern Mediterranean, and at intervals cases of paratyphoid, dysentery, and malaria occurred. In the quarter ending October 31st, 1916, the daily percentage of sick was 1.08; dysentery and malaria were less frequent, and typhoid and paratyphoid rare. No cases of beri-beri had been reported. During August and September, 1915, there was an extensive epidemic of dengue at Bermuda, but the average incidence of the disease in men-of-war there was 3 per cent. only. Meagher's observations there supported the view that the disease is spread by mosquitos. The good bill of health of the fleet as a whole was due to (1) the comparative isolation of the fleets, and especially of the Grand Fleet. (2) The quarantine precautions in drafting from the shore establishments to the fleet. (3) The lectures given by the medical officers to the ships' crews on personal hygiene, dealing especially with the dangers of venereal disease and alcoholic excess. These appealed to the common sense of the men, and, as an illustration of their good effect, on the return from leave of the men (about 1,100) of one great battleship there were only three cases of gonorrhoea and one of syphilis. (4) Measures—such as regattas, boxing competitions, entertainments, lectures, and cinemas—to mitigate the effects of monotony entailed by awaiting events. (5) Improvement in the ventilation of the ships.

Large numbers of reserves had necessarily to be passed rapidly into the ships during the first few days of war, and a certain proportion of unfit slipped through. The incidence of sickness was therefore much higher in the Royal Naval Volunteer Reserve and Royal Naval Reserve than in the Royal Navy. Cases of failure of cardiac compensation, of relapses in pulmonary tuberculosis, and of diseases which had previously led to discharge from the service were not infrequent, and dental caries and insufficiency extremely common. He had seen ten fatal cases of malignant endocarditis and one of malignant aortitis, chiefly in reservists and pensioners. The numerous new entries, mostly quite young, provided a favourable soil for infectious diseases, such as measles, rubella, scarlet fever, mumps, and cerebro-spinal fever. Outbreaks occurred, but it was remarkable that there was so little illness. The effect of long-continued strain in activating latent disease, such as tuberculosis or heart disease, was seen, and it precipitated tabes and general paralysis in some syphilitic men. Exophthalmic goitre, as during the siege of Paris, and during the Boer war, seemed to have become more frequent. Over-excitation of the ductless glands might result from excitement or toxaemia due to acute infections, and while all the ductless glands might be affected it was possible that only that of the thyroid had been detected. The prolonged monotonous strain favoured mental deterioration, psychasthenia, and neurasthenia, and the short interludes of acute stress and excitement might precipitate an acute breakdown with violent though transient symptoms and delusions. With the prolongation of the war the results of continuous and monotonous strain had not become more noticeable to anything like the extent which might have been expected. This was due to the fine spirit of confident superiority in the men and the hygienic measures. The effect of good *moral* in preventing mental disturbance was seen in the freedom of the men from these manifestations after the Jutland battle.

As compared with land warfare, the large number of men killed outright in naval actions was striking. The treatment of wounds by new antiseptic applications had been advocated by Sir Watson Cheyne (borsal), who also investigated Dakin's antiseptic, and a green spray of mercury perchloride and malachite green had been used with success at Haslar. Burns formed at least a third of the casualties in action and fell into two groups: (1) General and severe burns due to the ignition of our own cordite or to burning furniture. Destruction of the tissue was deep, the immediate mortality high, and sepsis and deformity prone to occur. (2) Burns of the skin of the face and hands due to the momentary flash of high explosives in a confined space. From instinctive closure the eye escaped, and the thinnest covering, if not inflammable, almost completely protected the skin. Picric acid proved most efficacious in the early stages, but subsequently moist and mild antiseptics were found to be more suitable. The new treatment by paraffin spray was now officially provided. Shock, even with slight injury, was found to be excessive. To obviate it, ½ to ⅔ gr. of morphine, hypodermically, proved a sheet anchor. The sublingual method of administration was not satisfactory. The most powerful factor in the production of "gassing" was nitrous oxide. The symptoms usually came on after an uneventful interval, during which the NO and NO_2 were possibly oxidized to nitric acid, which accounted for the acute irritant effects on the respiratory tract. Severe headache and vomiting were followed by cough, husky voice, dyspnoea, and cyanosis, which became progressively worse, rapid respirations reaching 80 or more, restlessness, pain and tightness behind the sternum, orthopnoea, frothy, sometimes blood-stained, expectoration, and oedema of the lungs. Prophylactic treatment was quite effective, and consisted in the immediate application of a respirator containing cotton waste soaked in the usual soda solution. The treatment of the declared condition was unsatisfactory. Atropine did not appear to have been successful. Some benefit had been ascribed to brandy, the production of vomiting, and the repeated administration of aromatic spirits of ammonia. He had seen three cases of CO poisoning among men employed in putting out a fire in the bunkers of a collier. Delayed pneumonia, three weeks after immersion, was noticed by Deputy Surgeon-General H. W. G. Doyne in some cases after the sinking of the *Cressy*, *Pathfinder*, and *Hermes*. Appendicitis was by no means uncommon. There was a decided percentage

increase directly after the battle of Jutland among the sick from the engaged ships.

The Royal Naval Division.

The naval forces had been exposed to the same infections and diseases as the armies with which they had been associated. Diseases due to infection through the alimentary canal—diarrhoea, typhoid, paratyphoid, dysentery, and jaundice—levied a heavy toll in Gallipoli. Diarrhoea was so frequent that it was regarded as an incident rather than as a cause for going sick. As it was common when sandstorms prevailed it was called sand diarrhoea, but was probably not due entirely to mechanical irritation, but also to micro organisms conveyed in the sand to the food; flies may have acted as carriers in the infection of food. Emetine and antidysenteric serum had given very satisfactory results in dysentery. Emetine was freely given, and in some instances the question arose whether subsequent palpitation, breathlessness, arrhythmia, and precordial pain were due to the infection, excessive smoking, or emetine. Other bad effects of this successful drug—peripheral neuritis and chronic diarrhoea, with or without blood—were to be distinguished from recurrence of dysentery. On the other hand, it might be responsible for the rarity of hepatic abscess. Bacillary dysentery was found to be more often—in the proportion of eight to one—due to Flexner's bacillus than to Shiga's, as judged by the serological examination of convalescent cases. Antityphoid inoculation had been fully justified by results. Much bacteriological work was necessitated in the testing of patients sent home for intestinal diseases in order to prevent the escape of carriers into the general population. Epidemic jaundice, apparently imported from Egypt, was common in Gallipoli at the end of 1915. There was no evidence that it was due to catarrhal jaundice in epidemic form, to dysentery, or enteric fever. The suggestion that it was due to paratyphoid had not been substantiated. Hurst regarded the disease as an acute infection of the duodenum, which, therefore, should be treated with the same precautions as enteric fever. A form of peripheral neuritis, clinically identical with beri-beri, occurred in Gallipoli and Mesopotamia. The usual explanation—the absence of the specific vitamine—presented difficulties, but Willcox, who noticed that it was often preceded by jaundice, supported the deficiency hypothesis by explaining that the diet suitable for jaundice, diarrhoea, dysentery, and paratyphoid contained very little, and that tinned food was almost devoid of the anti-beri-beri vitamine. Other fevers occurred in Gallipoli and Salonica, such as malaria, both the forms of trench fever, and sandfly fever. The value of anti-choleraic inoculation and of the efforts of the Health Department at the Dardanelles, was shown by the freedom of the Royal Naval Division from cholera and plague, which were prevalent among the Turks in the immediate neighbourhood. War nephritis and trench or Gallipoli sore, apparently analogous to veldt sore, and due to a Gram-positive diplococcus, were also reported.

Diseases of Airmen.

From leakage of petrol spray the pilot might become dizzy, and the exhaust gases from the engine—CO and CO_2—might cause headache, drowsiness, and malaise. The rarefied atmosphere at great elevations might induce the symptoms known to balloonists. Psychasthenic symptoms—loss of self-confidence and resulting mental worry—were not uncommon, and proved that the victim had mistaken his sphere of activity. Flying was the job of a young man under 30, temperamentally and physically suitable. Perfect eyesight was necessary to effect a safe landing, perfect hearing to detect the first indications of engine defect, and free movement of the joints of the lower limbs to control the steering gear.

DISCUSSION.

Sir ARTHUR MAY, K.C.B., Medical Director-General R.N., spoke of the high standard of health in the navy, and paid a glowing tribute to the civilian medical men of all grades who had joined the Royal Naval Medical Service during the war. He especially emphasized the self-denial of the surgeon-probationers and the excellence of their services.

Dr. F. W. MOTT said that he had found that usually there had been some antecedent condition of nervous instability in cases of mental trouble among soldiers. Shell shock also occurred in those of a temperamentally nervous disposition. He was interested in what had been said about nitrous oxide fumes, and had recently received a brain, preparations of which showed that there had been a profound effect upon the blood, the haemoglobin being probably converted into methaemoglobin.

Dr. THOMAS BEATON (temporary Surgeon, R.N.) said that the number of cases of the neuroses and psychoses admitted to the Royal Naval Hospital, Chatham, had steadily increased until, in the last quarter of 1916, the admissions were six times the average quarterly admissions in peace. The relative incidence to the total number of medical cases admitted, however, had only increased by 2 per cent. each year of the war. Of the cases of mental disturbance 60 per cent. showed conduct which could be termed insane, the remaining 40 per cent. consisting of pure neuroses and the psycho-neuroses. General paralysis, which formed 5 per cent., almost invariably showed marked dementia rather than any definite delusional state. Cases of non-systematized delusional insanity, which were the most common, showed a tendency towards rapid recovery under the influence of hospital life and the removal of stress. There was generally a condition of congenital defect underlying the delusional content. True neurasthenia was very rare, whilst hysterical states, mutism, functional paralysis, etc., were extremely infrequent, and only seen in cases previously of hysterical nature. The majority of the cases were of a type bordering on the neurasthenic on the one hand and on the obsessional on the other, showing distinct mental aberration but little derangement of the general bodily condition. This condition of psychasthenia occurred in association with congenital mental deficiency in the youth and the young adult, with senile and atheromatous change in the middle aged and old adult, and between these ages almost invariably followed on a period of especially arduous stress. The state of adaptation which was the barrier by which perceptions liable to arouse the primary instincts were prevented from arising in consciousness to their true significance was the main factor involved. If it failed or a vivid perception pierced through and succeeded in arousing the primary instincts, the individual had to maintain his normal level against an ever-increasing load of mental stress. The development of the various conditions demanded time, and this was afforded by the special conditions of modern naval warfare—the long periods of purely routine work with a constant anticipation of real action. The remarkable feature was that the average man should be capable of adaptation to such a degree as to enable him to withstand such conditions over so long a period as he did. In a ship the close relation between individuals tended to produce a specialized herd instinct, usually termed the *moral*. Where the *moral* was strong the individual was saved from a great deal of the mental stress to which he might be subject, and cheerfulness and confidence, with mental stability, resulted. It could safely be stated that the *moral* of our ships had lost nothing of its high degree since the war began. The very small relative increase in the numbers of the cases was due to the decided difference between the conditions of peace and of war, and to the unpreventable inclusion of a few less constitutionally sound individuals in the greatly enlarged personnel of the service.

Dr. A. F. HURST cited the work of Crile and of Cannon, who had shown that the states of fear, anger, and pain produced an increased activity of the adrenals. This was in the nature of preparation for action, and, if too prolonged, exhaustion of the suprarenal glands (and possibly of the thyroid) occurred. This explained the low blood pressure met with after serious illnesses in soldiers—a pressure which gradually improved as the cases got better. There was an overaction of the thyroid and suprarenal together in cases of apparent hyperthyroidism, and the blood pressure was higher than one would expect with simple overactivity of the thyroid. With rest, bromide, etc., the pressure fell. The cases of tabes and general paralysis brought on by shock and strain improved so much by treatment that he had been almost tempted to send them back to service. This he ascribed to the fact that they came under treatment in a very early stage. For war dreams he had found hypnotism very successful, even one treatment sometimes causing their cessation. It was important that it should be employed at night, so that the patient could afterwards be left to sleep until morning. He regarded

LIBRARY U. OF I. URBANA-CHAMPAIGN

the doubtful intestinal cases met with in the Mediterranean as examples of true dysentery, for in his experience in all cases in which mucus and blood were present in the stools the amoebae were found. Large injections intravenously of serum had proved remarkably successful.

Of the beri beri cases seen, the majority had had jaundice, and the remainder some gastro-intestinal symptoms. He favoured the view of Hamilton White that the jaundice was due to duodenal infection, which was followed by a toxic neuritis as in the case of diphtheria.

Reviews.

EDUCATING THE PUBLIC ON VENEREAL DISEASE.

RECOMMENDATIONS 29 to 33 of the Final Report of the Royal Commission on Venereal Diseases laid strong emphasis on the necessity for the better education of the public on the dangers of venereal diseases and in regard to moral conduct as bearing upon sexual relations. Of the necessity for the recommendations there could be no doubt, but, with the exception of the medical profession, there were no competent teachers, and no books to which persons of reasonable intelligence could refer for instruction. The latter deficiency is rapidly being met by the publication of books appealing to different sections of the community. In *The Nation's Health*,[1] written by Sir MALCOLM MORRIS, we have an excellent work. It is "intended especially for members of county borough, county, and borough councils, of boards of guardians and sanitary authorities, for the lay members of the boards of management of hospitals, and for head masters and head mistresses." Sir Malcolm Morris did valuable service in the national interest on the Royal Commission; he has done, and is doing, even more through the National Council for Combating Venereal Diseases; but we venture to think that in the writing of this book he will have done most "in pursuance of the policy of candid but not unrestrained discussion recommended by the Royal Commission." The book is divided into ten chapters; each deals with some aspect of the question. The first chapter, on the Public Health Service, shows how excellent and far reaching in its effects for the health of the community has been the work of the public health service of the country. In no other land have there been greater success and perfection in sanitation, both as applied to housing, town organization, and personal affairs, save only in the one matter of venereal disease. In this one regard there has been a conspiracy of silence. It was a habit, not of hypocrisy nor of prudery, but a habit of reticence, a survival of the Puritan protest against the old licence of speech which treated all sexual subjects as themes for ribald mirth. But as the author claimed in his appeal for the establishment of the Royal Commission, it was "a disastrously mistaken counsel, the effect of which is to allow a free course in the body politic to gross evils, which might be substantially checked were they but frankly recognized and boldly grappled with." In later chapters there follow accounts of the clinical conditions, the mode of spread and effects of syphilis and gonorrhoea, on the prevalence, distribution, and economic effects of the diseases, and the facilities for the diagnosis and treatment. All are written with a delicacy and simplicity of statement and phrasing that will be void of offence even for the most fastidious, and yet the warning is sufficiently distinct to carry conviction to every one of the necessity for action both personal and social. There is a chapter discussing the notification of venereal disease, reprinted from the *Nineteenth Century*; it is a convincing argument for the wisdom of the present attitude of the authorities and their advisers. We can commend this book to the study of all responsible persons of the community, and particularly to those who have the rule over others, for upon them rests the weight of an influence which, if it be not instructed, may be thrown into the wrong pan of the scales.

[1] *The Nation's Health: The Stamping Out of Venereal Diseases.* By Sir Malcolm Morris, K.C.V.O. London, New York, Toronto, and Melbourne: Cassell and Company, Ltd. 1917. (Demy 8vo, pp. 160. 3s. 6d. net.)

Another book is published for a different section of the community. The Catholic Social Guild has issued a small book, entitled *Prostitution: the Moral Bearing of the Problem*.[2] It is addressed to the Roman Catholic communion, and bears the imprimatur of the authorities of that Church, and a preface written by the Archbishop of Liverpool. The authors are "M. F." and "J. F."; the latter is described as "formerly Resident Medical Officer London Lock Hospital." The book is divided into two parts; the latter part, dealing with venereal diseases, is that written by "J. F.," and we may say without hesitation that in the brief space of sixty pages he has given as satisfactory and illuminating an account of the diseases as could well be written. The rest of the book is taken up with what may be assumed to be an exposition of the attitude of the Roman Catholic communion to prostitution and fornication. It covers the history of prostitution "viewed as a moral problem" amongst the Jews and in the early Christian Church, in mediaeval times, and from the sixteenth to the nineteenth centuries, and finally contains reflections on the "present day and after." The opinion expressed by the writer—and we may take it that it is authoritative, for the same expression is found in the foreword written by the Archbishop—is that the Roman ideal and practice are superior to any other, and in particular to the Protestant. The Archbishop in his preface writes: "Catholics may help to give the death blow to an opinion which from the time of Luther until the present day has been held by many of our Protestant fellow countrymen—that is, the supposed impossibility for the generality of men to control the sex appetite." We make little doubt that Protestant readers will take vigorous exception to such a statement. There can, at any rate, be no question that the iteration and reiteration of the words of the Litany of the Anglican Church, "From fornication and all other deadly sin . . . Good Lord, deliver us," can have left no doubt in the minds of the worshippers that the illicit indulgence of sex appetite was no excusable or venial sin. The stringency of the practice of the Free Churches of English-speaking countries is well known. It is not only the adhesion to a confession of faith that gains admission to these communions but an evident practice of life, and a breach of this rule is followed by the expulsion of the member. There is a possible, and perhaps harmless, reason for the attitude of the writers of this book and preface. The claim of a high standard leads to an attempt to maintain that standard from a spirit of emulation. If this be the truth of the matter no one will quarrel with the writers.

GUNSHOT WOUNDS OF THE ABDOMEN.

FOR the last two decades it has been the practice of surgeons in time of peace to operate without delay in penetrating wounds of the abdomen. But until the year 1915 it was the general rule that gunshot wounds of the abdomen sustained on the field of battle should receive only expectant treatment. Dr. J. ABADIE of Oran, who has written a book[3] on the subject, asserts that this difference between treatment in peace and treatment in war is due solely to differences in the facilities for surgical operations. His book is based on the experience of other surgeons in previous wars, when abstention from operation was the rule, and on the general experience of French surgeons (including himself) in the present war, when immediate laparotomy is being widely advocated. In any circumstances, the mortality from penetrating wounds of the abdomen received on the field of battle is high. The question is hardly one that can be settled by the comparison of statistics, as Dr. Abadie himself points out; but he has collected from the French literature 713 cases treated by the expectant method, with a mortality of 77 per cent., and 688 cases treated by laparotomy, with a mortality of 64 per cent. In 251 instances with wounds of the small intestine the mortality after operation was 70 per cent. Dr. Abadie lays stress on the importance of early laparotomy, and agrees with other surgeons in the

[2] *Prostitution: the Moral Bearings of the Problem.* By M. F.; with a chapter on Venereal Diseases by J. F.; and a Foreword by the Archbishop of Liverpool. London: Published for the Catholic Social Guild by P. S. King and Son, Ltd. 1917. (Fcap. 8vo, pp. 252. 2s net.)

[3] *Les Blessures de l'Abdomen.* Par J. Abadie (d'Oran) Préface de J.-L. Faure. Collection Horizon: Précis de Médecine et de Chirurgie de Guerre. Paris: Masson et Cie. 1916. (Cr. 8vo, pp. 241; 69 figures, 4 plates. Fr. 4.)

opinion that long journeys to hospital on stretchers or in ambulances are disastrous, and argues that though it is essential that both patient and surgeon should be beyond the zone of shellfire, the surgeon should come up and be ready to operate as close to the trenches as is practicable. He speaks highly of the virtues of small operating theatres on wheels, or "autochirs," that can be moved about behind the lines as required by the exigencies of the moment.

His book is well planned, and gives a full discussion of the principles and methods of surgical treatment indicated in these cases. He prefers chloroform as a general anaesthetic; after operation the patient is put back to bed in Fowler's position, half sitting up with the knees bent. For four or five days after the operation nothing should be given by the mouth, but 4 or 5 litres of fluid should be passed daily into the rectum drop by drop. The lower part of the trunk should be surrounded by a damp compress renewed every twelve hours. The patient should be kept continuously under the influence of morphine exhibited by hypodermic injection, and should not be evacuated from hospital for at least a fortnight after operation. Dr. Abadie writes in a clear and attractive style, and his book is well illustrated.

SURGICAL NURSING.

MR. CHARLES CHILDE is to be congratulated on the second edition of *Surgical Nursing and Technique*,[4] the first edition of which appeared in 1909 under the title *Operative Nursing and Technique*. In the review of the first edition that appeared in our columns it received high commendation, and it was urged that it "should be read by every theatre sister and all surgical nurses who aspire to a full appreciation of what is meant by aseptic surgery," and it was equally commended to the attention of budding house-surgeons. That recommendation holds good to-day.

The new edition has appeared at a most opportune time, for there were never so many nurses, both trained and untrained, at work than there are to-day, and the study of such a book as this will be of great value to them. Particularly do we recommend it to those whose "training" has been no more than a brief course of "lessons in first aid," just sufficient to enable them to take a share in the minor nursing of the more or less convalescent cases of the numerous volunteer and auxiliary military hospitals. The study of such a work as this will give them a better insight into the mysteries of the craft with which they are temporarily associated than half a dozen of the lesser manuals with which they are usually equipped, and the knowledge they will gain will enhance their appreciation of the seriousness of their work.

In the second edition the author has drawn attention to what has long been a crying injustice to the nursing profession—the long hours and inadequate remuneration of the nursing staff in hospitals. For too long the charitable public have been content to consider that all professional services to hospitals should be put on a "charitable" basis, which means poor pay, ill conditions, and worse prospects. The public appear to be entirely oblivious of the difference between the service rendered by their charitable donations and that rendered by those who work in the hospitals. Their charity is the giving of their superfluity—the money they can well spare after their necessities and comforts have been fully provided for. The charity of the workers in these same hospitals is the work of their lives and not of their spare moments, and it should be remunerated both in proportion to the value of the work and the responsibility attaching thereto. We hope that governors of hospitals and members of hospital boards will read this first chapter of Mr. Childe's book, and take to heart the justice of its appeal.

PREHISTORIC MAN.

THE first part of the second volume of the *Proceedings of the Prehistoric Society of East Anglia*[5] is equal in interest to any of its predecessors. This publication appears to have already become the recognized medium for the printing of observations and the recording of discoveries in connexion with the Stone Age throughout our country, and in the present number are articles dealing with Kent and Cornwall, Surrey and Lancashire.

The President of the Society, Mr. Reid Moir, has an important paper on the subcrag implements of Suffolk. He makes an extremely strong case for the acceptance of the flints as implements. Except that there is only a solitary example, there seems to be no valid reason for doubting that flint implements are to be found under the coralline crag as well as under the red crag.

Mr. Reginald Smith describes a few specimens of a large collection of ovate palaeoliths of St. Acheul pattern, found in plateau gravel near Reading, and in particular a beautiful specimen of a late palaeolith found in gravel on Goring Heath at a level of about 450 ft. O.D.—a really notable discovery.

A very interesting article is contributed by Mr. H. Dewey on surface changes since the palaeolithic period in Kent and Surrey, in which he arrives at the conclusions that the cultural stages from the earliest chalks to the latest St. Acheul types do not represent a long period, that there is no evidence of a prolonged period since the beginning of neolithic times, but that, on the other hand, since the Mousterian period, the Thames has deepened its channel to an extent of perhaps 100 feet.

Mr. Dixon Hewitt gives an account of certain experiments which he has made with a view to throwing light on the agencies concerned in the patination of flint. He concludes that the chief agents are alkaline salts, and that scratching of flints or surface abrasions are conducive to early and thorough patination. He believes that the staining of flints is due to the action of iron and manganese salts on a previously patinated surface.

Several other articles of possibly equal interest make up a volume which is capable, we would think, of satisfying archaeologists with the most varied taste in things prehistoric.

NOTES ON BOOKS.

THE second edition of Dr. BROCKBANK'S excellent little book on *Heart Disease*[6] contains almost all the medical practitioner and student wants to know about the clinical aspects of the subject. The book is chiefly occupied with the auscultatory signs of cardiac disease, how they arise and how they are to be interpreted in both health and sickness. Discussing the still vexed question of the genesis of a presystolic crescendo murmur in cases of mitral stenosis, Dr. Brockbank brings forward his reasons for believing that it is not an auriculo-systolic murmur, as so many hold, but an early ventriculo-systolic murmur of presphygmic rhythm. The book is clearly written, and full of useful clinical information. It should be in the hands of medical students in the medical wards and out-patient departments.

But for a few additions and corrections, the fourth edition of Professor G. G. DAVIS'S large textbook of *Applied Anatomy*,[7] containing an account of the construction of the human body considered in relation to its functions, diseases, and injuries, closely resembles the third edition, which was reviewed in the BRITISH MEDICAL JOURNAL of February 5th, 1916, p. 203. There is a great deal of useful information in the book, which should find a place in all medical libraries, and may be recommended to the attention of the discriminating medical student. Its many illustrations, drawn by Mr. E. F. Faber, are excellent.

Readers who wish for a statement of the case against corporal punishment in any form should read *The Flogging Craze*,[8] by Mr. H. S. SALT. This distinguished and industrious humanitarian has been at pains to collect the opinions expressed at various times by many writers adverse to the practice, from Plutarch downwards. There

[4] *Surgical Nursing and Technique: A Book for Nurses, Dressers, House-surgeons etc.* By C. P. Childe, B.A., F.R.C.S.Eng., Lieutenant-Colonel R.A.M.C.(T.). Second edition. London: Baillière, Tindall, and Cox. 1916. (Cr 8vo. pp. 240; 91 figures. 3s. 6d. net.)

[5] *Proceedings of the Prehistoric Society of East Anglia for 1914-15.* Vol. ii, Part I. London: H. K. Lewis and Co., Ltd. 1915. (Demy 8vo, pp 157; 35 plates. 3s. 6d. net.)

[6] *The Diagnosis and Treatment of Heart Disease.* By E. M. Brockbank, M.D.Vict., F.R.C.P. Second edition. London: H. K. Lewis and Co., Ltd. 1916. (Cr. 8vo, pp. 128; 22 figures. 3s. 6d. net.)

[7] *Applied Anatomy: The Construction of the Human Body Considered in Relation to its Functions, Diseases and Injuries.* By G. G. Davis, M.D., University of Pennsylvania and Goettingen, M.R.C.S. Eng., LL.D.Lafayette. Fourth edition. Illustrated by E. F. Faber. Philadelphia and London: J. B. Lippincott Co. 1916. (Sup. roy. 8vo, pp. 640; 631 figures. 24s. net.)

[8] *The Flogging Craze: A Statement of the Case Against Corporal Punishment.* By H. S. Salt. With a Foreword by Sir George Greenwood, M.P. Published for the Humanitarian League. London: G. Allen and Unwin, Ltd. 1916. (Cr. 8vo, pp. 159; 1 illustration. 2s. 6d. net.)

LIBRARY U. OF I. URBANA-CHAMPAIGN

can be no doubt that in a more perfect world than ours corporal punishment, whether for man or beast, might be uncalled for. And there is no doubt that as civilization progresses the occasions on which corporal punishment is an effective punishment diminish in number. But it is unlikely that all his readers will agree with Mr. Salt that now is the time to abolish it.

Personal Health; a Doctor Book for Discriminating People,[9] gives an up-to-date account of domestic medical treatment written by an author who has conducted a daily "Health Talk" department in the American press, and holds that personal health is a subject that is sadly neglected in the popular literature of the day. The book is written in chatty style, and appears to cover the ground adequately.

Whitaker's Almanack[10] for 1917 contains the usual mass of information we are accustomed to find in it, but it reflects the preoccupation of the country in several special articles. There is one on the Ministry of Munitions, and the history of the war—both naval and military—is continued. There are also articles on the financial side of the war, on British imports and enemy trade, on labour and the war, on aeronautics, and a series of signed articles on British industries, beginning with applied photography and ending with wool. The influence of the war is reflected also in the increased space given to lists of honours and distinctions. Here we suggest that the colours of ribbons should in every case be given. Owing to the rise in the cost of production, it has been found necessary to raise the price of the volume.

[9] *Personal Health; a Doctor Book for Discriminating People.* By W. Brady, M.D., Elmira, New York. Philadelphia and London: W. B. Saunders Co. 1916. (Post 8vo, pp. 407. 6s. 6d. net.)

[10] *Whitaker's Almanack for 1917.* By J. Whitaker, F.S.A. London. 1917. (3s. 6d. net.)

MEDICAL AND SURGICAL APPLIANCES.

Steam Disinfection.

THE Grampian Engineering Company, Limited, of Stirling, have issued a pamphlet on steam disinfection, in which they describe their "Velox" high-pressure steam system for treating such articles as bedding, mattresses, curtains, carpets, clothing, and textiles generally. The articles to be disinfected are placed in a wire cage, which is run upon rails into a galvanized chamber. Steam is then admitted to this chamber from the generator, first passing through a saturating drum, and at a pressure of about 15 lb. to the square inch twenty minutes' treatment is said to be sufficient for the effective penetration even of bulky and voluminous goods. For finer fabrics and for leather and rubber goods which would be injured by the high temperatures necessary, a combined high pressure steam and vacuum-formalin system is provided, and by drawing in formalin solution, the penetration is said to be effective at a temperature of about 170° F., some 80° below the range of temperatures in the purely high-pressure system. The pamphlet includes particulars of some tests carried out by Dr. J. Howard-Jones, M.O.H. Newport, which were undertaken with a view to ascertaining the effects of high-pressure steam disinfection on the materials themselves and its efficiency as a means of preventing the growth of micro-organisms. In both respects the results of the tests were satisfactory.

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

THE FUEL SITUATION: TO-DAY AND TO-MORROW.

THE action of the Petrol Control Committee in intimating that fresh licences will not be issued to private car owners on the expiry of the current series at the end of April is one of direct, though not gloomy, interest to the medical profession. The situation that occasions the decision consists of the abnormal increase in the demand for petrol not merely for waging the war, but also for industrial and, now, for agricultural service being offset by the new style of submarine warfare, which, whether it proves easy and quick or difficult and long to suppress, is, in any case, quite a different form of enterprise from the submarining which the enemy had in mind when making somewhat similar threats in 1916 and on the threshold of 1915. The 1917 variety is submarining not merely in the areas patrolled by the British fleet in force, and particularly in the North Sea and the Mediterranean, but practically in the seven seas outside them, and especially all over the North and South Atlantic. Fortunately this new phase of the campaign, embracing war on neutrality, finds us with an absolutely unprecedented quantity of petrol in these islands, despite the fact that there has never been a moment's relief in the rate of expending it on war and industrial purposes. Nevertheless it would be suicidal for the Government to reckon on our sustaining no losses of tank vessels as a result of the new submarine campaign. Doubtless the enemy will destroy a portion of these. The extra shipbuilding during the last twelve months has been admirable; but, in any case, it is sufficient only to keep up with our increasing demand for motor fuel. Further, fresh building from now onwards cannot be expected to overtake the increasing demand, for it is impossible to foresee the limits of that demand. The only certain fact in connexion with it is that, under every head, from ordinary transport to the marine and aërial war services, as well as for industrial and agricultural uses, this nation's demands for motor fuel are sure to be increasing as long as the campaign lasts.

NO CAUSE FOR ALARM.

Inasmuch as the agricultural demand practically constitutes a new factor in 1917, and one of the most vital importance, obviously the Petrol Control Committee—which put the general public on almost impracticably short rations during the first licensing term for a period of three months last summer and autumn, and which revealed its goodwill in doubling the amount of rations for the second licensing period, that now current, for a term of six months—would not be justified in allowing that increased rate of motor fuel to any and all applicants from the end of April onwards. On the contrary, it has no option but to see to it that the use of motor fuel is confined wholly to work of national importance. It will be observed that, while it is plain that no more petrol is to be granted to private users, nevertheless it is made abundantly clear that if petrol is needed in connexion with work of national importance licences will be issued. We know the Government has always recognized the work of the medical profession as being of national importance. That recognition is being more fully accorded as time passes and doctors become more and more scarce. Hence there is no cause for alarm among the ranks of the medical profession.

GOVERNING FACTORS.

It may be taken for granted that between now and the expiry of the current petrol licences the Petrol Control Committee, which is to review the whole scheme of allowances, will be able to arrange for medical men to have supplies, possibly somewhat restricted, but still sufficient for the work of the average practitioner. Commercial vehicle users will certainly be allowed less.

By the time the fresh series of licences is due to be issued we shall have had eleven weeks' experience of the new style German submarining campaign. That will be amply sufficient to enable us to form an accurate estimate of the effect it will exercise on our conduct of the war. Of course the talk in the German press that the Teutonic public must not expect immediate results is all nonsense, since the worst damage in connexion with enterprises of this sort is, naturally, done in their earliest stages, because it is impossible to foresee every detail of the enemy's schemes and to make adequate provision against it.

Apart from this, the additional steps the British authorities are taking to deal with the menace must of course bear more and more fruit with the lapse of every week. Hence, to an extent, to-day we are in doubt as to what the new style submarining menace will mean in practice, whereas we shall have no doubt on the subject at the end of April. Most likely by then we shall have realized that the situation will neither be hopeless nor negligible, but that a certain average of loss will have to be reckoned on for a more or less indefinite period, an average which will influence private car owners whose work is of national importance, done with the aid of their cars, as notably medical men, who will therefore continue to receive petrol rations modified, if at all, to a slight degree.

In the meantime nobody can foretell in terms of gallons what will be the allowance to the individual medical man. Even if the Petrol Control Committee were to arrive at a decision to-day it would be of no value, because ten weeks hence, when the time came to put the matter in practice, the licensing situation, whether more or less favourable, would certainly be different.

This, too, must be had in mind in connexion with the Petrol Committee's work: that it has not made the mistake made by many other supplies controlling committees, here or in enemy country, of issuing licences for what is not obtainable. To date, motorists have always been able to purchase the petrol which their licences entitle them to buy, though a retailer here or there may be temporarily out of stock. There is reason to believe, moreover, that that policy will be pursued by the Committee as long as it is necessary for it to continue its work.

THE SPARE PARTS PROBLEM.

A correspondent who has been reading about the spare parts difficulty mentions that he intimated to the manufacturers of his car that he was sending his motorman to inquire about getting spare parts; they replied that they would not be able to supply him with any spare parts unless he specified exactly what would be required, as they could not say what parts would be wanted, were only working from hand to mouth, and had no bulk of goods to send out. This firm, therefore, will not deplete its stock of spare parts, a policy it is entitled to adopt if it pleases, and apparently it is not able to supply spare parts from stock, but is steadily driven to making them from hand to mouth. Therefore it does not come strictly under the category of those concerned with stocks of spare parts. Obviously, it is quite impossible to deal with the position of individual firms throughout the country. What one can do only is to deal with the situation generally. That has been done in these notes for months past. Furthermore, in the interval since the matter was first mentioned in these columns spare parts supplies have, of course, been drawn on almost continuously by all classes of users. Hence the present situation is that, certainly in the majority of cases, stocks are not available for drawing on, particularly at random. Whether a given manufacturer knows, or does not know, what parts are likely to be needed for spares, of course, depends entirely on the length of time the given model has been in use and the quantities in which it has been produced since. It is from such experiences only that the average can be ascertained. Moreover, inasmuch as the stripping of cars for examination is in some cases quite a profitable enterprise, certain firms are not willing to give advice as to what spare parts are needed without themselves examining the car and charging the usual fee for the stripping and reassembling operations. For the rest, the only advice that can be given is that which was printed in these columns quite recently—namely, that such parts as the bevel or worm of the back axle; possibly the second or third speed of the gearbox; perhaps the steering segment, or piston rings, are the sorts of parts that are most likely to wear out first in an ordinary car properly treated. Wear is usually gradual, hence often the given part gives notice of the fact, as by slackness or noise. Then it is as well to replace it for fear of a breakage. These are the only hints which are at all applicable in a general way. For the rest, I gravely doubt if at this time any maker has a stock of spare parts for supply offhand.

VOLUNTARY RESTRICTION OF DIET.

IT is reported unofficially that the information reaching the Food Controller's department justifies the belief that housekeepers are making an effort to restrict domestic consumption of bread, meat, and sugar to the amounts recommended, that is to say, 4 lb. bread, 2½ lb. meat, and ¾ lb. sugar, weekly per head. It is said also that the reports as to panic buying by housekeepers to form hoards of non-perishable provisions have been exaggerated, and certainly there does not seem to be in present circumstances any need for panic.

We have been at the pains to estimate the value of the food supplied to three middle-class families during the present winter, and before Lord Devonport's appeal for restriction was made. The families consisted of 16 persons—3 men (sedentary), 9 women, and 4 children—and save for a certain amount of economy in buying, due to the increase in prices, and to a considerable diminution in the amount of sugar owing to the difficulty in obtaining it, there was no very noticeable alteration in the standard of living. The Committee of the Royal Society came to the conclusion, after a full consideration of the dietary requirements of a nation for the most part engaged in active work, that they could not be met satisfactorily on a less supply in the food, as purchased, than 100 grams protein, 100 grams fat, and 500 grams carbohydrate, equal approximately to 3,400 calories per "man" per day, a "man" being an average workman doing an average day's work. Generally speaking, however, a woman or child requires less food than a man—that is, has a man-value less than unity. To convert the population of men, women, and children into units, or "men" as defined above, the total number must be reduced by 23 per cent. In reckoning diet, 100 men, women, and children equal 77 units or "men." The quantity of foodstuffs avaliable during the period 1909–13 yielded:

	Protein.	Fat.	Carbohydrates.	Calories.
	Grams.	Grams.	Grams.	
Per head ...	87	100	440	3,091
Per man... ...	113	130	571	4,009

According to the analysis made of the diet of the three families mentioned, the amount of protein and fat consumed was in excess of requirements, the amount of carbohydrate rather lower than the standard taken by the Committee, and the yield in calories considerably lower per head. The nutritive value of the fresh vegetables and the very small quantity of fish used were so small that they have not been taken into account.

Diet before Voluntary Restriction of Three Middle-class Families (16 Persons).

	Weekly Weight in Ounces.	Daily Yield in Grams. Protein.	Fat.	Carbohydrate.	Energy Value in Calories.
Meat, sausages, bacon	50.5	23.8	52.4	1.1	663
Bread	58.0	18.7	2.8	123.1	580
Sugar	8.9	—	—	35.3	145
Totals	117.4	47.5	55.2	159.5	1388
Cheese	4 0	4.5	4.9	0.4	63.4
Butter, etc.	13.2	0.5	45.3	—	424.0
Potatoes...	32.0	2.27	0.13	27.2	122.0
Flour and oatmeal ...	7.0	16.2	2.3	21.3	103.0
Rice, lentils, etc. ...	11.6	1.6	0.7	24.3	270.0
Jam and dried fruits	3.8	3.7	0.2	8.7	37.8
Totals	71.6	28.77	53.53	81.9	1020.2
Total ration of restricted articles	—	47.5	55.2	159.5	1388
Total of extras ...	—	28.77	53 53	81.9	1020.2
		76.27	108.73	241.4	2408 2

The fallacy in this analysis is that it leaves out of account midday restaurant meals taken by three adult males. In Dr. Leonard Hill's report to the Health of Munition Workers Committee on an investigation of workers' food he gives an analysis of twelve canteen meals, from which it appears that they afforded on an average protein 42.43, fat 36.7, carbohydrate 146.9 grams, yielding 1,114 calories. To get the average effect of this addition it would appear that we may add to the totals in the table protein 8, fat 7, carbohydrate 27.5 grams, and calories 209, giving total values for the three households per head of protein 84.27, fat 115.73, carbohydrate 268.9 grams, yielding energy value in calories per head of 2617.2. As a set off a certain allowance ought to be made for meals given in the homes to occasional workers, but probably the effect of any such deduction on the figures here given would be very small. So far as our examination goes, therefore, it appears that the members of the middle-class families as to whom the inquiry was made received rather less protein, rather more fat, and considerably less carbohydrates than the standard per head of the whole population, and that the yield in calories was about 15 per cent. less (waste being neglected).

LIBRARY U. OF I. URBANA-CHAMPAIGN

British Medical Journal.

SATURDAY, FEBRUARY 17TH, 1917.

MORE INIQUITIES OF THE RAT.

EVERY man's hand is against the rat. In political circles the rat's character is held to explain the moral turpitude that leads from time to time to defections from the Party. Women, it is credibly reported, will fly from the rat with all the alacrity they display in escaping from the dangerous proximity of the domestic mouse. Indeed, one would probably be well within the truth in stating that the rat's only real friend among human beings is the schoolboy, who is apt to cherish white specimens of the race as pets. From the epidemiological point of view rats have had a thoroughly bad name of late years, if only as the presumedly involuntary carriers of fleas infected with the bacillus of bubonic plague, a disease that kills its tens of thousands every year. Rats, too, are the carriers of infection in the rare disease known by the name of "rat-bite fever," of which over eighty cases have been described in Europe, Asia, and America during the last twenty years. It is of interest to note, while this fever is under discussion, that certain Japanese investigators have quite recently reported[1] that, after investigating two cases of the disease, they have identified a new spirochaete, which they name the *S. morsus muris*, as the cause of rat-bite fever in Japan. This organism is found in about 3 per cent. of Japanese house rats, and, a matter of importance from the point of view of treatment, it is most markedly affected by salvarsan. It is true that other scientists have found quite other organisms (aspergilli, telosporidia, diplococci, bacilli) to be the cause of rat-bite fever, and in the BRITISH MEDICAL JOURNAL of February 19th, 1916 (p. 285), will be found an account of Dr. F. G. Blake's confirmation of Schottmüller's discovery that the causal organism of the fever is a streptothrix. But it is pointed out that rat bites may be quite capable of infecting human beings with other diseases as well as with true "rat-bite fever," and that the cases recorded by Schottmüller and Blake differed in several important particulars from rat-bite fever as it occurs in Japan. From the experimental point of view, rat-bite fever may be transmitted from rats to guinea-pigs, as was proved by Ogata in 1911. This experimental rat-bite fever has been investigated by three bacteriologists[2] at Tokyo, and they claim to have proved that the disease is due to a spirochaete that under the microscope differs in form from that described by the four Japanese investigators mentioned above, but resembles it in being sensitive to the action of arsenical compounds. About ten rats out of some forty employed with success in these experiments were found to be carriers of the spirochaete of rat-bite fever.

But this does not complete the tale of the rat's nosological infamy. There is now good reason for believing that rats may also be the carriers of the infecting agent in Weil's disease. As may be seen by reference to any medical textbook, some thirty years ago Weil described an epidemic form of infectious jaundice that has since been known by his name, and is now also known as spirochaetosis icterohaemorrhagica. A variety of jaundice that is similar, if not identical, occurs in Japan; and, as was related in the BRITISH MEDICAL JOURNAL of April 1st, 1916 (p. 491) certain Japanese medical men identified in 1915 a new spirochaete, the *S. icterohaemorrhagiae*, as the organism giving rise to this variety of epidemic jaundice. The identical organism has been isolated from cases of infectious jaundice in France, in Italy, and in the lands of the Central Powers. An account of the occurrence of the same disease in the army in Flanders, written by Captain Adrian Stokes, R.A.M.C.(T.), and Captain J. A. Ryle, R.A.M.C.(S.R.), will be found in the BRITISH MEDICAL JOURNAL of September 23rd, 1916 (p. 413). The disease is clearly widespread at the present time, therefore. It is also highly infectious, and has even been caught in a bacteriological laboratory by a very careful worker engaged in transmitting the virus from one experimental animal—a guinea-pig—to another. The pathogenic spirochaetes are excreted in the urine and faeces of the patients, a fact which may indicate the common routes of infection in Weil's disease, and points out the paths along which general prophylaxis against its spread must be sought. But prophylaxis by both active and passive immunization is also possible. A recent paper[3] on the subject by the Japanese doctors Ido, Hoki, Ito, and Wani, establishes the fact that guinea-pigs can be protected against infection by the specific spirochaete in two ways—either by inoculation with cultures of the organism, or by the injection of immune serum from other animals already protected in this manner. In the case of man, only passive immunization has yet been attempted, by the use of serum derived from a horse protected against spirochaetosis icterohaemorrhagica through vaccination with preparations of the spirochaete. Although no case has occurred in which the efficacy of this immune serum could actually be put to the test, the authors are of opinion that it does confer on man a partial immunity to the disease; this is supposed to last for from six months to a year. They also give evidence to show that in Japan both the house rats and the brown ditch rats are often carriers of the spirochaete, which may be found in their kidneys, as was pointed out in 1916 by Miyajima. The importance of this observation is indicated by the fact that cooks and butchers seem particularly prone to this form of acute infectious jaundice; indeed, two of the fifty-five patients treated by the authors had been bitten by rats from seven to nine days before they developed the disease. Probably the infection is transmitted from rats to man by means of the rat's urine, directly or indirectly, in most cases. Nearly 40 per cent. of the rats in the city and coal mines of Kyushu were found to carry highly virulent pathogenic spirochaetes in their kidneys.

A full account of the serum treatment of Weil's disease, so far as it has been tried at present, has been published by Drs. Inada, Ido, Hoki, Ito, and Wani.[4] At first the serum was obtained from goats immunized by inoculation with the spirochaete. This was in August, 1915; later the serum obtained from patients convalescent from the disease was employed, and later still the serum from actively immunized horses. The serum acts mainly by destroying the spirochaetes; technically speaking, it is spirochaetolytic and spirochaetocidal, and that it

[1] K. Futaki, I. Takaki, T. Taniguchi, and S. Osumi. *Journ. Experim. Med.*, Baltimore, 1916, xxv, 33.
[2] K. Ishiwara, T. Ohtawara, and K. Tamura. Ibid., p. 45.
[3] *Journ. Experim. Med.*, Baltimore, 1916, xxiv, 471.
[4] Ibid., p. 485.

as any antitoxic effect has not yet been demonrated. It should be given subcutaneously or intraenously in large doses (up to 60 c.cm.) as early as ossible in the disease. In all, thirty-five patients ere treated, of whom five died of the disease, though ne was moribund on admission to hospital. These gures show a mortality of about 11 per cent. As a le, the mortality from Weil's disease in Japan ppears to be from 30 to 50 per cent. Such results these show that the serum treatment is at any te promising; but the authors do not claim more r it at present, considering that the number of ses treated is not large enough to justify the awing of any more definite conclusions. They find at the serum destroys the spirochaetes contained in e circulating blood, promotes the development of tibodies, and lessens the number of the organisms the patients' viscera, where they are already merous by the fifth day of the disease.

DELINQUENT CHILDREN AND THE WAR.

ATISTICS issued by the Home Office show that ring the war there has been a considerable increase the numbers of juvenile offenders, and especially juvenile thieves. Inquiries made of the police of venteen of the largest towns showed that the total mber of children and young persons charged with nishable offences between December, 1915, and bruary, 1916, was 34 per cent. larger than it was elve months previously. A "child," it may be ded, is technically a boy or girl under the age of ; a "young person" is one aged 14, but under 16 ars old. The increase in the number of thefts mmitted is nearly 50 per cent. The whole country affected, with the result that at least 12,500 more ldren now come yearly before the magistrates than the days of peace. Reformatories and industrial ools have, it is said, nearly all been filled up ring the last two years, with the result that our ssimists are able to point out yet another way in ich the country is going to the dogs, and our rmists cry out to know what can be done to check s portentous outburst of juvenile depravity.

But is the outlook so gloomy after all? Is there real cause for believing that our children and ng persons are becoming vicious rather than out hand, and are degenerating rather than kicking r the traces? Let us think for a moment how ourable the circumstances are nowadays for enile delinquencies of all sorts. The streets at ht are abnormally dark, a fact favouring the ape of offenders of all sorts. The police are uced in number, and their efficiency is still further ened by the restricted lighting of the streets. gular attendance at school is in many districts ning of the past; some 1,200 school buildings have n taken as hospitals and their pupils distributed ong neighbouring schools, with the result that ool hours are curtailed; in many cases women hers have taken the place of men in the boys' ses—a change often bad for discipline; perhaps ,000 children between the ages of 11 and 13 e been released from school to satisfy the sent abnormal demand for boy labour. Accordto Mr. Spurley Hey of Manchester, children ibit the greatest tendency to commit offences n they are 12 or 13 years old. About five ion men have been withdrawn from home life, the result that parental discipline is now more lax in the home than it was. And, finally, many a child and young person now earns ten or twenty shillings or more a week in wages; what is more natural than that such juvenile wage-earners should at times succumb to the temptation to paint the town red?

An interesting pamphlet[1] upon the subject has just been issued by the Howard Association, which has now achieved its fiftieth anniversary. This association was founded under the patronage of Lord Brougham in 1866. Its object is to promote efficient methods for the prevention and treatment of crime and juvenile delinquency. It is directly responsible for many of the changes tending towards the more humane and rational treatment of offenders made since it came into existence, and it has still much useful work it hopes presently to carry out, all duly scheduled by Mr. Leeson on an early page of his pamphlet. He writes with a thorough knowledge of the facts and a deep sympathy with the whole subject, and does not in any way minimize the seriousness of the recent increase in juvenile delinquencies. It is consoling to find that he takes a reasonably optimistic view of the position. He points out that the children of to-day find authority at a discount, control lessened, facilities for naughtiness of every kind increased. Even for adults the world is now a harder place to do well in than it was before the war; it is not likely to be less hard for inexperienced children from whom guidance is withheld. Better still, Mr Leeson has remedies for the present anomalous state of affairs. He would have magistrates apply the Probation of Offenders Act (1907) more thoroughly and fully than they do; for example, juvenile theft should be met by a period of probationary supervision, and in addition by the infliction of a fine that will bring home to the parents the fact that an offence has been committed. He would increase the number of the salaried and voluntary probation officers, both men and women, whose duty it is to keep the juvenile delinquents under supervision. He suggests that in each locality should be formed a council for the care of children during the war, and that it should attend to the needs of children who are "difficult" at home as well as to those of the delinquents. He holds that too many children have been sent of late to industrial or reformatory schools, which should be kept for the worst offenders only. He discusses the question how far cinema shows may properly be held to have injured the moral sense of children, and advises the adoption of the Russian method of giving school teachers authority to permit or forbid the attendance of their pupils at the cinema theatres. He argues that more should be done to occupy and amuse school children out of school hours, and concludes by a strong plea for the reintroduction of moral teaching into our schools. As he says, it is not enough that our educational methods should produce cleverness; they must produce also goodness.

OFFICERS' INCOME TAX.

THERE seems to be a feeling among practitioners who have relinquished their civil work and are serving in the R.A.M.C. that they are not receiving fair treatment in connexion with their liability to payment of income tax. That this feeling is to some extent based on misunderstanding may be true, and indeed, in view of the very great complication of the legal provisions as they now stand, it would be extraordinary if it

[1] *The Child and the War; being Notes on Juvenile Delinquency.* By C. Leeson. London: Published for the Howard Association by P. S. King and Son, Ltd. 1917. (Demy 8vo, pp. 69. 1s. net.)

LIBRARY U. OF I. URBANA-CHAMPAIGN

were otherwise; but it is also true that it has some solid foundations, and we fear that, however well or ill grounded that feeling may be, its existence tends to discourage the renewal of contracts for military service, and so to accentuate an already grave problem.

If no special provisions had been inserted in the recent Finance Acts very serious hardship would have been inflicted on large numbers of taxpayers who accepted commissions in His Majesty's Forces to the detriment of their civil occupations, but there are two distinct modes of giving relief in such case, which if not sufficient, at least mitigate the unfairness with which they are designed to deal. Our object here is not so much to discuss their adequacy as to urge that their operation should be made more automatic and less dependent on the initiative of the officer those provisions are intended to relieve.

The enactments in question are, first, that which provided for the calculation of the officer's civil liability on the basis of the profits of the actual year of assessment instead of on those of the three previous years, and, secondly, in the provision of a specially-reduced scale of rates of tax for army and navy pay. Taking the latter form of relief first, it is to be noted that, although the reduced scale has a maximum of 3s. 6d. as compared with the normal maximum of 5s., the propriety of any particular rate within the scale depends on the total income of the individual officer. In ordinary circumstances a medical practitioner would find comparatively little difficulty in preparing a statement of total income which could be declared to be approximately correct, but it is very much otherwise in the case of a practitioner on active service, whose practice is in the hands of a locumtenent, or other substitute, and who may be in the Mediterranean or in the East, with but little reliable and recent information about his own affairs. Consequently, it would seem that in many cases the form of declaration of total income received from the army agents is not always dealt with, because its proper completion is regarded as practically impossible. In such cases one of two things probably happens—either the officer is taxed as if his army pay constituted his total income from all sources, and some time later a former declaration or civil assessment is identified and a further sum deducted to bring up the total deductions to the amount appropriate to the rate indicated by his total income, or else the rate of tax is based on the rate corresponding to that in force for the previous year. In either case the civil earnings of the officer are imported into the computation by the assessors of the War Office—or, in other words, the Income Tax authorities take effective cognizance of the fact that the officer is concerned in a civil practice; if necessary, they will do so on their own initiative.

Neither does the interest of the Income Tax authorities in the matter cease at this point. The Finance Acts of the past two years provide that "allowances"—such as the life assurance allowance for instance—must be deducted primarily from assessments on army or navy pay. On the equity of setting the allowance against that portion of the income which is taxed at the lowest rate, and thus depriving the officer of the advantage of the army rate to the extent to which he has been prudent enough to make life assurance provision for his dependants, a good deal might be said. Our immediate point is that it appears to be the practice of the civil Income Tax authorities to notify the army agents in cases in which allowances have been formerly made from assessments on civil earnings, and forthwith to omit such allowances in calculating the tax to be paid locally. In view of the explicit provisions of the Acts, such a procedure is not open to criticism however desirable an amendment of the operative statutes may be, but it is mentioned here, partly because there is reason to suppose that this question is not always understood, but more particularly as showing clearly that when the civil assessments are made the authorities do act on their knowledge of the practitioner's military activities in a matter which gives the advantage to the revenue. The gist of complaints which have reached us may be summed up by saying that the authorities appear to act on their knowledge as to the military service when it is to their advantage and to ignore that fact when the converse is the case. Their attitude seems to be "Heads I win and tails we call it quits."

The relief which is thus sometimes lost is embodied in a very complicated example of legislation by reference, but leaving out the "juridical niceties" of the matter it may be stated for present purposes to consist in payment on the current year's profits instead of on average profits. For example, for the financial year ending April 5th, 1917, an officer is entitled to pay on the profits of the year 1916 instead of on the average of those of the years 1913, 1914 and 1915. It might be supposed that, in making an assessment on an absent practitioner whose practice is in the hands of a locumtenent, or is being worked by colleagues, the authorities would make some attempt to fix it at or near the probable amount of the profits in those conditions; but in fact the three years' average basis is adopted and the assessment made at a figure which must necessarily be far in excess of the amount on which the officer should ultimately pay tax. The curious thing is that the authorities are legally bound to do so. The reason appears to lie in the fact that the enactment on which the adjustment of the liability rests did not contemplate a foreknowledge of circumstances affecting the profits; it presumed that not until the end of the year would the person assessed be able to show that his earnings were falling or necessarily know that such was the case. Hence the section in question (see 133 of the Income Tax Act of 1842) does not invalidate the "average" basis of assessment but left the initiative entirely with the person assessed who was entitled to claim an adjustment of his liability by way of repayment or otherwise at the end of the year. There is one other difficulty, and that is that this claim is dependent on the circumstances and income of the individual, and it is said that in the case of a partner serving in the Forces, the statutory requirement that the assessment of the profits of the practice should be made on the firm as such, is incompatible with a discrimination between the partners as to the basis on which each individual's liability is to be determined.

We have endeavoured to put the matter in as reasonable a light as possible, but it must be admitted that some change of procedure is an immediate necessity if officers are in fact to have the relief which the Legislature intended to grant. Doubtless the change may require statutory sanction, but if so the Finance Bill for the present year will offer the opportunity for any necessary amendment of the law, and the following suggested alterations would assist practitioners to obtain what is due to them without involving the revenue authorities in the loss of any tax to which they are fairly entitled: (1) that, as before 1907, assessments be made on individual members of firms, and not (unless by request of the members) in the name of the firm as such; (2) that assessments on persons serving abroad be postponed for twelve months and made only after they have

d an opportunity of declaring their profits for the ar; and (3) that any person serving abroad may ge an appeal against the quantum of an assessnt or for an adjustment of an assessment by erence to his profit for one year at any time within ee years from the last day of that year.

It will be seen that the suggestions are framed ply and solely to facilitate the operation of existing ms of relief. In many quarters it is thought that case of the army officer with a civil practice has yet received adequate consideration. The matter l no doubt be raised again for discussion in the use of Commons when the next Budget is debated, l we hope then to revert to the matter.

NATIONAL SERVICE AND THE MOBILIZATION OF THE PROFESSION.

E terms in which the Director of National Service erred to the medical profession in his speech of bruary 6th were reproduced in full in the JOURNAL of t week (p. 200). In the course of his remarks Mr. amberlain said that it would be necessary to arrange t doctors should be so mobilized and distributed that the ds both of the civil population and of the army could met. At the meeting of the Central Medical War mmittee on February 14th the chairman reported that interview had taken place between certain members of Committee and the Director of National Service on the ject of mobilization of the medical profession, as sugted by him in the general statement of his intentions which we have referred. Mr. Chamberlain is now conering the terms of a communication laying the whole tter before members of the medical profession and aling to them to volunteer their services. It was felt the Central Medical War Committee that the work ich would fall upon it, should it receive a mandate to l to its previous activities others connected with the posed general mobilization of the profession, would essitate additions to its central staff, and an interesting ate took place on the way in which the personnel of central staff might best be increased. The great antage which would result from strengthening the ition of the local medical war committees was insisted n. There was a general feeling in the Committee t these local committees were not always, or perhaps a rule, used to the greatest advantage by the War ce, and that the War Office could very much assist in work of fair and adequate recruiting to meet the itary needs of the country by ensuring that the medical itary authorities in the various commands at home uld always be in close touch with the local medical committees for the districts within the area of the mand.

CIVIL MOBILIZATION IN FRANCE.

E bill drafted by the French Government for general l mobilization is comprehensive. It leaves room for voluntary principle, but proposes to resort to compulif volunteers do not come forward quickly in sufficient nbers. The first article would extend the provisions of law as to military mobilization to all establishments, erprises, and works affecting national defence or the l of the people. It would apply, without prejudice to military obligations, to every French male over 16 and der 60 years of age not already mobilized for the army navy. Every such person must register at the Mairie, ting his name and occupation. The Minister of Labour uld determine the number of persons required for ious classes of work, and indicate the place in which h is to work. If within ten days the number of untary enlistments for civil work were insufficient meet the national needs, the prefects would fill the vacant places by compulsion. In making calls for service regard would be had to capacity for the kind of work with respect to which there was deficiency, and the calls would be made according to age, beginning with the youngest. Persons called up would be paid at the rates usual in the locality for the class of work on which they were employed. A right of appeal is given to a departmental committee consisting of representatives of the ministries of war, munitions, agriculture, and labour, and of employers and workmen. Men employed in agriculture before December 1st, 1916, would not be put to work which would involve a change of residence, but might be required to work on any land in the neighbourhood for which labour was required. Men legally found incapable of work, permanently or temporarily, and disabled men discharged from the army would be exempt, as also young persons between the ages of 16 and 20 apprenticed or attending classes in a college or school. There would be power to exempt officials in public employment if found to be indispensable for the service. Persons already employed in established enterprises or works of national importance would be exempt, and the employments to which exemption would apply would be determined by an order in council. The penalties to be imposed for disobedience to the law or orders made under it would be imprisonment for six days to three months and a fine of from 16 to 10,000 francs, either or both. There is no exception for the medical profession, but most French doctors under 60 were called up for military service on the outbreak of hostilities.

THE GENERAL INFIRMARY AT LEEDS.

FOUNDED mainly by the efforts of the eminent citizen and surgeon, Mr. William Hey, F.R.S., in the year 1767, the General Infirmary at Leeds has long been known in England as a most excellently managed institution doing first-rate work. We have before us an interesting pamphlet[1] in which the material circumstances of its growth are fully set out for the benefit of the general reader. A hundred and fifty years ago Leeds had about 17,000 inhabitants but no hospital. The General Infirmary was then opened with twenty-seven beds, a matron receiving a salary af £10 a year, and a nurse with a yearly salary of £5. Within a year the building of a new infirmary was taken in hand, and in 1771 the first patient was admitted to a hospital—the old infirmary of modern times—that continued in use until 1869. In this year the new infirmary was opened. It was designed by the architect, Sir Gilbert Scott, on the pavilion principle, in imitation of the Herbert Hospital at Woolwich and the Hôpital Lariboisière at Paris. At the present time Leeds has a population of about half a million, and its General Infirmary has grown into a collection of buildings in every way worthy of so large and prosperous a city. In 1915 it treated nearly 10,000 inpatients, and there were over 120,000 out-patient attendances in its various departments. During the last few years the utility of the new infirmary has been much increased by a great scheme of extensions designed to perpetuate the memory of the late King Edward VII, at a cost of some £150,000. An excellent series of illustrations shows clearly the continual growth of this important hospital from its early days down to the present time. Such progress is the best possible evidence of the devotion of the many citizens of Leeds who have given their best thought and care to the welfare of their General Infirmary; no less does the list of the honorary staff since its foundation contain many names distinguished in the history of medicine and surgery. Perusal of the pamphlet leaves the reader with a conviction that an institution so well served on all sides in the past can look forward with

[1] *A Historical Sketch of the General Infirmary at Leeds*, 1767-1916. Leeds: R. Jackson. 1917. (Post 8vo, pp. 44; illustrated.)

LIBRARY U. OF I. URBANA-CHAMPAIGN

confidence to the future. It is, therefore, perhaps needless to add that in Leeds, as in other cities, the expenditure on hospital needs ever outstrips hospital income.

TYPE-READING FOR THE BLIND.

AT the meeting of the Röntgen Society on February 6th Mr. Fournier d'Albe, D.Sc., demonstrated his optophone, an instrument designed to enable sightless persons to read ordinary type by ear. The device depends upon a careful optical and telephonic system in which the action of selenium in response to light plays an essential part. The greater portion of Dr. d'Albe's lecture was, indeed, concerned with the properties of selenium, the rare element which stands on the threshold between metals and non-metals, and which was discovered by Berzelius exactly a hundred years ago. The applications of selenium in photometry, telegraphy, phototelegraphy (or the transmission of images along the wires), television, and the automatic lighting of lighthouses and buoys are manifold, but some of them at present are of more theoretical than practical interest. The experiments with the optophone were far advanced before the war, but it is essential to have an intense line of light, such as is obtainable by means of the Nernst lamp, and since the war began this particular filament could not be obtained. Lately, however, it was found that the new half-watt lamp will give the line of light required, and the experiments were renewed. The lamp is made to illuminate a perforated disc which revolves by the action of a motor, and the image of luminous dots thus produced is made to converge upon an aperture in a slab over which a line of letterpress is slowly passed. The different patterns of light thus reflected from the type fall upon a set of selenium bridges which are connected by a telephone relay, and a musical frequency is set up. The sounds which are carried through to the telephone receiver are characteristic of each letter in the type, and what the learner has to do—a task obviously requiring long practice—is to pick up this code, and recognize the note which each differently shaped letter of the alphabet makes as it passes. The maximum sound is heard when the paper exposed through the aperture is white and the minimum when it is black, and the range of difference between these extremes covers all the configurations of printed characters. The system may equally be applied, given patience and memory on the part of the learner, to other letterings than Roman. Dr. d'Albe's demonstration was carried out with large single letters, and it appeared to be rather the interruptions than the sounds themselves which were distinctive. By using a focussing device he claimed that it was possible to read print of ordinary size, and that a system of careful alignment would enable the learner ultimately to follow the column of a newspaper or a page of a book.

TETANUS AFTER "TRENCH FOOT."

SIR DAVID BRUCE called attention in the JOURNAL of January 13th (p. 48) to the occurrence of tetanus after trench foot. Fifteen cases had been recorded within a few weeks, and in eight of these, of which details were obtained, the disease was severe; six of the patients died, two cases after only one day's illness, three after two days' illness, and one after five days. This, as he said, was a return to the picture of tetanus before prophylactic injections were in use, and he urged any medical officer who might be in charge of a case of trench foot to give a prophylactic injection of antitetanic serum, and to repeat it at intervals of seven days until the wounds were clean. This advice is reinforced by a communication made to the French Academy of Sciences by Drs. A. Lumière and A. Astier. They stated that out of ninety cases of tetanus received in the Lyons hospitals since the beginning of the war in five the disease followed frostbite of the feet. This is a ratio of 5.55 per cent., truly a very large proportic While admitting that the tetanus bacillus may display preference for the foul ulcers caused by severe frostbi they agree that the more reasonable explanation is th the usual prophylactic injection of antitetanic serum w not given.

SOME ECCENTRICITIES OF INDIAN OPHTHALMI PRACTICE.

IN a paper read at the Oxford Ophthalmological Congre last July, and published in the *British Journal of Ophth mology* for February,[1] Colonel R. H. Elliot, I.M.S., giv an account of the treatment of diseases of the conjuncti by Indian pretenders to special knowledge. At certa seasons of the year catarrhal ophtha mia is exceedin rife, and for the most part the treatment of these cases he says, in the hands of women. It is commonly thou that the Indian woman is a nonentity, but there could no greater mistake; both in sickness and in health t Indian woman is a factor to be reckoned with. Wh doctors are scarcest her responsibilities are greatest, a she does her best to rise to them without fear of failu Most Indian wives and mothers have favourite prescr tions. Their remedies are very diverse. Some are co paratively harmless; for example, human milk, whi especially when squirted into the eye straight from breast, has a high reputation in India, as it had once this country, for its healing power, and possibly someth to recommend it. Others are the quintessence of dan and such are those prepared in the "laboratories" the amateur village expert, usually an old lady wh reputation as eye doctor rests on her weight years. She collects her herbs in the right phase of moon and compounds them by means as devilish her intentions are angelic. Her confidence is unshaken failures. "It is written on the forehead of certain of patients that they should 'go blind'; and what can she to alter the inexorable decrees of fate? Meantime, if th will sit down she will place precious medicine in th eyes." India has much confidence in "specialists." man will travel hundreds of miles to see such a one, spend the savings of a lifetime on the journey. addresses the surgeon "as his God, his father, and mother," surrenders himself, as at a shrine, for the cur be performed. The native specialist uses pastes insertion within the lower eyelid. Common ingredie of such preparations are the juice of the leaves of tamarind tree (which is very acid and irritating), al various kinds of pepper, iron filings, human milk or ur and cowdung. Each specialist has a personal receipt the pre paration of his or her choice. Many cases are s of people, even families of children, blinded by th preparations. In cases of severe fever the nat ve medic man is in the habit of awaking the sick man out of stupor by the insertion of some of these preparati within the eyelid, and not seldom the cornea is destro Others use a variety of drops, some intensely irritat whilst other applications, such as human urine, owe th potency for mischief to the organisms they contain. is said that many midwives make a practice of wash the infant's eyes in the mother's urine immediately a birth. Strange methods of treatment are to be fou Rubbing the sole of the foot corresponding to the affected to "bring down the heat from the head" is the treatment of presbyopia by anointing the eyes d with an ointment made of butter and the ashes of rabb dung is another. Corneal trouble is treated by engag a friend to chew raw onions and with his mouth ful the half-masticated mass to blow on the affected Trachoma, though a disease completely remediable prompt and proper treatment, takes an appalling tol sight in India. But the affected man waits until harvest is gathered, or for friends to go v

[1] Vol. i, No. 2. London: Geo. Pulman and Sons. (Price 4s. ne 31s. 6d. yearly.)

n to the hospital. More go to the native specialist, o scrapes the inner surface of the eyelids, rubbing burned powders, a treatment that leaves black eaks in the scarred tissue. Deep scars of the skin y be found, the effects of past cauterizations made to rt the inturned lids. Sometimes these succeed, more en they fail or destroy too much tissue, with unfortue results. The malingerer rubs some lime, scraped m the cottage walls, into his eye to produce conjunctitis. It is recognized by the limitation of the effect to lower conjunctiva and the milky appearance of the t. The actual lime is never seen. The trick was once ch in vogue with the Madras police, but the recognition the origin of the malady soon stopped it. Occasionally trick leads to blindness from an overdose. Astrology ys a great part in determining the time for medical prodings. An operation can only be performed at a favoure season; it is useless to oppose the ideas of the patients, hope is the essence of success, but a little tact may suade the astrologer that the surgeon's time is the oured time.

THE PSYCHOLOGY OF THE MYSTIC.

E psychology of the mystic has always been a riddle the average man, to whom the combination of the most ulted piety with sound business and administrative pacities must inevitably appear something of an anomaly. at such anomalies exist, however, and that the visionary often endowed above his fellows with practical abilities no mean order, is proved by the lives of many mystics, h as the great Spanish reformer St. Teresa, Joan of , and the famous St. Bridget of Sweden, of whom most interesting account by Mr. A. W. Taylor appeared Part I, vol. viii, of the *Saga Book of the Viking ciety for Northern Research*. St. Bridget gave early mise of those qualities which were to make her of the most powerful influences in ecclesiastical fairs during the fourteenth century. The woman who later life had the courage to rebuke kings and princes, l even the Pope himself, was from the first a mystic l a psychic in the fullest sense of the word. "From early childhood," says Mr. Taylor, "she saw visions l dreamed dreams. She fell into trances and received velations; she was able to distinguish good men from l, thanks to an almost supernatural insight, long before death of Ulf (to whom she had been married at the age 13)." During her married life her judgement and good se were of the utmost value to her husband; and after death these were devoted to the service of humanity, n suffering from the precarious position of the Papacy l the selfish ambition of temporal rulers. St. Bridget ained every nerve to induce the French and English gs to put an end to the Hundred Years' War, which s then devastating France and Burgundy, and took e Clement VI severely to task for his desertion of me for Avignon, although in neither case, apparently, re her efforts of much avail. It is a curious instance i the vagaries of heredity that, whilst St. Bridget's ghters were all extremely religious, neither of the sons who survived their boyhood appear to have erited their mother's mysticism, one being a rough lier, and the other, who had won the approval of nna of Naples, a typical dandy of the period. The ld who seems to have resembled the saint most sely was her daughter Catharine, who was her mother's stant companion during life, and, after her death, ried on her work as Abbess of the great Brigittine bey of Vadstena. Much of the Swedish literature ring the fifteenth century proceeded from the Brigittine vents of Vadstena and Nadendal; and many of these ks were written in what was known as the "Brigittine guage," a mixture of Danish and Swedish, adopted for purpose of promoting a closer union between the three ndinavian kingdoms.

MEDICAL TERMS IN THE NEW ENGLISH DICTIONARY.[1]

THE present portion of the *New English Dictionary*, comprising words between Sullen and Supple, does not contain, with the single exception of one large group, many purely medical terms. Comparatively uninteresting words are carefully recorded, such as supinator, sunstroke, sunspot (the pathological, not the astronomical), and the long list of the supers-, such as superauricular, superfetation (the spelling with *e* is preferred to that with *oe*, although both are given), superimpregnation, superoccipital, supersalt, etc.; they are all most carefully defined and illustrated by apt quotations, but neither etymologically nor historically do they call for much remark. The one large group is that which centres round the word sulphur; indeed, the first few pages of this part of the *Dictionary* are almost lost to sight in a cloud of sulph-, sulphato-, sulpho-, sulphureo-, and sulphuric compounds, numbering fifty-nine if only main words are enumerated, and some hundreds if all the subordinate ones are taken count of. Sulphur itself has a wonderful series of illustrative quotations, and not a few piquant notes, such as "Sulphur has been associated with the fires of hell, with devils, and with thunder and lightning." Echoes from the medical past come in such sentences as "What stimulants are more active than salt and sulphur?" "Good results have been got by burning sulphur in the rooms inhabited by the child"; and the lines, "The blood impure sulphur's sharp grains alone have strength to cure." Other echoes are found in the terms balm of sulphur, magistery of sulphur (milk of sulphur), oil of sulphur, salt of sulphur, and spirit of sulphur. Not all medical men perhaps are aware that when sulphur of ivy is asked for the druggist is prepared to supply sulphur vivum (native or virgin sulphur). Sulphurwort is the umbelliferous plant known more popularly as hog's fennel. The less distant past is reflected in such comparatively young terms as sulphatite, sulphine, and sulphion (hypothetical radicals), sulphonal (the first illustrative quotation is of the year 1889), sulphone, and sulphuryl. Such useful arrangements as sulphur baths and such gifts of the earth as sulphur springs are not forgotten; and the rare verb, to sulphur, is referred to in Harriet Martineau's sentence, "the season had not begun, few having been yet sufficiently sulphured and bathed elsewhere to come here to be braced." The *Dictionary* more than maintains its good past record of up-to-dateness, for it records summer time in its new sense of "the standard time (in advance of ordinary time) adopted in some countries during the summer months (in the British Isles in 1916 from 21 May to 30 September)." It also gives the Kaiser's "place in the sun" phrase of 1912, tracing it to Pascal's *Pensées* ("c'est là ma place au soleil"); and it gives Bernard Shaw's superman (Nietzsche's Übermensch) its place in the sun. As will have been noted, it is no less in touch with the most recent medical words.

NEW YEAR'S HONOURS.

THE deferred list of New Year's honours given in respect of civilian services was issued on February 12th. It contained the names of six members of the medical profession. Dr. Arthur Newsholme, C.B., medical officer to the Local Government Board since 1908, has been advanced to be K.C.B., and Dr. Robert Armstrong-Jones, who retired last year from the office of resident physician and superintendent of the London County Asylum at Claybury, and who is consulting physician in mental diseases to the military forces in London, with the rank of honorary Major R.A.M.C., receives the honour of knighthood. Dr.

[1] *A New English Dictionary on Historical Principles.* Vol. ix, Si—Th. Part for January, 1917, Sullen—Supple. By C. T. Onions, M.A Lond., Hon. M.A.Oxon. Oxford: At the Clarendon Press; London, Edinburgh, New York, Toronto, Melbourne, and Bombay. Oxford University Press: Humphrey Milford. Price 2s. 6d. net (60 c.).

LIBRARY U. OF I. URBANA-CHAMPAIGN

Charles Lane Sansom, Principal Medical Officer, Federated Malay States, is created K.C.M.G., and Sir Robert William Burnet, physician to His Majesty's household, K.C.V.O. The Foreign Office list contains also the names of Dr. John Warnock, director of lunatic asylums, Egypt, and Dr. William Andrew Betts, director of the Municipal and Local Committees of Egypt, both of whom have received the C.M.G.

THE annual courses of lectures at the Royal College of Physicians of London will be given this term as follows: The Milroy Lectures by Dr. W. J. Howarth, Medical Officer of Health for the City of London, on meat inspection, with special reference to the developments of recent years, on February 22nd, 27th, and March 1st; the Lumleian Lectures, by Dr. G. A. Sutherland, physician to Paddington Green Children's Hospital, on modern aspects of heart disease, on March 13th, 15th, and 20th; and the Goulstonian Lectures, by Dr. C. H. Miller, assistant physician to the London Hospital, on paratyphoid infections, on March 22nd, 27th, and 29th. The lectures will be given at the College at 5 o'clock on each day.

Medical Notes in Parliament.

The Debate on the Address.

THE new session of Parliament which opened last week is likely to have a large and varied interest as regards the number of measures to be put forward "for the prosecution of the war." The debate on the address occupied only two days. The only amendment that was taken was one by Mr. Leslie Scott touching agriculture and food production. It brought informing speeches in reply from Mr. Prothero (Minister of Agriculture) and from Captain Charles Bathurst, the Parliamentary Secretary to the Food Controller. They frankly acknowledged the difficulties of the situation, but indicated the various steps which were being taken to provide farmers with labour to replace the men gone into the army, and also what was being done to provide machinery and fertilizers. Mr. Leslie Scott, while not professing to be fully satisfied, withdrew his amendment.

Amongst the notices given by private members to raise discussion on coming votes is one by Mr. Herbert Nield "on going into Committee of Supply on the Army Estimates to call attention to the action of medical boards in passing recruits for service and to move a resolution."

The Vote of Credit of 550 millions for war services until the end of May occupied Monday's sitting, and was carried without a division after a general debate. The many matters involved will come up for debate on separate classified votes.

War.

Disabled Sailors and Soldiers.—As it happened, the first notice of amendment tabled was one by Sir George Toulmin to express regret that no announcement was made of a complete scheme of pensions and allowances for soldiers and sailors, including, of course, the disabled. But, on the same day, the Pensions Minister (Mr. Barnes) gave notice of his intention to introduce a bill, and, although it is quite possible that this Government measure will not cover the terms of Sir George Toulmin's amendment, the early intimation had the effect, under Parliamentary procedure rules, of preventing a debate. Sir George asked the House to affirm "that no system for dealing with men discharged from His Majesty's Services unfit from wounds or disease will be satisfactory which does not provide for medical, surgical, and institutional treatment where necessary, and for a continuation of dependants' allowances until the discharged man is again in civil employment or an adequate pension is allowed." In the Commons, on February 12th, Mr. Will Thorne asked the Financial Secretary to the War Office whether the Statutory Committee forwarded to the War Office a resolution on September 21st to the effect that the Admiralty and the War Office should be requested to retain in their hospitals all invalided men requiring active treatment; whether a deputation on the subject from the Statutory Committee and the Central Medical War Committee waited upon the Secretary of State for War on November 3rd; whether an immediate reply was promised; whether an official reply had yet been sent; and whether Mr. Forster was willing to take the responsibility for refitting these men for industrial life when they could not be returned to active service. Mr. Forster replied that he and the Secretary of State for War had been in close touch with the Pensions Minister (who represents the Statutory Committee) on this question for some time past, and that the latter would shortly make a statement. In reply to Mr. Hay Morgan, Mr. Macpherson (Under Secretary for War) said that the report of Sir Henry Norman on the treatment and training of French disabled soldiers would be placed on sale. It is understood that this report was completed by Sir Henry Norman last October, and was then submitted to the War Office, but no decision was then taken as to its publication.

Sailors Invalided for Pulmonary Disease.—On Tuesday Mr. Brunner asked the First Lord of the Admiralty whether naval officers who were sent into hospital suffering from lung trouble, contracted on service, required special treatment, that had to provide it at their own expense; whether they had to give an undertaking to indemnify the Admiralty against such claims; and whether, if, at the expiration of ninety-one days they were not absolutely cured, they were immediately invalided out of the service. Sir Edward Carson said that naval officers were admitted into hospitals with pulmonary tuberculosis contracted in service, and were treated in a naval hospital at the expense of the Admiralty unless they wished to be treated in an outside institution, when they had to undertake their own care and treatment and the expense of such treatment. They were not invalided after ninety-one days, but at the expiration of this period they were put on half-pay. The regulations, in his opinion, were not satisfactory, and the question of an alteration in the regulations affecting the cases these cases was now before the Board. Sir Edward was asked whether the position of the men would also be considered, and nodded assent.

Bonesetters.—In the Commons, on February 13th, Mr. MacVeagh asked whether the War Office still adhered to its objection to using "the skill of experts in manipulative surgery," whether some of the leading exponents of this method of treatment had offered to give their services free to suffering soldiers, and their offers had been rejected; and whether there was any reason for this rejection "beyond the objections of the medical faculty against the recognition of unqualified practitioners." Mr. Macpherson referred the questioner to the answer given by Mr. Tennant last March to the effect that it was not the intention of the Army Council to direct the medical authorities to employ unqualified men to treat military patients. Were this done, from no quarter would there be a louder outcry that our soldiers were not receiving the necessary skilled attention than from members of the House of Commons. Mr. MacVeagh then asked whether the War Office declined to go into the question further, and Mr. Macpherson replied in the affirmative. Mr. MacVeagh further asked if the Government would appoint an independent commission composed of men of high attainment, but not members of the medical profession. To this Mr. Macpherson replied that the rule was quite clear; the War Office could not open the Army Medical Service to any man whose name was not on the *Medical Register*. Mr. MacVeagh next asked if the Army Medical Department would continue to allow hundreds of thousands of soldiers "to go through unnecessary suffering on account of professional prejudice." Mr. Macpherson replied that nothing of the sort happened. The greatest attention and skill had been bestowed on the officers and men of the army, and it had received on all hands the highest appreciation. Mr. MacVeagh was not satisfied, said he would put down a further question, and threatened, if the reply was not satisfactory, to raise the matter later on a motion for the adjournment.

DRS. A. J. CHALMERS AND N. E. WATERFIELD have published in the *Journal of Tropical Medicine* (July 15, 1916) an account of the bacteriology of a case of pseudo-cholera due to a vibrio identified as a slightly pathogenic strain of *Vibrio gindha*, Pfeiffer, 1896, an organism first described by Pasquale at Gindha, in Erythrea, five years earlier. Drs. Chalmers and Waterfield give an analysis of the difficulties met with by investigators who attempt to bring order into the very complex group of comma-shaped organisms giving rise to cholera and cholera-like diseases. They have been impressed with the extreme confusion existing with regard to the paracholera vibrios and develop a scheme or systematic method of working that should in future assist in the identification of the various but closely allied bacteria. This scheme enumerates seven general diagnostic characters for investigation, and some thirty special diagnostic characteristics that require examination. They hold that *Vibrio gindha* may be more widely distributed in Africa and more common than is at present realized.

THE WAR.

SURGERY AT THE SIEGE OF KUT.

OR C. H. BARBER, I.M.S., records his experience at the e of Kut.[1] The surgeons had a somewhat unique ortunity of watching a good many cases of wounds a the time of their infliction to the end, and of noting effect of various, mostly adverse, circumstances. ong the favourable influences were the very short ance between the firing line and a stationary hospital, the short time between the infliction of the injury the application of surgical treatment. Both these ors tended very materially to reduce the mortality and permanent invaliding among the severely wounded. unfavourable conditions, which probably more than nterbalanced the favourable factors, were (1) the un-ienic surroundings in the improvised hospital build-; (2) insufficient personnel, equipment and stores; slow starvation and absence of medical comforts; he prevalence for part of the time of scurvy and -beri owing to improper and insufficient food; (5) the erse effect on the *moral* of the wounded produced by constant bombardment and mental strain. From ember 5th, 1915, to April 29th, 1916, 2,418 wounded e brought into the hospitals; of these, 488 died, 1,680 e returned to duty, and 250 remained for invaliding. he men "returned to duty" a good many remained in health and crippled in one way or another. There a large number of head cases. Many were operated but the results were disappointing. Penetrating and orating wounds of the chest did well as a rule, and lungs rapidly recovered their full working power. gical emphysema was common, pneumothorax and ous haemothorax somewhat rare; suppuration in a nothorax was rare; haemoptysis was usually slight, did not as a rule last more than two days.

fter the first fortnight Barber operated with very uraging results in all cases of penetrating and per-ting wounds of the abdomen in which there seemed e no doubt that the missile had entered the peritoneal ty, causing injury to the intestine; laparotomy was ormed, the intestinal lesions were sewn up or excised, the peritoneal cavity cleaned and drained. Cases n left alone had a 2 per cent. chance of recovery, while o 30 per cent. of those operated on recovered. Had men been in better condition and good post-operative tment been possible the percentage of recoveries would e been considerably higher.

ompound fractures were common and difficult to treat, thanks to early and thorough cleaning and drainage results were not bad; several men, however, died from ic absorption when scurvy and starvation began to cise their injurious influence. In thigh cases "sand-s and extension" was the most satisfactory method. urysms were few, and nearly all recovered after opera-. Nerve lesions were also comparatively rare, and did as a rule, call for operation. The amount of sepsis not great, having regard to the unhygienic surround-, and only three cases of gas infection, with two hs, occurred. Bomb wounds, in spite of all pre-ions, almost invariably became septic, with a thin, smelling discharge, and deaths from this cause were nerous. The stock of hydrogen peroxide gave out y in the siege. Secondary haemorrhage was rare; e were not more than half a dozen cases, and some of e were complicated by a scorbutic element.

f tetanus there were thirty cases; only four recovered, pite the fact that the incubation period in all but four s was six days or more. Of the thirty cases, nine were l and four bomb wounds; only one of these (shell) re-ered. In twenty-one of the cases the first symptom trismus, whilst of the remaining nine, five began with l spasms, two with general convulsions, and one with icollis. In one-half of the whole number death oc-ed within forty-eight hours; in the remainder the od varied from three days to three weeks. In the y days of the siege, when most of the cases occurred, y little antitetanus serum was available; only seven eight cases were treated with it, and of these three recovered; a fourth recovered with treatment by local subcutaneous injections of hydrogen peroxide. Later a stock of serum was received by aërial post, and was used prophylactically in many cases. Several cases were treated by carbolic acid injections but without success.

In the second half of the siege the steadily diminishing ration, the want of invalid food, and scurvy among the Indian troops and beri-beri among the British, adversely affected the healing of wounds. In many cases in which scurvy developed the healing process stopped, and in others the patients quickly died of exhaustion or septic absorption from suppuration of moderate severity. In beri-beri cases wounds, especially granulating wounds, healed very slowly. Among the Gurkhas wounds healed more frequently by first intention and more quickly than in others. These men were generally in very good condition and very clean; they ate horseflesh as soon as it became necessary, and did not suffer from scurvy. In Sikhs, Pathans, and Punjab Musulmans wounds healed well as a rule, and the process was not much affected by scurvy, but in the Mahrattas, among whom that disease was at one time very prevalent, wounds were seen at their worst, recuperative power being very low. The Arabs seemed to possess a most virile constitution; some of the civilian population of Kut recovered from very severe and extensive shell wounds and from injuries of the head and abdomen the like of which seemed nearly always to be too much for any other class of men. They also survived the shock of major surgical operations with comparative ease.

Of major operations about 200 were performed. The supply of chloroform was ample. During the first two-thirds of the time there was also a good stock of surgical dressings. Among major operations were the following: Craniotomies, 32; abdominal sections, 40; amputations, 36; ligation for aneurysm, 6. The results of craniotomy were, on the whole, disappointing. Amputations did well. Conservative treatment of limbs became less and less possible as the food supply diminished. Dressings were sterilized by boiling in water and were then wrung tightly out of 1 in 4,000 mercury perchloride. The use of dry gauze was discouraged, as there was no means of keeping it sterilized. The missiles were of the usual kinds. Shell wounds were nearly always serious, both as regards their size and local effects and the very marked constitutional symptoms caused. Locally, there was invariably much bruising of the surrounding tissues when a piece of the case itself inflicted the injury, and the skin for some distance round nearly always died. It was necessary, therefore, to be very chary of stitching up such wounds. The shock of shell wounds was often very severe; sometimes it did not reveal itself for thirty-six hours, and frequently it proved fatal. Wounds caused by bombs, both grenade and aërial, were dangerous and generally multiple. They did not cause the same constitutional shock as the shell, but the danger lay in the difficulty in finding the particles and in the virulent sepsis they quickly produced. The *x* rays were sorely missed.

[1] *Indian Medical Gazette*, December, 1916.

TWENTY MONTHS' SURGICAL FIELD SERVICE WITH THE GERMAN ARMY.

IN a retrospect of twenty months of work in a main dressing station and field hospital, Professor H. Coenen, of Breslau, who has been serving as a field staff surgeon, sketches in broad outline the entire field of surgical activity as exhibited in his section of the Western front.[1]

Referring, in the first place, to the great differences observed in wounds received in mobile as compared with stationary or trench warfare, which has become to a large extent mine warfare, he enumerates the chief characteristics of mine wounds. The shattering of the wall of the mine into innumerable small fragments results (1) in the wounds being multiple; (2) in consequence of the irregularity of the fragments the wounds are markedly lacerated; (3) owing to contamination with earth they suppurate; (4) the momentum of the fragments not being great, they readily lodge in the soft parts; and (5) the explosion may cause rupture of the tympanic membrane and consequent otitis.

[1] *Kriegschir.*, H. 27, *der Beitr. z. klin. Chir.*

Shock: Rigor Mortis: Heart Wounds.

As an example of the slighter hysterical reactions is mentioned a case of blindness following bullet wound of the occipital region. On removal of the bullet, which lay quite near the surface, recovery of sight was immediate. Severer nervous effects—those following an explosion of grenades, for instance—had at times some clinical resemblance to paralysis agitans. With a scared expression and widely open eyes, inability to answer questions or to speak, was associated a continuous tremor of the hands. At other times these signs of irritation were replaced by collapse and somnolence; in such a condition death often supervened.

Cataleptic rigor was a common phenomenon on the battlefield, the limbs being usually in the attitude of attack or defence. In bullet wounds of the heart death was mostly so sudden that cataleptic rigor ensued. A bearer fell, wounded in the heart; convulsions followed, with death in a few minutes, and the body immediately became rigid.

Wounds of the Upper Air Passages.

The severest cases were beyond treatment, haemorrhage or acute oedema of the larynx proving rapidly fatal. In cases that called for treatment the respiratory obstruction arose either through surgical emphysema or through oedema resulting from infection. The onset of dyspnoea in the former was gradual, increasing with the increase of the emphysema until inspiratory retraction of the thorax occurred. Oedema of the upper air passages was of constant occurrence in severe bullet wounds of the jaw with involvement of the tongue and floor of the mouth. The prognosis in such cases was unfavourable, and one-third of the cases died from pneumonia or secondary haemorrhage.

Injuries of Blood Vessels.

Gunshot wounds of the large body cavities were usually associated with marked haemorrhage. External haemorrhage was slight in abdominal wounds on account of the mobility and elasticity of the tissues surrounding the bullet track. In the skull, on the other hand, the track remained open, and external haemorrhage was the rule. Wounds of the thorax caused both internal and external haemorrhage; the external wound often gaped, and on turning the patient over a stream of blood might flow from it.

The action of the soft parts in plugging the wounded vessel was much greater in the limbs than in the trunk; hence wounds of the limb vessels often ran a symptomless course, or aneurysms developed, or secondary haemorrhage occurred from shifting of the soft parts, the rising blood pressure, or infective softening of the thrombus. Marked painful swelling of a limb after gunshot wound indicated the severance of a large artery. If in such cases the external haemorrhage did not recur while the soft parts enclosed the haematoma, the formation of an aneurysm was to be expected. Persistently painful haematomas therefore suggested a slowly developing aneurysm. Treatment of primary haemorrhage was called for generally in connexion with arteries of medium size—such as the tibial, radial, and ulnar. Only exceptionally did wounds of the larger arteries reach the dressing station, immediate arrest of the haemorrhage having by good fortune been possible or the wound itself being small and linear. Most cases were rapidly fatal. Coenen states that he had met with gangrene following the application of the elastic band in two cases, and in these the band had been applied for over twenty-four hours.

Excision of the wounded segment of the vessel, with subsequent anastomosis, was performed on five occasions—on the femoral artery thrice; on the femoral vein twice. None of the former was successful; in the latter the result was doubtful, the vascular area operated on being venous. The conclusions drawn from these cases were that anastomosis should only be attempted in the certain absence of infection, and then only in recent cases; after a few days' delay it was too late. Anastomosis after excision of a segment of the femoral artery, successful so far as the operation on the artery was concerned, was performed in the case of a bullet wound of Scarpa's triangle. Infection was absent. The circulation was fully re-established in the peripheral part of the femoral artery, but the foot remained white and cold. The operation was performed five days after injury; the man had, however, lain in th open during the whole of that time.

The operation was more satisfactory when undertake as an operation "of choice," as in the excision of aneurysm or in vital blood transfusion, a method Coenen consider preferable to intubation of the artery into the vein; h employed it in five cases. A severe injury of the knee opening the joint and lacerating the soft parts, was treate on conservative lines; suppuration and secondary haemo rhage occurred and the limb was amputated. As th result of the fever and loss of blood the patient was in state of extreme exhaustion: of waxy pallor, with thread scarcely perceptible pulse, complete y apathetic. The re cells numbered 1,700,000. Saline infusions, camphor, an digitalis failed to diminish the collapse. The radial arter of the patient's sister was then connected by circul suture with the median ve n and transfusion maintaine for thirty-two minutes. The pulse and the colour of th conjunctivae immediately improved. Later in the day th blood count was 2,900,000; on the fourth day 2,500,000, about which figure it remained for some time. In fi weeks the patient was discharged, the blood count the being 4,000,000.

Gas Phlegmon.

In Coenen's experience gas phlegmon was the mo dangerous the sooner it set in after wounding, and de phlegmon endangered life and limb more than the supe ficial or "epifascial" form. He believes that the seve form was due to Fraenkel's bacillus, and that the slight might arise from gaseous decomposition of pus or sodd tissues, caused by putrefactive organisms or streptococc Between the rapid gas gangrene, extending from t limbs to the trunk, all gradations occurred to a pure localized gas abscess or collection of frothy pus in t bullet track.

The symptoms he considers characteristic. Wh brought in, the patient did not complain of pain; t expression was anxious, the face cyanosed; the pulse sm and respiration deep and prolonged. The temperatu might be normal at first, but rose subsequently. The bo was cold and moist; the patient was drowsy, but co sciousness remained clear. From the wound, whi showed no sign of suppuration, bubbles of gas were d charged when the limb was moved; the muscles we softened into a dark red or black mass, from which a fe and almost characteristic odour was given off. In t skin around livid patches were present, and rapi increased in size, the limb at the same time swelling a becoming crepitant to the touch. If now amputation su ceeded in arresting the disease, the patient recovered w surprising rapidity. Otherwise, the gangrene progresse jaundice and vomiting set in, and death rapidly occurr from heart failure, consciousness being unclouded to t end. If it was impossible to amputate through sou tissues, owing to the gangrene having reached the trun exarticulation at the hip or shoulder was the operation choice, and out of seven such cases the result was s cessful in five. Coenen states that in cases in which gas gangrene was superficial or epifascial it usually yiel to multiple small incisions carried down to the fascia. records two cases of gas phlegmon of the penis a scrotum, two of stercoral phlegmon following wounds the gluteal region involving the rectum, and one in wh a bacteriological examination appeared to indicate th streptococci were the cause.

Prognosis, largely influenced by the severity of wound, depends on the form of the phlegmon. Coen distinguishes three forms: (1) Gaseous sepsis with extre collapse, fatal in a few hours or days, without suppu tion, and often without obvious necrosis of the musc only a few necrotic foci and gas bubbles being visi (2) The epifascial cases, which healed after incisio (3) A form of medium severity, which, by removal of limb, especially by exarticulation in the severer cases, a by making deep long incisions, might recover. After ar of the phlegmon, however, these patients might die fr exhaustion.

Abdominal Injuries.

Coenen states that at the present time almost ev surgeon holds that all cases of gunshot wound of abdomen should be operated on, provided that the favo able period—six to twelve hours after wounding—has elapsed and that conditions are favourable. These c

ns, briefly stated, were that the laparotomy was under- h with the aid of expert assistants only, in a room in h aseptic conditions had been established, and by an rt operator. In mobile warfare each case must be with separately, arrest of haemorrhage and tracheo- alone excepted; and a message should be dispatched e surgeon to prepare the operating room. The much ated question whether abdominal cases should be sported or not is, Coenen considers, rather beside the ; in principle, every case should be transported as as possible to the nearest place where suitable con- ns of operation exist. The following case illustrates e remarks:

oldier received a bullet wound in the abdomen; almost ediately afterwards he was placed in a motor car and con- l six kilometres to the Feldlazarett. He was pale and psed, and had frequent vomiting; the aperture of entry n the linea alba, the abdominal wall was rigid in its lower and the pulse was 110. Laparotomy five hours after ding. There was blood in the lower abdomen, but no of peritonitis. Five bullet wounds were present in the n, and in one of these the bullet had remained lodged, g half within the lumen, half in the peritoneal cavity. perforations were sutured, the peritoneum freed from l, and the abdominal wound closed. There was some ting on the next day, but after that recovery was uninter- ed. The operation was performed in a peasant's house, h had been prepared for it.

enen advises operation, in suitable conditions, in all s (1) where the direction of the track makes injury of viscera probable; (2) where marked rigidity of the minal muscles is felt and persists, notwithstanding warmth of the bed; (3) where the collapse and the nt's features render wound of the abdominal cavity able; (4) where vomiting is present.

Wounds of the Bladder and Urethra.

these wounds, which were not uncommon, suture not performed in any instance, because other sym- s stood in the foreground. Nor was external urethro- y resorted to, as the difficulty of keeping the catheter tic rendered it unsuitable as compared with the ler method of cystotomy.

Wounds of the Thorax.

almost all cases in which the pleura had been opened nited amount of emphysema was present; in rare s this reached enormous dimensions, the patient being ted like a balloon. It was sometimes difficult to say hat spot the air was entering the subcutaneous tissue, it was not usual for such large collections to arise ugh wounds of the chest wall. A marked swelling of neck was of some value as indicating the mediastinum he source of the emphysema. Coenen is inclined to ve that some information as to the character of the y is at times to be deduced in these cases; a large hysema rising to the neck from the mediastinum ld in all probability, he considers, point to injury of a bronchus or one of the larger tubes. He found ity of the abdomen frequently associated with severe hot injuries of the chest. It might be so persistent o lead to the diagnosis of wound of the abdominal y where no such injury exists, as occurred several s in his own experience. After a brief reference to almost hopeless cases of bilateral wound of the chest those complicated with injury to the cord, the rule an external pneumothorax should be converted into ternal is alluded to, and the following case cited:

ullet striking the anterior surface of the left side of the chest d upwards and inwards, forming a groove the length of nger, from which the lung was prolapsed and hung down the surface of the chest. The patient was white and less. The prolapsed portion of lung showed no wound; ts replaced and the wound sutured. This was done four s after wounding. During the next day the patient ined pale and the pulse could scarcely be felt. After this very was rapid, and the wound healed by first intention.

Gunshot Wounds of the Head.

stricting his review to cranial injuries involving the , Coenen states that every field surgeon has had dant experience of such cases, and therefore the lines eatment have been ascertained with some degree of iteness. As to prognosis, he considers wound of the the decisive factor; hence prognosis was worse in rating wounds and those with retention of the projec- than in tangential injuries. The decisive factor as affecting surgical treatment was injury of the cranium; hence a tangential injury associated with much comminution was, as a rule, trephined, whereas a diametral shot with comminution limited to the apertures of entry and exit generally received conservative treatment. The brain injury itself could not be influenced by surgical means. There was a third form of injury, neither tangential nor diametral, in which a larger or smaller segment of the cranium was included. With regard to these "segmental" wounds Coenen suggested that the two forefingers (sterile) should be placed near the wound apertures and approximated along the line of the bullet track, deep palpation through the skin being made at the same time. If firm bony resistance is met with throughout, no operation should be performed, unless indicated from other signs. If comminution is felt to be present, the wound should be laid open. In short segmental shots the wound was generally laid open from aperture to aperture; in longer wounds an area was left midway between the apertures. Small bony fragments, injuring brain and dura, were removed; broader pieces still retaining a connexion with soft parts were left. These longer segmental wounds, requiring operation, merged imperceptibly into the diametral wound, and circumstances arose in which penetrating wounds also called for opening up. These circumstances, in the case both of perforating and long segmental shots, were: (1) Marked haemorrhage; (2) the onset of infection or a putrid odour; (3) epileptic attacks; (4) involvement of specially important brain regions—motor area, speech centre, visual area.

Retention of the projectile in the brain occurred in the diametral or the segmental types of wound, and the mortality was extremely high. The four points above mentioned are applicable also to these cases, and to them Coenen adds a fifth—general pressure phenomena or signs of local congestion, such as protrusion of the globe, where a bullet has lodged in the frontal lobe. Removal of the projectile, he considers, should be attempted, provided the operative interference necessary is not too great. When the bullet is lodged superficially its removal is desirable, since suppuration may occur around it; a more deeply placed bullet is, he thinks, much more likely to heal in aseptically.

Wounds produced by explosion of mines being generally small the surface wound tends to heal rapidly, but he found that suppuration was the rule around the fragments. He therefore incised and trephined primarily in such cases much more generally than in other bullet injuries of the brain.

Injuries of the Spinal Cord.

Among these generally unsatisfactory cases Coenen describes one in which operation was followed by recovery:

A grenade wound below the left shoulder blade was followed by paraplegia. X rays were not available, but from the symptoms it was considered that the spinal column had been injured at about the middle of the dorsal region and that the bullet had lodged. Laminectomy under local anaesthesia was performed twenty-six hours after wounding. The arches of the sixth and seventh dorsal vertebrae were found to be fissured and beneath them the dura contained the projectile, which was of the size of the finger-nail and 3 mm. thick. The cord had been split longitudinally and contused, but laterally its continuity was unbroken. The dural wound was trimmed and sutured; the external wound closed, without drainage. There was uncomplicated recovery.

Coenen found that the higher the lesion the graver the prognosis; and that lacerations of the cord were graver than compression by the projectile or bony fragments. Any operation undertaken should be done as early as possible. The indication he lays down for operation is the diagnosis that the bullet is lodged in the canal.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

MAJOR V. H. SYMONS, R.A.M.C.

Major Vivian Hood Symons, R.A.M.C., died in the Military Hospital, Tidworth, on January 29th, aged 38. He was the third son of the late Colonel C. E. H. Symons, of Colombo, was educated at Trent College and at Birmingham University, and took the diplomas of M.R.C.S. and L.R.C.P. London in 1901. He subsequently served as a civil surgeon in the South African war, and gained the

LIBRARY U. OF I. URBANA-CHAMPAIGN

Queen's medal with five clasps. After acting as assistant house-physician at the Nottingham General Hospital he went to Australia, where he was medical officer of health at Charters Towers, Queensland. Returning to England, he entered the R.A.M.C. as lieutenant on July 31st, 1905, becoming captain on January 31st, 1909, and was promoted to major on October 15th, 1915. He went to France with the original British Expeditionary Force in August, 1914, and served there till invalided home. He leaves a widow and two children.

MAJOR W. WILEY, R.A.M.C.

Major William Wiley, R.A.M.C., whose death from nephritis, contracted on service, occurred at Ealing on February 12th, aged 37, was the son of Mr. William Wiley of Cork. He was educated at Cork Grammar School and Trinity College, Dublin, where he graduated M.B., B.Ch. with distinction in 1902. He entered the Royal Army Medical Corps in 1903. He went to France with the original Expeditionary Force, serving with No. 12 Field Ambulance. Subsequently he was in command of No. 142 Field Ambulance, and held this appointment, with the temporary rank of lieutenant-colonel, until invalided home on account of the illness that led to his death. He was twice mentioned in dispatches.

CAPTAIN C. E. A. HUDDART, R.A.M.C.

Captain Cuthbert Edmund Arnold Huddart died suddenly, at the age of 39, on January 29th, whilst on embarkation duty. He was the second son of the late Dr. C. H. C. Huddart of Etchingham, was educated at the London Hospital, and took the diploma of L.S.A.Lond. in 1902. For some years he was in practice at Gloucester Terrace, Hyde Park. His commission as temporary lieutenant R.A.M.C. was dated November 28th, 1915, and he was promoted to temporary captain after a year's service. He had served in Malta and Egypt for several months, and was proceeding to France in a few days. He married in June, 1908, Olga Florence, youngest daughter of Mr. Orlando J. G. B. Bridgeman-Simpson of Wentbridge, Pontefract, by whom, together with a son, he is survived.

CAPTAIN C. C. KEATES, R.A.M.C.

Captain Courtnay Cooper Keates, late R.A.M.C., died on February 7th, aged 32. He was the eldest son of the late Dr. Dudley Keates of East Dulwich Road, and was educated at St. Mary's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1908. After acting as assistant house-surgeon and house-surgeon at the Royal Hospital, Portsmouth, he became senior assistant medical officer of St. James's Infirmary, Wandsworth Common. He took a temporary commission as lieutenant in the R.A.M.C. on October 5th, 1914, and was promoted to captain on completion of a year's service.

DR. I. A. TATE.

Dr. Isobel Addey Tate, who died at the Military Hospital, Malta, on January 28th, was the daughter of the late Mr. John Tate of Portadown and Mrs. Tate of Belfast. She received her medical education at Queen's College, Belfast, and graduated as M.B., B.Ch., B.A.O., R.U.I., in 1899, and as M.D. three years later, taking the D.P.H.Vict. in 1904. She had filled the post of medical inspector of school children for Shropshire and also to the Lancashire Education Committee. At the beginning of the war Dr. Tate volunteered for work in Serbia, where she rendered valuable service, and was afterwards engaged at the Graylingwell War Hospital. She subsequently volunteered for service in Malta, where she expired after a short illness.

Wounded.

Captain J. M. Young, R.A.M.C.(T.F.).

Lost at Sea.

DR. W. F. ALGES.

The Anchor liner *California*, 8,669 tons, was torpedoed and sunk by a German submarine on the morning of February 7th on the voyage from New York to Glasgow. Out of about 205 on board, passengers and crew, 43 lives appear to have been lost. Among the missing was the ship's surgeon, Dr. W. F. Alges.

DEATHS OF SONS OF MEDICAL MEN.

Donahoo, Malcolmson Gardiner, Captain King's Own Yo shire Light Infantry, of Hebbs, Tandridge, Surrey, only son the late Dr. Thomas Malcolmson Donahoo, was killed January 31st. He got his commission as second lieutenant February 27th, 1915. He had recently received the Milita Cross.

Dudley, Bernard John Charlton, Captain Dorsetshire Re ment, third son of Brigade Surgeon Lieutenant-Colonel W. Dudley of Bath, was killed on January 24th. He was educat at Bath College, and got a commission in the Dorset Regime from Sandhurst in 1909, becoming lieutenant on June 8th, 19 and captain in October, 1915. Early in 1914 he took serv under the Colonial Office, and joined the 1st Nigerian Re ment, with which he served at Kaduna and Sokoto, being command at the latter station during the campaign in t Cameroons. He came home on leave in May, 1916, and th went to another theatre of war. His brother, Captain Leon Grey Dudley, 6th Jat Light Infantry, was killed at Festub on November 24th, 1914.

Graves, Robert James, Lieutenant Royal Irish Rifles, el son of the late Mr. Ryves W. Graves, F.R.C.S., J. of Gloucester, died in the Military Hospital, Cork, January 28th.

Lord, Arthur, Captain Welsh Regiment, aged 19 years, d on February 12th of wounds received on February 10th. was the eldest son of Dr. Robert E. Lord, of Colwyn Bay, s was educated at Haileybury College and at the Victo University, Manchester, where he was a medical student.

McElfatrick, Jack E., Transport Officer, British Red Cr Society, Cheshire Branch, only son of Dr. McElfatrick, d at Stonycroft Grange, Alderley Edge, on February 1st.

Wilson, John Thomson, Second Lieutenant Seaforth Hi landers, elder son of Dr. T. Lindsay Wilson of Bon Dumbartonshire, was killed in action on January 28th.

MEDICAL STUDENTS.

Harris, A. J., Second Lieutenant 3rd Battalion (King's O Royal Lancaster Regiment, who has been killed, entered London Hospital as a medical student in October, 1914, and very popular with both tutors and fellow students. He a member of the O.T.C. and obtained his commission December, 1915, and a little later joined his battalion Plymouth.

Jackson, H. S., Lieutenant 8th Battalion King's Own Yo shire Light Infantry, aged 20, the son of the Rev. Syd Jackson, of Mitcham, was killed in an attack across "No Man's Land" on July 1st, 1916. He entered the London Hosp as a medical student in October, 1913. Before joining a combatant he had served for some months as a dresser with Anglo-Belgian Hospital, and later with the Anglo-Ameri Hospital at Wimereux.

Odam, C. W., Second Lieutenant 16th London Regiment, younger son of Mr. C. Odam, of Mount Boone, Dartmouth, killed in the battle of the Somme on September 15th, 1 "whilst very gallantly leading his men." He was born July, 1897, and after receiving his education at Taunton Sch entered as a medical student at the London Hospita October, 1914. He was gazetted in January, 1916, and w to France in the following May.

Satchwell, Ralph William, Second Lieutenant Royal Garr Artillery, third son of Mr. James Hubert Satchwell, J Mount Mary, Cleggs, co. Galway, was killed in action on Janu 31st, aged 20. He was a second year medical student in School of Physic, Trinity College, Dublin, and volunteered active service in December, 1915, his commission being da December 17th, 1915. He was home on leave from the fro January last, and was killed a few days after his return.

HONOURS.

THE following medical officers were included in the lis awards in recognition of gallantry in the field and devo to duty published in a special supplement to the *Lon Gazette* on February 13th:

To be Companions of the Distinguished Service Order.

Major John Edward Briscoe, South African M.C.

For conspicuous gallantry and devotion to duty. Alth himself wounded he continued to tend wounded men under heavy fire. He set a splendid example of courage and coo throughout.

Bar to Military Cross.

Temporary Captain William Kenneth Mackenzie, M.C., M R.A.M.C.

For conspicuous gallantry and devotion to duty. He displ great courage and determination in conducting a hazardous very difficult enterprise for the rescue of wounded from dug-ou the newly captured enemy trenches. He set a splendid exa throughout.

Military Cross.

Temporary Lieutenant James Laug Cochrane, M.B., R.A.M attached Gloucester Regiment.

For conspicuous gallantry and devotion to duty. He displ great courage and determination in tending the wounded u heavy fire. He has on many previous occasions done fine work

Captain Arthur George Fisher, M.B., R.A.M.C.(S.R.).

For conspicuous gallantry and devotion to duty. He went for to the front line under very heavy fire to locate some wounded whom he later succeeded in rescuing. He has previously done work.

btain Kenneth Alexander Gilchrist, South African Medical Corps.

For conspicuous gallantry and devotion to duty. He displayed eat courage and determination in tending the wounded under ry heavy fire. He set a fine example to those about him.

btain John Valentine Macdonald, M.B., I.M.S., attached I.A.

For conspicuous ga lantry an devotion to duty. e displayed eat courage and determinati n in attending to the wounded under ry heavy fire. He has previously done fine work.

mporary Captain Arthur John Rushton O'Brien, M.B., A. Med. Service, attached Gold Coast Regiment.

For conspicuous gallantry and devotion to duty. He repeatedly essed and tended wounded men under very heavy fire. He set a lendid example of courage and coolnes throughout.

mporary Captain James Edmund Rutherfurd, M.B., R.A.M.C., attached Royal Irish Regiment.

For conspicuous gallantry and devotion to duty. He displayed eat courage and determination in dressing the wounded under ry heavy fire. He has on many previous occasions done fine ork.

mporary Lieutenant John Black Stevenson, M.B., R.A.M.C., attached Liverpool Regiment.

For conspicuous gallantry and devotion to duty On four separate casions he personally conducted stretcher-bearers through very avy fire to succour wounded men. Later, although himself unded, he continued to carry on his work.

mporary Captain Roger Llewellyn Williams, R.A.M.C. attached South Staffordshire Regiment.

For conspicuous courage and devotion to duty. He displayed arked courage and determination in tending the wounded under ry heavy fire. He has on many previous occasions done fine work.

he Rev. Stephen A. L. Thornton, Naval Chaplain's Depart-nt, attached Royal Dublin Fusiliers, has received the D.S.O., the Rev. W. H. Fawkes, temporary Chaplain to the Forces, Military Cross, in recognition of devotion to duty and stance rendered to the wounded.

he Distinguished Conduct Medal and the Meritorious vice Medal have also been awarded to a number of warrant ers, non-commissioned officers, and men of the R.A.M.C. the colonial medical services for gallantry and devotion to y in the field and in recognition of valuable services dered with the armies in the field during the present war.

MENTIONED IN DISPATCHES.

special supplement to the *London Gazette* issued on ruary 8th contains a dispatch from General Smuts, mander-in-Chief, East African Force, bringing to notice names of those recommended for meritorious service in field. The following is a list of the medical officers ntioned:

oyal Navy.—Temporary Surgeon A. F. R. Woollaston, M.A., ., R.N.

aff Head Quarters, etc.—Lieutenant-Colonels H. W. ghan-Williams and J. H. Whitehead, and Major G. D. nard, South African Medical Corps.

oyal Army Medical Corps.—Captain (temporary Major) J. A. ifold, M.B. Temporary Captain E. A. Gates, M.D.

outh African Medical Corps.—Lieutenant-Colonels W. V. d and T. Smyth. Majors J. E. Briscoe, J. W. de Vos, H. S. k, R. L. Girdwood, M.B., R. M. Truter. Temporary Major unter. Captain (temporary Major) H. J. Orford. Captains roenewald, M.C., M.B. (deceased), M. Heyns, M.B., N. J. neyr, M.B. Temporary Captain K. A. Gilchrist, M.B.

ndian Medical Service.—Major (temporary Lieutenant-Colonel) V. Sumner, M.B., F.R.C.S. Majors A. Cameron, E. T. ris, M.B., W. S. McGillivray, M.B. Captains O. A. R. keley-Hill, M.B., A. E. Grisewood, M.B., J. V. MacDonald, .

ast African Medical Service.—Captain (temporary Major) O. J. B. Williams. Captains A. A. H. Lawrence and J. C. t.

Uganda Medical Service.—Lieutenant-Colonel A. D. P. Hodges, .G. Temporary Major H. B. Owen.

est African Medical Service.—Temporary Captain A. J. R. ien.

he list also contains the names of a number of non-com-ioned officers and men of the R.A.M.C., the South African ical Corps, Indian Medical Service, the Uganda Medical ice, two members each of the Queen Alexandra's Imperial tary Nursing Service and the South African Military sing Service, and four members of the East African Nursing ice.

---

is estimated that 248 persons suffered from mushroom oning in Germany during 1915. Of these, 85, of whom were children, died. These figures do not include btful cases of mushroom poisoning, or cases in which symptoms were due to deterioration of non-poisonous hrooms. In most of the fatal cases the poisonous hroom eaten was *Amanita phalloides*. The next most mon offender was *Lactaria torminosa*. The frequency which mushroom poisoning occurred in 1915 is attri-d to the abundance of mushrooms in that year, and he shortage of other foods.

Ireland.

MR. RICHARD F. TOBIN, F.R.C.S.I., has been appointed Inspector for Ireland under the Cruelty to Animals Act, 1876, in succession to Dr. Joseph O'Carroll, resigned.

CIVIL SURGEONS IN ULSTER.

At recent meetings of the Ulster Branch and Portadown and West Down Division of the British Medical Association the following resolution was passed unanimously:

> That we consider the treatment by the War Office of the civil surgeons in Ulster employed in military hospitals, who were displaced after the heavy work of the previous years without any sufficient reason, to be unjustifiable, and we request the matter to be reconsidered.

SUCCESS OF THE OPEN-AIR TREATMENT IN DUBLIN HOSPITALS.

The fifty-eighth annual report of the Board of Superintendence of the Dublin Hospitals, issued last week, shows that all the hospitals fulfil in an economical and thorough manner the object for which they were instituted. Touching the open-air treatment of tuberculous patients at Steevens's Hospital, the Board of Superintendence declare that it is economical, yields excellent results, and conveys a lesson of great value to the public. The report states:

> For a long time it was believed that the climate of Ireland was unsuited to such a method of treatment, and that, in large cities and towns at all events, no good could be expected to result from putting patients to live in the open air. Public prejudice was strongly opposed to such a measure, and those who advocated it were warned that hospital patients would never submit to it. Experience has falsified these predictions, and it has been found that such patients gladly avail themselves of the opportunity of adopting this treatment. The results that have been obtained have more than justified the hopes of those who recommended it.

The report proceeds to say that the patients recommended to the outside wards are generally those suffering from chronic tuberculous disease of the bones or lungs, but sometimes patients suffering from other chronic diseases are treated outside. So far, patients with acute diseases have not been treated in the outside wards, as, owing to the limited accommodation, it has been considered more advisable to devote these beds to the service of patients suffering from chronic illness. An effort is always made to start the patient's period of residence outside during fine weather, as under such conditions he becomes more quickly acclimatized and has less fear of the exposure. The results have been, on the whole, very satisfactory. The patients eat and sleep better than they do indoors. Accurate statistics for comparison are not available, and are difficult to procure, but there is no doubt as to the benefit from the point of view of therapeutics, as there is none from the point of view of the comfort of the patient. As an example of the results obtained, we may quote the case of a patient who spent many months in the open-air ward undergoing treatment for spinal caries. He is now serving in the artillery.

IRISH VOLUNTARY AID DETACHMENT CHALLENGE CUP.

The competition for the Irish V.A.D. Challenge Cup, the gift of Lady Arnott, commenced on February 9th, at the Mansion House, Dublin. The cup and prizes will be presented by Surgeon-General Sir Richard Ford, D.D.M.S. Irish Command. The competition has aroused interest, for nursing divisions of the St. John Ambulance Brigade and V.A.D.'s of the British Red Cross Society are contending for the honour. Their rivalry, however, is of the most friendly character: for the two organizations are working together during the war in the most splendid of causes, and the rivalry is the outcome of the ardent desire on the part of members of both bodies to make themselves as proficient as possible. The spheres in which their ability is being tested are first aid, home nursing, drill, smartness and correctness of uniform, and stretcher bearing. It was a pleasure to witness the care shown in the work, which was watched by many of the public with interest, and showed a high standard of knowledge and skill.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Scotland.

THE conference promoted by the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy will be held in Glasgow on March 13th and 14th. It will be attended by delegates from twenty-six burghs and six county authorities in Scotland; from seven boroughs and two county authorities in England; from one borough in Ireland; and from twenty-four associations otherwise interested in the welfare of infancy and early childhood. It will be opened by the Lord Provost at 11 a.m. on March 13th. There will be a forenoon and an afternoon session on each day, and a public meeting on Tuesday evening.

THE HEALTH OF GLASGOW.

Dr. A. K. Chalmers, M.O.H., reports that the death-rate of Glasgow for 1916 was 15.4 per 1,000. It was the lowest hitherto recorded, and compared with 18.9 for 1915. An estimate of population based on a return of inhabited houses showed an increase of 1.9 per cent., as compared with 1.7 for the preceding year, and also that there was a continuance of the reflux of population to the central districts of the city. A sample test of the movement of population in representative areas since the census was made in thirty-two areas in thirty separate wards. The result was to show that the occupied houses had increased from 12,207 to 13,280, while the population inhabiting them had fallen from 57,297 to 55,288. Of the members of the families occupying these areas 6.8 per cent. were on service, and 6.3 per cent. were lodgers. The general result was that instead of an average of 4.7 persons per house in these areas at the census, the average was now 4.2, and was only raised to 4.45 if the men on service were added. These figures suggest that the estimate of total population of the city in the middle of 1916, which was 1,095,171, might be 50,000 in excess. The changes, Dr. Chalmers added, were more profound in the areas examined; males were fewer by 2,477, females by 468. All but 181 of the reduction in males occurred at the ages 10–45, while the increase in females had chiefly been at ages under 10, and again between 15–25. At most ages over this a reduction had occurred. Taking both sexes together, the reduction affected all ages over 10 years.

GLASGOW ROYAL INFIRMARY.

The report presented to the annual meeting of the contributors to the Glasgow Royal Infirmary on February 12th stated that 175 beds had been placed at the disposal of the naval and military authorities, and that 688 soldiers and sailors had been treated, an increase of 134 over the previous year. Practically all the members of the medical and surgical staff had been doing military duty during the year, but in spite of the reduction in staff the work of the infirmary had been carried on in all its departments. The daily average number of patients resident was 767, an increase of 26 over the previous year. The total number of admissions was 10,789, an increase of 84, and the rate of mortality had been 9.7 per cent., as against 9.9. The number of first attendances at the dispensary was 42,428, and the general total 137,864. The average cost of each fully occupied bed was £89 6s. 9½d., against £80 13s. 0½d. in 1915. The average residence of the in-patients was 12.7. In the ophthalmic wards the number of patients treated was 825, a decrease of 74, and the number of out-patients was 12,859, a decrease of 453. At the Schaw Convalescent Home the admissions were 1,167 as compared with 1,289. Under the will of Miss M. S. Schaw, £40,000 had been provided as an additional endowment for the home, and £60,000 for the benefit of general funds of the infirmary; of this latter amount the use of £40,000 is restricted to income. By extraordinary receipts the committee had been able to pay off £16,658, partly to replace sums withdrawn in the two previous years (£15,429 in 1915, and £2,651 in 1914). Sir Donald MacAlister, in moving the appointment of the managers, referred to the fact that ten years ago that day he had been appointed Principal of the University of Glasgow; during that period he had learnt to know the value of the services the Royal Infirmary was rendering to the relief of suffering among the poor, and to the advancement of medical knowledge for the benefit of the poor and rich alike.

England and Wales.

THE LORD MAYOR, who presided on February 8th at th eighty first annual meeting of St. Mark's Hospital, City Road, London, said that 688 in-patients and 1,800 ne out-patients had been treated during the year. Owing t the increase in cost of everything connected with hospit administration the accounts showed an adverse balance £600. The hospital was greatly in need of a convalescen home.

BORIC ACID IN CREAM.

Numerous representations were made to the Loc Government Board for England and Wales before the wa on the subject of boric acid in cream. Some urged th the use of all preservatives should be wholly prohibite while others maintained that it would be impracticable carry on the present trade in jugged cream unless som small amount of preservative was added. The departmen was asked to lay down a maximum limit, and had decide to appoint a small committee, but owing to the war th intention was not fulfilled. The President has now issue an Order directing that no more than 0.4 per cent. of bor acid shall be added to cream, and that cream to whic boric acid has been added shall be sold as preserved crea and prescribing forms of labels to be affixed to the r ceptacle containing such cream, stating that it contai boric acid and is unsuitable for infants and invalids. Th Board desires it to be understood that in temporari forbidding a greater addition per cent. of boric ac than 0.4 it must not be regarded as deciding the questi proposed for inquiry as to whether this amount is or is n injurious to the consumer. The inquiry, when it tak place, may show that the limit should be lower, a dealers are asked to reduce it to the smallest possib amount, or to dispense with it entirely, so that they m find less difficulty in complying with any further restr tions which may be made on the recommendations of t committee when appointed.

MILITARY ORTHOPAEDICS IN WALES.

The Welsh Metropolitan War Hospital at Whitchurc Cardiff, was visited on February 10th by King Manoel behalf of the British Red Cross Society. He was receiv by the officer commanding the hospital, Lieutenant-Colo Edwin Goodall, and was accompanied by Colonel Rob Jones, C.B., Inspector of Military Orthopaedics, a Lieutenant-Colonel Lynn Thomas, C.B., C.M.G., co sulting surgeon to the Western Command. Three hundr beds have been set apart in the hospital for military orth paedic cases and fifty beds for soldiers who have lost th limbs, who will afterwards be transferred to the Prince Wales's Hospital, Cardiff, to be provided with artific limbs. King Manoel made various suggestions with rega to the manual curative workshops, a subject on t organization of which he has specialized.

Canada.

HOSPITAL ACCOMMODATION IN THE PRAIRIES.

GREAT interest is being manifested throughout the west Canada in the establishment of municipal hospitals rural districts. The heavy mortality, particularly childbirth, in sparsely settled districts has shown need for improvment; and now, when the future Canada depends so much upon immigration after the w it becomes a question of the greatest importance to remo every obstacle in the way of inducing people to set in outlying districts. The matter was taken up by Saskatchewan Government about a year ago, when an was passed which provides for the establishment hospitals to serve four municipalities. It is intended t such hospitals shall be established throughout the provi in districts which are not already provided with suffici hospital accommodation, and that both accommodation a treatment shall be free to all residents of the distr Provision is made for levying a 2 mill tax if necess for the support of these hospitals, but it is anticipated t less than this will be sufficient to meet all maintena expenses. By-laws have been prepared by a number

municipalities to permit of the establishment of such institutions, and it is probable that about twenty-five such hospitals will be founded before long. Great credit is due to the Honourable George Langley, Minister of Municipal Affairs, for the interest he has taken in this matter.

Keen interest in the movement is manifested also in Manitoba, and the Government has been requested to take the necessary steps to enable municipalities to co-operate for the establishment of rural hospitals on the lines of the Saskatchewan arrangement. In the province of Alberta a similar movement was initiated in May, 1916, by the Trades and Labour Council and the Ministerial Association of Canada. A committee appointed by these bodies became the Free Public Hospitals League, which is now conducting a campaign in favour of the establishment of free hospitals throughout the province. The views of the profession in Alberta upon this subject were set forth in the following resolution, which was passed at the annual meeting of the Alberta Medical Association:

1. That we, the Alberta Medical Association, approve of the efforts being made for the extension of hospital accommodation in this province, and will be glad to co-operate in any efforts to secure and improve hospital accommodation in rural districts.
2. The need of hospital accommodation is at present most acute in the country districts, and we urge the establishment of cottage hospitals throughout the rural municipalities, the management of such hospitals to be left in the hands of a committee and to be made as largely self-supporting as possible.
3. We believe that the hospital accommodation of the cities of Alberta is at present adequate for the needs of the present population of the cities. We also believe that the present system of management and rules of admission and conduct of patients is the best suited to give the best service to the whole community. We believe that no one in the cities suffers for want of such treatment because of its cost. It is our experience that there is no difficulty in obtaining any form of hospital treatment free of charge if the circumstances warrant it.
4. This Association wishes to protest against certain misrepresentations regarding the management and service of the hospitals of this province. We are in a position to know that the present hospitals are rendering an efficient and valuable service to all classes of people and merit the hearty support of the community they serve.

Asylum Fire in Quebec.

A disastrous fire occurred at St. Ferdinand de Halifax, in the Province of Quebec, on Saturday, December 30th, 1916, when the asylum, convent, and church buildings were completely destroyed. The temperature was below zero at the time, and this added materially to the difficulties of the situation. The asylum was conducted by the Sisters of Charity, and it was only through their presence of mind and heroism that most of the inmates were saved. Unfortunately forty-two imbeciles perished owing to the difficulty of making them understand the danger and obey orders given. Some of the patients were in a distant portion of the building, to which access very soon became impossible: but even from this part of the asylum fourteen helpless imbeciles were carried into safety by the Sisters, one of whom lost her life in attempting to make further rescues.

Medical Inspection of Schools.

A difference of opinion has been apparent for some time in Toronto as to whether the medical inspection of school children should be directed by the Department of Education or the Board of Health. In the past it has been under the direction of the former body, but public opinion has been growing steadily more and more in favour of its transference to the Board of Health. The present system has been in force since 1908, when the Board of Education was asked by a deputation of medical men to undertake the medical inspection of school children. Since then the work of the Department of Public Health has greatly increased, and dual control has resulted, the nurses employed by the Board of Health and the school nurses frequently visiting the same houses. It is pointed out by the health authorities that medical inspection of children under school age is as important as inspection of those attending school, and that it would seem more rational to place all work of that nature under the direction of the medical officer of health. The question was taken before the provincial government a year ago, but no decision was reached. A conference took place last November, at which a compromise was suggested, which was to be tried for six months. This, however, was not done, and the matter was put to the public vote on New Year's Day, with the result that an overwhelming majority (20,000 against 6,000) voted in favour of the transference of medical inspection to the Board of Health. The matter will therefore come up again for consideration at the next session of the Ontario Parliament.

Correspondence.

THE PROPHYLAXIS OF VENEREAL DISEASES.

SIR,—As you have permitted distinguished specialists and a layman to discuss the prevention of syphilis in your columns, perhaps you will allow a medical woman, who is also the editor of a study on the making of the prostitute, generously reviewed in a recent issue, to comment on certain aspects of the question.

It is impossible not to feel much sympathy for those who wish to separate the prevention of venereal disease from "morality." Partly, because to so many excellent persons "morality" means a revolting code which condones any iniquity within the four corners of matrimony, and lumps together as "sinful" all expressions of love between other people, whatever the circumstances. And further, because we do in practice find gross "immorality" (as the premarital unchastity of engaged couples in rural districts or the free manners of factory girls in small provincial towns) without any accompanying trace of syphilis. But it is perfectly clear that wherever "immorality" takes the form of prostitution venereal disease will be rife. Flexner's *Prostitution in Europe*, or any well-known work on the subject will substantiate this point, and, indeed, I do not think it is ever disputed. Syphilis and gonorrhoea are the "industrial diseases" of prostitution, and what sane medical man would discuss the prevention of an industrial disease and ignore the industry that spreads it? Nor do I know of anything in the relation of the doctor to the community (despite the amazing arguments of Mr. Hugh Elliot) which deprives him of the right he possesses as a citizen and a Christian to regard prostitution as an abominable institution which ought to be abolished, or at least reduced to a minimum. This has been the considered verdict of the community in which we live, and may quite properly be allowed to influence the attitude of any practitioner who is asked for prophylactic advice by a patient who proposes to visit a prostitute or to become one. It would be rash in the extreme to speak dogmatically on what is perhaps the most difficult question in medical ethics; I only plead for the right of the doctor to consider all the circumstances, and act as his conscience directs. Mr. Elliot's dicta would compel him equally to give the benefit of his skill to the ladies who come for information how to procure abortion, or would oblige a solicitor to give hints in dodging the law to an aspiring criminal.

A similar mixture of medical and "moral" reasons lies at the root of the objections many of us feel to attempts at preventing syphilis by "regulating' prostitution. This point is of the gravest urgency and merits the most careful consideration of the profession. I have been told by two important officials in the last few days that a great Government department is working vigorously by skilfully disguised methods to introduce "tolerated houses" with licensed and inspected women for the delectation of the troops. We object to these proposals—first, because we hold that it would be hygienically ineffective, that no system of examination can render public women actually "safe," and further, that by giving a false sense of security to men, it increases the number of "customers" and therefore augments the spread of disease rather than diminishes it. We plead that the experience of nearly every capital in Europe where the experiment has been tried is on our side. The onus of proof that it would succeed here must lie on those who wish to introduce a system abundantly discredited on medical grounds alone. As practical persons we invite the "Regulationists" to tell us where they are going to find a police force large enough to be effective and incorruptible enough to resist the inevitable bribes in money and kind—a little detail which has baffled every known country heretofore. How could the clandestine

LIBRARY U. OF I. URBANA-CHAMPAIGN

prostitute (admitted to be more numerous than the full-time variety) be dealt with except by an intolerable system of spying and interference which would involve gross indignities to respectable women? The dilemma of dealing with the young prostitute is the gravest of all. Seventeen is the age when the majority of women take to the streets—many of them have been leading an irregular life even earlier. Are children of this age to be formally bound to a life of shame and danger? Even the conscience of the Hun refuses to allow the registration of girls below 21, and if not registered they cannot be examined or confined in brothels.

Until these difficulties have been effectively met I suggest that those who advise reliance on education, efficient treatment, restriction of alcohol, more women police, sharper sentences on *both men and women* guilty of solicitation, and suppression of quacks have the argument on their side. The taunt that they desire to preserve syphilis in the interests of "morality" is best met as Mrs. Josephine Butler met it—by silence.—I am, etc.,

February 11th. THE EDITOR OF "DOWNWARD PATHS."

SIR,—So strongly do I agree with the admirable letter by Sir H. B. Donkin (January 27th, p. 135) that I write to urge those in charge of the preventive treatment of disease throughout the country to express their adherence to the views therein stated.

A few years before the war I happened to be in Alexandria, and had the pleasure of meeting the medical officer in charge of the Government hospital. He informed me of the enlightened policy adopted by the medical officers in charge of certain warships stationed there at the time, a policy which had almost abolished venereal disease in those units. Mercurial ointment and bougies with instructions were given. I cannot remember if it was only on application or to each man on shore leave. Those who know Alexandria and the temptations for Jack ashore can imagine what a prodigious amount of suffering and expense was avoided by these simple methods.

Is it too much to expect of the Local Government Board to have sufficient courage to instruct all sanitary authorities that their medical officers should keep a stock of medicaments for supply to the public free on application? Such a step would go far in preventing the contagion from spreading.

All medical men will agree that Utopian schemes for abolishing irregular sexual intercourse are impracticable; surely it is in accordance with common sense to recognize this, and adopt the best methods to stop the spread of infection.—I am, etc.,

G. A. LEON,
Torquay, Jan. 29th, Acting Medical Officer of Health.

SALVARSAN TREATMENT OF SYPHILIS.

SIR,—I have read with much interest the article by Major Lloyd Jones and Captain A. J. Gibson on the salvarsan treatment of syphilis in the BRITISH MEDICAL JOURNAL of February 3rd, p. 152.

What surprises me is the very large number of cases which exhibit reactions after injection.

It will be noticed that the authors divide the reactions under three headings:

1. *Mild.*—Headache, diarrhoea, vomiting, abdominal pains. In about 50 per cent. of these cases the cause is put down to neurosis.
2. *Severe.*—Cardiac, respiratory, central, severe diarrhoea, rash, rigors, 9.9 per cent. Some of the causes mentioned under this heading are injection of air, small clots in the needle, employment of water not freshly distilled (these causes seem to me to be due to faulty technique).
3. *Local.*—Bruising, haematoma, lymphangitis, abscess, thrombosis.

In the 1,320 injections only 37 per cent. had no reaction. I, and doubtless many others, would like to know: (1) What preparation of salvarsan was used for injection? (2) Was the preparation used in a concentrated or diluted form? (3) Were the subjects treated as out-patients or kept in bed for a time?

On looking over my notes of about 200 injections I find that I have never had a case coming under class (1) or (2). I have had one only coming under class (3). This occurred in one of my very early cases in which I injected some of the fluid outside the vein, setting up cellulitis. This is the only case in which I ever had a moment's anxiety. Thus, instead of having reactions of any sort occurring in 63 per cent., I have only had 0.5 per cent. Of course, my number of injections is comparatively small, and I may have been very fortunate, but the difference seems very marked.

For my own part, I have nearly always treated my cases as out-patients, and have not hesitated to let them go from London directly afterwards to their homes—some as far as the seaside—without inconvenience or harm occurring.

Salvarsan is now about to be used extensively all over the country under the new regulations issued by the Local Government Board, but one would rightly hesitate to employ a preparation which caused such unfavourable reactions as described by Major Lloyd Jones and Captain A. J. Gibson.—I am, etc.,

London, E.C., Feb. 10th. JOHN ADAMS.

THE FUTURE OF THE MEDICAL PROFESSION.

SIR,—The articles appearing from day to day by the medical correspondent of the *Times* in that newspaper tend to give the impression that the methods of the British Medical Association do not meet with his approval. On the other hand, the British Medical Association does not appear to approve at all of the sentiments of the *Times* medical correspondent.

To the ordinary medical observer who reads his *Times* daily and his BRITISH MEDICAL JOURNAL weekly, the *via media* between these two seems to be the path of wisdom. Almost as surely as night follows day, some system of state medical service will come into being in the reorganizations that must and will undoubtedly take place with the close of this great war. The thin end of the wedge has been inserted, and while the wedge has had several blows since then driving it further home, the sledge-hammer blow that will drive it right home will come with the ending of the war. It is useless to meet this with a "we cannot" or indeed "we will not." It cannot be prevented; there is less chance than there was with the Insurance Acts, and if the British Medical Association would be wise in time, and so retain the confidence of its members, whose views in many cases are being radically altered by the war, it would not coldly reject the idea of a state medical service, but would, first from the side of the medical man, and secondly from that of the public, thoroughly investigate the possibilities and the effect on medical men, and consider the best way in which a state medical service could be made effective.

For what the British Medical Association gained for us over the Insurance Acts we are indeed grateful; it accomplished a great work, but alas! for the cropper the profession came at the final ditch, which did not tend to improve the repute of the medical fraternity.

The cause was the want of a strong lead from headquarters. Those negotiating knew and fully appreciated the exact situation as to how far the Association could go with safety in getting the best terms out of the Government, but did not grasp the want of trust between medical men locally. The policy of the British Medical Association seems to be to carry out the wishes of the majority by referring points of all sorts back to Divisions for decisions, which Divisions record their opinions, often at meetings at which not 20 per cent. of the members attend and at which members do not grasp, indeed cannot grasp the niceties of any particular position, and thus constantly come, not so much to wrong decisions, as to injudicious ones. I would strongly submit, therefore, that the proper policy is for the Representatives of Divisions to decide together the exact policy to be pursued without reference to the Divisions. The meetings of Representatives should be fully reported in the BRITISH MEDICAL JOURNAL. If any Representative acts in an unsatisfactory manner in the view of his Division he could be changed at the end of the year.

Representatives should be men chosen for their acquaintance with the particular conditions existing in the localities they represent. Thus thoroughly representative Representatives for each Division would be constantly meeting together to discuss all matters connected with the medical profession, when necessary subcommittees for inquiry into special subjects would be formed to report to the whole Representative Meeting, which would take action for the

ofession. Once a year only the Representative would count to his Division, and be re-elected or not. The vision, of course, could approach him by letter or deputa- n any time if they wished during his year of office to t their views before him on current topics. To put it ortly, the profession wants a lead; given a strong id, affairs will progress. With such a body at e present time, without any reference to its Divisions, would inquire fully into possible systems of state edical service, and would then be able to instruct the embers of the Divisions at local annual meetings, at nch the Representative gives an account of his year's rk, as to the wisest course to pursue in future, and the presentatives would hear from the members of their visions the various local views.

The views of the medical correspondent of the *Times*, th its hordes of specialists everywhere, are, I think, but developed at present. If the Government should come the medical profession with a verdict that a state edical service must be, the latter would then be in a sition to get the best terms without any loss of repute. e sympathy of the medical correspondent of the *Times* ms to be with the newly qualified man who, with the se of the war, will have served two or three years the Royal Army Medical Corps. I suggest these men ve very little to complain of, since as soon as they qualified—mostly unmarried and with no ties—they p into posts bringing them a very ample income, of ich they can save four fifths, and when the war is over y will be in a position to buy partnerships or practices. hereas the unhappy doctor who, married and with a ily, has left his practice for the war, receives the e pay, and then finds, as is now well known, that the eipts of his practice do not pay the actual outgoings that practice, and with life insurances, that like a wise n he had invested in while making a good income to ke a still further hole in his army pay, he has a struggle make two ends meet. In addition he is further depressed the thought that his heirs will lose most of his capital ested in the practice should he succumb. If he survives has the prospect of a very diminished income for a siderable period of time. These are the men in our fession who are now being badly hit, and on the top all comes the idea of the state medical service (with the ion of the unhappy man who is to be the midwifery cialist having perpetual all night sittings) which will bably hit him still further, especially in capital value.

Though I am more or less one of the latter class, I am no means absolutely opposed to a state medical service, I do think it is up to the British Medical Association reorganize its methods so that we have no repetition of Insurance Acts fiasco. The policy of the British dical Association is surely a little too like that of the ait and see" type for these strenuous days.—I am, etc.,

orthing, Feb. 5th. CECIL H. W. PAGE.

MOBILIZATION OF THE PROFESSION.

IR,—As one of those unfortunate practitioners who e been passed only for home service, perhaps I may be mitted to reply to Dr. Clarke's letter in your issue of ruary 3rd, in which he refers in such scathing terms to se who, like myself, have been considered as unfit to ve in His Majesty's Forces, and who have been obliged, efore, to work twelve hours a day and pile up riches themselves.

I should like Dr Clarke to consider my case. Before broke out I was working as hard as my health per- ted, and was making a decent income fairly comfort- y. Since war broke out I have had to work even ger hours, endeavouring to cope with the increase of k entailed by the loss of colleagues. As a result my lth broke down last year, and I was on the sick list for months. I did not pile up much riches last year, and if I had not broken down my income would have less than normal because so much of the work done at half rates, and one's own fully paid work had to er for the sake of one's colleagues.

ow another practitioner is wanted from this area. obably I shall be passed over and a man fit for general ice will be taken. I shall stay at home, doing even e underpaid work, while he is working for "less than hours a day in a closed area" (I use Dr. Clarke's res). And around me I see men—presumably passed as fit for general service—who are working very short hours in the army.

Would it not be better if such as I were taken for these jobs at home, where we could live in our own homes, certain of our usual comforts, without which we probably would be quickly on the shelf? I know of one or two "billets" in my immediate neighbourhood that I could fill well and still have some spare time for my private patients; yet, on making application, I am told that I am ineligible. Still, I manage to do perhaps three times as much work as those who fill these berths—and they are fit.

I would assure Dr. Clarke that I am quite ready to "sacrifice something for my country and do hospital work at home or abroad," if I were given the chance. If the correspondence in the BRITISH MEDICAL JOURNAL recently is to be believed, one would have a comparative holiday—if one were given the chance!—I am, etc.,

February 8th. SCARIFIED.

PANEL DOCTORS AND THE WAR LOAN.

SIR,—On February 6th I wrote to the Clerk to the Glamorgan Insurance Committee, stating that "I considered it my bounden duty to put every penny I could scrape together into the War Loan, and asking if it were not possible for the Glamorgan Committee to pay to me within the next seven days the money which was owing to me by that Committee—balance for the years 1913, 1914, 1915, and 1916—or, if the Committee preferred it, I was quite willing to take it in War Loan scrip." The answer I received was this:

> I have to acknowledge receipt of your letter of the 7th inst. with reference to payments, and beg to state that it is probable that arrangements will shortly be made for paying whatever balance may be found to be due to all doctors and systems in respect of 1913, 1914, and 1915. I regret, however, I am not able to give the date by which payments will be made.

How magnanimous! But how pitiful, too, that we as a profession should be so entirely under the heel of a body of laymen like the Insurance Committee, to say nothing of the injustice. We cannot enforce payment of that which is so long overdue, and which we have toiled long and hard for, but must wait still further until it shall please the Committee to move; then we have no check and no redress, but must take that which it pleases the Committee to give, just as at the present time I am paid, not according to the number on my panel, but "a share of a pool representing the total funds available for medical benefit."—I am, etc.,

A PANEL DOCTOR IN GLAMORGAN COUNTY.

February 13th.

Universities and Colleges.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

A MEETING of the Senate was held on January 24th.

Recognition of Teachers.—Dr. William Gilliatt (King's College Hospital Medical School) and Miss Elizabeth H. Lepper (London School of Medicine for Women) were recognized as teachers in midwifery and pathology respectively at the institutions indicated.

Semon Lecture.—The Academic Council reported that no appointment to the Semon Lectureship would be made for 1916–17.

Military Age for University Students.—With regard to the new regulation whereby men between the ages of 18 and 19 are to be called to the colours for home duties, the Senate decided to communicate to the War Office and the Board of Education its opinion that in view of the great demand which exists for officers at the present time it would be in the national interest to permit the matriculated students of the University to continue their studies to the age of 18 years and 8 months or, if possible, 19 years, provided that suitable military instruction be made available for them in the London University Contingent of the Officers' Training Corps for a definite number of hours weekly approved by the War Office. The Senate considers that the continuance of university studies under such conditions to the age of 19 is better for those who are to become officers than service as a private for the purposes of home defence.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN Ordinary Council was held on February 8th, when Sir Watson Cheyne, President, was in the chair.

Issue of Diplomas.

Diplomas of Membership were granted to eighty-two candidates found qualified at the recent examinations. Diplomas

in Public Health were granted, in conjunction with the Royal College of Physicians, to six candidates found qualified at the recent examinations.

College Finance.

The Treasurer reported that the Finance Committee had taken steps to apply for £23,900 new 5 per cent. War Loan, of which £2,000 was new money. The Finance Committee was instructed to take steps to raise a loan for additional investments in the War Loan.

Treatment and Prevention of Venereal Diseases.

A letter addressed to the President on January 12th by Lord Rhondda, President of the Local Government Board, was read. It stated that the suggestions made by the Council of the Royal College of Surgeons of England as to the treatment and prevention of venereal diseases would receive his careful and sympathetic consideration.

Bradshaw Lecture.

Sir John Bland-Sutton was appointed to give the next Bradshaw Lecture.

CONJOINT BOARD IN ENGLAND.

THE diplomas of L.R.C.P. and M.R.C.S. have been conferred upon the following eighty-three candidates who were successful at the final examination in medicine, surgery, and midwifery:

Jugal Kishor Adhya, A. Arias, C. W. Armstrong, E. M. Atkinson, H. H. Bailey, K. N. G. Bailey, E. J. Ball, D. J. Batterham, L. G. Blackmore, C. J. L. Blair, H. J. Blampied, C. S. Bluemel, D. C. Bluett, W. H. Braddock, Hilda K. Brade, J. Burke, P. A. Buxton, C. H. Carroll, D. G. Churcher, A. A. Cockayne, C. J. C. Cooke, G. F. Cooke, J. Crétin, Ahmed Tayel Dabbous, A. V. S. Davies, G. V. Davies, Mahmoud Abu Bakr Demerdash, H. A. de Morgan, A. R. Dingley, J. R. K. Fenning, L. P. L. Firman-Edwards, A. A. Fitch, F. C. A. Frith, W. V. Gabe, Aziz Girgis, L. B. Goldschmidt, H. G. Grant, J. R. Harris, G. A. Harrison, T. L. Heath, N. S. Hewitt, G. Hoffmeister, M. C. Joynt, E. A. C. Langton, F. R. Leblanc, Annie Lloyd, E. R. Longstaff, R. W. Lush, H. D. McIlroy, K. A. I. Mackenzie, K. Masson, M. W. H. Miles, Marie M. A. Moralt, J. B. Mudge, Elizabeth O'Flynn, E. S. Orme, J. A. Panton, M. Pearson, C. J. Penny, V. F. C. J. Philippe, F. Portas, A. A. Prichard, E. D. Roberts, J. P. Ross, K. M. Ross, G. H. Rossdale, Nirendra Mohan Sen-Gupta, M. Shimberg, Raghunath Dadora Shirwalkar, Flora N. Singh, C. R. Smith, N. H. Smith, V. R. Smith, J. G. Stevens, D. Stewart, D. J. Thomas, J. H. Thomas, W. G. Verniquet, H. C. Viehoff, S. A. T. Ware, A. A. Watkinson, E. Williams, A. T. Woolward.

Obituary.

LIEUTENANT-COLONEL R. E. WOOD, F.R.C.S.E., R.A.M.C.(T.F.).

RUSSELL ELLIOT WOOD was the representative in the fifth generation of a family of doctors who had successively practised medicine in Edinburgh, and all of whom attained high eminence in that city, alike professionally and socially. He was a son of the late Dr. Andrew Wood, and was born in Edinburgh in 1856. In his native town he passed his school and college days, the former in the Edinburgh Academy, the latter in the University and Extra-Academical School. He graduated M.B., C.M. in 1877, and for the prescribed times acted as house-surgeon in the Royal Infirmary and resident medical officer in the Sick Children's and Maternity Hospitals. Shortly after his period of work in these institutions the Zulu war broke out; he volunteered for medical work, and was sent out to South Africa, where he saw much of the fighting, and was present at the decisive battle of Ulundi, receiving for his services the Zulu medal and clasp.

Returning to Edinburgh, he obtained the F.R.C.S.Edin., and at once began practice, and became associated with the New Town Dispensary, to the medical officers of which his kinsman, the late Dr. Francis Cadell, was then acting as medical secretary. Soon his practice developed, and he gained for himself the respect and regard of the public and of his medical brethren, so that while quite a young man he found himself in the position which had been worthily held by his forbears for some 200 years.

Shortly after settling in Edinburgh he was appointed surgeon to the Lanarkshire Yeomanry. He devoted himself enthusiastically to this duty, looking forward to his annual week's training on Lanark Moor as he did to his annual holiday. Before retiring, he busied himself in writing and publishing a history of that distinguished regiment.

Whilst avoiding politics, Russell Wood was in his ideas, medical and otherwise, conservative in the true sense of the word. He held fast to the great truths which had stood the test of years, and at the same time shrewdly distinguished between what, in his own times, were real additions to medical knowledge and what would prove ephemeral.

But what endeared him most to his friends and med brethren was his honest frankness and his clubbable He was a delightful and racy companion at golf or curl and for many years a golf foursome, composed of W Dunsmure, Cadell, and Carmichael, met every Wednes and played a strenuous round over the old Musselbu Links. At the dinners of the Medico-Chirurgical Aesculapian Clubs his presence and conversation alw lent brightness and cheerfulness to the gathering, and songs, often original, were always appreciated. I pathetic, though not without consolation, to think t like his father, he died practically in harness. S three years ago he retired from the surgeoncy of Lanarkshire Yeomanry, continuing, however, his prac in Edinburgh, but, on the outbreak of the war, he at offered himself for military duty. His offer was accep and it was whilst serving with the troops at Dunbar his fatal heart seizure occurred. He passed peacef away, apparently without the slightest pain or struggl he was found dead sitting in his chair, and more as quiet sleep than that the hand of death was upon He will be much missed and mourned by a large circl friends and patients, and our heartfelt sympathies go to his sorrowing widow and son and daughter, to w he was as deeply and lovingly attached as they wer him.

JOHN BARRETT COLLYNS died on January 7th at the age of 96. He was born at Dulverton in January, 1 and celebrated his last birthday by entertaining a p of friends to luncheon and bridge. He was the ol student of St. Bartholomew's Hospital on the *Regis* two of his sons and three of his grandsons received t professional education at the same medical school. M Barrett Collyns was apprenticed to his father before entered St. Bartholomew's in 1843. In 1845 he took diploma of M.R.C.S., and the L.S.A. in the succeeding y He then joined, at Dulverton, his father, Charles I Collyns, author of *The Chase of the Red Deer*. Posse of unusually strong physical powers and great surg skill, he soon acquired a high professional reputation on emergencies often operated single-handed wit anaesthetics. On one occasion he reduced a dislocatio both hip-joints in a cottage on Exmoor. His long jour in that district were always done on horseback. He not retire from practice until 1900. His faculties rema unimpaired, and he often related how he had heard James Paget deliver his first lecture and how Worn taught anatomy and how Skey operated.

DR. WALTER BAYNE GEIKIE, who died at Toronto January 12th, at the age of 77, was the founder and of Trinity Medical College. He came of a distinguis family. He was a cousin of Sir Archibald Geikie, at time Director-General of the Geological Survey President of the Royal Society, and a brother of the J. Cunningham Geikie, author of the well-known *Lif Christ*. He was born in Edinburgh on May 8th, 1830, son of Rev. Archibald Geikie, a Congregational minis who went to Canada in 1843 and settled in Mooretown the province of Ontario. Dr. Geikie obtained his med degree from Victoria University, Toronto, and graduated from Jefferson College, Philadelphia. received his licence to practise from the Medical Boar Upper Canada in 1851, and for the following five y practised at Bond Head. In 1856 he was appoi to the staff of the medical faculty of Victoria Uni sity, Toronto. In 1860 he was obliged to give most of his academic work owing to ill health went into private practice at Aurora, Ontario, though continued to lecture at Victoria. In 1869 he was pointed to the chair of medicine and clinical medicin Victoria University. In the following year, however, resigned, and in 1871 founded Trinity Medical Sch then a department of Trinity University, Toronto. Se years later, when the school was incorporated under name Trinity Medical College, Dr. Geikie became de a position which he continued to fill until 1903, when college was amalgamated with Toronto University. 1889 Dr. Geikie received the degree of D.C.L. from University of Toronto, and in 1907 Queen's Univers Kingston, conferred upon him the degree of LL.D.

also L.R.C.P.Lond. and an F.R.C.S. and L.R.C.S. of nburgh. Always active in good works, Dr. Geikie was sident of the Toronto City Mission for twelve years and surer in Canada of the Armenian Relief Fund in 6–97. He is survived by two sons, Drs. W. W. and . Geikie, and one daughter.

R. JAMES ARMSTRONG KILPATRICK died on January 18th r a rather long illness. He was educated at King's ege, London, and took the diplomas of M.R.C.S.Eng., .C.P.Lond., and L.S.A. in 1906. He afterwards held posts of junior and senior resident medical officer and strar at the Mount Vernon Hospital for Consumption Diseases of the Chest, Hampstead, medical superinlent at the Westmorland Hospital, and assistant superinlent at the Crossley Sanatorium. Since April, 1911, had been medical superintendent of the Northamptone Sanatorium for Consumptives at Creaton. He was ember of the Northamptonshire Division of the British lical Association.

R. JAMES STIRTON, who died at his residence in Glasgow anuary 14th, was in his 84th year. He was educated e University of Edinburgh, where he took the degree I.D. in 1858. In the previous year he had taken the oma of L.R.C.S.Edin. He was appointed lecturer on aecology in the Glasgow Royal Infirmary in 1876, and years later became professor of midwifery in St. go's College, a position which he retained for about en years. He had a wide reputation as a botanist, and one of the chief experts in Scotland on cryptogamic ny, a subject on which he published numerous papers he *Transactions* of the Royal Philosophical Society of gow.

R. WALTER JAMES DODD, a pioneer of radiology in rica, died on December 18th, aged 47. He was born ondon and went to the United States when a youth. worked in the Cambridge Laboratory, and in 1896 was inted apothecary to the Massachusetts General Hos-. When Roentgen announced the discovery of the ys Dodd gave himself up to their investigation. In the hospital installed its first induction coil; the y equipment was very rough, and in April, 1897, he compelled by severe burns of his hands and face to end work for a time, but his spirit was undaunted. ng eighteen years he underwent nearly fifty operas of increasing severity. One of these was performed before the second Harvard Unit left for France, and ough the wound was still unhealed Dodd insisted on mpanying it, and did most useful work. In 1908 he the degree of M.D. at Vermont, and in the same year became official roentgenologist to the Massachusetts eral Hospital; in 1909 he was appointed instructor in use of the Roentgen ray at the Harvard Medical ol; in 1913 he was made instructor in roentgenology, sition which he held till his death. Among the pallers at his funeral were Drs. J. Collins Warren, Richard abot, and other leaders of the medical profession in on.

. RAYMOND TRIPIER, for many years professor of patholal anatomy in the medical faculty of Lyons, died tly at the age of 78. As a teacher he had a great ence on generations of students, on whom he impressed necessity of strict scientific method in observation. hief work, entitled *Études anatomo-pathologiques*, published in 1909. It embodies the results of his al studies of diseases of the heart, blood vessels, lung, pleura. Tripier was keenly interested in art, to h he devoted himself almost entirely after he gave up ing. He took an active part in the management of Lyons Museum, but his love of observation continued e last. All through his last illness he noted day by he progress of the disease, and he directed that the d should be completed by a *post-mortem* examination. ssor Tripier left £8,000 to the city of Lyons, accumuinterest on which is to be applied every five years e purchase of a work of art. He left the same nt to the University of Lyons for the promotion of tudy of operative surgery and pathological anatomy.

PROFESSOR ACHILLE DE GIOVANNI, head of the medical clinic of the University of Padua, died recently at the age of 78. He was born in the province of Mantua, and in his youth fought under Garibaldi. In 1875 he was appointed professor of pathology at Pavia, and in 1879 he was called to the chair of clinical medicine at Padua. For eleven years he was president of the medical faculty there, and he was rector of the university from 1896 to 1900. He was made a Senator in 1902. He was the author of numerous writings on pathology, clinical medicine, biology, and philosophy. Perhaps his most important work is a study of the morphology of the human body in relation to predispositions to disease. Among his other writings are researches on the pathology of the sympathetic, on the vena cava, on the triangulation of the heart, on gout, and on the treatment of the later consequences of cerebral apoplexy. In 1898 Professor De Giovanni founded the National League against Tuberculosis, and he took a prominent part in the war against that disease in Italy.

DR. EDGARD HIRTZ, who died recently, was born at Colmar in 1849, and studied medicine first at the old faculty of Strassburg, and afterwards in Paris under Saint-Germain, Guéneau de Mussy, and Brouardel. He was appointed physician to the Paris hospitals in 1887, and was president of the Société de Thérapeutique in 1912. He was the author of memoirs on diseases of the lungs, hereditary phlebitis, hereditary mitral stenosis, the use of amyl nitrite in hysterical paralysis, and other subjects, all giving the results of his own experience. In 1886 he described a condition which he called curable cervical hypertrophic pachymeningitis, and which he held to be of rheumatic nature. He was an excellent clinician, and his lectures at the Laënnec and Necker hospitals attracted large numbers of students. An ardent patriot, he had fought as a volunteer in 1870.

DR. WALTER S. SUTTON, professor of surgery in the University of Kansas, died on November 10th, 1916. His name was well known to biologists by his researches on the mechanism of Mendelian inheritance.

LIEUTENANT-COLONEL ANDREW ROBERTSON GORDON died at Toronto on December 17th, 1916, after an illness which had lasted for more than a year. He was the fifth son of the Reverend Donald Gordon, and brother of the famous Canadian novelist Ralph Connor, and was born in Glengarry county, Ontario, in 1863. His education was received at the St. Mary's Collegiate, Toronto, and at the University of Toronto, where he took his medical degree in 1890. He began to practise in Toronto, and quickly acquired a large connexion; later he restricted himself to work as a consulting physician, specializing more particularly in diseases of the heart. In 1903 Dr. Gordon was appointed Associate Professor of Clinical Medicine in the University of Toronto. He was an excellent clinician, and exhibited exceptional ability as a teacher. His winning personality will be missed by his colleagues, his students, and his patients. He was among the first to volunteer for duty with the base hospital given by the University of Toronto, and was attached to the staff of that unit with the rank of lieutenant-colonel. He sailed for England with the hospital, which had become known as No. 4 Canadian General Hospital, but was taken seriously ill at Shorncliffe and invalided to Canada. It was with keen regret that his fellow officers parted with him, for he was an agreeable colleague and a man of broad sympathies.

LIEUTENANT-COLONEL FRANCIS TICHBORNE WILKINSON, R.A.M.C.(retired), died at Blackheath, on January 25th, aged 59. He was educated at Guy's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1880. He entered the R.A.M.C. as surgeon on July 30th, 1881, became surgeon major on July 30th, 1893, and lieutenant-colonel on July 30th, 1901, retiring on October 4th, 1902. He served on the North-west frontier of India in the Isazai campaign of 1892; in the Nile campaign of 1898, when he was present at the battle of Khartoum, receiving the medal with a clasp and the Egyptian medal; and in the South African war in 1899–1900, when he took part in the relief of Ladysmith, the actions of Colenso, Spion Kop, Vaal Krantz, Tugela Heights, and Pieter's Hill, and received the Queen's medal with three clasps.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Medical News.

The Mesopotamian Commission has now completed the examination of witnesses.

The British Medical Association has converted £1,200 4½ per cent. war loan held on behalf of the Office Staff Superannuation Fund and applied for an additional £600 in the new war loan. The Insurance Acts Committee, acting on behalf of the Council of the Association, the trustees of the Insurance Defence Fund, has applied for £11,500 of the new war loan. The Association thus takes up a total of £13,300, of which £12,100 is new money.

Owing to the additional demands for glycerine for war purposes the Ministry of Munitions announces that it is anticipated that the supply of glycerine for dispensing purposes will be greatly reduced, and that no further glycerine will be issued for such purpose, since it is held that the stocks of glycerine in the hands of pharmacists should be sufficient to meet the reduced requirements.

At a meeting of representative medical women's societies, held on January 27th, a resolution was adopted expressing the opinion that it is a matter of urgent importance that under any local venereal disease scheme, a medical woman should be appointed at an adequate salary to have charge of the women's clinic and the women's venereal beds.

According to a report presented to the sanitary council of Persia the number of cases of cholera known to have occurred in the districts of Enzeli, Racht, Kazvine, and Teheran between March 21st and October 24th, 1916, was 428, with 209 deaths. There were 18 cases with 9 deaths in the city of Teheran between August 3rd and October 24th, 1916.

The President of the French Republic has issued a decree creating a new chair of social providence and assistance at the Collège de France. The salary is £480 a year, the funds for which will be provided by the Municipal Council of Paris and the General Council of the Seine. The teaching will deal largely with sickness assurance, invalidism, old age, and infant protection.

After discussions at the Board of Health in Berlin on the health and feeding of school children, the heads of schools were directed to report on October 1st, 1916, January 1st and April 1st, 1917, their general impressions of the health and intelligence of their pupils, with special reference to the detrimental influence, if any, of the food difficulties, and to investigate the question whether non-attendances was due to ill health caused by improper nourishment or not.

The fund of more than £600,000, bequeathed for the establishment of a hospital for cancer and nervous diseases by Anna T. Jeanes, is to be used for the establishment of a general hospital near Philadelphia. Dr. Winfried H. Smith, Superintendent of the Johns Hopkins Hospital, of Baltimore, was selected by the trustees to consider the claims of various Philadelphia hospitals, and it was finally decided that only by establishing a new and independent hospital could the purposes of the will be carried out.

A new periodical, the province of which is described by its title, *Archives Suisses de Neurologie et de Psychiatrie*, commenced publication with the beginning of the year. Its contents are in the three national languages of Switzerland—French, Italian, and German—and it is intended to be an international organ; the collaboration of foreign workers will be accepted, and the periodical will serve as a medium of communication between those who under existing conditions are prevented from corresponding in the journals of their respective countries. The editor is Professor Constantin von Monakow of Zürich, who has Drs. P. Dubois of Berne, Weber of Geneva, Maier of Zürich, and Manzoni of Tessin, as collaborators. The new periodical is published by Orell-Füssli of Zürich.

According to the report of the Surgeon-General of the United States Army, the health of the troops during 1915 was excellent. The mean strength of the entire force was 103,842. The non-effective rate from all causes was 25.22 per 1,000; the death-rate was 4.45 per 1,000, compared with 4.40, the corresponding figure in 1914, which was the lowest for many years. The total loss from all causes—death, discharge, and retirement—was 18.03 per 1,000. During the year covered by the report there were only eight cases of enteric fever, all of which ended in recovery. The Surgeon-General says: "The record of the fight against typhoid fever in the United States army during the decade and a half since the Spanish war constitutes one of the most interesting a brilliant chapters in the history of preventive medicu beginning with the epoch-making investigation of t Typhoid Fever Board into the manner of infection a dissemination of the disease in the military camps of 18 and culminating twelve years later in the equally nota adoption of antityphoid vaccination in the United Sta army." The non-effective rate of malaria during the ye —0.54—is the lowest in the history of the United Sta army. Venereal diseases are still the greatest menace the men in the ranks, and vigorous measures have be taken to control them. In regard to the reorganization the United States army under the National Defence Act 1916, it is pointed out that for the first time the Medi Department has been placed on a satisfactory basis.

Letters, Notes, and Answers.

Correspondents not answered are requested to look at the Notice Correspondents of the following week.

Authors desiring reprints of their articles published in the Briti Medical Journal are requested to communicate with the Offi 429, Strand, W.C., on receipt of proof.

The telegraphic addresses of the British Medical Associat and Journal are: (1) EDITOR of the British Medi Journal, *Aitiology, Westrand, London*; telephone, 2631, Gerr (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Ad tisements, etc.), *Articulate, Westrand, London*; telephone, 2 Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westra London*; telephone, 2634, Gerrard. The address of the Irish Of of the British Medical Association is 16, South Frederick Str Dublin.

☞ *Queries, answers, and communications relating to subj to which special departments of the* British Medical Journ *are devoted will be found under their respective headings.*

QUERIES.

Impotent asks for advice as to the treatment of pains in fingers in a case of a partial hemiplegia. The stroke occur nearly three years ago, and some recovery of movem has taken place. The pains, which are a recent developme are very severe, and have not been relieved by any of remedies tried.

LETTERS, NOTES, ETC.

Temporary Captain R.A.M.C., writes to suggest that officer his rank on entering upon their third term of service sho be promoted to temporary majors.

Treatment of Sore Throat.

Dr. C. A. Patton (Brixham) writes: At a time like present it may interest many practitioners to know that following mixture seems to give universally good results w used as a paint internally in cases of "sore throat"; ever diphtheritic cases it has been found to check the disease to render the bacilli non-viable. No antitoxic serum used in some of the cases which proved to be defini diphtheria with good results. ℞ Tinct. iodi, glycer mucilag. tragacanth, āā ½; shake till clear of lumps use as a paint internally.

Forceps.

S. writes that there is much misconception as to the origi meaning of this word. It does not mean an instrument t is fenestrated or opens like a gate (*foris capio*). Facciola *Lexicon* (English edition, 1828) states that it signifies an ins ment which took up hot things, the Cyclopes using th ("Cyclopes versant tenaci forcipe ferrum"—*Georgics*, iv. 1 or which could be made hot for any desired purpose; in sh *formus capio—formus* being an old Latin word meaning akin to the Greek θερμός, just as *ferus* is akin to θήρ. M writers, S. adds, insist on making the word plural—"a p of forceps"—which is not strictly correct. "Scissors" plural form, so "a pair of scissors" is correct. Murr *Dictionary* makes "forceps" singular and plural, "scissors" plural.

SCALE OF CHARGES FOR ADVERTISEMENTS IN T BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable the British Medical Association at the General Post Office, Lond No responsibility will be accepted for any such remittance no safeguarded.

Advertisements should be delivered, addressed to the Mana 429, Strand, London, not later than the first post on Wednesday morn preceding publication, and, if not paid for at the time, should accompanied by a reference.

Note.—It is against the rules of the Post Office to receive p *restante* letters addressed either in initials or numbers

Observations
ON
THE PRINCIPLES GOVERNING THE EARLY TREATMENT OF INFANTILE PARALYSIS.

BY

W. COLIN MACKENZIE, M.D.

(From the Laboratories of the Museum of the Royal College of Surgeons of England.)

THE treatment of infantile paralysis, being mainly a question of restoration of function, is dominated from the outset by anatomical considerations, or, to speak more correctly, by considerations which are confirmed by a study of comparative anatomy. In this paper I propose to deal with the question of treatment from the point of view of—I, Rest; II, Muscular function.

It is generally conceded that this disease is an inflammatory one, and that for the treatment of inflammation rest is essential. But rest must be immediate, since, in addition to inflammation, with the possible destruction of central nerve cells, muscle adjustments are altered as soon as the disease has begun. As I wrote five years ago:

> Since rest is the basic treatment of inflammation, only by placing the parts concerned in an anatomical position of rest—the "zero" position—can the door be closed on all sources of irritation, and the spinal cord, nerve cells, receptive centres, and muscle be placed at physiological rest; that is, only through the zero position can you offer the greatest physiological opposition to the destructive effects of inflammation.

At the outset it may be mentioned that for a proper appreciation of the principles governing rest of joint or muscle a knowledge of the writings of Owen Thomas and Robert Jones is essential. Just as John Hunter in his Croonian Lectures may be said to have laid down the basis of our true conception of the physiology of muscular action, so Owen Thomas may be regarded as the founder of the true principles by which surgical rest is effected. The great advance that has taken place in recent years in our knowledge of the biology and surgery of nerve and muscle has received its impetus from the Liverpool School of Orthopaedics.

I. ANATOMICAL REST OF THE UPPER AND LOWER LIMBS.

When we speak of anatomical rest of a joint we mean that the muscles which act on that joint have been passively controlled; a muscle is not rested unless the joint or joints with which it is in relation are rendered immobile. Resting a knee by means of plaster from the mid-thigh to the mid-leg may be "surgical" but is not anatomical. A tuberculous ankle is not at rest if the knee be mobile, nor is the knee unless the hip and ankle are fixed. In the upper extremity so fine and correlated are the muscular adjustments that adequate fixation of one joint is best secured by fixation of all three. The biceps is related to both the elbow and shoulder, and muscles acting on the wrist and fingers arise above the elbow-joint.

(a) *Upper Limb.*

Recumbency in bed at the outset should be insisted on. The ideal position is as follows: The thumb is adducted, owing to the importance of finger opposition, fingers slightly flexed, wrist slightly extended, hand placed midway between pronation and supination, elbow slightly flexed to relieve biceps and brachialis, and the arm abducted to a right angle or even higher to help the flexors, deltoid, and trapezius. The biceps is not rested by mere flexion, for the long head crosses the shoulder, and not only should we have flexion of the forearm but the arm raised as in deltoid cases. In other words, to speak of relaxing a biceps by means of a sling, that is, by merely flexing the forearm, is anatomically unsound. The upper limb can be immediately rested as follows:

With the child lying in bed one pillow can be placed in the axilla and, with the limb resting on another pillow, safety pins attach the sleeve of the dress to it at the arm and wrist so that the limb is abducted, elbow flexed, and the brachial plexus, being thus relieved from strain, rested.

As soon as possible a splint should be applied to give effect to the above considerations, of which the following, introduced nine years ago, is a useful model (Fig. 1). The basis is a stem of malleable iron $\frac{1}{2}$ in. wide and $\frac{1}{8}$ in. thick. This runs up the mid-axillary line from 1 in. above the costal edge to the axilla and follows the above contour of the under surface of the arm and forearm to the wrist, being bent to the requisite angle at the axilla and elbow. A piece of aluminium or tin, shaped to the hand, is attached at the wrist termination, so as to allow the mid prone and supine position, and the fingers rest on a pad of wool. Wings $\frac{1}{2}$ in. by $\frac{1}{16}$ in. are attached at the wrist, elbow, and upper arm, and two wings pass round the chest, being attached to the stem, one at the costal extremity and the other below the apex of the axilla. The ends of these chest wings are connected anteriorly by strap and buckle. The limb is lightly bandaged on and a piece of bandage or webbing over each shoulder from the front to the back is sufficient to hold the splint well into the armpit.

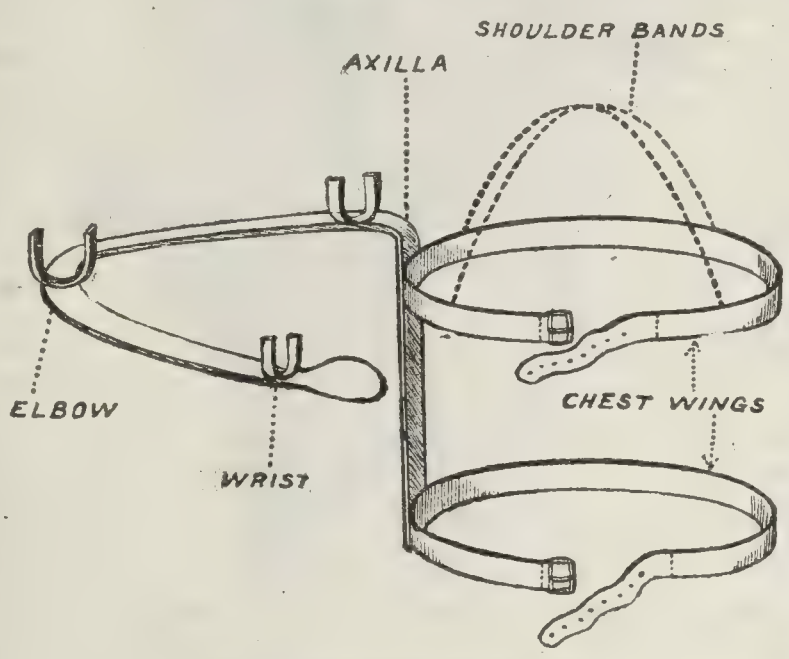


FIG. 1.—A simple upper limb splint.

(b) *Lower Limb.*

It is essential at the outset—even if only one limb be affected—to rest the two, as pelvic tilting the result of overaction of one side easily occurs, and once having occurred is never overcome. It is also difficult at the outset to make sure whether the abdominal muscles are affected, and furthermore, only in this way can we prevent undue rotation of the hip, abduction, or adduction, to which there is so great a tendency. Hence the importance of noting the relationship of the two anterior superior spines to the umbilicus, or, more correctly, to the mesial plane. The spines should be on the same plane.

This can be immediately effected temporarily by means of two padded boards placed behind the knee from the upper third of thigh to lower third of leg with a connecting piece across the middle—or two long back splints with foot-pieces, joined together—and permanently by a double Thomas splint. By this means also we protect the quadriceps extensor (so important for the erect position), placing a small cushion of wool under the knee so as not to overstretch the flexors. With the feet elevated on a pillow the ilio-psoas is rested.

As regards the feet, trouble is likely to arise from deformity even after the first day, and especially foot-drop, inversion, or eversion. Whatever form of foot splint is used to prevent deformity, it is essential that the foot be kept well against the foot-piece by means of a webbing or other form of strap gripping the ankle firmly. The ordinary foot-piece is usually insufficient for continuous use, and a splint modelled to the foot is best. The basis of rest is recumbency in bed, and preferably on a firm mattress.

Anatomically, then, the upper and lower limbs can be easily and should be immediately rested. If these details are attended to we have gone a long way on the road to secure a recovery. By failure to effect anatomical rest at the outset can largely be ascribed the bad results met with in this disease.

II. MUSCULAR FUNCTION.

In this section I propose to deal with the deltoid and the quadriceps extensor of the knee. The former is

generally considered the most difficult for recovery, while loss of function in the latter is responsible for the swinging limbs and crutchdom to be met with in any large city.

At the outset I wish to refer to the case of a woman who thirteen months before being seen had fallen on her right shoulder. Pain, swelling, and stiffness followed, for which massage and forced movements "to break down adhesions" were used. On examination, in spite of the fact that the head of the humerus could be rotated freely there was inability to abduct the arm, when sitting, more than 2 in. from the side. When lying down, however, with a small pad under the head, she was able to her astonishment to abduct the arm to a right angle and, though with difficulty owing to some contraction of the pectorals, to raise it above her head. The limb was placed on a splint of the type illustrated in Fig. 1 to stretch the contracted adductors. When the splint was taken off she was still unable to abduct the arm when sitting up, but on lying down she raised it above the head with ease and in two days was able to raise it not only when lying flat, but also when the head was elevated on a pillow. Within a fortnight she was able to raise the hand above the head when sitting up, having during that time been gradually raised by pillows to the erect position, the movements each day being commenced in the lying down or zero position. A week later she was able to raise the arm immediately on sitting up.

Furthermore, cases of quadriceps "paralysis" were met with in which the patient was unable to stand, or, when lying in bed, raise the heel with the knee extended; yet when he lay on the side opposite to that which was affected and the knee was acutely flexed the leg could be extended with the greatest ease. Because the patient is unable to raise the heel off the ground with the knee straight when sitting on a chair—is unable, that is, to do 100 units of work—we are not justified in calling the quadriceps "paralysed." On the same reasoning the quadriceps tested with the patient in bed and the knee acutely flexed might be regarded as normal since it can perform the functions of the quadriceps as given in the textbooks, that is to say, extension of the knee.

These phenomena admitted, of course, of only one explanation—namely, that the disease was revealing functional stages in the evolution of these muscles. They showed clearly that their action was a complex function, one made up of several separate activities, and hence the term "paralysis" of muscles is really referable to the loss of some, not necessarily all, of their functions; the recovery, like the loss, follows in a biological or evolutionary sequence.[1]

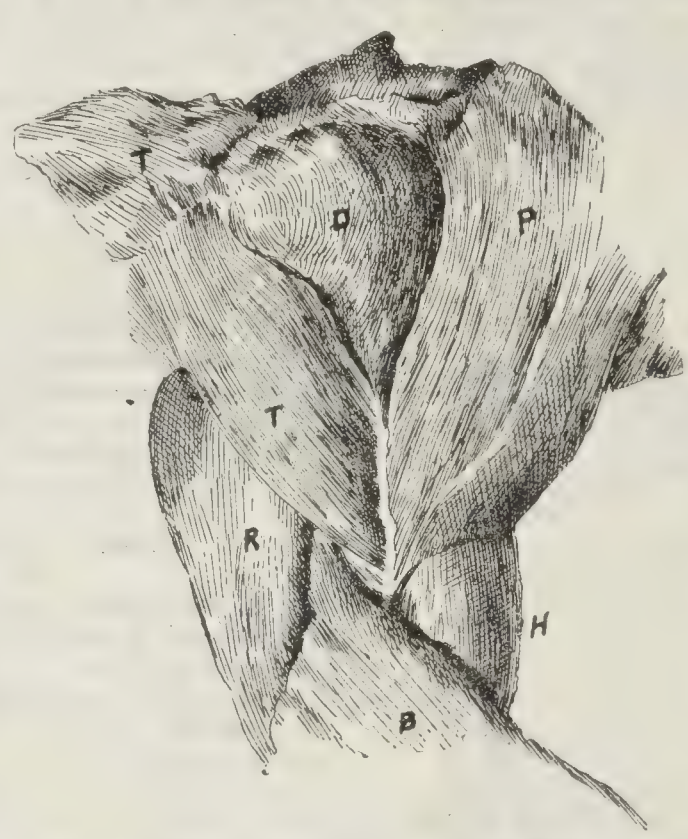


FIG. 2.—Deltoid evolution in the marsupials. The shoulder region of the Australian koala (*Phascolarctos cinereus*). P, Pectoralis major. D, Deltoid. T, Trapezius. R, Triceps. B, Brachio-radialis. H, Biceps.

The dominant factor in man is the erect position, and the study of muscular action throughout the mammalia shows that orthograde functions have been superimposed on muscles adapted originally for plantigrade motion; new muscles have not been called into being. Although Charles Bell taught us that the anterior cord presides over muscular action, and Marshall Hall that movement can occur reflexly from irritation independently of volition, a study of cases of infantile paralysis in man—regarded as the most advanced mammalian type—demonstrates the fact also that the anterior cord not merely presides over "muscular action" but recognizes the components of which the function is made up, and that these cell-controlled components always bear a definite sequence one to another. Though similarly placed in an anatomical sense, the action of the quadriceps is vastly different in platypus and in man. The quadriceps in platypus responds to the anatomical test of extension of a flexed knee, but that is a different function from that of a quadriceps which will allow of the orthograde posture. The quadriceps of the ape has a more complex function than that of the platypus, and so similarly has man's compared with the anthropoid. A patient who can raise the heel off the ground when sitting with the knee extended will be able to extend the acutely flexed knee in bed; but the patient who can do the latter need not necessarily be able to do the former. When, therefore, we are told that the quadriceps is paralysed merely because the patient is unable to raise the heel off the ground we are told something which is biologically unsound. This is a question apart altogether from volition, since in infantile paralysis we are dealing with a disease in which, generally, cerebration is unaffected.

In the koala we see a typical exhibition of deltoid function amongst the marsupials. Compared with the wombat the deltoid in the koala has become differentiated from the outer pectoral, trapezius, and brachio-radialis (Fig. 2). Although the koala in the fork of a tree, supporting himself with one hand, can reach for his eucalyptus leaf, that is a different matter from the ability to raise the arm when in the orthograde posture.

Again, a study of the anthropoids at any menagerie shows the reluctance with which the fore limb is dispensed with as a means of support. The ape prefers the knee slightly bent, with the balance afforded by one or both fore limbs. To assume the orthograde posture is an effort, and a still greater one while so supported to raise the fore limb above the head. The stiffening of the knees by the quadriceps, which has enabled man to stand and walk; and the ability not only to dispense with the fore limb for support, but to elevate it when erect above the head, are late acquisitions in man's evolution, and are hence unstable.

Compared with embryology, which gives us an imperfect picture of man's evolution from the point of view of structure, comparative anatomy not only gives a correlated history of the past, but often points the directions in which man's future physical evolution may progress. As an example, it will be conceded that inversion or eversion of the human foot are diminishing since the foot is not, as in koala, provided with an opposable hallux, that the tibia is the dominant bone, and that the fibula is disappearing. The fibula in the kangaroo, from the point of view of function, is non-existent, having become approximated to the tibia, reminding one of the manner in which the appendix has become fused with the ileum in the wombat. In the kangaroo a struggle exists round the ankle as elsewhere, between individual muscles, not only for position but for existence. The kangaroo's foot can be regarded, then, as of especial value in enabling us to recognize that certain muscles are "survival results" (Fig. 3). Even if the "paralysed" patient be treated at a stage of the disorder where some surgical interference is necessary, the comparative method of treatment still dominates the surgeon's action—whether the method be the "strengthening of the weak" by muscle or nerve transplantation, or the "weakening of the strong," as by tendon lengthening or division. If we are utilizing a tibial or peroneal muscle for grafting, it is important to know which tibial or which peroneus is the more useful in the body economy; and similarly, if we are diminishing the power of eversion because the tibials are weak, or inversion because the peronei are damaged.[2] The results obtained from nerve and muscle grafting in paralysis have so far been disappointing, and for the reason that muscle function—the important factor—receives such scant consideration. It seems ridiculous to graft a biceps femoris or other hamstring to the quadriceps and expect it to restore extension—that is, to repeat the biological history of the function of that muscle—unless we have a clear idea

of the entities of which that function is composed. Again' presuming we have reinforced the circumflex nerve of a paralysed deltoid, it is surely too much to expect that nerve impulses will stimulate the muscle to repeat in sequence the events of its evolutionary history. When we speak of successful restoration of function of the deltoid, do we refer to 10 units of work or 100 units—that is, orthograde abduction?

To give a complete biological history of the action in orthograde man of the deltoid and quadriceps is not possible. Links in the chain are missing, and even the gap between two members of one order—namely, the wombat and koala—cannot be filled. From researches on muscular action amongst the mammalia, and especially monotremes and marsupials, extending over the past eight years, together with studies on numerous cases of human paralysis, I have adopted the following principles in seeking to restore function in a case of paralysis affecting the quadriceps or deltoid muscles.

A paralysed limb should be handled with the greatest gentleness, and, when taken off the splint, should occupy at first the position it had when supported by the splint. The arm with a paralysed deltoid should not be allowed to drop when taken off the splint, nor a knee be bent up, nor allowed to hang over the edge of the bed. We should avoid movement just as much as in the case of a fracture of the humerus or of the femur. Hence also the importance of a firm bed, so that movements can be carried out without disturbing the patient. It is best to place a sheet of cardboard under the limb to obviate all resistances to movement.

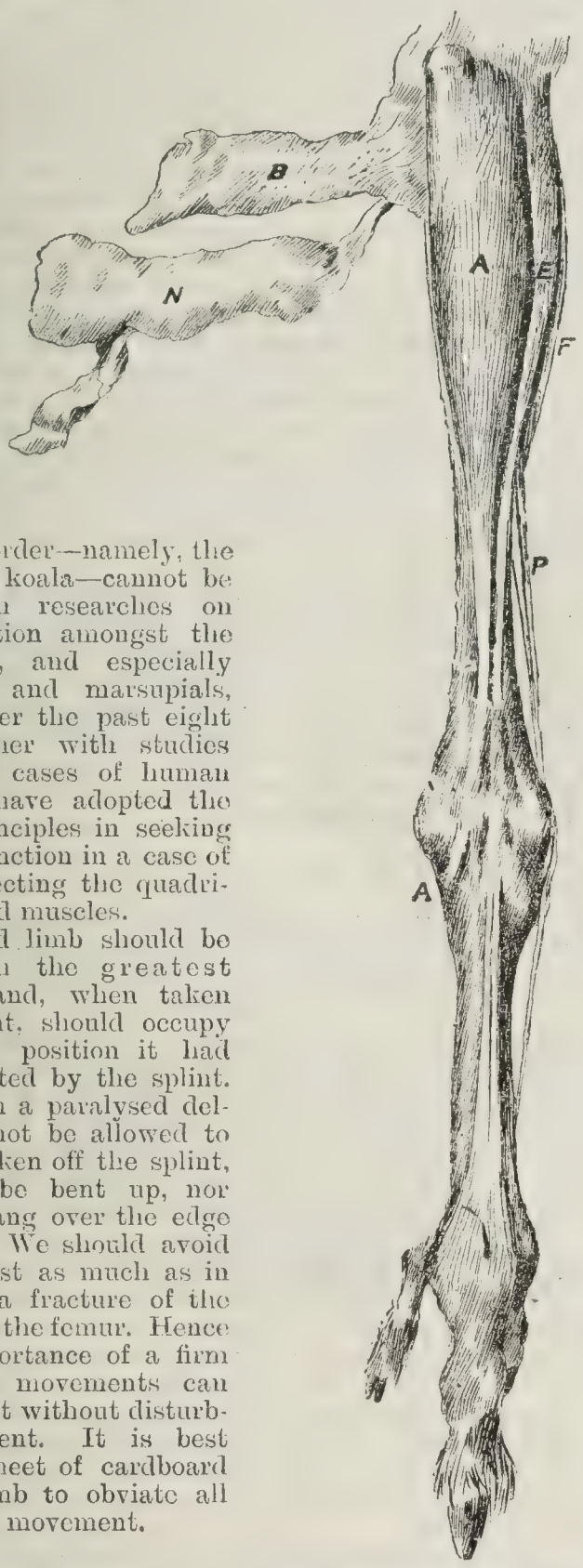


FIG. 3.—Dissection of the extensor aspect of the leg in the kangaroo (*Macropus gig.*), showing the tibialis anticus as the "selected" inverter. A, Tibialis anticus. E, Common extensor F, Common flexor. P, Peronei. N, Semitendinosus. B, Semimembranosus.

(a) Quadriceps.

The maximum work—namely, 100 units—is represented by the ability to stand erect with the knees straight, or to raise the heel off the bed when lying with the knee extended, and similarly when sitting on a chair. The minimum is represented by the ability to straighten the knee without abduction with the patient on the back and the knee slightly bent, actively or passively. On flexing the leg, for example, 1 in., it may be noticed that the limb falls straight, or, if bent say 3 in., the patient may be unable to straighten the knee, but can prevent the limb abducting; that can be regarded as evidence of recovery. The flexion is gradually increased, the fall being gradually replaced by a definite push, till finally the patient, holding the knee in the position of acute flexion without abduction or adduction of the thigh, is able to straighten the limb. It may be necessary to initiate action with the patient lying on the opposite side, and not on the back, beginning with a 2 in. flexion, and in this early movement hip action is unhindered. An early sign of recovery is the power of adduction or abduction of the whole limb when on the back with the knee straight, especially the latter. Progress can be stimulated by bandaging a splint to the back of the knee.

Our next endeavour is to secure extension from full flexion when lying on the opposite side, with the thigh fixed. This is accomplished by beginning with, say, a 2 in. flexion and gradually increasing, always commencing each day, however, at the 2 in. stage. It is wrong practice to flex the knee beyond a point at which extension effort becomes manifest. The action is aided by allowing the patient to flex and extend the knee when on the side, but with the thigh free.

The time now comes when our attention is directed to the power of raising the heel off the bed from the hip with the knee extended. To our surprise the patient, when lying on the sound side, may lift the limb in one piece and swing it forwards and backwards with ease. This is an action of the ilio-psoas muscle, but is only rendered possible by the action of the quadriceps extensor in keeping the knee stiff. If unable to do this we can initiate and practise the movement with the knee stiffened by a cardboard or wooden splint behind the joint—that is to say, we produce an artificial quadriceps. Objection may be raised that the elevation of the limb in one piece when on the side is dependent on the stiffening action of the lateral ligaments. It is, however, a distinctly muscular action, and ligaments do not cause movement. This can be proved in the case of a severe quadriceps paralysis when the patient with a sound ilio-psoas will make unsuccessful efforts to raise the heel when on the side, the knee remaining bent; but when a splint is applied behind the knee will lift the limb with ease. Although able to raise the limb in one piece when on the side, yet when turned on the back this, which is the maximum effort, is impossible. The graduated method is again applied. We gradually alter the tilt of the body, which can be done by means of a pillow, from the lateral to the supine position, till finally our maximum of 100 units of work is reached. If, when seen, the knee has flexed from over-strong hamstrings, it should be straightened and bent gradually, before true function is commenced. The two actions should go *pari passu*, and as already stated there should be no flexion beyond the point at which extension-effort has become manifest.

(b) Deltoid.

With the patient on his back in bed and a low pillow supporting the head we may find that he lifts the abducted arm readily off the cardboard, or if passively raised is able to maintain it so. Our object is to recover the power of abduction from the side to the right angle. If we lower the arm from the right angle abducted position to the side, the patient is unable to abduct to the right angle; but if we lower it, say, two inches, supporting the patient's elbow on the palm of our hand, it may be raised to the right angle readily. We gradually lower the supported elbow, beginning each day at our original minimum, till finally there is abduction with the arm at the side. There will be recovery in this posture when the patient can abduct to the right angle *ab initio* with the arm at the side. This procedure is then repeated with the patient slightly raised by means of an ordinary pillow under the head, and in this manner he is gradually elevated to the orthograde or erect posture. The 100 units of work or maximum have been achieved when the patient is able, when sitting up, to straightway abduct the arm from the side to a right angle. Similar principles would apply in cases of nerve injury, or injury of the muscle with loss of function. The results presented at the Berlin Congress in 1911 by Mayer of Cologne, and based on an early paper of the writer's on upper limb paralysis published in Australia, are worthy of notice.[3]

The dissections shown in the figures, together with numerous others, illustrating the evolution of muscular action in the mammalia, are now in the possession of the

LIBRARY U. OF I. URBANA-CHAMPAIGN

Hunterian Museum, London. For valuable help in the preparation of these I am indebted to Major C. V. MacKay, R.A.M.C.

REFERENCES.

[1] R. W. Lovett: The Treatment of Infantile Paralysis: Preliminary Report based on a Study of Vermont Epidemic, 1914. *Journ. Amer. Med. Assoc.*, June 26th, 1915. W. C. MacKenzie: Further Studies on the Muscular Factor in Infantile Paralysis. *Australian Med. Journ.*, June, 1911.

[2] W. C. MacKenzie: Epidemic Poliomyelitis: Some Biological Studies. *Australian Med. Journ.*, January, 1913.

[3] Die Behandlung der frischen Kinderlähmung durch Ruhigstellung von Dr. E. Mayer. *Dent. med. Woch.*, June 15th, 1911. Also *International Clinics*, vol. i, 1912.

THE MODERN TREATMENT OF DIABETES MELLITUS.

AN ABSTRACT OF THREE LECTURES DELIVERED AT THE LONDON HOSPITAL.*

BY

O. LEYTON, M.D., D.Sc., F.R.C.P.,

PHYSICIAN TO THE HOSPITAL.

A FEW weeks ago the following dialogue might have been heard in the staff room of the London Hospital:

Surgical Colleague: I see that you are lecturing on the modern treatment of diabetes; now, tell me, are you going to tell us anything which I was not taught as a student?

Leyton: I believe so.

S. C.: Is there some new drug which possesses a specific action?

L.: Not that I know of.

S. C.: Then tell me in a nutshell the difference between the modern treatment and that which I was taught.

L.: You were taught that so long as a diabetic was placed on a diet which was free from carbohydrate all was being done that could be done. The main idea in the modern treatment is that a period of alimentary rest leads to an alteration in the metabolism of the diabetic which makes it approach that of the normal individual. A patient suffering from severe diabetes is unable to metabolize the carbohydrate part of the protein molecule; after alimentary rest, he is able not only to utilize all the protein but also to oxidize carbohydrate given in the food as such. This tolerance for carbohydrate is developed. Limits for protein and fat are found, and these forms of food are not given in unlimited quantities. Too much protein causes a return of sugar in the urine.

S. C.: Does the new treatment really allow you to prolong the lives of young individuals who have developed severe diabetes?

L.: Undoubtedly.

It is this treatment which I wish to describe in sufficient detail to permit all to test the accuracy of my replies in the conversation.

Diabetes mellitus is the name given to a series of diseases which may be recognized by a departure from the normal metabolism. The change which makes itself most evident is the excretion of dextrose in the urine in quantities which may be detected by the ordinary tests whilst a normal diet is being taken. It is true that sugar appears in the urine in meningitis, exophthalmic goitre, and in gross diseases of the pancreas; these do not come under the heading of diabetes mellitus.

The definition given above includes so-called "dietetic glycosuria." Without wasting time in an academic discussion as to whether such a disease exists, let us assume that it is safer to consider all cases of glycosuria to be diabetes mellitus and treat them as such. No harm will be done and many lives will be prolonged.

The causes of diabetes mellitus are not known. Perhaps it will assist us to understand the modern treatment if we adopt a speculative explanation of its cause, even if this subsequently be proved incorrect. Diabetes mellitus includes at least three conditions:

1. Sugar in the urine with an increase in the sugar in the blood.
2. No sugar in the urine (at times) with a considerable increase of sugar in the blood.
3. Sugar in the urine without any increase of sugar in the blood.

The two conditions first named are in my opinion due to an altered nerve control of the pancreas, whilst the third is due to the production of a phloretin-like body in some of the tissues.

The similarity between diabetes mellitus and exophthalmic goitre leads me to think that an altered nerve control plays an important part. Cannon has shown that if the central end of the phrenic nerve be sutured to the peripheral part of the cervical sympathetic, the nerve grows down, and then the impulses which would have been transmitted to the diaphragm at every respiration are conducted to the thyroid gland, with the result that the animal develops all the signs and symptoms of exophthalmic goitre.

Partial excision of the pancreas produces an effect in an animal simulating in many ways diabetes mellitus. Nevertheless, from *post-mortem* examinations, we know that in the majority of diabetics no recognizable lesions are found in the pancreas.

There are many other possibilities. In normal health there is a balance between all the tissues in the body; any departure from this balance is compensated rapidly. Emotions cause a temporary alteration in the balance. Anger and fright stimulate the suprarenal glands, causing the sugar in the blood to be increased, the blood to coagulate more rapidly, the bronchioles to dilate, the muscles to become fatigued less easily, digestion to be inhibited, and the blood to be redistributed in the body. Cannon explains these changes as those which would assist an animal to fight successfully, and that these emotions were originally associated with struggle. Indirectly the same emotions increase the rate of metabolism through the increase in activity of the thyroid. Emotions have a direct effect upon glycosuria too.

Allen found that small highly bred dogs, if a part of the pancreas were removed, and the animals put upon a diet which under ordinary conditions allowed them to be free from glycosuria, passed sugar in the urine when frightened.

This observation upon animals, and many similar upon man, suggested the possibility that hypnotism might prove of assistance in the treatment of severe diabetes. Our observations on this matter are insufficient to allow me to make any announcement to-day.

SELECTION OF CASES FOR TREATMENT BY "ALIMENTARY REST."

If it be thought advisable to give a treatment a descriptive name rather than that of its inventor I suggest that the Allen treatment be called the "Treatment by Alimentary Rest," for three reasons: (1) It seems to me probable that the alteration in metabolism which occurs when food is withheld is due to rest of the various glands which are stimulated during digestion, and not to the simple absence of food. (2) To prevent confusion between the Allen treatment and the Guelpa treatment, which has been called "the starvation treatment" for quite a long time. (3) Starvation treatment is a name which does not commend itself to patients.

Since the treatment entails alimentary rest for several days it is obvious that not every case should be submitted to it.

Method of Determining Suitability of Case.

(a) Physical.

If the patient be suffering from any other disease which is likely to lead to dissolution during the next few months he should not be asked to undergo the discomfort of alimentary rest because the recompense for the self-denial is too small.

My experience† has taught me that, in spite of the fact that not infrequently a patient suffering from rapidly progressive pulmonary tuberculosis may lose the sugar in the urine as the disease progresses, nevertheless cases of diabetes complicated by pulmonary tuberculosis are not suitable for treatment by the Allen method.

Every effort must be made to be certain that the patient is not suffering from active tuberculosis. We all know that often it is extremely difficult to make up our minds on the diagnosis even when uncomplicated; when diabetes is present the difficulty is increased ten times. Many of the more delicate tests prove fallacious.

The rise of temperature with exercise will not necessarily take place in a diabetic. Tuberculin may not be used because any man who awakens quiescent tuberculosis in a diabetic is guilty of manslaughter.

The examination is limited to inspection, palpation, percussion, auscultation, and radiography. Even the most careful and experienced may err when limited to these

* The lectures will appear in detail in the *Clinical Journal*, March, April and May.

† Joslin's experience is not similar.

methods of examination. When examination of the sputum proves the presence of acid-fast bacilli nothing more need be said.

Other forms of infection must be sought for and dealt with as far as possible before treatment is begun.

Especial attention should be paid to the gums; pyorrhoea alveolaris is extremely common in diabetics, possibly because they have a poor resistance to most infections. In several cases removal of infected teeth and treatment of the gums without any modification in diet has led to the disappearance of even high percentages of sugar from the urine.

It is wise to remember that very severe cases of very long standing require a slight modification of the routine treatment.

(b) Mental.

Patients of no education who have not been taught control are unsuitable. They prove a trial to their physician and do not keep to the diet after they have left the institution in which they have been treated.

A short time ago a young Irish soldier, who had escaped school in the past, was admitted to one of my wards. I attempted to explain to him in simple language that he was suffering from a disease which would kill him very soon if he did not consent to undergo certain treatment. That, unfortunately, the treatment was one which would not allow him to have very much food for some time, and that his rations of potatoes would have to be small for several months. After listening patiently, he said, "Ma fayther never did belave in doctors." The poor man left the hospital and died a short time later.

The physician must use judgement and remember always that a patient who begins the Allen treatment and does not continue it is worse off than if he never attempted it.

The method of persuading the patient to undergo the treatment must depend upon the temperament of the patient. The doctor who has seen many cases which have been pronounced hopeless, become free from sugar and return to their normal work will feel justified in painting the future upon the old treatment in its true colours. Perhaps any one with but little experience may not feel justified in doing this, because he is afraid of frightening his patient.

When a patient has consented to undergo the treatment he will ask, "How long shall I have to go without food?" An answer to this question is not easy. It is quite certain that the length of the period does not depend upon the percentage of sugar in the urine.

I am under the impression that the greater the percentage of sugar in the blood the longer the fast required; in all probability future experience will show that this has many exceptions. Some months ago two cases were admitted to the same ward upon the same day—a girl of 16 passing 12.3 per cent. sugar in the urine, and a woman, aged 35, passing 1.25 per cent. sugar. The blood of the young girl contained 0.15 per cent. sugar, whilst that of the woman contained 0.5 per cent. sugar. The girl's urine was free from sugar after alimentary rest for forty hours, whilst the woman had to fast six days before the glycosuria disappeared.

METHOD OF TREATMENT.

If the patient has developed diabetes comparatively recently a diet poor in fats is ordered for two days preceding the period of alimentary rest. This may consist of the same diet as the patient has been accustomed to with the exclusion of butter and fat meat.

Usually I order a breakfast of weak tea with very little milk, two eggs with a small piece of bread; lunch of 100 grams of lean meat, 200 grams of cooked cabbage, 60 grams of boiled potatoes, and a small baked custard pudding. Dinner, a plateful of clear soup, 120 grams of fish, other than salmon, herring, or mackerel, 120 grams of cooked green vegetable, an egg and an orange. In exceptional cases of very long standing and severe acidosis, it is wiser to diminish gradually the protein and carbohydrate after removing the fat before submitting the patient to alimentary rest.

Let me warn you against giving a favourable prognosis to patients who come with a history that for years they have passed sugar in the urine and carried on their work in comfort until a few weeks ago, when they began to be tired and to lose weight and become rather more thirsty than in the past. This sudden alteration often indicates the awakening of tuberculosis; tuberculosis in diabetics may take months to show signs.

During the period of alimentary rest the patient receives a Seidlitz powder every morning, and if that does not prove sufficient it is supplemented by castor oil or an enema. He is kept in bed, but allowed to leave it for the morning bath and for calls of nature. It has been asserted that the sugar disappears more rapidly from the urine when the patient is allowed to take exercise; this assertion is not easily proved, and even if it were established beyond doubt, one would have to weigh the relative advantages of shortening the period of alimentary rest and the complete control over the patient. In my opinion complete control is the more important.

The patient should be shielded from all worries and annoyances. Diabetics are short-tempered, and therefore every device must be adopted to meet their wishes whilst under treatment.

During the period of alimentary rest the patient is allowed at breakfast time 200 c.cm. of weak coffee without milk or sugar, and 100 c.cm. of clear broth made with an eggspoonful of a meat extract which is poor in protein. At lunch he receives the same as for breakfast. At tea, 200 c.cm. of weak tea. At dinner, 200 c.cm. of weak tea and 100 c.cm. of clear broth. As much water and soda water as desired is permitted. If the patient is accustomed to alcohol, he is allowed the usual amount unless it is really excessive. If not accustomed to any, then alcohol should be given only in cases of severe acidosis or extreme emaciation.

I advise you most strongly to note down every detail, even as to the method of preparing tea and coffee, otherwise you will find your patients being given solutions of sugar, burnt and unburnt, instead of coffee.

The twenty-four-hour specimen starting from 8 in the morning is tested for sugar at 8.30 every morning with Benedict's solution,* or with the indigo test; when it is found free from sugar, we conclude that the metabolism of the patient has altered, and the following progressive diet is begun:

The first day after the urine is free from sugar the diet should contain 5 grams of carbohydrate; this might be given as a quarter of an ounce of white bread, but that would not be satisfying, nor would it tend to alleviate constipation. A vegetable containing a considerable quantity of cellulose and little carbohydrate is chosen in order that the pangs of hunger may be assuaged by the bulk of the meal, and at the same time the intestine stimulated by the residue of the food.

When in season French beans are the most convenient, because they contain less than 2 per cent. carbohydrate, and 250 grams would be allowed on the first day. When French beans are not obtainable, cabbage boiled in three waters and then stewed in a little clear broth may be used as a substitute; or, if the patient is unable to eat cabbage, 230 grams of cooked spinach, or 200 grams of raw lettuce, or 140 grams of celery may be substituted.

The urine is examined every morning, and, if free from sugar, the diet for the day is given.

DIET FOR ESTIMATING TOLERANCE.†

First Day.—Breakfast: Weak coffee 200 c.cm., cooked French beans 75 grams. Lunch: Weak coffee 200 c.cm., French beans 100 grams. Tea: Weak tea 200 c.cm. Dinner: Weak tea 200 c.cm., French beans 75 grams.

Second Day.—The quantity of vegetable is doubled, and three eggs are added to the diet.

Third Day.—200 grams of lettuce replace 200 grams of French beans, and another 200 grams of French beans are replaced by an equal quantity of boiled cucumber.

Fourth Day.—200 grams of cabbage boiled in one water replace 200 grams of cucumber.

Fifth Day.—30 grams of lean meat are added to the diet along with 200 c.cm. of clear broth.

Sixth Day.—Breakfast: Weak coffee 300 c.cm., with thin cream 10 c.cm., one egg, and raw lettuce 200 grams. Lunch: Lean meat 100 grams, cooked French beans 200 grams, boiled potato 40 grams. Tea: Weak tea 300 c.cm., thin cream 10 c.cm., one egg. Dinner: One egg, cooked cabbage 100 grams.

* Copper sulphate 18 grams, sodium citrate 180 grams, sodium carbonate crystals 200 grams, water 1,000 c.cm. Boil 5 c.cm. with 5 drops of urine for two minutes and allow to cool; if solution remains clear, sugar is absent.

† The daily diet appears in detail in the *Clinical Journal* (April), and will be obtainable (printed on separate sheets) from Messrs. Adlard, 23, Bartholomew Close, London, E.C.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Seventh Day.—A fast day.

Eighth Day.—30 grams of cooked fat bacon replace 30 grams of lean meat.

Ninth Day.—30 grams cooked fat bacon replace 15 grams of lean meat, 15 grams of boiled potato added.

Tenth Day.—30 grams of fat added.

Eleventh Day.—Breakfast: Weak coffee 300 c.cm., thin cream 15 c.cm., one egg, cooked fat bacon 30 grams, raw lettuce 200 grams. Lunch: Cooked lean meat 20 grams, fat 15 grams, cooked French beans or their equivalent 120 grams, boiled potato 60 grams, butter 15 grams. Tea: Weak tea 300 c.cm., cream 15 c.cm., boiled potato 30 grams, butter 15 grams. Dinner: Clear broth 200 c.cm., one egg, cooked cabbage 100 grams, cooked French beans 100 grams, butter 30 grams.

Twelfth Day.—Add fat 30 grams.

Thirteenth Day.—Add white bread 15 grams, subtract raw lettuce 120 grams. Add white bread 15 grams at tea, and subtract 30 grams of potato at lunch. Add butter 15 grams.

Fourteenth Day.—A fast day.

Fifteenth Day.—Breakfast: Coffee 300 c.cm., cream 20 c.cm., one egg, cooked fat bacon 30 grams, raw lettuce 100 grams, white bread 15 grams, butter 15 grams. Lunch: Cooked lean meat 60 grams, fat 30 grams, cooked French beans 120 grams, boiled potato 30 grams, butter 60 grams. Tea: Tea 300 grams, white bread 15 grams, one egg, butter 30 grams. Dinner: Clear broth 200 c.cm., one egg, cooked cabbage 120 grams, boiled potato 30 grams, butter 60 grams.

The diet on the fifteenth day represents carbohydrate 42 grams, protein 54 grams, fat 192 grams. Note that the carbohydrate is fairly well divided: Breakfast 12 grams, lunch 8 grams, tea 9 grams, dinner 13 grams. The energy provided by the diet is calories 2,112, sufficient for an average man who is not doing any manual work. If sugar remains absent the diet is altered by the addition of 3 grams of carbohydrate daily with a diminution of 6 grams of fat.

Every seventh day should be a fast day or a half-ration day; in the milder cases half-ration days suffice.

Under no conditions be influenced by the old-fashioned idea and add to the protein in the diet; if you do, quite frequently sugar will return, and you may think that it is due to the increase in carbohydrate and diminish it in error. This means that no so-called antidiabetic bread or biscuits may be given.

When we wish to reduce the weight of obese patients we give them an excess of protein; this applies to diabetics too, an excess of protein causes them to lose weight. Many years ago I found that by substituting cellulose, which is not absorbed, for protein patients stopped losing weight.

There is nothing gained by giving oatmeal instead of bread; as long as the carbohydrate is starch and not sugar its absorption is fairly slow; the type of starch makes no difference.

Various diets suggested during the last few months have the same underlying idea, although the authors of the diets frequently do not seem to recognise it—namely, the diminution in the quantity of protein.

The problem arises, What should be done when the sugar returns? The patient should fast until the sugar disappears; as a rule twenty-four hours suffice. Then one of two methods may be adopted: the progressive diet may be followed, but at double the previous rate, until the carbohydrate reaches two-thirds of that at which sugar returned, and then fat is added until the necessary amount of energy is being taken. Or the diet is halved, then the protein is rapidly increased up to the amount it was when sugar appeared and the fat increased at the same time. The carbohydrate is gradually increased until it reaches two-thirds of the amount that led to the return of sugar.

We must realize that protein and fat in excess will both lead to the reappearance of sugar in the urine.

The reappearance of sugar after some time without any alteration in the diet does not necessarily mean that a fresh period of alimentary rest need be prescribed, or even that a modification in the diet is essential. Some emotional disturbance may have led to glycosuria. Amongst my patients is a woman who has a return of glycosuria whenever the interval between letters from her son, who is fighting in France, is more than five days. Mental perturbation does not always lead to the same result. A severe case of diabetes, whose carbohydrate limit rose to 60 grams of carbohydrate, had bombs dropped in his garden on two occasions, he lost his brother, sister, and wife all within three months, but he did not have a return of sugar.

Exposure to cold, anxiety about catching a train, and many other minor things may lead to the return of sugar, and should be inquired about before any alteration in diet is ordered.

In olden days much attention was paid to the weight of the patient, and the unwarrantable assumption was made that so long as the weight was maintained all was well with the patient. Try and make your patients believe the truth, that the weight is of comparative unimportance, that no diabetic has ever faded away. Make them exchange an interest in weight for one in the result of the test of the urine with Benedict's solution.

As a rule the gain in weight when the patient is upon the optimum diet is very slow, perhaps a few ounces a week. In the majority of cases a rapid increase means that oedema is developing. An exception came my way a short time ago in a man who had gained 17 lb. in six weeks. For two years he had been upon the old-fashioned treatment, and had become a skeleton, and a weak skeleton at that. The death of his medical adviser had led to his adopting the Allen treatment. He emphasized the rarity of the rapid increase in weight with completely beneficial results by making a somewhat unusual remark: "My doctor died; if he had not, I should."

In the past diabetics were not allowed to take much exercise, because it was thought that exercise would lead to loss of weight. It is found that a moderate amount of exercise allows the patient to metabolize more carbohydrate, and exercise is now ordered; the amount taken should be the same every day, otherwise it must be remembered that upon those days when less exercise is taken less carbohydrate must be included in the food.

The results obtained are better than those by any method adopted to date. You must remember that the treatment is not a cure, but that when carried out in the best possible manner a diet is found which allows the patient to live indefinitely, and to lead a useful life. Perhaps a cure will be discovered during the next few years which will allow us to permit the patients whom we have kept alive to return to a normal diet.

The treatment has not been in use long enough for us to have decided whether the carbohydrate tolerance gradually increases. In some cases I believe there are indications of this.

Young people who have developed the condition comparatively recently derive the most benefit from the treatment.

Of the seventy cases of severe disease which have come under my observation four have died from tuberculosis. These led me to exclude those who showed signs of that condition. I hope shortly to record what I believe to be the most satisfactory treatment when tuberculosis is present.

One patient died from pneumonia, two from gangrene which had started some time before they came under treatment. Four patients died within a day or two of admission to the hospital.

The majority are enjoying good health, and many are asking why they were not put upon the treatment a long time ago.

CARDIAC DISEASE IN SOLDIERS AND RECRUITS.

BY CAPTAIN W. SCARISBRICK, R.A.M.C.(T.).

THIS article has been written with the purpose of comparing the incidence of heart disease amongst soldiers and recruits, and embodies my personal notes. The great majority of the soldier cases had been on active service abroad, and included all degrees of severity of heart disease; the recruit cases also formed a fair representation of the different types of cardiac affection.

Notes of 218 cases of heart disease occurring amongst soldiers and 151 found amongst recruits have been collected; they have been classified into five broad and fairly distinct groups. These groups were selected because, whilst being sufficiently comprehensive, it was considered that classification in this manner should not prove too difficult, and the choice of treatment and the prognosis as to future utility would be moderately easy.

A few words of explanation as to the reason for assigning individual cases to a particular group may be useful. In the main, clinical and general signs, symptoms, and

previous medical and general history were the factors which decided the group in which any particular case was classified. Many of the soldier cases were, however, admitted to hospital, and kept under continuous observation. Subjective sensations received careful consideration, and it was found necessary in several instances to discount in a great measure symptoms complained of. In some cases important signs and symptoms were present indicating that such cases might be classified in more than one group—for example, where there was definite evidence of myocardial affection together with general neurosis, or where there was a positive history of severe strain accompanied by neurosis. Such cases were classified according to the predominant signs and symptoms found.

GROUP 1.—*Organic Valvular Disease.*

This group includes those cases, and those only, in which definite organic disease of one or more sets of cardiac valves could be diagnosed. A few cases of pericarditis, generally accompanied by some degree of organic valvular disease, and having the etiology of the latter, are included in this group. A definite history of one or more attacks of rheumatic fever was obtained in the majority of the cases, and in the remainder a history of scarlet fever, pneumonia, chorea, or influenza. In several cases giving a history of influenza the cardiac changes were so great as to suggest that rheumatic fever might in these instances have simulated an attack of influenza.

GROUP 2.—*Myocardial Disease.*

The chief signs and symptoms of cases in this group were as follows: The subject was pale, thin, and evidently weak. He complained of being very short-winded and of suffering from palpitation and fluttering sensations in the chest. In many instances sleep had been disturbed for a long time; the patient frequently woke up with a distressing feeling of breathlessness. In no case could any but the lightest form of work be performed. The pulse was soft, fairly rapid (90 to 110, or over), even after resting, and frequently irregular, without evidence of a predominant rhythm. The apex beat was nearly always found outside the nipple line, but usually in the fifth interspace, and the lateral limits of cardiac dullness were extended beyond the normal on both sides; this extension was increased after moderately severe exercise. The cardiac sounds were soft and lacking in muscular tone, and there was shortening (absolute) of the ventricular diastolic period. A blowing systolic bruit was present over the mitral area, and was usually transmitted towards the axilla. A soft systolic bruit was also frequently present over the aortic area. Premature systoles were heard in several cases. In a considerable number of cases a moderate degree of arterio-sclerosis was present.

A history of either pneumonia, scarlet fever, influenza, diphtheria, chronic rheumatism, or alcoholism was obtained. In one case the patient previously suffered from plumbism, but in no instance was a history of rheumatic fever given.

GROUP 3.—*Strained Hearts.*

The border-line between hearts having no organic disease but suffering from overstrain and certain types of cardiac neurosis is very indefinite. In some cases of cardiac strain there is accompanying neurosis, especially amongst soldiers returned from the front. Again, a heart weakened through myocarditis in the first place may be subjected to severe strain causing an exaggeration of the symptoms. In cases of strained heart the individual may be either well developed or have poor musculature. The subjective sensations in the majority of cases examined were only slight, but it was noted that, after certain forms of severe exertion which a patient was originally able to perform with impunity and ease, breathlessness and palpitation became marked. In a few, mainly young subjects, palpitation was present after only slight exertion. In most cases the pulse was regular, of good volume, and of normal rate. The apex beat was felt in the nipple line or just outside, and occasionally in the sixth interspace. The normal limits of cardiac dullness were only slightly extended, and there was no increase after exertion. On auscultation, the heart sounds were good as regards muscular tone, and a mitral systolic bruit, not so soft as in myocardial disease and yet not rough as in organic valvular disease, accompanied the first sound. Occasionally, reduplication of the first sound at the apex was present and also premature systole. In several instances where premature systoles were present whilst resting, they were found after exercise to have disappeared. A systolic murmur was heard over the pulmonary area in some instances.

There was no history of any of the specific fevers (including rheumatic fever), tonsillitis, or chorea. Several had been athletes and all had been subject to severe muscular strain at some time or other. A number of the soldier cases had been gassed at the front.

GROUP 4.—*Cardiac Neurosis.*

In cases of neurosis, either general or cardiac, we are dealing with a factor which is most intangible and exceedingly difficult to estimate. In consequence of interference with the cardiac mechanism the heart fails to beat with perfect normality and various subjective sensations are present. Clinically two types were met with: (*a*) Those in which the cardiac sounds were weak, irregular, and rather rapid, a soft systolic bruit usually accompanying the first sound at the apex; the patient was poorly developed and showed general nervousness. (*b*) Those in which the cardiac sounds were exaggerated in muscular tone and the only other abnormal sign present was tachycardia. After exercise both types showed a marked increase in the rate of cardiac contraction but no dilatation or increased cardiac dullness. An endeavour was made to find some underlying cause for the cardiac neurosis. In most of them no history could be obtained of previous illness, although in some cases a family history of cardiac disease was given. In several cases, both soldiers and recruits, excessive tobacco-smoking was certainly the cause of the trouble, whilst in others slight enlargement of the thyroid, accompanied by signs of hyperthyroidism, accounted for the neurosis. In several instances drug taking was suspected, and in three cases admitted. Having eliminated all these, there still remains a certain proportion of the cases of cardiac neurosis without any definite assignable cause; these are referred to by some clinicians as "irritable hearts."

GROUP 5.—*Alleged Cardiac Disability not Found.*

Under the conditions existing at the present time the question of simulation of heart disease has become most important. Cases classified in this group comprised malingerers and one or two cases with cardio-respiratory murmurs. Many men who thought they had a weak heart, but who were found to be perfectly normal, are not included.

TABLE I.—*Numbers of Soldiers and Recruits in the Different Groups.*

	Soldiers.		Recruits.	
	No.	Percentage of Heart Cases.	No.	Percentage of Heart Cases.
Group 1. Organic valvular disease	88	40.4	59	39.1
Group 2. Myocardial disease ...	34	15.6	33	21.8
Group 3. Strained hearts ...	58	26.6	23	15.2
Group 4. Cardiac neurosis ...	32	14.7	27	17.9
Group 5. Alleged cardiac disability not found	6	2.7	9	6.0
	218	100.0	151	100.0

On comparing the two classes (soldiers and recruits) it is seen that the numbers found to have organic valvular disease of the heart out of the total "heart cases" are practically the same in each, although it does not follow that the incidence of organic valvular disease amongst soldiers is the same as amongst recruits.

According to a return supplied to the Statutory Committee appointed under the Naval and Military War Pensions Act, 1915, giving the number of disabled soldiers and sailors discharged from the beginning of the war up to May 31st, 1916, there were 2,503 cases of heart disease out of 33,919 total cases discharged—approximately 7.4 per cent. discharged for heart disease alone. The numbers

LIBRARY U. OF I. URBANA-CHAMPAIGN

with organic valvular disease found amongst the soldiers under note, who were all put forward with a view to discharge from the army, represent nearly 7 per cent.—almost identical with the percentage found in the report mentioned above. If cases of myocardial disease and organic valvular disease be taken together the proportion reaches 10 per cent.

The corresponding percentages in the case of recruits are 3.0 and 4.8 respectively, indicating a lessened degree of heart disease amongst recruits. Considering the types of cardiac affection encountered in the two classes, it is seen that the proportion having organic valvular disease is the same in each.

In a similar manner, considering myocardial affection, it is found that 15.6 per cent. in soldiers and 21.8 per cent. in recruits come in this group.

In Group 3, comprising what have been termed "strained hearts," 26.6 per cent. were found in soldier cases and 15.2 per cent. in recruit cases.

From observation and examination it has been essayed as far as possible to subdivide these cases into those which were considered to be permanently strained and those only temporarily strained, the chief factors aiding in this connexion being the age of the patient, duration and kind of symptoms, and general development.

The proportions found were as follows:

TABLE II.—*"Strained" Hearts.*

	Soldiers.		Recruits.	
	No.	Percentage of Total Heart Cases.	No.	Percentage of Total Heart Cases.
Permanently strained hearts...	23	12.8	19	12 5
Temporarily strained hearts ...	30	13.8	4	2.7

It is interesting to find that, whilst the proportion of permanently strained hearts would appear to be the same in both cases, temporarily strained hearts occur five times as frequently amongst soldier cases as amongst recruit cases. This result is what one might expect, considering that soldiers are more subject to sudden and very severe strain, enforcing rest with ensuing probable recovery, whilst in civilian life strain is not usually so great, but is spread over a longer period and has permanent effects.

In Group 4 (cardiac neurosis), 14.7 per cent. are found in the case of soldiers and 17.9 per cent. in the case of recruits. An endeavour was made to establish an underlying cause for the cardiac neurosis, with the following result:

TABLE III.—*Causes of Cardiac Neurosis.*

Causes of Cardiac Neurosis.	Soldiers.	Recruits.
(*a*) Enlarged thyroid	6	10
(*b*) Tobacco heart	4	4
(*c*) Drug taking	*Nil*	3
(*d*) Underlying cause doubtful ...	22	10
Total	32	27

Whilst 6 per cent. of the cases come under Group 5 in recruits, only 2.7 per cent. are found in the soldier cases.

CONCLUSIONS.

In conclusion, it appears to me that classification of the various kinds of cardiac affection into groups similar to those which have been described, and provided it is carried out carefully and systematically, should prove of material value in several ways—for example: (*a*) In helping to form a decision as to what kind of treatment, if any, should be adopted in a particular case; (*b*) in forming an opinion as to what category of military utility any particular man should be classified.

THE medical practitioners of Boston, Massachusetts, have, in view of the high cost of living, agreed to double their consultation fees and to raise the fee for night calls.

HYPOCHLOROUS SOLUTION ELECTRICALLY PRODUCED FROM HYPERTONIC SALINE AS A DISINFECTANT FOR SEPTIC WOUNDS,

AND FOR THE THROAT IN DIPHTHERIA, SCARLET FEVER, ETC.

BY

J. M. BEATTIE, M.A., M.D.,

PROFESSOR OF BACTERIOLOGY, UNIVERSITY OF LIVERPOOL, MAJOR R.A.M.C.T., 1ST WESTERN GENERAL HOSPITAL;

F. C. LEWIS, F.C.S.,

ASSISTANT LECTURER IN BACTERIOLOGICAL METHODS, UNIVERSITY OF LIVERPOOL;

AND

G. W. GEE, L.R.C.P., D.P.H.,

ASSISTANT M.O.H. ST. HELENS.

IN 1911–12 one of us (F. C. L.), following the work done by other observers, carried out a number of experiments on the purification of water by the passage of an electric current after the introduction into the water of varying proportions of salt. He used an oblong watertight box in which were a series of graphite plates arranged in parallel.

Later this plan was used in the earlier experiments in the electrical treatment of milk, and in a report presented to the Health Committee of the City of Liverpool by another of us (J. M. B.) on August 16th, 1914, a photo-diagram of the electro-chemical cell used was given, and it was stated that though this electro-chemical sterilization gave a large measure of success with bacteria-containing fluids it was not suitable for milk. In view of the work recently recorded by Dakin, in the application of this well-established electrolytic process for the purposes of disinfection of hospital ships,[1] it is interesting to quote from the report above referred to that the apparatus used by Lewis

> consisted of a series of circular intercommunicating graphite-walled, watertight cells, through which the contaminated fluid passed.
>
> . . . The electricity was continuously applied by means of brass terminals screwed on to each graphite plate. This apparatus was used in a variety of ways; for example, all the plates were coupled in series or alternate plates were coupled in parallel with each other. The principle upon which the apparatus works is that when an electric current of suitable strength is passed through even a weak solution of salt, part of the salt is decomposed, as also is part of the water. As a result chemical reaction occurs and a body of high disinfecting value is produced. . . . Experiments with this type of apparatus showed that bacteria of all kinds could be rapidly and effectively destroyed.

These experiments, confirming previous work by various observers, showed that a fluid of high bactericidal properties could be produced by the electrolysis of salt water, and it was evident that the main chemical agents produced were hypochlorous acid and sodium hypochlorite.

Later a simpler apparatus, on the same principle, was erected in our laboratory in Liverpool for the disinfection of culture tubes, slides, etc.

A description of this apparatus was published by F. C. Lewis,[2] and in this paper the importance of the electrodes being a neutral material such as carbon was emphasized, as was also the simplicity and cheapness of the apparatus.

Since this paper was published much work has been done on the disinfectant action of the hypochlorites by Lorrain Smith, Dakin, and others, and an apparatus, almost identical in structure with the apparatus used by Lewis in his early experimental work, has been recommended for use in hospital ships—ordinary sea-water being substituted for the solution of common salt used by him. The results obtained by the use of this electrolyzed sea-water have confirmed the results of the previous work on the subject and of the experience gained in this laboratory after two years' use of the simple apparatus which Lewis described.

In his preliminary work Lewis used varying proportions up to 20 per cent. solution of common salt. When it was decided to try this disinfectant for the cleansing of wounds, the salt content of the original solution was reduced to 3 per cent. in the hope of obtaining a disinfectant action of the hypochlorous acid and the lymph-flow stimulation of hypertonic saline so strongly advocated by Sir Almroth Wright. The results obtained with the wounds were very

satisfactory, but in our earlier experiments the advantages over eusol and other antiseptics of this class did not appear of sufficient importance to justify us pressing forward this side of the work. More recently, however, some of our colleagues who have used our solution, particularly in very septic cases, where other antiseptics—even the ordinarily used hypochlorites—have failed, have got extremely good results. Thus, a case of very septic eczema of the foot, which had resisted various forms of treatment for months, cleared up completely in a few days. Captain Douglas-Crawford, F.R.C.S., has kindly given us the following details of a case under his charge:

CASE I.

Private T. B. had 3 in. of his left humerus removed in France and the ends wired about the middle of August, 1915. He was admitted into Highfield Military Hospital in December, 1915, the wound suppurating. It was practically healed by February 29th, 1916, and the wire was removed, but there was no attempt at union. On May 3rd, the wound having again healed, Captain Douglas-Crawford attempted to plate. The opening up had apparently freed again putrefactive bacteria which had been lying latent in the wound, and in two days there was a "stinking discharge," but no rise of temperature. The condition improved, but there was no attempt at union of the bone, and on August 26th, 1916, the plate was removed. Again there was a recurrence of the offensive odour, and on August 31st a swab from the wound showed an enormous number of putrefactive and other bacteria From September 2nd the electrically prepared hypochlorite was used daily. The bacterial content became rapidly reduced, the smell disappeared, and on October 2nd the patient was discharged, the wound being firmly healed and the fracture so united that he could use the whole arm without any fixed apparatus.

Captain Douglas-Crawford adds, "Certainly, the electrically prepared solution in this and in the other cases here seems to be infinitely superior to the ordinary hypochlorous solution."

The difficulty of getting rid of the meningococcus from the nasopharynx, emphasized in the report of the Special Advisory Committee on the bacteriological studies of cerebro-spinal fever during the epidemic of 1915, suggested the advisability of carrying out some experiments on throat disinfection with this hypochlorous solution. Though we have examined a considerable number of contacts from cases of cerebro-spinal meningitis, we have not found any suitable case for treatment, and therefore we now record our results in cases of diphtheria in the hope that those who come across meningococcus carriers may give the method a thorough trial. The method of treatment adopted was to spray the nasal passages and the throat with the solution every three hours, and, in cases in which the tonsils were badly affected, to get well into the crypts with a swab soaked in the solution. Our first trials were carried out on five selected cases, and the improvement was so manifest that it was decided to carry out the work on a more extended scale, and through the courtesy of a colleague we divided all the cases notified as diphtheria and admitted to his hospital during the months of April, May, and June, into two groups, A and B. Some of the worst cases were put into Group A for treatment with the hypochlorous solution. The cases in Group A numbered 52; of these, 24 were positive to bacteriological examination, and 28 were negative. All these were treated with the hypochlorous solution. In Group B there were 65 cases, and 35 of these were bacteriologically positive. These were taken as control cases and treated with the ordinary sprays, paints, etc.

TABLE I.—*Cases notified as Diphtheria treated with and without Hypochlorous Solution.*

	Group A. Hypochlorous Saline.	Group B. Control.
Total number of cases	52	65
Average time in hospital	15.3 days	18.8 days
Cases bacteriologically positive ...	24	35
*Deaths among these	2	5
Average time in hospital	16.4 days	23.2 days
Cases bacteriologically negative ...	28	30
Deaths among these	0	0
Average time in hospital	14.3 days	13.8 days

*These figures do not include deaths which occurred within forty-eight hours of admission.

From this table it is seen—

1. That if we take the cases that were proved positive by bacteriological examination on admission, those treated with the hypochlorous solution were in hospital 29.4 per cent. less time than those not so treated, and if we take the total of notified cases the time reduction amounted to 19.2 per cent.
2. That the ratio of fatal cases in those treated with the hypochlorous solution to the number of cases under examination was less.

We fully realize that the number of cases under observation is small, that the lessened death-rate may have no relation to the treatment, and that it would be unwise to express too definite an opinion on the superiority of the treatment from these cases alone, but we claim that had no special selection been made the period of detention in hospital for Group A cases would have been reduced still further. Even the reduction shown is very important from the financial point of view.

That there has been an actual reduction of the period of time in hospital is supported by a comparison with the statistics for the previous three months (January to March) when the ordinary sprays, etc., were used. These facts are shown in Table II.

TABLE II.

	January to March.	April to June.	
		Treated with Hypochlorous Solution.	Not Treated with Hypochlorous Solution.
Cases bacteriologically positive	63	24	35
Average time in hospital...	26.9 days	16.4 days	23.2 days
Cases bacteriologically negative	44	28	30
Average time in hospital...	14 days	14.3 days	13.8 days

This table shows that the average time in hospital for negative cases is practically the same in both periods, whether treated with hypochlorous solution or not, and, further, that in the positive cases the treated ones show a fall of from seven to ten days as compared with the untreated in April to June and January to March.

In regard to the severity of the cases in the two periods, we have considered this carefully, and from the clinical history, the number of deaths and the number of tracheotomy cases there seems to be a very close similarity in the two selected periods. This is shown in Table III.

TABLE III.—*Comparison of Severity of Cases.*

	January to March.	April to June.
Total cases in hospital	122	130
Total deaths	15	13
Deaths within two or three days ...	6	6
Tracheotomy cases	9	9

Our claim that the hypochlorous treatment is more effective than that ordinarily applied is also supported by the following cases:

CASE II.

Lieutenant C. was under the charge of Dr. Daley, M.O.H. for Bootle, to whom we are indebted for permission to publish the case, for six weeks. Various methods of treatment were tried, formalin and iodine sprays, nasal douching, and throat spraying with pyocyanase every two hours, but throughout the nasopharyngeal catarrh was constant and *B. diphtheriae* were found at every swabbing.

On the suggestion of one of us he was treated with the hypochlorous solution for three days. Twenty-four hours later a swab was taken and no *B. diphtheriae* were found. The treatment was resumed for twenty-four hours and a second swab taken the following day. *B. diphtheriae* were present, but the growth was scanty. A third and a fourth swab were taken at intervals of two days, and still an occasional colony of *B. diphtheriae* was found. The fifth swab, however, was negative; the sixth was also negative, and the man was soon after discharged completely free.

Thus a case which had lasted six weeks without any apparent improvement cleared up completely in less than a fortnight. The delay in final clearing was probably due to the organisms in the crypts of the tonsils not being attacked by the solution at first.

LIBRARY U. OF I. URBANA-CHAMPAIGN

CASE III.

This case is somewhat similar to that of Lieutenant C., and for permission to publish it we are indebted to Dr. Macmaster, M.O.H. for Crewe. The history is as follows: "On June 29th, the infant son of this man (a soldier) was notified as suffering from diphtheria, and as the father was home on a couple of days' leave I swabbed his throat as a precautionary measure before his returning to duty. This throat swab was found to be positive. As the man had been coming home at frequent intervals I concluded, from the type of organism present, he had infected his baby as he was evidently a chronic carrier. There is a history of repeated sore throats in his case, and his tonsils had been hypertrophied some time with large crypts. The man's general condition was very good indeed."

We received a swab from this case on July 21st, from which we isolated a true pathogenic *B. diphtheriae*. The pathogenicity was tested on a guinea-pig. Before this swab was taken the man had had "very active treatment with a dilute solution of iodine each day under his own doctor." After the recognition of *B. diphtheriae* at this time—that is, July 29th to 30th—the electrolytic hypochlorite solution was used night and morning for two days; after an interval of a day without treatment, a swab was taken. The swab showed a few *B. diphtheriae*, but there was undoubtedly a distinct lessening in numbers. Treatment was continued, and the swab taken on August 9th showed no *B. diphtheriae*.

On August 14th, however, a few *B. diphtheriae* were found, and this result was thought to be due to some of the organisms lying deeply in the crypts and hence escaping treatment. It was suggested that the crypts should be specially swabbed with the hypochlorite. Again, on August 21st and 28th, the swabs from the throat were both negative, and the man was discharged from hospital. The case is summarized as follows:

A very copious growth of *B. diphtheriae* was isolated on July 21st, and proved to be pathogenic. Iodine treatment was continued from July 20th to 26th, and on July 29th to 30th hypochlorite treatment was commenced. On August 3rd a swab showed a few *B. diphtheriae* and copious growth of staphylococci. On August 9th no *B. diphtheriae* were found, but a few colonies of staphylococci. On August 14th a few isolated *B. diphtheriae* were found amongst a growth of staphylococci. On August 21st, and again on August 28th, no *B. diphtheriae* were found, and there was a very feeble growth of staphylococci.

In this case the enlargements of the tonsils and the consequent depth of the crypts prevented a more rapid recovery, as there is evidence from this case, as well as from Case II, that the exposed bacteria are destroyed easily; we would suggest that it is necessary, in cases of infection of the tonsils, that swabbing of the large crypts should be combined with spraying.

CASE IV.

Another carrier case was dealt with, but as this man had had no previous treatment we can only record the results of treatment with the hypochlorous solution.

The father of a child admitted to hospital was found to be a carrier. *B. diphtheriae* were found in his throat on June 24th and they were still present on July 3rd. Hypochlorous treatment was started. Swabs were taken on July 5th and *B. diphtheriae* were absent. Again, on July 6th, the swabs were negative, though no treatment had meanwhile been carried out.

CASE V.

A child of 8 years had a chronic discharge from the ear. The history was indefinite, but the mother said the discharge had been going on always since birth. The organism isolated was *B. diphtheriae* type, though probably not a true *B. diphtheriae*. Examinations were made on May 10th, 15th, 25th, and 31st, and on June 6th, and the organism was found on every occasion. The hypochlorous treatment was commenced on June 12th, and swabs taken remained positive till June 15th. The condition showed great improvement; the discharge ceased and swabs taken on June 19th, 21st, and 29th in the ear were negative.

The solution has been used in cases of septic throat and in scarlet fever with very encouraging results. Dr. Daley writes:

> We are using the hypochlorous acid solution at the Corporation Hospital for all diphtheria cases, for septic scarlatiniform throats, and for rhinorrhoea and otorrhoea. Since we began to use it we have not had a single case in which the Klebs-Loeffler bacilli have persisted beyond ten to fourteen days after admission. It used to be quite common for a case otherwise quite recovered to have to stay in hospital solely because the diphtheria bacilli persisted in the throat. That never occurs now, the nose and throat being always clear before the general condition has sufficiently recovered to enable a patient to be discharged.
>
> The scarlet fever throats also appear to have improved clinically quicker than formerly, but accurate observation on this point, owing to the absence of a bacteriological test, is not easy.

In using any antiseptic in the mouth, it is always important to determine whether any harmful effect is produced, especially on the teeth; we have tested the action of the hypochlorous solution on both temporary and permanent teeth, and on the various fillings which are used by dentists. No injurious effect could be made out on the teeth, or on any of the fillings except amalgam, on which distinct chemical action was seen after exposure in the solution for some hours, but when the amalgam was sprayed and then washed, or even simply bathed for a few seconds in saliva, no more effect was seen than is apparent from the ordinary mouth wash.*

Disinfectant Action of the Fluid.

TABLE IV.—*Comparison of the Relative Bactericidal Effect of the Hypochlorous Solution and other Common Fluids used in Throat Disinfection.*

	Time of Exposure in Minutes.									
	1	2	3	4	5	6	7	8	9	10
Hypochlorous solution ...	−	−	−	−	−	−	−	−	−	−
Iodine solution	+	+	+	+	+	+	+	+	+	+
Formalin and glycerine solution	+	+	+	+	+	+	+	+	+	+
1 per cent. carbolic acid ...	+	+	+	+	+	+	+	+	+	+
5 per cent. carbolic acid ...	−	−	−	−	−	−	−	−	−	−

The method used in this experiment consisted in adding five drops of a twenty-four hour broth culture of *Staphylococcus aureus* to twenty-five drops of the fluid under observation. Subcultures to test the effect of the fluid were made in broth and on agar tubes and the results noted after incubation for forty-eight hours.

Further Experiments.

1. Ten c.cm. of the hypochlorous solution rendered opaque with *B. coli* was sterile within fifteen minutes.
2. Ten c.cm. of the hypochlorous solution rendered opaque with a mixture of sporing organisms was sterile within one hour, and showed only a feeble growth in thirty minutes.
3. A putrid emulsion was taken, and varying volumes of hypochlorous solution added as follows:

Volume of Emulsion.	Volume of Hypochlorous Solution.	Result in Thirty Minutes.
1	1	Growth.
1	2	Growth.
1	4	Growth.
1	8	Growth.
1	10	Feeble growth.
1	20	No growth.
1	50	No growth.
1	100	No growth.

The Apparatus.

For ordinary use an open glass vessel, such as a museum jar, is three-quarters filled with 3 per cent. sodium chloride. Carbon (graphite) electrodes are inserted and connected to the source of electric power, the current previously passing through a resistance. In the original publication[2] stress was laid upon the fact that the current was that used in ordinary microscope illumination, and that this was sufficient to produce a powerful disinfectant, and further, that the current need not be used continuously, but only when required for the use of the microscope. This method is undoubtedly valuable for ordinary laboratory purposes, and there is no reason why a part of the ordinary lighting current of a hospital should not be used in the same way, and the disinfectant produced only during the hours when electric light is in use; the cost of production would thus be practically *nil*. The voltage required to drive the current through the saline is very low, and consequently the effect on the candle power of the illumination is practicably negligible.

On the other hand, if really large quantities of the fluid are required continuously, a low voltage dynamo of high electrical output could be usefully employed. Such an apparatus is very economical, and would of course be used independently of the lighting circuit.

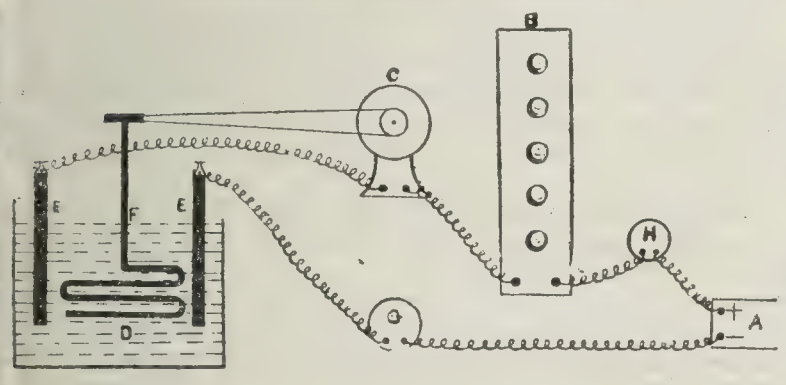
* We are indebted to Mr. W. H. Gilmour, L.D.S., Director of Dental Education in Liverpool, not only for supplying us with the teeth and with the fillings, but also for the examination of these after exposure.

A device for stirring the fluid during the progress of manufacture is advisable, but not absolutely necessary if only small quantities are required.

In all our work we have used the ordinary lighting current of the laboratory, and during the process of electrolysis the fluid has been stirred by a revolving glass rod, bent into a series of right angles, driven by a 2-volt motor.

We have tried the plan of placing the negative electrode below the positive electrode, and allowing the electricity to operate through a cylinder of saline, but this method is in our experience not so acceptable in practice as that in which the stirrer is used.

Diagram illustrating the Apparatus.



Description of Diagram.

A, The main electrical supply. B, The lighting circuit or lamp. C, Motor for driving the stirrer F. D, Vessel containing saline. E, Electrodes. G, Ammeter. H, Switch.

A siphon for drawing off the finished fluid and a reservoir of saline may be used in order to facilitate a continuous supply.

Notes.—1. If the amount of current required to be used in the cell be greater than that necessary to drive the small motor C, the latter may be conveniently driven by an accumulator. 2. If the lighting current is used, as apart from the use of a few lamps, or in any case if a high power installation is used, double pole switches and cut-outs, etc., would be necessary. Considerations such as these, however, properly belong to the domain of the electrical engineer, and it would be superfluous for us to attempt to enter into details.

We find the following measurements are suitable for use:

Volume of fluid	2,000 c.cm. (3½ pints)
Height of vessel...	6 inches
Diameter of vessel	7 inches
Electricity	1 ampère
Voltage across cell	4½ volts
Revolutions of stirrer	60 to 80 per minute
Time	1½ hours

From this it follows that the amount of fluid manufactured in a given time varies directly with the amount of current used. By using the fluid in the form of a spray for throat, nose, and nasopharynx, the actual quantity used is small.*

It has been suggested that ammonium hypochlorite is a more powerful disinfectant than sodium hypochlorite, but we have not confirmed this statement, at least as regards the electrolysis of a solution of ammonium chloride.

TABLE V.—*Comparison of Ammonium and Sodium Hypochlorite. Test Organism: Staphylococcus aureus.*

Electrolysis of NaCl.	Time of Exposure in Minutes.						
	2½	5	7½	10	12½	15	17½
Ordinary strength	—	—	—	—	—	—	—
Diluted 1 in 5	—	—	—	—	—	—	—
Diluted 1 in 10	—	—	—	—	—	—	—
Electrolysis of NH_4Cl.							
Ordinary strength	—	—	—	—	—	—	—
Diluted 1 in 5	+	+	+	+	—	—	—
Diluted 1 in 10	+	+	+	+	+	+	—

— No growth. + Definite growth.

Electrolyzed solutions of ammonium chloride are not as acceptable as the sodium hypochlorite owing to the more pleasant taste of the latter, and the above experiment would show that the ammonium hypochlorite solution is less advantageous from the bactericidal point of view. Some experiments have been made with magnesium sulphate and sodium sulphate added to the finished sodium hypochlorite solution, but these experiments are not sufficiently complete for publication. It is intended, however, to extend this work, and arrangements have been made accordingly.

*Since the above was written 47 further throat cases have been under treatment. Ten of these were very severe and died within a few days of admission. Of the remaining 37, 18 were bacteriologically positive to *B. diphtheriae*, and remained in hospital for an average of 7·9 days, and 19 were negative bacteriologically, and remained in hospital for an average of 15.2 days. These later results bear out our previous work (Table II).

Conclusions.

1. That the bactericidal action of this hypochlorous solution is high, and that it has the advantage over the ordinarily used antiseptics in that it does not coagulate albuminous material, and thus form a protecting coagulum.
2. It has a slight stimulant action but is non-irritating.
3. The lymph flow in the wound is encouraged by the hypertonic solution which is used for the production of the hypochlorite.
4. Surface bacteria on septic foci seem to be destroyed almost immediately, and the stimulant action on the lymph flow tends to wash to the surface the more deeply situated organisms. (This lymph increase is very evident in the wounds treated with this solution.)
5. The solution can be produced very simply, and at comparatively small cost.
6. Though the solution will keep, if the bottles are full and properly stoppered, for a considerable period, yet it is an advantage to use freshly prepared material, and the apparatus such as we have described can be installed at any hospital or institution, and a supply of the solution produced at a very small cost.
7. Where large quantities are required, a small dynamo can be used. The cost of such an installation, which can be arranged by any electrician, would be comparatively small, and the cost of production of the disinfectant very little. An installation in each hospital would be a great advantage so that a sufficient supply of the freshly prepared disinfectant in its most efficient condition would be always available.

References.

[1] *Journal of the Royal Army Medical Corps*, vol. xxvi, p. 209.
[2] *Journal of Hygiene*, vol. xiv, No. 1, April 27th, 1914.

AUTO-DISINFECTION OF WOUNDS BY THE USE OF ETHER SOLUTION.

BY

A. DISTASO, D.Sc.,

AND

T. R. BOWEN, CAPTAIN R.A.M.C.(T.),

3RD WESTERN GENERAL HOSPITAL, CARDIFF.

THE treatment of infected wounds by aiming at a process of sterilization either by the use of disinfectants or vaccines is not, in general, regarded as yielding satisfactory results. An alternative line of treatment can be pursued based on the known bactericidal property of fresh young tissues, as was demonstrated long ago by Maffucci[1] in the case of the embryonal tissues of chicken and the tubercle bacillus.

Our aim has been to create, by "quickening" the process of regeneration, such embryonic tissues in wounds. It occurs at once to a person trained in biology to apply to the treatment of wounds facts brought to light in experimental parthenogenesis, a wonderful chapter of biology in which chemical and mechanical stimuli are employed to replace those of the spermatozoon.

With this end in view, ether was selected on account of its marked stimulating power. Its action as a general anaesthetic we have interpreted as being due to its stimulating power on the cell metabolism giving rise to catabolic products, thereby inducing sleep, and therefore similar in effect to fatigue. This view is supported by the well-known fact that, if ether or chloroform is added to blood serum, the amount of free dextrose present is considerably increased.

It was thought probable that ether in undiluted strength would follow the general law of the cellular poisons, exercising a deleterious effect on cells and microbes alike. In order to verify this point, the "ether damp" was employed in a few cases. This method consisted in

LIBRARY OF THE URBANA-CHAMPAIGN

moistening a single layer of gauze spread over the wound with ether twice daily and covering it immediately with a pad of thick cotton-wool. The result was disappointing, as, save for an irritative action on the surrounding skin, the wounds showed no improvement in three days. The cause of the failure was probably twofold. First, as stated above, the ether in concentration follows the law of the disinfectants, and secondly, its cooling action may be inhibitory to the activity of the cells.

It was next proved that, following again the general law of the action of disinfectants, a weak dilution of ether would suffice for the exercise of a stimulating action, and a series of cases were treated by irrigation with a 2 per cent. solution. It is important to add that 2 per cent. ether solution has not proved inimical to the growth of microbes. On the contrary, tubes of microbes exposed to ether of this strength showed an abundant growth as compared with the growth in the control tubes.

The method of irrigation was chosen for its mechanical action in removing necrotic tissues or "corrupted lymph." The presence of this tissue in a wound markedly retards the process of healing, because it serves as a rich pabulum for the growth of the microbes, as already shown by Sir Almroth Wright.[2] This view is supported by the following experiments:

Pieces of normal intestine were placed in test tubes containing broth and incubated for six months under anaërobic conditions to allow the anaërobic putrefactive microbes to thrive. The pieces of intestine were found to be quite intact and an abundant growth of the putrefactive microbes was observed.

Similar experiments were made, but with the addition of pieces of sterilized intestine. After a short time the sterilized pieces of intestine had disappeared.

The difference in the fate of the intestine in the two experiments is explained by the fact that the microbes have the power to dissolve the coagulated albumin, but not the native one, and it is evident that the necrotic tissues in the wounds are in a similar state to the coagulated albumin in the experiment. This experiment also demonstrates the power of fresh tissues to resist the attack of the most powerful putrefactive organisms.

The following illustrative cases were irrigated with a 2 per cent. ether solution in lukewarm tap-water, using about two litres once daily. The apparatus used was similar to Lane's apparatus for subcutaneous infusion.

CASES I AND II.

Two large superficial wounds of the left flank, with good drainage and moderate sepsis, which had been treated for a week with antiseptics, were irrigated with the ether solution. In twelve hours the appearance of the wound was in striking contrast to that seen before the use of ether irrigation. The granulations were at least twice their previous size, and bled freely. In three days the wound was filled in with granulations, and pus was not visible. Coincident with the quickening of the regenerative process in the wound the epithelium also showed marked activity, and rapidly covered over the bare area. The treatment was completed in twelve days.

CASE III.

A septic wound of the chest wall and the pectoral muscles contained many small pieces of metal. These were removed and the cavity laid open. After irrigation for four days granulations had filled the wound and new epithelium had spread inwards for half an inch. The wound was healed in fourteen days.

CASE IV.

A deep wound of the lower third of the thigh, exposing the muscles and tendon on the outer side of the wound, the tendon being quite bare. Treatment with eusol had been carried on for one week without any change, the tendon being still bare. After ether irrigation for four days granulations had covered over the tendon and no pus was visible. This deep wound was completely healed in twenty days.

CASE V.

A case of tuberculosis of the kidney. The kidney was removed. The wound completely broke down, the patient's general condition being very poor. Later, a further operation was performed from the front for removal of the ureter, which was also affected. This wound also broke down in two places, superficially. In spite of treatment with antiseptics the very deep loin wound showed no sign of granulation. Granulations were distinctly visible after ether irrigation for a week, and the wound has steadily filled up during six weeks' irrigation. Meanwhile, the small superficial sinuses in front, treated with iodine and used as a control, have as yet shown no sign of granulation formation. An important feature to be noted in this case is the absence of bleeding from the granulation tissue, whereas in other wounds rapidly reacting to ether, bleeding has always been very noticeable.

CASE VI.

A large abscess cavity of the thigh, from which 10 oz. of pus was evacuated, was drained, and ether irrigation commenced two days after evacuation. After the first irrigation the discharge ceased to be purulent, the walls oozing blood freely. On the third day there was scarcely any discharge, and the cavity was freely and rapidly filling with granulation tissue.

CASE VII.

A gaping septic wound at the shoulder with compound comminuted fracture of the humerus. Ether irrigation daily for seven days resulted in rapid closing in of the edges of the wound, and the stimulating effect on the epithelium was well seen, but the amount of pus was not sensibly reduced. An operation was performed for removal of sequestra, which were well separated after three weeks. This, followed by renewal of irrigation, resulted in complete healing of a very "difficult" wound in five weeks.

CASE VIII.

A case of compound fracture of tibia and fibula, with marked sepsis and poor drainage, was treated with ether irrigation, and in six days granulation tissue was abundant in a large cavity involving at least one-third of the leg. The large size of the firm granulations was well demonstrated in this wound. Pus was not visible after nine days' irrigation, and the surface oozed blood freely.

The response to the ether irrigation in these cases in comparison with irrigation by disinfectants was extremely marked. The effect is best seen in a favourable case, such as a large superficial wound, the very early appearance of large firm granulations and bleeding being quite striking, and also the rapid inward spread of new epithelium.

In order to ascertain whether the observed reaction was due to the mechanical factor or not—as is also the case in parthenogenesis, where Bataillon was able to set up division of the unfecundated eggs of the frog by pricking the poles thereof—we made use of the ether bath. The wound was immersed in a 2 per cent. mixture as used in irrigation for twenty minutes once a day. The following cases illustrate the result of this method.

CASE IX.

Compound fracture of the upper third of the left forearm, the wound being covered with a firmly adherent slough. The bath was used for twenty minutes once daily. On the second day the slough had separated, and the exposed new surface showed free, firm, and bleeding granulation tissue. In one week no pus was visible.

CASE X.

A very heavily infected wound of the right forearm, not involving the bones but containing a piece of metal and some cloth, which were removed. In two days the granulations were obvious, and the thick foul pus present before operation and treatment had practically disappeared, and the wound was healed in twelve days.

CASE XI.

A superficial wound of the left forearm, exposing a large bare area of muscle and covered with pus, was found free from pus and covered with very large firm and oozing granulations on the third day, and after nine days the epithelium had grown inwards and reduced it to one-third its original size. It was healed in fourteen days.

The immersion method, in our opinion, is even more efficient than irrigation. We are therefore obliged to exclude the theory that the simple mechanical action of the irrigation may set up regeneration of the tissues, and it is evident that the stimulus applied is the cause of the rapid growth of granulation tissue and the forced healing of the wounds.

In order to acquaint ourselves with the process of healing in these wounds, sections of the granulations grown during the treatment were made. From them we learnt that regeneration of the tissues takes place normally. It is, however, to be noted that the number of polymorphonuclear leucocytes present was very small, but lymphocytes were present in fair numbers. The most striking feature was the marked production of fibroblasts. The new blood vessels were very richly distributed, and quickly formed in the deep layers. The upper layers showed fibroblasts which were in the stage of forming vessels. On staining the sections by Gram's method and fuchsin we failed to see microbes of any kind. The total absence of fibrin (Weigert-Gram method) was another striking feature in the sections.

The above observations prove, in our opinion, that the leucocyte defensive property is not to be taken into consideration, the facts which emerge clearly from a study of the sections being the great vascularization of the regenerated tissues and the marked abundance of the contained blood corpuscles, together with the presence of

an enormous quantity of fresh young fibroblasts and the entire absence of fibrin.

We are conscious of the fact that, in common with all observations on the human subject, these notes lack a wide scientific basis, being without the necessary control. None the less, in the cases studied two constant phenomena were observed—namely, the very early and striking appearance of large firm granulations (often in six hours), and the early bleeding of the surface of the wound.

This latter point led us to introduce a slight modification in cases now under treatment, which has served to shed some light on the part played by ether in the healing of the wounds. The wounds are firmly swabbed when dressed, especially those with cavities or deficient drainage. This procedure, while removing the pus, is undoubtedly instrumental in hastening healing by encouraging further oozing of blood from the granulation tissue.

In this connexion it is interesting to note that in Case v, where the healing process was comparatively slow, the granulation tissue did not bleed readily, and is in striking contrast to the other freely oozing and rapidly healing wounds cited. The induction of bleeding by scarification of the wound surface in this case immediately resulted in a quicker and firmer growth of new tissue. Indeed, without undervaluing the bactericidal power of young, fresh tissue, we are forced to think also of the bactericidal action of the blood in these cases, the function of the ether being to stimulate the growth of the tissues without clotting the fibrin, and providing thus the newly-formed tissue with free and constant lavage with blood. This we consider a logical conclusion from the foregoing observations, despite its conflict with current opinion in this matter.

Moreover, the ether method has given definite curative results where other methods had been disappointing—as, for example, in Cases IV and V. It has proved also its ability to quicken the healing of wounds to a striking degree, and the treatment of a case is completed in about half the time taken before its introduction into our practice.

It can, therefore, be fairly deduced that the discharge of patients from hospital is materially accelerated by the use of the ether method, on account of its comparatively rapid healing power.

REFERENCES.
[1] *Rivista critica di Clinica Medica*, 1900, No. 12. [2] *Lancet*, October 30th, 1915.

THE RELATION OF THE TYPE OF COCCUS TO THE TYPE OF DISEASE IN MENINGOCOCCAL MENINGITIS.

BY

ALEX. MILLS KENNEDY, M.D.GLASG.,
TEMPORARY CAPTAIN R.A.M.C.,
BACTERIOLOGIST TO THE ROYAL HERBERT HOSPITAL, WOOLWICH;
AND
C. C. WORSTER-DROUGHT, M.B.CANTAB.,
TEMPORARY CAPTAIN R A.M.C.,
OFFICER-IN-CHARGE CEREBRO-SPINAL FEVER WARD, ROYAL HERBERT HOSPITAL.

FOR some time evidence has been accumulating that in the species of organisms known as the meningococcus there are a number of races which can be differentiated by their immunological reactions.

By the method of "absorption of agglutinins" Gordon, working in the Central Cerebro-spinal Laboratory, has been able to differentiate the meningococcus into four strains based upon their immunological characters. Using the four strains isolated, he has prepared four immune serums from young rabbits, which can be used for the differential diagnosis of the type of meningococcus by macroscopic agglutination methods. For over a year we have been using such serums, kindly supplied to us by Colonel Gordon, for the differentiation and diagnosis of meningococci isolated from cases of cerebro-spinal fever or "carriers."

It occurred to us that there might be some difference in the virulence or pathogenic reactions of the four types of the coccus in so far as the resulting disease is concerned, and the present paper is an endeavour to correlate the type of coccus to the type of disease.

Our observations are based upon a study of twenty-three cases of cerebro-spinal fever. In all except four the organism was cultivated from the cerebro-spinal fluid; in three of these the coccus was seen on direct examination of the fluid, although it failed to grow on culture; in each, however, a culture of the meningococcus was obtained from nasopharyngeal swabs and the type of the organism so determined; in the fourth, an abortive case, the organism was obtained from the nasopharynx, but the cerebro-spinal fluid was clear and no organisms were found on direct examination or culture.

Type I Coccus.

This type of meningococcus was found in eight cases. Without exception all were extremely severe, six proving fatal. Of these, one was fulminating, and the patient died within thirty-six hours of the onset of illness. Two were of a progressively purulent nature—that is, the meningeal exudate became daily thicker and more purulent, and both died on the ninth day of the disease. Two were acute types, and died, apparently of toxaemia, on the fourth and eighth day respectively. The last fatal case was a man, aged 60, who did not come under treatment until the third day. Although severely ill, he progressed favourably as regards the meningitis, when, on the eighth day, pneumonia of the right lower lobe unfortunately supervened. Notwithstanding the fact that by this time no meningococci could be found in the slightly turbid cerebro-spinal fluid, the lung condition apparently permitted an exacerbation of the meningitis, for organisms reappeared in the fluid on the eleventh day. The patient died on the fourteenth day of the disease, although the pneumonic condition had practically disappeared.

Of the two cases which recovered, both were severe, but came under treatment on the second day of illness. One of these ran a prolonged course of thirty-eight days before final recovery; the other was acutely ill, but ran a course of ten days only.

All the cases in this group were admitted to hospital in a delirious or unconscious condition. In five the onset was sudden and abrupt; two had had a "cold" and "sore throat" for about a week, but the actual onset of meningeal symptoms was sudden. In the remaining case the onset was more gradual.

Type II Coccus.

Eight cases were found infected with this type of meningococcus. All recovered. None were fulminating, three were severe, four moderate, and one abortive. Of the severe cases one ran a course of eighty days, another of twenty-eight days, and a third of twenty-four days. The moderate cases had all a course of seven to ten days only. The abortive case was that of a man who was found to be carrying this type of meningococcus in his nasopharynx on April 28th, 1916. On May 4th severe headache set in, pain in the back of the neck developed, and he vomited. The patient had pyrexia and slight cervical rigidity, but there was only a tendency to Kernig's sign. Lumbar puncture gave a clear fluid under slight pressure. Within four days of the onset the temperature had returned to normal, and the patient was fairly well.

Type III Coccus.

Six cases due to this type occurred; they fall into two distinct divisions. The first includes two occurring early in 1916, the second division four appearing at the end of the year.

The two in the first division were both very severe and proved fatal after prolonged courses, in one case thirty-one days and in the other fifty-four days; towards the end of the course in each case gradually diminishing quantities of fluid were obtained on lumbar puncture and occasionally none. Coincident with this, signs of hydrocephalus appeared—progressive emaciation, continuous headache, tremulousness, and mental torpor.

The four in the second division were of moderate severity only, all excepting one recovering. The fatal case did not come under our care until the fourth day of the disease, the nature of the case not being recognized till then. The symptoms at first were subacute, as in the other three, and it was only when he became unconscious

LIBRARY U. OF I. URBANA-CHAMPAIGN

that the true condition was suspected and he was transferred to us for treatment. He died on the seventh day of the disease. The remaining three, coming under treatment on the second day, ran comparatively short courses of seven to fourteen days.

Type IV Coccus.

No case in which this type of coccus was obtained was met with. One case occurring early in the year, before an agglutinating serum for Type IV coccus was obtained, was found to be due to a meningococcus inagglutinable by any of the first three type serums. The patient recovered after a moderate course of thirty-two days, in spite of pneumonia complicating the disease.

In all the above cases allowance must be made for the influence of treatment. Early treatment is of paramount importance. In the only two cases of Type I which recovered, treatment was in each case commenced on the second day. The only recent case of Type III which proved fatal was not treated until the fourth day of the disease. The treatment adopted in the majority of the cases consisted of repeated lumbar puncture, with daily intrathecal administration of serum in the earlier stages, and continued vaccine, as described elsewhere.[1]

Lister Institute serum was employed throughout.

REFERENCE.

[1] BRITISH MEDICAL JOURNAL, November 18th, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PREVENTION OF CEREBRO-SPINAL FEVER.

IN view of the prevalence of cerebro-spinal fever on transports from overseas, and also in large military camps, it may be of practical interest to explain the measures which have been successfully employed to check the disease amongst New Zealand reinforcements.

For a period of fifteen months prior to October 1st, 1916, the disease was prevalent in military camps in New Zealand, and cases frequently occurred on the transports, some of a rapid and fulminating type. As the measures adopted in New Zealand failed to control the disease, I had a consultation at the Central Cerebro-spinal Fever Laboratory, London, with Colonels Gordon and Reece, and it was decided to communicate by cablegram the following measures, which were adopted, and are still in force.

All troops before embarkation have the nasopharynx swabbed and examined bacteriologically, only negative cases being allowed to proceed. The rejects and contacts are treated by a steam apparatus similar to that described in a recent article in the BRITISH MEDICAL JOURNAL by Colonel Gordon and Captain Flack. By this method a disinfectant solution is sprayed into the air of a room of 700 cub. ft. capacity, the steam atomizing from a vessel containing 1 per cent. solution of zinc sulphate, of which 1 litre suffices for twenty minutes. Eight carriers are treated for five minutes in the prone position, inhaling the misty air freely through the nose; this temporarily destroys the meningococcus in the nasopharynx. The inhalations are repeated daily for three, four, or five days until the results of the swab examinations are negative. Inhalation rooms are fitted up at the military camps, and also on all transports proceeding to England.

This method has now been employed for six months with most gratifying results. During that period not a single case of cerebro-spinal fever has developed on a transport, and I am notified that the disease is now under control in New Zealand. The success, no doubt, depends upon the thoroughness of the measures adopted, but it seems sufficiently encouraging to justify a wider application of the method, both on transports and in large camps.

W. H. PARKES, Colonel,
D.D.M.S., N.Z. Expeditionary Force.

London, W.C.

CEREBRO-SPINAL FEVER.

THE cases admitted, including 14 military, to the Alexandra Cerebro-spinal Fever Hospital, Wigmore, Kent, from July, 1915, to December, 1916, numbered 51 (14 female and 37 male). Of these, 3 were moribund, and died within a few hours. Excluding these, the deaths numbered 14, giving a death-rate of 28 per cent.

	Cases.	Death-rate.
1–5 years	8 ...	25 per cent.
5–10 ,, ...	6 ...	50 ,,
10–15 ,, ...	9 ...	12 ,,
15–20 ,, ...	8 ...	37 ,,
20–25 ,, ...	5 ...	*Nil.*
Over 25 years	15 ...	35 per cent.

The oldest patient was 64 years old.

The average day of disease on admission was the sixth.

Twenty-two cases showed no rash; 29 showed one or more types of rashes, as follows:

Herpes...	10
Petechia	15
Purpura	6
Erythema	3
Macules	1

Pressure erythema was always present. The number of lumbar punctures made was 234, and 189 doses of Mulford or Lister Institute serum were given intraspinally. During the last three months a small dose of serum was also given subcutaneously on admission. A serum rash developed in 77 per cent. of cases which survived the tenth day. The average date of its appearance was on the tenth day after the first dose of serum.

The following complications were seen:

Many cases of bronchitis and bronchopneumonia.
1 case of temporary insanity.
6 cases of arthritis.
4 cases of chronic hydrocephalus.
1 case of severe neuritis.
1 case of complete paralysis of the eye.
1 case of parotitis.
1 psoas abscess.

Polyuria was a very common early symptom.

RICHARD C. C. CLAY, M.R.C.S., L.R.C.P.

Fovant, near Salisbury.

SUBCUTANEOUS EMPHYSEMA DURING LABOUR.

THE following case, similar to that recorded by Dr. Murray (January 6th, p. 14), and the only one I have so far seen, occurred at the Mission of Hope Maternity Hospital in May, 1915.

B. F., a primipara, aged 22, was examined after admission on April 21st. She was a normal healthy woman, showing no signs of disease of heart or lungs. She had good pelvic measurements. There was some oedema of the ankles, but her urine was normal. Labour commenced on May 6th, and lasted seventeen hours, of which the first stage occupied fourteen. About an hour before the baby (male) was born she felt something go "pop," and swelling of the right eyelids was noticed.

I saw her after the birth; she complained of slight substernal uneasiness, but otherwise felt quite well. The typical crackling was felt all over the face except the forehead and chin, and over the neck and anterior chest wall down to the level of the breasts, over the whole of the back on the right side as low as the margins of the ribs, and on the left side down to the angle of the scapula. On percussion no superficial cardiac dullness was present, and the note at the right apex was "boxy" in character. The breath sounds were quite normal. The baby weighed 9½ lb.

From the physical signs it appeared that the seat of rupture was in the neighbourhood of the right apex with the pleura adherent. The temperature fell from 100.4° F. to normal within twelve hours, and the subcutaneous crackling had disappeared in five days. It is not unusual to get a short rise of temperature after a moderately stiff confinement, as this was, though the emphysema may have been a contributory cause in this instance.

London, S.W. GEORGE MILNE, M.D., D.P.H.

THE executive of the German Medical Association has adopted a resolution demanding that after the war students prematurely qualified to practise medicine should be given an opportunity to continue their studies. A three months' course should be given at large centres and universities where adequate facilities for teaching exist. The teachers should be paid, but the instruction should be free to the pupils, as it is to the interest of the public that these imperfectly qualified practitioners should take advantage of this opportunity to supplement their studies. It is suggested that scholarships should be offered, and that those attending the course should not be allowed to practise medicine during its continuance.

Reports of Societies.

THE CHANGES IN THE CENTRAL NERVOUS SYSTEM IN HYPOTHYROIDISM.

AT a meeting of the Pathological Section of the Royal Society of Medicine on February 13th, when the President, Dr. F. W. ANDREWES, F.R.S., was in the chair, Dr. F. W. MOTT, F.R.S., recalled that he had published two communications in the *Proceedings* of the Psychiatric Section of the society on the changes in the central nervous system in hypothyroidism. The nervous symptoms in myxoedema pointed to a condition of exhaustion of nervous energy, which could be remedied by the administration of thyroid gland; consequently *a priori*, upon the assumption that the basophil substance of the nerve cell was a source of nervous energy, we should expect to find what he had now actually found to exist in seven cases, namely, a marked chromatolysis, which in sections of the brain and spinal cord was revealed by the partial or complete disappearance of the Nissl granules throughout the central nervous system. A very advanced case of hypothyroidism had been admitted to Claybury Asylum since the former publications; the patient showed well marked signs of myxoedema and very marked mental symptoms. Dr. Mott briefly related the summary of the clinical facts and pathological findings in the six previously recorded cases. He called attention to a valuable paper by Dr. Kojima on the ductless glands in 110 cases of insanity. This work had been done in Dr. Mott's laboratory, and published in the *Proceedings* of the Psychiatric Section of the Royal Society of Medicine (vol. viii). Dr. Mott then stated his conclusions regarding a correlation of hypothyroidism and changes in the central nervous system. There was, he said, a universal chromatolytic change in the cells of the central nervous system, sparing no system or group of systems of neurones entirely. The changes had been especially noted in the smaller cells of the autonomic nuclei—for example, the vagus and glosso-pharyngeal. The cells of the olivary body showed much less change and the Purkinje cells of the cerebellum less chromatolysis than the large motor cells of the medulla oblongata, spinal cord, and Betz cells of the cortex, and there was no increase of neuroglia. All the asylum cases, especially four of the five, showed marked chromatolysis of the cortical cells. The case that showed the least degree of mental confusion and other signs of insanity exhibited the least change in the cortical cells. He exhibited lantern slides showing very marked changes, and the mental symptoms in this case were most pronounced. Unfortunately, the notes did not permit correlation of the changes in the bulb, in these asylum cases, with the symptoms indicative of affection of the autonomic nuclei, as was possible in the hospital cases. But he had come to the conclusion that there was a type of insanity in women about the climacteric, in which a manic-depressive condition, associated with mental confusion, hallucinations, delusions—mainly of persecution—loss of memory of recent events, slowness of thought and utterance, and terminating in dementia, might arise as a result of a particular form of hypothyroidism. This hypothyroidism was characterized (1) by an atrophy of the glandular structure of the thyroid, interstitial fibrous hyperplasia, and abundant infiltration of the same with lymphocytes; a condition of chronic inflammation arising from a toxic condition, probably local in its source, as Kojima had shown; the adjacent parathyroids did not exhibit this change. (2) By an increase in weight of the pituitary gland, as a rule, but not always; nevertheless there was, as was shown by Boyce and Beadles long ago, and later by Herring in experimental hypothyroidism, an increase of the *pars intermedia*. Herring had also shown that the cells of this structure invaded the *pars nervosa*, and this had occurred in the case under consideration. All five cases of hypothyroidism in which the pituitary was examined showed an excess of colloid in the *pars intermedia*. As a control, it might be stated that the characteristic perinuclear chromatolysis of the nerve cells found in these cases was not discovered in two cases of simple atrophy of the thyroid gland. Examination of the thyroid gland in these two cases showed still normal colloid vesicles, and although there was an increase of fibrous tissue there was no lymphocytic infiltration indicative of a local toxic inflammation, neither was there any increase of the *pars intermedia* or colloid material observed by Dr. Kojima. It had always to be considered, of course, how far the atrophy of a gland, and failure of its function, might act in upsetting the biochemical balance existing between the secretions of all the ductless glands and the sexual glands. In the five asylum cases in which the suprarenal glands were examined a deficiency of lipoid in the cortex was observed, but it would be unscientific to correlate this condition certainly with the thyroid atrophy, for the patients had died usually of some acute infective disease, and Elliot had shown that the lipoid was diminished in cases of death from infective disease. Still it was suggestive. Dr. Kojima, in his exhaustive examination of all the ductless glands in three cases, came to the conclusion that he could exclude the probability that changes in any other ductless glands than the thyroid could be responsible for the nervous and mental symptoms, and the histological changes in the central nervous system. It was suggestive, however, that the ovaries were affected in three cases. "It may be remarked that these were the cases in which there was not merely a glandular atrophy, but there was also a marked chronic inflammatory interstitial change." Dr. Mott concluded by stating that in the case now recorded the ovaries were extraordinarily large, with an enormous number of corpora albicantia, but healthy Graafian follicles were present. In all these cases the blood and cerebro-spinal fluid gave a negative Wassermann reaction. The following are the notes of the particular case referred to in the present communication.

A CASE OF MYXOEDEMA.

A woman, aged 38. Admitted to Claybury Asylum on March 23rd, 1916, with no history of previous illness or treatment. The medical certificate stated: "She is continually shouting and screaming out that she is falling."

Physical Examination.

Bruises were found on forearms and legs. The muscular system showed paresis. The abdomen was distended and the lungs full of râles. There was incontinence of urine and continuous metrorrhagia. The knee-jerks were absent, but the patient's condition did not permit of examination of the reflexes, as she was in the last stage of exhaustion when admitted.

Abstract of Notes made on Admission.

The patient was suffering from confusional insanity with myxoedema. She was at times very noisy, due to hallucinations of sight and hearing. She rambled inconsequently of things she imagined she saw and heard. She thought she was falling through space and was inclined to be noisy. She took nourishment—milk and brandy and beef-tea—but her breathing became laboured and her face and hands blue. Her pulse was barely perceptible and temperature subnormal. The general weakness and restlessness developed with the onset of bronchopneumonia. She died from heart failure about thirty-eight hours after admission.

Post-mortem Examination.

Examination of the brain showed considerable wasting of the convolutions, with enlarged sulci, especially in the central region; the cortex was thin and the striation poor; the fourth ventricle was not granular and the membranes stripped without erosion. The weight of the brain was 1,115 grams, the right hemisphere weighing 480 grams and the left 475 grams.

The dura mater was slightly thickened, and there was excess of fluid in the subdural space. The pia arachnoid was slightly opaque but not adherent. There was slight atheroma of the vessels.

The thyroid was very small and atrophic.

The bronchial glands were enlarged and black, and the lungs congested and filled with muco-purulent material, and showed signs of commencing bronchopneumonia; there was adhesion of the posterior border and base of the left pleura.

The right lung weighed 655 grams and the left 610 grams.

The heart was well shaped, with a marked deposit of fat; the right ventricle was enlarged, as also the auricle, and there was slight atheroma of the aorta and great vessels.

The liver weighed 1,470 grams, and was enlarged, with increase of fibrous tissue, and opacity of the capsule in some places. The bile was dark, and the spleen weighed 145 grams.

The kidneys each weighed 160 grams; they stripped easily, were slightly atrophic, with a fatty deposit everywhere. The adrenals were small, but of normal appearance on section.

The uterus was long and in good condition, but the ovaries were unusually large and abnormally long, as long as the tubes; the right ovary weighed 7 grams, and was 3 in. long.; the left ovary weighed 5.5 grams, and was 2½ in. long.

The patient weighed 68 kilos; her hair was very thin, and her general condition fatty. The muscular system was covered with a fatty deposit, and her teeth were bad.

The cause of death was heart failure.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Remarks.

The practitioner under whose care the patient had been, told me that he had considered the case was one of general paralysis of the insane. She was demented, and her speech was affected. Seeing that he had had experience as a medical officer at an asylum, he was surprised when I told him that the brain presented no macroscopic or microscopic signs of this disease, and that the case was one of myxoedema with confusional insanity.

[Another communication by Major Mott on the vascular changes of the brain in gas poisoning will be published in a future issue.]

BISMUTH AND IODOFORM PASTE IN GUNSHOT WOUNDS.

AT a meeting of the Association of Registered Medical Women on February 13th, when Dr. HELEN BOYLE was in the chair, Dr. LOUISA GARRETT ANDERSON read a report on gunshot wounds, more especially of the head, treated at the Military Hospital, Endell Street. The total admissions to the hospital during the latter part of 1915 numbered 2,633; of these, 18 had compound fracture of the skull due to gunshot wounds, 18 were trephined, and all but 2 recovered. During 1916, among 4,297 admissions, 14 had compound fracture of the skull, 12 were trephined, and one ended fatally. The prognosis depended partly upon the position of the injury; thus, of the above 32 cases, 6 in the frontal region recovered, 4 in the temporo-sphenoidal recovered, 16 in the Rolandic area recovered, while of 6 in the occipital region 3 proved fatal. Complications included 7 cases of hernia cerebri, of which 6 recovered, 2 of abscess, of which one recovered, one of meningitis, which was fatal. Dr. Anderson reported many cases in detail, and showed slides of the *x*-ray appearances. A boy, aged 19, had his right arm shattered, necessitating amputation at the shoulder; there was also a scalp wound. In a few days the temperature was 102°, and he complained of headache and vomited; an abscess an inch in depth was discovered in the frontal lobe. This was treated with bismuth and iodoform paste, and the patient made an excellent recovery. Several cases of cerebral hernia also yielded rapidly to treatment by the same paste. In a very badly comminuted fracture of the ulna near the elbow, the wound was thoroughly exposed under an anaesthetic, and bismuth and iodoform paste was scrubbed well in. In six weeks union had taken place, the wound had healed and the movement of the arm was normal. Before the introduction of bismuth and iodoform paste this case would probably have been under treatment for months. The first dressing was left for six days, and later dressings for a longer period. In another case the head of the humerus had been removed in France, leaving a very septic wound and a cavity which admitted three fingers. This was dressed at six to nine days' intervals with bismuth and iodoform paste, and in six weeks had healed completely, leaving neither pain nor swelling. A bad fracture of the wrist healed in a month by the use of bismuth and iodoform paste, movement being perfect. A fracture of the neck of the femur connected with a foul gangrenous wound was similarly treated with bismuth and iodoform paste and put at rest in a Boulogne box; the patient was now walking with the aid of a thin stick. In a fracture of both leg bones, pouring out pus and with a high temperature, the wound was thoroughly cleansed and treated with bismuth and iodoform paste; the edges of the septic wound were stitched up and held; the wound was dressed every seven to ten days, and healed completely. The use of bismuth and iodoform paste was originally suggested by Mr. Rutherford Morison, and the advantages over the old method of treatment were enormous. In the early days of the war these septic wounds were dressed two to three times daily, causing great pain, and requiring much assistance and much time, while healing was much delayed. In using bismuth and iodoform paste the gauze covering was changed every seven to ten days, and the time required for dressing was about three minutes, while healing was infinitely more rapid.

PROFESSOR WERNER has been appointed director of the Institut für experimentelle Krebsforschung established at Heidelberg by the late Professor Czerny.

Reviews.

THE TREATMENT OF INFECTED WOUNDS:

THE CARREL-DAKIN METHOD.

DR. A. CARREL, who when the war broke out was working at the Rockefeller Institute for Medical Research, New York, returned to his native country at once, and was shortly after placed in charge of a French temporary military hospital at Compiègne, where the Rockefeller Foundation had established laboratories in which Dr. Dakin worked for some time in association with M. Daufresne and Madame Carrel. As a result of their joint labours a method of treating wounds has been devised which in suitable circumstances yields very excellent results. Its principles and their application have been reported from time to time in our columns, but surgeons will welcome the small book [1] of some hundred and eighty pages, published in the useful Collection Horizon of Masson et Cie., by Dr. A. CARREL and his colleague, Dr. G. DEHELLY.

The volume is well illustrated by diagrams and contains an explicit statement of the principles and results of the treatment. The essential features of the technique, as applied to cases within the first twenty-four hours after the infliction of the wound—that is, at a period before the onset of the characteristic phenomena of inflammation—are excision of the walls of the wound, irrigation of the wounded area by antiseptic solution until microscopic examination of the secretions shows that the number of organisms has been reduced practically to the vanishing point, and finally, when the sterilization has been attained, closure of the wound by suture. Apart from the technique of irrigation devised by Carrel and the bacteriological control, the novelty of the method lies in the *ensemble* rather than in the individual procedures; thus excision of wounds was advocated by Colonel Gray (BRITISH MEDICAL JOURNAL, August 28th, 1915, p. 317), and the use of neutralized hypochlorite solutions was described in these pages by Lorrain Smith, Drennan, Rettie, and Campbell, and independently by Dakin (BRITISH MEDICAL JOURNAL, July 24th, 1915, p. 129, and August 28th, 1915, p. 318). The treatment organized by Carrel has yielded results which have commanded wide attention, and the book under notice will be of great value in enabling those who have not had the opportunity of personally visiting Hôpital temporaire No. 21 and the laboratories at Compiègne to judge for themselves how these results have been attained.

Special emphasis is throughout laid upon the details, and therefore it behoves the reader to concentrate his attention on these; according to the authors even an experienced surgeon requires several weeks' apprenticeship to the method in order to become familiar with its working (p. 177). In the first place, mechanical cleansing of the wound by excision is carried out—this is omitted as dangerous if the phenomena of inflammation have already set in; then the tissues are subjected to a course of chemical cleansing. For the latter purpose hypochlorite solution is employed of a fixed strength (0.5 per cent. of sodium hypochlorite), which in practice must not vary except within narrow limits. This solution, as devised originally by Dakin, was prepared by the addition of sodium carbonate and boric acid to bleaching powder, but Carrel prefers the modified solution of Daufresne from which boric acid is omitted. It is to be noted that the use of sodium hypochlorite as a safe antiseptic for contact with the living tissues depends on the proper adjustment of the reaction; alkaline solutions, such as those of Javelle or Labarraque, are harmful. Great ingenuity has been shown in providing for the uniform distribution of the antiseptic to the entire surface of the wound by means of Carrel's tubes (one form of these was early described in the JOURNAL, August 28th, 1915, p. 332). As most commonly employed, the tubes are of narrow bore rubber closed at one end; near the closed end are a number of fine lateral perforations. According to the size of the wound several of these tubes are disposed within the cavity, care being taken that no gauze intervenes between the tubes

[1] *Le traitement des plaies infectées.* Par A. Carrel et G. Dehelly. Collection Horizon: Précis de Médecine et de Chirurgie de Guerre. Paris: Masson et Cie. 1917. (Cr. 8vo, pp. 177; 78 figures. Fr. 4.)

and the tissues, and also that the tubes are not so closely applied to the walls as to block the perforations (Fig. 1). Then the tubes are connected by a T-piece with a single tube attached to a reservoir holding 1 litre, which is raised several feet above the level of the wound. The tubes are led through the outer dressing into the wound, and are kept in place by safety pins in the manner shown in Fig. 2, where two sets of tubes are being employed. The reservoir is filled with hypochlorite solution, and the supply of this to the wound is secured by opening for a few seconds every two hours the pinch-cock attached to the main tube. Thus a spray of fluid from the fine perforations in the rubber tubes plays over the whole surface of the wound. An important point is the absence of a drainage opening at the most dependent part of the wound; in fact, the ideal arrangement is attained when the wound is cup-shaped; when it is on the inferior surface of a limb the aperture is partially plugged with gauze so as to prevent the fluid from escaping freely. The liquid is absorbed in the intervals between the irrigations, so that there is practically no wetting of the skin or dressings. In short, the arrangement aims at frequent periodic flushing of the whole infected surfaces with a practically non-irritating



FIG. 1.—Thigh. Tubes in contact with the interior surfaces, kept apart by gauze at the apertures.

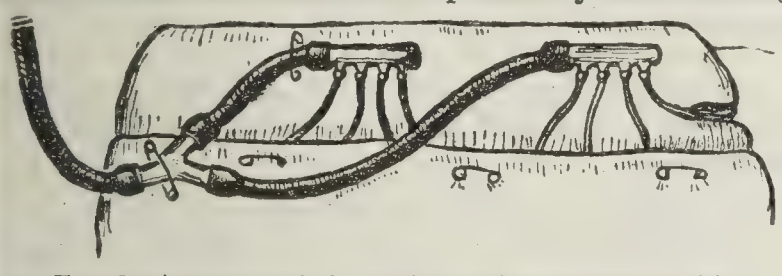


FIG. 2.—Arrangement of two distributing tubes, each with four branches.

fluid, which possesses a moderate degree of bactericidal power, and also dissolves dead tissues. In this connexion it is important to note that vessels in the base of the wound should not be ligatured with silk which is dissolved by the hypochlorite. Very great importance is attached to the renewal of the fluid at short intervals, since, according to the authors, if a pad soaked in Dakin's solution is applied to the surface of an infected wound, the result obtained is almost *nil*, for the dilution due to the secretions of the wound and the combination of the hypochlorite with the protein material rapidly abolishes the antiseptic action. It is essential that this considera tion should never be lost sight of by those who seek to adopt the method. Where a single tube suffices for flushing the wound continuous irrigation, drop by drop, may be practised by means of the simple apparatus known as the *Comptes-gouttes de Gentile* (Fig. 3) interposed in the course of the indiarubber tube near its junction with the reservoir. If treatment is begun in the presuppurative stage a wound of the soft parts can be sterilized in from three to ten days, and a compound fracture in ten to fifteen days or more (p. 111); a valuable feature is that sequestra do not become centres of infection, and so may be left *in situ* as a support for bony new formation. When suppuration has already set in the time required for sterilization is somewhat greater, and infected sequestra, of course, must be removed. Great stress is laid on the bacteriological control, since a wound clinically healthy may yet harbour a sufficient number of organisms to prevent healing by first intention when the surfaces are brought together; but when, in the case of a wound treated from the outset by this method, microscopic examination shows practical sterility of the surface for two or three days, closure may then be safely practised. When there has been suppuration it is advisable to wait longer—up to eight days. Thus the principle followed is to wait till the tissues have formed a granulating layer under the continuous influence of a non-irritating and detergent antiseptic, which in itself does not hamper the processes of repair, and then, after organisms have been practically eliminated, to bring the surfaces into apposition. As opposed to primary suture immediately after excision of a recent wound, Carrel's method seeks to avoid the accidental inclusion of virulent organisms in the unprotected tissues, where they may be capable of causing most serious effects. Such is a brief outline of the main thesis; reference must, however, be made to the original for many subsidiary but important points, such as the use of Dakin's chloramine (see Dakin, Cohen, Kenyon, and Daufresne, BRITISH MEDICAL JOURNAL, January 29th, 1916, p. 160) in the form of an antiseptic paste, and of pastes for filling in gaps in bones.



FIG. 3. Compte-gouttes.

As to the results which may be achieved by this method when carried out with strict attention to detail there can be little doubt, and the success is a tribute to the value of sympathetic co-operation between the clinician and the laboratory worker. The question arises, however, as to whether the method is applicable when the sudden influx of enormous numbers of wounded makes the heaviest demands on the medical personnel. The authors seem inclined to regard their procedures as feasible even under these circumstances, although others are less sanguine. It must be remembered also that no compromise is possible between this method and the ordinary modes of drainage; thus, if the treatment is interrupted, patients are reduced practically to the same state as if their wounds had not been touched at all; this is a most serious matter when the wounded must be transported for long distances. Such considerations are, of course, of the greatest importance in determining the general applicability of the method to the treatment of our own wounded under present conditions; but they do not detract from the great service rendered by Carrel, Dakin, and their co-workers in demonstrating the possibilities in the direction of prevention and treatment of suppuration in infected wounds when the surgeon is provided with ample facilities and free to pursue a method of election.

[The figures here given are after Carrel and Dehelly.]

NOTES ON BOOKS.

THE first edition of *Applied Immunology*[2] by Drs. THOMAS and IVY, of Philadelphia, was reviewed in the BRITISH MEDICAL JOURNAL of June 24th, 1916, page 887. We have recently received a copy of the second edition, which has been brought up to date by a number of additions and some new matter. Describing the exhibition of salvarsan, the authors say that the French, English, American, and Canadian preparations of this specific show "no noteworthy difference from the original German drug."

Lessons in Russian,[3] by Mr. KARRACHY-SMITH, is a graduated Russian course for those who wish to learn the language of our great ally. The first part gives a brief account of the Russian language, and then plunges into the alphabet. Here the author takes the unusual course of describing, in order, the first, fourteenth, seventeenth, second, fifth, twelfth, fourth, eighteenth, and other letters; we cannot think that this disarrangement facilitates the learning of so complex and confusing an alphabet as the Russian. When he does give the letters in their alphabetical order (page 35) the author does not give their names or their equivalents in English, a further obstacle in the student's way. The second course of this series deals with the regular verb, its conjugations, and aspects.

An advertisement, description, and year book of the West African colony of Sierra Leone[4] has been written by Mr. H. O. NEWLAND, in order that persons who wish to emigrate may be tempted to think of that colony. The text is interesting and well illustrated; at the end a postscript gives some useful practical notes on planting cacao and ground-nuts. The book would benefit by the addition of a map.

[2] *Applied Immunology: The Practical Application of Sera and Bacterins Prophylactically, Diagnostically, and Therapeutically.* By B. A Thomas, A.M., M.D., and R. H. Ivy, M.D., D.D.S. Second edition, revised. (Med. 8vo, pp. 377; 68 figures. 16s. net.)

[3] *Lessons in Russian.* By M. B. Karrachy-Smith. London: Sampson Low, Marston and Co. 1915. (Cr. 8vo, pp. 47 and 72. 1s. 6d. and 2s. net.)

[4] *Sierra Leone: Its People, Products, and Secret Societies.* By H. O. Newland, F.R.Hist.S., F.I.D. London: J. Bale, Sons, and Danielsson, Ltd. 1916. (Demy 8vo, pp. 266; 19 plates. 7s. 6d. net.)

The Weird Adventures of Professor Delapine of the Sorbonne[5] is a novel written with the purpose of carrying conviction to those who do not believe in the genuineness of certain spiritualistic phenomena—thought reading, table turning, and the like. The author has endeavoured "to clothe the real facts with a halo of romance," he tells us in his preface. This transparent vesture does nothing to veil the bare improbability of his characters, their conversations, their actions, and their dealings with the supernatural.

In his book entitled *New Concepts in Diagnosis and Treatment*,[6] Dr. ABRAMS gives an account of his electronic theory in the interpretation and treatment of disease. It deals with such subjects as neurodynamic fields, sexual polarity, biodynamgnosis, gyrography, telepathy, the sphygmobiometer and biosphygmomanometry, reflex-phonometry, the measurement of energy and rates of vibration in ohms, and determinations of the secretory activity of the pituitary body by concussing the seventh cervical spine for a few seconds and then ascertaining by the aid of the biodynamometer the potentiality of the energy discharge from the seventh dorsal spine. One may seriously question whether such a volume, in this country, will find many readers.

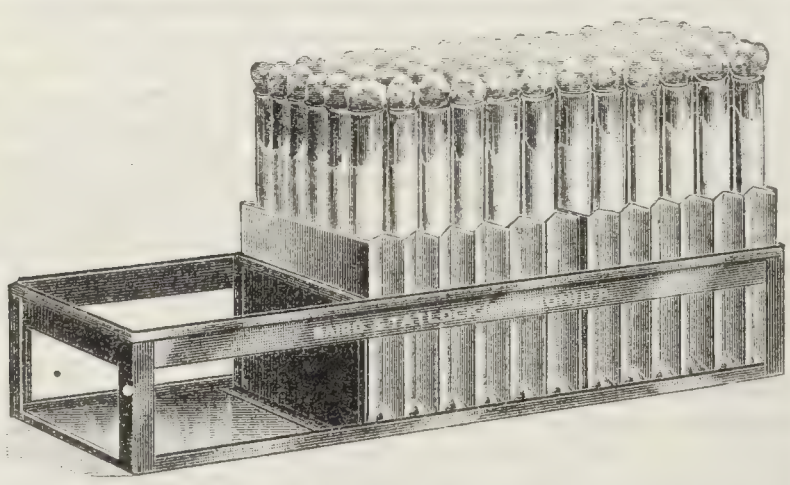
[5] *The Weird Adventures of Professor Delapine of the Sorbonne.* By G. L. Johnson, M.A., M.D., B.S., F.R.C.S. London: G. Routledge and Sons, Ltd. South Africa: Central News Agency, Ltd. New York: E. P. Dutton and Co. 1916. (Cr. 8vo, pp. 356. 6s.)

[6] *New Concepts in Diagnosis and Treatment.* By A. Abrams, A.M., LL.D., M.D. University of Heidelberg, F.R.M.S. San Francisco: Philopolis Press. 1916. (Roy. 8vo, pp. 352; 80 figures.)

MEDICAL AND SURGICAL APPLIANCES.

Test-tube Containers and Racks.

MR. T. H. C. BENIANS, F.R.C.S. (Pathological Department, Prince of Wales's Hospital, Tottenham, N.), writes: The illustration shows a light metal rack of which a convenient size is 14 in. in length, 5 in. in breadth, and 2½ in. in depth, divided by two transverse bars. The test tubes are contained in square-bottomed thick paper envelopes about 3½ in. in depth, each of which can carry six or seven tubes standing upright side by side. The envelopes



are packed upright in the rack. In this way fifteen sets of tubes in the one rack can be handled with the greatest convenience, and stored in the incubator in the minimum amount of space. The apparatus is particularly useful when numerous cases are under bacteriological investigation, especially when several tubes of culture media—sugars, for instance—are required for each case, as in coli-typhoid work. It is made by Messrs. Baird and Tatlock of Hatton Garden.

THE POORER LABOURING CLASSES AND THE VOLUNTARY RATION.

WE are indebted to Professor Noël Paton for the following comparison, worked out by Miss Margaret J. H. Ferguson, of the voluntary ration with the ordinary diet of the poorer labouring classes in Glasgow. It is directed to two points: First, how far these classes can get their necessary supply of energy on the basal allowance of flour, meat, and sugar in the voluntary ration of the Food Controller; and, secondly, whether the adoption of the ration enables them to get their energy at a greater or lesser cost than in their usual diet.

I.

Taking the analyses used by the Food Committee of the Royal Society, the yield of energy of the ration suggested by the Food Controller is as follows:

3 lb. of flour	...	708 calories
2½ lb. of meat	...	423 ,,
¾ lb. of sugar	...	195 ,,
Total	...	1,326 ,,

This leaves 1,294 calories, or nearly 50 per cent. of the required energy, to be obtained from other foods.

The other foods most abundantly used are—(1) potatoes, (2) butter and margarine, (3) milk, and (4) cereals other than wheat—oatmeal, barley, maize, rice, etc.

Taking the amount available per unit of the population as the same as in pre-war times, as stated in Appendix Ia of the Food Report, these would yield the following per "person" per day:

Potatoes	...	244 calories
Butter and margarine ...	...	211 ,,
Milk	...	195 ,,
Other cereals	...	119 ,,
		769 ,,

The remaining 525 calories must be obtained from other foods, but a study of the Appendix fails to show from what foods they can be got.

Fruit, the next most important item, would at best yield 65 calories, lard 49, cheese 35, fish 32, poultry, eggs, etc., 21, and legumes 25 calories. Including all of these, although certain of these are too expensive to be purchased to any extent by the labouring classes, the diet still falls short by nearly 300 of the minimum requirement of 2,620 calories.

II.

To the labouring classes living on a wage averaging from 20s. to 30s. weekly, the cost of the food is of first importance.

Table showing the Relative Cost of the Ration and of the Average Quantity of Flour, Meat, and Sugar consumed weekly per Person per Week by Thirty-six Labouring Class Families in Glasgow in 1915–16 at Prices current in Glasgow in January, 1917.

The incomes varied from 20s. to 30s. a week, and the energy intake was 3,280 calories per man per day, or 2,525 calories per person.

	Cost.	Yield of Energy.
	s. d.	Calories.
Voluntary Ration:		
3 lb. of flour at 3d. per lb.	0 9	4953
2½ lb. meat at 12d. per lb.	2 6	2962.5
¾ lb. sugar at 5¼ per lb.	0 4	1367
Totals	3 7	9282.5
Labouring Class Families, 1915–16:		
4.4 lb. of flour at 3d. per lb.	13 2d.	7264
1.34 lb. meat at 12d. per lb.	16.08d.	1608
1.41 lb. sugar at 5.25d. per lb.	7.4d.	2570
Totals	3s. 0¾d.	11,442

Thus for an average family of five the adoption of the ration would raise the cost of food 2s. 7¼d. a week, while 10,800 calories less energy would be secured—309 per person per day. This is a reduction of the energy bought per penny from 309 to 216 calories—a very serious consideration for such people.

THE number of medical students in the five universities of Switzerland in the summer semester of 1916 was 1,850. They were distributed as follows: Bâle, 334, of whom 154 were foreigners; Berne, 352, of whom 153 were foreigners; Geneva, 477, of whom 341 were foreigners; Lausanne, 231, of whom 105 were foreigners; Zürich, 456, of whom 187 were foreigners. In the total number there were 259 women, Bâle having 15, Berne 31, Geneva 105, Lausanne 28, and Zürich 80. Geneva had the largest number (99) of foreign women students, and Bâle the lowest (1).

British Medical Journal.

SATURDAY, FEBRUARY 24TH, 1917.

HEALTH OF WOMEN MUNITION WORKERS.

WE have given from time to time an account of the decisions and recommendations of the Ministry of Munitions, founded upon the reports of the Health of Munition Workers Committee, with regard to the health, among other matters, of women workers. Mr. Lloyd George became Minister of Munitions in May, 1915, and the Committee was appointed very shortly afterwards. It was able to report over a year ago that many large works had a medical officer on the staff, whose services were available for serious cases before removal to hospital, and who was responsible for the supervision of the surgery, which was in charge of a trained nurse or a competent person with knowledge of ambulance work. The evidence of the economic and industrial value of the proper organization of a medical service within the factory was convincing, as was also the need for providing everywhere the welfare supervision already provided in many factories. Under the head of welfare supervision was included attention to housing and to means of transit; to general conditions affecting the health of workers, and the causes of individual ill health or overfatigue; to facilities for rest, recreation, and suitable meals in suitable surroundings. Towards the achievement of the last-named object the Committee contributed two special memorandums on the construction and management of industrial canteens.

Much of the work of the Committee is concerned with general conditions affecting the health of men and women workers alike, though not in all respects to the same extent. It issued its first memorandum dealing specifically with women in February, 1916; it found that too long hours of work, the lack of sympathetic oversight, the inability to obtain good wholesome food, and the difficulties of travelling, then stood in the way of securing or maintaining for an extended period the high maximum output of which women are undoubtedly capable. But it recognized that public spirit and a devotion were happily manifest capable of overcoming difficulties and solving problems, and that these qualities were accompanied by an understanding of the claims of women and of their children, and of their vital importance to the State. This understanding is a reward for the sacrifice and energy of women now working steadfastly in the ranks of labour: how many they are we do not know, but the Minister of Munitions the other day gave some facts with regard to the increase in the number of shells of various kinds produced, as compared with the year ending June, 1916, which proves to have been enormous, and in all this work women's labour plays a most important part.

It is not in this country only that the safeguarding of the health of women engaged in factories and of their children is exercising the attention of the Government. In France something has been done under the impulsion of the Ministry of Munitions by some employers, but from a report of a special committee now under the consideration of the Académie de Médecine it seems that much remains to be accomplished. The committee which was appointed to inquire into the measures that should be taken to safeguard the health of women workers in munition factories and their children has made a series of recommendations, of which the first two have reference to expectant mothers and the care of infants. It is recommended that the employment of a woman in a munition factory during the four weeks preceding her confinement should be absolutely forbidden by law, and that women who are pregnant or suckling should be given only light work which will not expose them to any hurtful or toxic influences, should be offered half-day shifts, and should not be allowed to work at night. Another recommendation is that there should be a doctor attached to the factory to advise women workers as to their health and to recommend change of occupation, with power to forbid a pregnant woman to work at all if continuance of work is likely to injure her own health or that of the infant she is carrying. In order to encourage women workers to suckle their infants the Committee recommends that suitable rooms should be provided, and that the mother should be compensated for the loss of working time due to this cause, and that suitable places (*garderies*) should be provided where children could be taken care of while their mothers were at work. It advises also that a woman with child or having a child at the breast who is compelled to give up work altogether, or to shorten her hours of work, should be compensated, and that funds for this purpose should be provided by an insurance scheme organized by the State.

Recent statistics published in the official journal of the Imperial German Department of Labour Statistics, while showing that the growth of female employment in that country since the outbreak of the war has not been so great as had been assumed from a consideration of certain trades, indicate that in those trades the increase has been very considerable. Estimates based on returns as to insurance seem to show that the number of women employed in Germany, not including farmers' wives and daughters, had increased from about 3,700,000 in July, 1914, to about 4,200,000 in July, 1916. In the metal trades the number had increased from 86,000 to 144,000. The number of women employed at Krupp's works would appear to have increased from 1,166 at the end of December, 1914, to 13,023 at the beginning of April, 1916. About 10,000 women were employed in the factories of the Rhenish provinces and Westphalia before the war, and over 42,000 in August, 1915; of the persons employed in the iron mines of the Ruhr, which before the war employed no women, 2 per cent. are now women. The Prussian Ministry of War requires employers to provide for the needs of workwomen willing to work in factories by increasing the number of institutions for the reception of children, by organizing half-day shifts, by opening, in conjunction with municipalities, special workshops for making certain articles needed by the armies, and by providing suitable lodgings for country women wishing to work in towns. The municipalities are required to provide workshops and apparatus to afford employment to women who are out of work. Recently a special central office, to deal with women's work, has been established in the Ministry of War, Berlin. A medical woman, Dr. Lueders, is in charge of the office, and it is proposed to establish branches and to work in conjunction with the national committee for women workers during the war, already in existence. This department will advise as to the aptitude of women for various kinds of work, and will supervise measures for the protection of their health, for the establishment of rest-rooms

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

and dormitories, for providing a proper working dress, for increasing means of transport, and for improving arrangements for feeding. It will also give attention to the health of the families of women doing war work by establishing homes and créches and gardens for children. All this work is to be carried out in constant co-operation with the local authorities and under expert advice.

PHYSICAL EDUCATION OF ELEMENTARY SCHOOL CHILDREN.

The Board of Education has issued new Medical Grant Regulations, dated February 10th, and has forwarded them to local education authorities with a circular letter dealing with grants in aid of the organization and supervision of the teaching of physical training in public elementary schools. Grants are already made, as is well known, towards the cost of systematic medical inspection for school children, but it was generally felt that inspection must be followed by efficient treatment. Local authorities were "encouraged" to face the necessary expenditure for treatment, and not a few have faced it. For so doing they have received the commendation of the central authorities, who, however, had hitherto turned a deaf ear to appeals that the State should share in an expenditure that was much more than local, and fell with great heaviness on large industrial districts. In face of the excellence of the work done through the medical treatment of school children, it was difficult to justify the inequality of the burden borne by different localities of the same city, a condition of things particularly well exemplified in London, and in the new regulations the Board of Education announces that it will make grants to the local authorities during each financial year in respect of the medical inspection and medical treatment of children attending public elementary schools and work ancillary to medical treatment. The grant will be made on the basis of work done in the previous year. If, in the Board's opinion, the provision be adequate, one-half the total cost will be met by the grant. Grants will be made also in respect of the medical treatment and care of children at day or residential open-air schools certified by the Board of Education under the Elementary Education (Defective and Epileptic Children) Act, 1899. The grant will be made only in respect of schools for children suffering from tuberculosis, debility, or pretuberculous conditions, who, by reason of their physical condition, are likely to derive special benefit from attendance at an open-air school. This provision puts open-air schools on the same footing, as regards State aid, as the schools for the blind, deaf, mentally defective, and epileptic children. Many of these children are essentially salvable if given some extra care and food. If the grants are justified on the ground of compassion and of necessary special education for the seriously maimed and defective, some of whom will take no effective place in the national life, they must be still better justified for those who will in all probability be enabled to rejoin the ranks of the healthy and happy members of the normal school.

The regulations and the circular letter deal also with the organization and provision of physical training in public elementary schools. This is a provision for the positive side of health—the making of the healthy child better and fitter physically and mentally for the work of school. In 1909 the Board issued a revised syllabus of physical exercises, and it considers that its general principles, and the types of exercises and methods of teaching recommended, have been amply justified. It is now desired to develop the system, and to extend the facilities for the special instruction of teachers. The Board is prepared to make grants for the employment of competent persons to organize and supervise the physical training of children in public elementary schools. The intention is that there should be a grouping of the schools. For small areas a single organizer will be sufficient; in the larger areas assistant organizers working under the direction of a chief will be required. The duties of the organizer will be the oversight of physical training in the schools, including not only formal exercises, but also dancing, organized games and play, and swimming. The organizer will not undertake teaching systematically, but will visit the schools to watch the teachers themselves conducting lessons, and give advice and make suggestions to individual teachers after observation of their work. Demonstration lessons will be arranged for the teachers. It is recommended that the work of the organizer should be closely associated with the School Medical Service, and that the school medical officer should have definite functions in respect of it. He should in particular exercise supervision over any remedial gymnastic treatment carried out by experts in connexion with the school clinic. Both he and the organizer of physical training should co-operate not only in regard to the training of children already suffering from definite physical defects, but also in regard to the prevention of avoidable defects by means of exercises correctly taught and applied.

The qualifications of the organizers are not defined, but it is said that a previous experience of elementary school conditions should be looked upon as one of the essential qualifications, at any rate in the case of a chief organizer. A sound knowledge of the "Swedish" system is said to be necessary, as well as personal experience in teaching children of all ages. As to the salaries of the organizers, it is stated that they should be adequate to attract and retain officers well qualified and suitable for their responsible position.

This new departure of the Board follows on lines which have already been traced out by some of the more energetic of the local education authorities. The reports of the value of the systematic cultivation in the schools of healthy exercises, play and games, and swimming, give grounds for the hope that the extension of this work will bring similar benefits to the rest of the school community. The games of the town school child but a few years ago were confined to marbles, knickers, leap-frog and tip-cat for the boys, with touch and skipping for the girls, all good enough in themselves, but lacking in that they did not foster the social instincts so well as such organized games as cricket and football, which were the common possession of the country lad and the public school boy. The change brought about in the last few years through the enthusiastic expenditure of time and energy by so many of the school teachers, has well earned this official approval.

LEGISLATION TO CONTROL VENEREAL DISEASE.

The speech in which the Home Secretary explained the provisions of the bill to amend the law with respect to the punishment of sexual offences was so clear that the full significance of the proposals can be easily gathered from the report published at p. 273. It is a sort of omnibus measure, but the provision which, apart from those raising the age of consent and imposing severer penalties on brothel keepers, are

chief interest have reference to the infliction of penalties on a person who, knowing that he or she is suffering from venereal disease in communicable form, has or solicits sexual intercourse, and the prohibition of advertisements relating to venereal disease or the producing of miscarriage or abortion.

The clause as to communication is, as will be seen, widely drawn, makes no distinction between the sexes, and imposes penalties in the form of imprisonment which are distinctly severe. It is a very noteworthy fact that the bill proposes to give the court power to require a person convicted of a rather long list of offences to submit to such medical examination and tests as may be requisite to ascertain whether such person is suffering from venereal disease in a communicable form. The offences include not only rape, indecent assault, and loitering, importuning or soliciting, but also any attempt to commit or to abet the commission of such offences, and offences under the Vagrancy Act. The efficiency of these provisions to attain the object aimed at will depend on the degree to which magistrates make use of the powers conferred on them and the impartial efficiency of the police. If the authorities really mean business the appointment of women police officers will be necessary.

The provisions with regard to the practice of venereal quacks are not so strong as was hoped, though they stop one bolt-hole by applying the prohibition as to advertisements to "nervous debility, or other complaint or infirmity arising from or relating to sexual intercourse." The use of the term "intercourse" may defeat the object of the paragraph, and it might be better to replace it by some more general term, such as "the sexual system."

The Royal Commission on Venereal Disease strongly endorsed the recommendations of the Select Committee on Patent Medicines that all advertisements of remedies for venereal diseases should be prohibited, and added that the direct and indirect effects of these diseases upon the race are so grave and the deception practised upon the public is so extensive as to justify repressive measures. The bill now before the House of Commons deals with this matter and is drafted in accordance with the recommendations of the Select Committee on Patent Medicines, which were that all advertisements of remedies for diseases arising from sexual intercourse or referring to sexual weakness, and all advertisements likely to suggest that a medicine is an abortifacient, should be prohibited.

The British Medical Association expressed its strong approval of legislation of this character, holding that there was probably no group of diseases in which the results of treatment by unqualified persons were more disastrous, both to the individual and to the community, and took the matter to its logical conclusion, which is that the legislature should make it a criminal offence for any person other than a registered medical practitioner to treat, or to offer to treat, any form of venereal disease. The Association pointed out that failing such restriction there would continue to be many temptations for concealment of disease, and much valuable life lost by infected persons who are attracted by false offers of a speedy and secret cure. The deputation which interviewed the President of the Local Government Board on January 24th asked for legislation to eliminate quack methods in the treatment of venereal diseases. The President of the Royal College of Physicians emphasized the point that the treatment of these diseases ought to be conducted by scientific and skilled methods, and therefore by qualified persons, and Mr. Turner, Chairman of Representative Meetings, said that the British Medical Association fully agreed with that view, and also insisted on the importance of stopping advertisements of the form of quackery in question. Lord Rhondda did not make any direct reply to the suggestion, which was supported also by Sir Malcolm Morris on behalf of the National Council for Combating Venereal Diseases, and representatives of the Association of Municipal Corporations, that the Government should introduce a bill to suppress the quack treatment of these diseases, and it will be seen that the Home Secretary's bill does not directly touch the question of unqualified practice in these respects, nor the sale of drugs or appliances for the purpose of procuring miscarriage or abortion, but it does clearly forbid all advertisements of such things by bringing them within the provisions of the Indecent Advertisements Act, 1889, and by increasing the penalties. It is argued that persons who engage in these particularly offensive forms of quack practice depend entirely upon advertisements to make themselves known to the public, and that the prohibition of such advertisements, accompanied as it is by the offer of skilled free treatment under the scheme now being put into operation by local authorities, must go far to diminish, if not altogether to abolish, the opportunity of preying upon the credulity of the public now afforded to venereal quacks and abortifacient-mongers.

THE CENTRAL MEDICAL WAR COMMITTEE.

At a meeting of the Central Medical War Committee on February 21st the chairman, Mr. Verrall, speaking on the question of the immediate outlook in respect of additional doctors for the army, and particularly in regard to the matter of calling up the whole or part of the enrolled men, said that some new departure would, in his opinion, have to be made, because even if the enrolled men were immediately called up there would not be obtained the numbers demanded by the War Office. A statement was made by Dr. Buttar, the chairman of the Executive Subcommittee, in the course of which he urged that every effort should in the first place be made to obtain the last man possible from those of military age. He considered that there were several reasons for postponing an immediate call upon enrolled men, in view of the possible development of the scheme of the Director-General of National Service, and the proposal which was in the air to make a general call for national service upon all classes of the population under the age of 50. He thought that it would be well to take an early opportunity of reviewing with the War Office its demands in the light of recent developments. The Committee discussed again the question whether the whole-time service of the country had contributed their fair quota of medical recruits to the army. It was reported that an interview had taken place with representatives of the Local Government Board and the Board of Education, when facts were brought forward showing that in respect of the Poor Law service the Local Government Board did not feel itself in a position to make any further serious calls, while it had already spared a large number of whole-time officers on the public health side. Readiness was expressed both by the Local Government Board and the Board of Education to consider any individual calls which the Committee might think it necessary to make upon their officers, but it was pointed out that the Boards had no power to call up medical men in the employment of local authorities, although they were willing to represent to such authorities the need for making the necessary sacrifices. Finally, the Committee instructed the Executive Subcommittee to inquire carefully into the matter of the enrolled men, and to

LIBRARY U. OF I. URBANA-CHAMPAIGN

report to the full Committee on the question of notifying Local Medical War Committees that the necessity for calling upon enrolled men might arise in the near future, indicating in each case the number that it was estimated ought to be supplied from the area.

MEDICINE IN THE ARMY.

SIR ALFRED KEOGH was the guest of the Council Club of the Royal Society of Medicine at dinner on February 19th; there was a large attendance. Sir Rickman Godlee, President of the society, who was in the chair, congratulated Sir Alfred Keogh, and through him the Army Medical Service, on the conspicuous honour of the Grand Cross of the Bath recently conferred upon him by the Crown, and went on to speak of the difficulties of the situation with which Sir Alfred Keogh had been faced and the manner in which they had been overcome. Referring to the work of the Central Medical War Committee, he said that there was great need for the exercise of a spirit of charity and consideration on both sides, for it was not easy to adjust the demands of the army and of the civil population, and not a few cases the Committee had to investigate in its statutory capacity involved great hardship to individuals. Sir Rickman Godlee said that he had recently received a letter from Dr. Franklin H. Martin, of Chicago, who was known to many in this country as an extremely able medical organizer. The United States Government had formed a Committee of Defence, and one of the members was a medical man. It had had interviews with the Cabinet, and the Secretary for War had sent an invitation to the deans of each one of the ninety-five medical schools in the United States to attend a conference at Washington on January 6th to discuss the introduction of a course of military training in the medical schools. Eighty-five representatives attended, and were addressed by the surgeon-generals of the army and of the navy. The deans of the Army and Navy Medical College at Washington presented a curriculum for approval, and the deans attending the conference adopted resolutions in favour of universal training and special military training for all medical students. After this, which was in the nature of a preliminary meeting, the conference met again later, when it was addressed by the Secretary for War, Mr. Baker, who was accompanied by the Secretaries of the Navy, of Labour, and of Commerce. Mr. Baker expressed approval of the proposals made by the deans, and undertook to provide medical officers as instructors for all the medical schools of the country. The course, which was to begin on February 1st, will continue until June 1st, and it is hoped that 3,000 medical men will pass through it, and will then need only camp training to make them available as medical officers. There had been a great change, Dr. Martin added, in sentiment in the United States during the last year, and now fully two-thirds of American public men were in favour of universal military service on a plan similar to the Swiss programme. Sir Alfred Keogh, in a short speech, dwelt on the fine response made by the civil medical profession. At the beginning of the war the number of available regular officers of the R.A.M.C. was small, but the corps had been extended from the civil profession, and the response to the appeal of the army had been not only great at first but well sustained, so that now it might be said that the medical service of the army was the medical profession. The work done was highly creditable to medicine as a scientific profession, and wonderful adaptability had been shown. The demand had been large, for it had been necessary to provide for the needs of five campaigns, which were being carried on simultaneously. He paid a very warm tribute to the services of the Territorial Royal Army Medical Corps, and wound up by urging that medical students should now and in the future be trained to understand their responsibilities to the State.

THE SWEDISH MILITARY POLICE IN PERSIA.

THE account which Lord Curzon gave to the House of Lords on February 20th of the march of the force under Sir Percy Sykes from Bunder Abbas to Ispahan, and finally to Teheran—an expedition which involved a march of one thousand miles in circumstances of a most arduous and, in some places, perilous character—lends particular interest to an account recently published by Dr. Claes Carlström[1] of his experiences in Persia as a medical officer of the health service of the Persian military police. The health service was instituted in 1911, and had grown from an insignificant nucleus to an extensive network spreading from the Caspian Sea to the Persian Gulf. The control of this force, which policed the principal highways in this part of Persia, was entrusted to about forty Swedish officers, and in 1913 two Swedish medical officers, of whom Dr. Carlström was one, were appointed as medical officers to the forces under them. Dr. Carlström equipped with as many drugs and instruments as his grant of 5,000 francs would allow, made his way to Persia by way of Hamburg and Paris, where he absorbed as much knowledge of tropical diseases as time would allow. During the first six months he had to travel from one station to another, teaching his staff of orderlies and establishing dépôts at the most important centres. It took much time to vaccinate the members of his staff against small-pox and typhoid fever, and the long journeys, invariably made on horseback, proved exhausting in the hot weather. In spite of the great prevalence of malaria he escaped infection, thanks, in his opinion, to the use of a mosquito net and daily prophylactic doses of quinine. The venereal diseases were almost as prevalent as malaria and in some districts assumed epidemic proportions. It was almost impossible to cope with them, for the infected women generally eluded observation and treatment. Dr. Carlström found galyl, with a stock of which he had been supplied in Paris by Professor Moneyrat, to be quite as efficacious as salvarsan and neo-salvarsan. In spite of neglect, syphilis ran a relatively benign course, and lesions of the brain and cord were very rarely encountered. In fact, only one case of general paralysis was observed although syphilis was widespread among the police and civil population. The other late manifestations of syphilis were common. Tuberculosis and rheumatic affections were very rare in the interior, no doubt because of the sunny climate at a high altitude and the open-air life. The only case of appendicitis seen was in a European. This immunity to a disease so prevalent in Europe, he thinks, was due to the fact that the diet of the Persian is mainly vegetarian. An English colleague of Dr. Carlström suggested that the Persian's freedom from appendicitis might be traced to his defaecating in a crouching position and thus securing a more complete evacuation of the bowel. Opium smoking was an all-pervading custom, to which much of the Persian's degeneration could be traced. Homosexuality was also a widespread evil; one of the many proofs of its prevalence was the frequency with which anal chancres occurred.

MILK.

A RATHER gloomy view of the future supply of milk in the country during the war was taken at a meeting of the Farmers' Club, in Westminster, on February 19th. Mr. James Mackintosh, lecturer in dairy farming at University College, Reading, after stating that he estimated the value of the dairy output produced by British dairy farmers to be between £40,000,000 and £50,000,000 a year, said that before the war all the new milk required for human consumption was produced in the country, and that of the remainder of the output some 25 per cent. of the total was manufactured into cheese, butter, etc. To meet the demands of the home market large quantities of cheese, butter, etc., had to be imported, not less than 75 per

[1] *Hygiea*, November 30th, 1916

t. of the cheese, and 70 per cent. of the butter ning from countries outside the United Kingdom. e tendency of the new conditions was, he said, reduce the total output of milk in this country, it was to be feared that unless the returns from k production were made, or allowed to become, e comparable with those from other branches of ning there would be a very serious decrease in the l output before the winter of 1918. The general ion expressed during the discussion was to this effect, a representative of Worcestershire declared that the y industry, if properly carried out, was capable of g more to make the nation self-supporting than any r branch of farming. We may take this opportunity upplying an accidental omission from the brief analysis he diet of three middle-class families published last k, p. 229. The average weekly consumption of milk by sixteen persons concerned was 4.8 pints a week, or pint a day a head. This would give an average of ein 13.9 grams, fat 16.3 grams, and carbohydrate 3 grams, yielding calories 292.5, raising the total es for the three households a head to, in round bers, protein 98 grams, fat 132 grams, carbo- rate 289 grams; and the energy value in calories ead to 2,910. The interesting note by Miss Ferguson, vhich the voluntary ration is compared with the actually consumed by labouring-class families in gow in 1915–16, raises another point of very great tical importance, for the conclusion is that the tion of the voluntary ration would raise the cost of by 2s. 7½d. a week, while the energy value would be inished by 309 calories a person a day. Put another , it appears that this means a reduction of the gy value bought for a penny from 309 to 216 calories, ry serious consideration for families whose incomes from twenty to thirty shillings a week.

HE EFFECT OF CONTRASTED ILLUMINATIONS ON THE EYE.

JAMES KERR, in a paper read before the Illuminating ineering Society on February 20th, on the effect on eye of varying degrees of brightness and contrast, reference to the conditions prevailing in cinemato- h theatres, and several members of the Cinemato- h Commission took part in the discussion. Dr. Kerr with two kinds of contrast—namely, the simul- ous, caused by glare, and the successive, as in flicker. rently the maximum brightness which the eye was ired for during its long ages of evolution was the test sky. This could generally be taken as 2.5 to 3 les to the square inch, and some such amount had been sted as a standard for any visible sources of light. ect lighting might accomplish this to perfection; by nethod the eye was saved much fatigue, owing to the nation of violent contrasts; but this comparatively owless lighting was not very useful for the examina- f small objects and textural surfaces. Both exces- contrast and defective contrast might be equally lesome, and even in cases where the surfaces were derate brightness and no extreme form of glare l be imagined to exist, an extreme contrast or a ast operating in the wrong direction might be venient. An instance in point was stage light- in some cases the continued fixation of the eye brightly lighted stage, with the rest of the of view in complete darkness, entailed strain. flickering effect in the case of the cinematograph l greatly in different halls. The films were pro- vely circulated from the dearer to the cheaper and by the time they had reached the latter had deteriorated considerably; this had to be con- d very seriously in view of the numbers of en, whose eyes and minds and physique were in s of development, attending such displays in poor neighbourhoods. The control of the perfection of the film and of the skill of the operator raised very difficult questions, but it ought not to be impossible to arrive at least at a reasonable value for the illumination of the screen in different halls, with a minimum of perhaps one foot-candle, and also to ensure a certain amount of illumination in the hall itself and to control the switching on and off of the full lighting in such a way as to avoid sudden jerks from light to darkness and the reverse. Sir W. H. Bennett, who was in the chair, said that there was no doubt that since the introduction of the cinematograph entertainment there had been a considerable increase of eye trouble among children, and he trusted that the Commission would not overlook the possibility of physical as well as of moral harm.

HEREDITARY DEFORMITY OF THE FINGERS.

DR. H. DRINKWATER reported to the Pathological Section of the Royal Society of Medicine, on February 13th, a remarkable case of phalangeal synostosis hereditary through fourteen generations. The thumb and index were normal; in the middle finger the terminal joint was free, but the next, that between the middle and proximal phalanx, was but slightly movable; in the ring and little finger these phalanges were quite continuous. The condition was symmetrical on both hands. As to the feet, all the toes excepting the hallux were affected like the ring and little fingers. The patient's father was married twice; one of the patient's half-brothers presented the same abnormality, as did also the father and the paternal grandfather. He himself was a direct descendant in the male line from the first Earl of Shrewsbury (d. 1453), and when the body was exhumed in 1874 it was discovered that the fingers of the earl exhibited a similar variation. The mode of the inheritance of the malformation among the recent members of the family showed that it behaved as a Mendelian dominant. Dr. Drinkwater expressed the opinion that there was not any genetic relation between this condition and that of brachydactyly.

PREGNANCY AND MUNITION WORK.

IN an article on the effect of work in munition factories on pregnancy and maternity Dr. E. Bonnaire states that observation of natural labours taking place in a maternity institution showed that the infants of thirty-one mothers who had worked in munition factories were of slightly less weight than the average for that year in the institution. He considers that work in the munitions factory need not necessarily be injurious provided hours are fairly short and supervision strict; owing to the purely mechanical nature of the tasks performed, he thinks that such work is lighter than many domestic employments pregnant women are accustomed to follow. On the other hand, he believes the shocks occasioned by the movements of heavy machinery and high speed vibrations are injurious. For these reasons he would insist that women should not work in these factories for the last month of pregnancy. Further, he advises that a doctor, or failing a doctor a skilled midwife, should be attached to all factories where pregnant women are employed.

HEALTH OF THE UNITED STATES NAVY.

THE recently issued annual report of the Secretary of the United States navy gives a very favourable account of its personnel during the past year. The death-rate was 4.48 per 1,000 as compared with 8, the rate among men of the same age in civil life. The statistics of the three chief causes of death—drowning, tuberculosis, and pneumonia—all show on analysis encouraging improvement over preceding years. While tuberculosis was responsible for 30 per cent. of deaths in the civil population of the United States between the ages of 15 and 60, that disease caused 11 per cent. of the deaths in the navy in 1915. This is only what might be expected, as the sailor is a

LIBRARY U. OF I. URBANA-CHAMPAIGN

picked man. How high the standard of physical requirements is may be gathered from the fact that of 106,392 men who applied for enlistment in the United States navy during the past year only 30.18 per cent. were accepted. The Naval Act for the current year authorized the construction of a model hospital ship with accommodation for 300 patients in peace and 500 in war. It will use oil fuel "with all that this means for comfort and cleanliness." There will be special stabilizers to minimize rolling and pitching. It will be equipped with laboratories, a complete *x*-ray installation, and a full shore hospital outfit, including ambulances. Provision is to be made for an out-patient department, where men can be examined and receive special treatment, returning to their ships on the same day. In 1914 two training schools for hospital corps men were established—one at Newport, Rhode Island, the other at San Francisco. Successful schools have also been established at Samoa and Guam for the training of native women as nurses. Appropriations for the medical department of the navy increased from £136,400 last year to £237,545 for the current year.

FOOD FOR PRISONERS.

THE British Science Guild recently appointed a committee comprising among its members Professor W. H. Thompson of Dublin, Dr. D. Sommerville, Assistant Professor of Hygiene, King's College, London, and Dr. E. P. Cathcart, Professor of Physiology, London Hospital Medical School, to advise as to the most suitable and nourishing foodstuffs to send to prisoners of war in Germany or elsewhere. With regard to the composition of parcels, it recommends: that as tinning adds from 10 to 20 per cent. to the cost of any article, tinned foods should, wherever possible, be replaced by dried foodstuffs such as smoked herrings; that where the prisoners are supplied with bread from Switzerland or elsewhere, toffee might replace biscuits in parcels, a good toffee being nourishing and much appreciated by the men; that only rich fruit cakes, and not light cakes, should be sent; that raisins and dates are preferable to other dried fruits such as prunes; that stewed mutton, or beef rations, should be sent in preference to other preserved meats; and that condensed or dried milk should be included in every parcel. In view of the undoubted adulteration and inferior quality of many articles of food now on the market the Committee lays stress on the importance of the selection of foods being supervised by a scientific expert accustomed to deal with foodstuffs, and has arranged that samples of various articles for food parcels sent out by the Central Prisoners of War Committee shall be analysed from time to time under the direction of a member of the Guild's Committee.

Medical Notes in Parliament.

APART from the debate on the Criminal Law Amendment Bill, and the fusillade of questions that Mr. MacVeagh addressed to the Under Secretary for War on the subject of "manipulative surgery," the principal features in the House of Commons in the earlier portion of the week were Mr. Bonar Law's gratifying statement as to the War Loan, and his explanation of the "frank conversations" of Sir Douglas Haig with some distinguished French journalists. Although the success of the loan had been recognized in the closing days of the subscription, Mr. Law's assurance that seven hundred million sterling of new money had been secured was immensely gratifying, and there is reason to believe that this amount will be exceeded when the accounts have been completed After some little cross examination in reference to the Haig interview, Mr. Law carried the House with him in the feeling that it was undesirable in the public interest to pursue the matter. It was made clear that the articles did not with accuracy represent the Field Marshal's talk with the French writers, and that such publicat was not contemplated. On the other hand, there was desire to reflect upon what these writers had done. Law said definitely that the articles had not been revi by Sir Douglas. He also said that Sir Douglas had cretionary power to have such occasional conferences w journalists of allied nations.

The Naval Estimates presented by Sir Edward Car on Wednesday were for nominal amounts to allow discussion upon different votes without disclosure amounts involved. Sir Edward, however, gave an formative and cheering account of the work of Admiralty, and especially of the measures being ta to cope with submarines. He was reasonably frank to our losses of merchantmen since the new attacks h been made, and disposed of the German claim to h paralysed maritime traffic to our country by telling t at any time there may be found 3,000 vessels in the dar zone. He did not claim that immunity could be got fr submarine attacks, but he did that the power of th attacks could be mitigated by the action we were tak In this connexion he thrilled the House by narratives encounters with submarines, where the latter had gener got the worst of the business.

The Criminal Law Amendment Bill.

The Criminal Law Amendment Bill to make fur provision with respect to the punishment of sex offences and the prevention of indecent advertiseme and matters connected therewith, was introduced by Home Secretary, the Solicitor-General, and the Pa mentary Secretary to the Local Government Board February 15th. The following is an abstract of the visions of the bill with the text of the more impor clauses:

Clause 1 would raise the age of consent to 16.

Clause 2 is as follows:

2. *Sexual Intercourse by a Person Suffering from Vene Disease.*—(1). A person who is suffering from vene disease in a communicable form shall not have se intercourse with any other person or solicit or invite other person to have such sexual intercourse.

(2) If any person acts in contravention of this sect that person shall be liable on conviction on indictmen imprisonment with or without hard labour for a term exceeding two years, or on summary conviction to prisonment with or without hard labour for a term exceeding six months. Provided that a person shall be convicted under this section if that person proves he or she has reasonable grounds to believe that he or was free from venereal disease at the time the all offence was committed.

(3) When any person is convicted of any of the offe mentioned in the Schedule to this Act, the court ma they think fit, for the purpose of ascertaining whether person is suffering from venereal disease in a communic form, order that person to submit to such medical ex nation and tests as may be requisite for that purpose the person is a female, the examination and tests sha conducted, if she so desires, by a female doctor.

(4) Where a person has within three months before commission of any alleged offence under this sec received a written notice, either on an examina ordered under this section, or while under compul detention in any prison or other institution, from a qualified medical practitioner that he or she is suffe from venereal disease in a communicable form, person shall be deemed to have been so suffering a time when the alleged offence was committed, unless contrary is proved.

(5) An offence under this section shall be deemed an offence to which section twenty-nine of the Lar Act, 1916 (which relates to the demanding of money, with menaces), applies.

(6) In this section the expression "venereal dise means syphilis, gonorrhoea, or soft chancre, or any dis of the genito-urinary organs which may reasonabl suspected to be venereal disease.

Clause 3 provides that "Reasonable cause to be that a girl was of or above the age 16 years shall not defence to a charge."

Clauses 4 and 5 deal with the keeping of brot Keepers of brothels will be liable on summary convic

(*a*) To a fine not exceeding one hundred pounds or t prisonment with or without hard labour for a term not e ing three months; and

(*b*) On a second conviction to a fine not exceeding two hundred nd fifty pounds or to imprisonment with or without hard abour for a term not exceeding six months; and

(*c*) In the case of a third or subsequent conviction to a fine ot exceeding five hundred pounds or to imprisonment with or vithout hard labour for a term not exceeding twelve months.

On the second, third, or subsequent conviction, the accused nay in addition be required to enter into a recognizance to be f good behaviour for a period not exceeding twelve months, or n default may be sentenced to an additional period of imprison- nent not exceeding three months.

Clause 6 gives power to magistrates on a second con- iction for soliciting, loitering, etc., to impose imprison- nent with or without hard labour for a term not exceeding ne month.

Clause 7 (*advertisements*) deals with two matters. In the rst place with the issue or distribution of advertisements f an indecent or obscene nature, and fixes the maximum enalties of one hundred pounds and six months' imprison- nent. The concluding paragraphs of the clause are as ollows:

(*d*) The following section shall be substituted for ection 5—

> Any advertisement relating to syphilis, gonorrhoea, nervous debility, or other complaint or infirmity arising from or relating to sexual intercourse, and any advertisement which suggests, directly or indirectly, the use or taking of any appliance, drug, substance, or thing for the purpose of procuring miscarriage or abortion, or which suggests, directly or indirectly, that any premises are or can be used for immoral purposes, shall be deemed to be printed or written matter of an indecent nature within the meaning of Section 3 of this Act.

(2) Nothing in the Indecent Advertisements Act, 1889, s amended by this Act shall apply to any advertisement y any local or public authority, or to any advertisement ublished in any bona fide medical or pharmaceutical pub- cation or pharmaceutical trade list; and a person charged nder that Act as so amended with publishing an adver- sement, if he is not himself the advertiser, shall not be nvicted if he proves that he did not know, and had no asonable ground for suspecting, that the advertisement as of such a character as to make the publication thereof n offence.

Clause 8 deals with procedure on indictment.

Clause 9 with punishment for incest.

Clause 10 applies the Act to Scotland and Ireland.

The Home Secretary, in moving the second reading on ebruary 9th, gave the grounds of the chief proposals. he first clause proposed to raise what is known as "the e of consent" in charges of indecent assault from 13 to . In effect, this bill would lay down that it should be defence that a child—up to the age of 16—consented. nder the Act of 1880 it was assumed that a child up 13 years of age could not consent, being too young ally to understand. Clause 3 would amend Section 5 of e Act of 1885, whereby it is a misdemeanour to have, or attempt to have, carnal knowledge with a girl over 13 d under the age of 16. It was proposed to repeal the oviso that for the person charged to have reasonable use to believe that the girl was over 16 years of age ould constitute a sufficient defence. That proviso had a great extent nullified the section. Acquittals had mounted to as much as 50 per cent. of the charges. If e result was to some extent to protect girls over the age 16 and up to 17, so much the better. Sir George Cave d that he had considered the question of raising the e of consent to 17, but all the experts he had consulted re against it. If he did so he would have to retain the ovision as to "reasonable cause to believe"; otherwise ith the age raised to 17 or 18, as had been urged) a trap uld be set for a number of people. It was proposed, wever, to raise the period during which proceedings ght be taken from six to twelve months. This was be done because in many cases the girls who had been ltreated had hidden the fact until it was too late take proceedings. With regard to houses of ill fame, was proposed to amend Section 13 of the Act of 1885 by ending the provision against the letting of a house own to be intended for use as a brothel to cases where house was intended for use as a place for habitual pro- tution, and the penalties were to be increased to a fine of £100 or three months for the first offence, £225 or six months for the second, or £500 or twelve months for the third. The existing scale was inadequate when, as appeared from a case recently reported, a woman was making £17 a day, or at the rate of £6,000 a year, by this sort of traffic. As for soliciting, it was proposed to give magistrates power to impose imprisonment on cases of second offences, as persons had, he had learnt, paid the fine of 40s. twenty, forty, and even ninety times and had not felt it. Among the recommendations of the Royal Commission on Venereal Disease perhaps the most important were those dealing with diagnosis and the provision of institutions for treatment by local authorities. These matters were in the hands of the Local Government Board, which had already taken very vigorous action. The suggestion that unqualified practice should be restricted was, he knew, being considered by the Local Government Board for legislation. There remained matters which must be dealt with under the criminal law. In Clause 2 of the bill it was proposed to make it an offence for any person suffering from venereal disease in a communicable form to have sexual intercourse, or to solicit it or invite it. He was conscious there might be difficulties in bringing home the offence to persons who might plead they had no knowledge that they were suffering from disease. It was provided that a person convicted under the Act might be examined by a doctor —the doctor in the case of a female being a female doctor. It was provided also that the doctor who made the examination, or in case of imprisonment the prison doctor, should give written notice to any such person found suffering from diseases so that ignorance could not be pleaded. The Home Secretary next referred to the clause to stop indecent advertisements, mentioning that the old Act of 1889 omitted to deal with advertisements in papers. It was proposed to extend that Act not only to advertisements relating to venereal disease, but also to advertisements of means for procuring miscarriage or suggesting that premises could be used for immoral purposes. Sir George Cave added in closing that Mr. Herbert Samuel when at the Home Office projected a bill of the kind now submitted, and said that the draft had been taken up, with omission of some clauses and addition of others.

Mr. Samuel, after expressing satisfaction that the bill had been introduced, and strongly supporting the clause to make communication of venereal disease an offence, said he did not advocate compulsory notification of venereal disease and compulsory medical treatment, and he was glad that the bill did not contain such proposals, for the effect would be to deter persons from voluntarily seeking treatment. He did not believe it was practicable to require compulsory examination of all persons who entered workhouses or who were committed to prison. It would be an outrage to examine a person committed to prison for theft, still more for a quasi-political offence, with a view to discovering whether he was suffering from venereal disease. In support of the proposal for the medical examination of persons convicted of certain offences, Mr. Samuel referred to a case which came under his notice when he was Home Secretary. It was that of a known prostitute who was suffering from this disease in its most virulent form. She was convicted for soliciting; but the magistrates refused to sentence her for the short period which was all they could impose, and remanded her three or four times, and meanwhile she received medical treatment. This was brought to the knowledge of the Home Office, and he was obliged to say that the magistrates were acting illegally in using their remand power in this way. The magistrates protested, but the woman was released, and a few days afterwards was again found soliciting, with the certainty that she would transmit the disease to any one who had sexual relation with her. The effect of Clause 2 would, he believed, be that a man or woman would resort to the centres of treatment opened in accordance with the proposals of the Local Government Board. Mr. Samuel expressed great regret that the Home Secretary had not seen his way to raise the age of consent to 17. Were that done, and the proviso as to "reasonable belief" abolished, it would in fact afford protection up to 18. It might be said that juries might not convict, but public opinion had gone a long way in recent years. As for blackmail, if the bill contained the provision that any girl under the age of 17 or 18 convicted of prostitution could be sent to a

LIBRARY U. OF I. URBANA-CHAMPAIGN

reformatory for this particular purpose, there could not be a case of blackmail.

Mr. Glyn-Jones, while approving of the bill, raised questions as to certain points. No exception could, he thought, be taken to the definition of venereal disease, except as regards the last part—"a disease which may reasonably be suspected to be . . ." Suspected by whom? These words might cause a great deal of difficulty. The section to prohibit advertisements, while prohibiting advertisements to the general public, would exempt from its operation advertisements in bona fide medical or pharmaceutical publications. He asked why that exemption was to be made. He could understand the medical profession saying that the general public ought not to be told in public advertisements of any remedy for these diseases, but it came rather ill from the medical profession to say, "We want you still to permit the proprietors of these remedies to tell us in our journals what these things are used for." Was it suggested that the proprietors of these medicines should tell them in their technical journals what they ought to prescribe to their patients? Another objection he had was that these journals would be found in nearly every public library.

Commander Wedgwood said the one clause of the bill he approved of was that raising the age of consent to 16; he thought it might be raised to 17, because he thought it would hit the man as well as the woman. He believed it would be very difficult to get convictions for communicating the diseases. He thought also that in a House not elected by women, and without women's representatives in it, the presentation of such a bill for the persecution of this unfortunate class of women was nothing less than iniquitous.

Mr. Rawlinson rather wished that the bill had been confined to that part dealing with venereal disease, and he thought, too, that this part had been put rather hastily together. He had nothing to say against making the communication of venereal disease a criminal offence, except that he did not think it the best way to meet a difficulty. He disagreed with the late Home Secretary in his assertion that it would be an outrage to examine all criminals in gaol who were suspected of disease. He thought it was by examination and by learning more of the different people who were afflicted with the disease, and insisting upon compulsory treatment, that the real suppression of the disease would come about. Sir Henry Craik regarded the measure as urgent. Sir George Greenwood thought that Clause 2 would have little effect, and that the only way to stamp out the diseases was by registration and inspection.

Amongst the subsequent speakers who, with qualifications, supported the second reading, Mr. Bentley Dennis observed the notice subsection of Clause 2 was very loosely drawn. The bill was read a second time, and the committee stage has been put down for Monday next.

Bonesetters.

In the House of Commons on February 20th Mr. MacVeagh put a succession of questions to the Under Secretary for War in pursuit of his demand that men who do not hold medical degrees should be employed by the army in "manipulative surgery." He first asked whether the War Office was willing to appoint immediately a committee composed of men of high attainments, yet not connected with the medical profession, in order to inquire into the question of utilizing for the alleviation of the sufferings of wounded soldiers the services of experts in manipulative surgery who did not hold medical degrees. Mr. Macpherson replied in the negative, and Mr. MacVeagh then wanted to know what was the objection to such an appointment. The Under Secretary answered that it was a very doubtful proposition to suggest that non-technical men would be good judges of technical subjects. Mr. Swift MacNeill interjected the question: "Is the Government prepared to allow men to suffer in the interests of professional trade unionists?" Mr. Macpherson protested against that statement, and said that nothing had been more admirable throughout the course of the war than the skill that had been given and the efficiency displayed by the medical profession. Sir William Collins asked whether, while not excluding investigation of any line of treatment, from whatever source it might be suggested, the Government would have regard to the risks as well as to the advantages of unqualified practitioners. Mr. Macpherson replied in the affirmative. Mr. Lynch, the Nationalist Member, who rarely misses an opportunity for the exercise of his own peculiar saturnine humour, hereupon asked whether Mr. Macpherson was aware that five members of his own Government had undergone this treatment, and did he not admit that even the life of one private soldier was more valuable than that of the whole front bench—a jest which excited laughter.

Mr. MacVeagh afterwards pursued his questions, which were apparently designed for the purpose of arguing the matter through the medium of the notice paper. He inquired whether a soldier in the West Kent Regiment—W. H. Townley—after being unsuccessfully treated at home and abroad, was discharged from the army as incurable; and whether Mr. Macpherson would call for a report on this man's subsequent medical history. The Minister replied that he had no information on the subject. Mr. MacVeagh next asked whether the Minister was aware that five of the thirty officers of the 7th Oxfords were unfit for military service until they had undergone "manipulative treatment"; whether they had previously been treated unsuccessfully by medical practitioners; and whether they were now on active service in France. Mr. Macpherson said that he had no information. Mr. MacVeagh further asked whether the medical profession in France was availing itself of the service of experts in manipulative surgery for the treatment of wounded soldiers, and whether the Under Secretary would state on what grounds the War Office at home refused to allow "a similar dilution of labour." Mr. Macpherson answered that he had no information on the first part of the question. As regards the second part, he repeated that under the terms of the Medical Act no person could be employed as a surgeon in military service who is not registered under that Act. On the suggestion by Mr. MacVeagh that in the report of the British Medical Committee the statement was made that manipulative surgery was being used in France, Mr. Macpherson replied that it would be much better to debate the subject. He added we not only have the finest doctors and surgeons, but also the finest hospitals where the men are treated. Mr. MacVeagh put several other questions of the same character, submitting that highly placed officers in the services had been treated by manipulative surgery, and that privates failed to get the same expert assistance. He talked of this as "a scandal," but the Speaker pulled him up, reminding him that he had no right to debate the question then.

On February 21st Mr. Peto asked the Under Secretary of State for War whether his attention had been called to the offer of Mr. H. A. Barker to treat, without charge, by his system of manipulative surgery, officers and men who are disabled by joint injuries; and whether, "in view of the evidence of the success of this gentleman's methods," he would take steps to appoint a committee of surgeons to investigate and report upon his methods. Mr. Macpherson replied that he had nothing to add to the answer he gave on Tuesday. Mr. Peto: Is it worth while to have the views of eminent and orthodox surgeons on this man's work, and the evidence he can bring before them? Mr. Macpherson: I have seen the views of very eminent surgeons, and they are all against it. Mr. Peto: Has the hon. gentleman the evidence of people of the highest position who would give him exactly the opposite impression? Mr. Macpherson: No, I have not. Mr. Peto: Will the hon. gentleman be prepared to do so? Mr. Macpherson: Certainly. Mr. Lynch: What are the surgical qualifications of Mr. Barker? Mr. Macpherson: I can only say that Mr. Barker's name is not in the *Medical Register*.

It is understood that a movement is on foot to form a parliamentary committee to urge upon the War Office authorities the desirability of making the fullest possible use of all assistance available for the manipulative treatment of wounded soldiers. It is said that some fifty members are showing sympathy with the proposal, and that a meeting regarding it will be held next week. It is probable that a discussion on the subject will be raised upon one of the medical votes when the Army Estimates are taken. Mr. MacVeagh's intention is to move a reduction of a vote in order to divide the House on the question.

THE WAR.

ARM STUMPS AND ARTIFICIAL HANDS.

R. A. STADLER, writing on the formation of arm stumps itable for the voluntarily movable artificial hand,[1] ers to many details of practical importance recently rked out at the experimental institution at Singen. e principle of the voluntarily movable artificial hand to make use of the contractile power of the muscles of e stump. The power is transferred from the muscle to e apparatus through the intermediation of a metal bar serted in a canal, "the power canal," made by operation rough the soft parts of the stump, including the muscle elf. The muscles of a stump are as a rule capable of le function, but by graduated exercise the power of luntary movement may be restored in them. Even then, s found that there is no discrimination between flexor d extensor actions, the two sets of muscles acting gether. By prolonged education the power of using e flexors apart from the extensors may be attained; d it is then usually found that the extensors also are able of isolated contraction.

Dr. Stadler lays it down as a general rule that flexors uld be used for flexor movements and extensors for ensor movements. He considers it advisable to reverse e arrangement only in cases where the power of the ensors greatly predominates over the flexors; when s reversal had to be made the education of the muscles ved a much more difficult and prolonged process.

The method adopted for deciding which muscle or set of scles should be used for the power source was as ows: The muscles to be tested were firmly gripped h the thumb and forefinger, and the patient was made contract them. By repeated observation it was found sible to ascertain which muscles contracted with most our. Through these the "power canal" was made.

The stump muscles, it was found, could not be used as ource of power unless on contraction they formed a siderable fleshy swelling, "the power swelling," and for s to form the muscle must be loose and not adherent to es. In some stumps a sufficient "power swelling" was eady present; in others it had to be provided.

Dr. Stadler states that the conditions are most favourable rm stumps of moderate length, those including someat more than the upper third of the arm. In these it s not usually necessary to provide a "power swelling"; sufficed to make the canal through the muscles at the t where they were most movable. Specially favourable e these stumps when no muscular adhesion to bone occurred, and where, as often happened, the soft parts e so loose that they could be freely moved in a gitudinal direction over the bone, like a sleeve. Where muscle had become adherent to bone, much, it was ad, could often be done by massage; but if this failed, muscles were loosened by operation.

n all other arm stumps, Dr. Stadler states, a "power lling" had to be provided before the power canal was le, in order that sufficient shortening might be secured. short arm stumps the muscles were frequently so adnt to the bone that no contractile force was present l a "power swelling" was made. It was necessary to te and loosen the muscular belly, but much disination was called for in order to preserve useful chments. In very long arm stumps, where more than thirds of the arm remained, a "power swelling" was obtainable when the muscles were extremely movable the bones. This mobility diminished with the length he stump, and was usually very slight in cases of ticulation through the elbow-joint.

Forearm stumps presented many difficulties in the way orming a "power swelling"; the presence of tendons an obstacle, and the conditions of nutrition were not urable for the healing of the canal. The conditions for ing the swelling were found to be best at about the dle of the forearm, in the fleshy portion of the flexor extensor muscles. In very short forearm stumps the litions were good for providing the "power swelling"; Dr. Stadler had recently observed a tendency in this ation for the flexor muscle to undergo undue hyperhy, so that complete flexion at the elbow was prevented by the bulk of the muscle. He suggests that this objection might be overcome by using the triceps and brachialis muscle as the source of power instead of the forearm flexors, but in that case the movements of the fingers independently of the forearm would be lost.

Dr. Stadler states that in all forearm stumps it was impossible to make the "power canal" without previously forming a "power swelling." The mobility of the muscles in these stumps was generally so slight that it was necessary to loosen the muscles before placing the canal. In some cases it might even be considered justifiable to shorten the stump by several centimetres in order to render the conditions more favourable. Reamputation was necessary also when ankylosis between radius and ulna had occurred. On the other hand, where exarticulation through the wrist-joint had been performed, it was a mistake to shorten the stump. The rotatory movement of the forearm should be preserved; any lack of mobility in the forearm muscles should be corrected by loosening the tendons at the lower end, and the power canal should be placed higher up in the forearm, through the fleshy substance of the flexors or extensors. A difficulty in connexion with forearm stumps was the tendency of the power swelling to undergo permanent retraction and thus loss of force. This tendency Stadler considers to have been due to the absence of any counteraction to the normal tonus of the muscle. To meet this difficulty he had successfully provided counteraction by means of a spring. In upper arm stumps the effects of retraction were not so obvious; the lifting power of the muscle generally remained adequate notwithstanding the retraction.

In discussing the formation of the canal, Stadler lays stress on the point that the skin flaps, which are rolled together through the muscle, should be at least 4 cm. wide. If made narrower than this, a tendency to patchy necrosis arose, which greatly hindered the healing of the canal. Good resistance on the part of the tissues of the canal was only obtained by primary healing; at spots where secondary healing occurred the tissue resistance was always greatly reduced. Dr. Stadler's paper is illustrated by numerous photographs of stumps with their "power swellings" and "power canals," and also of the varied and delicate voluntary actions that can be performed with the artificial hand, such as picking up a match, tearing off a slip from a wall calendar, and many others.

[1] *Kriegschir.*, Heft 29, p. 623, *Beitr. z. klin. Chir.*

APPLIANCES AT THE MILITARY ORTHOPAEDIC HOSPITAL, VIENNA.

DR. OSKAR STRACKER has made a report[1] on some recent improvements in orthopaedic appliances designed in the military orthopaedic hospital of Vienna. He gave a brief description of the working organization of the institution. Apart from the invalid school, the hospital has a department under the direction of a staff of expert mechanicians whose duty it is to invent new apparatus and prepare models. The models are then tested on the patients of the invalid school. They are next passed on to the manufacturing department where they are reproduced in quantity. A third department is reserved entirely for repairs.

The more interesting of the improvements described by Dr. Stracker are those relating to paralysis of the peripheral nerves. He has designed an apparatus which proved of much use in paresis or paralysis of the deltoid muscle. Among plexus wounds it was not infrequent to find a lesion of Erb's point or in its neighbourhood. In such cases the deltoid and biceps or one of these muscles was affected. Stracker states that the well-known disability arising from paralysis of the deltoid could to a large extent be mitigated by an apparatus he had designed to assist in keeping the arm loosely away from the body without hampering the actions of the sound muscles. This apparatus consisted of two limbs connected by a hinge. One limb carried a curved plate for the upper arm to rest on; the other ended in a cylindrical bar which passed through two rings fixed to a vertical splint placed along the side of the body in the mid-axillary line. Inferiorly the vertical splint bore a pad, modelled to the iliac crest, on which it rested, and was bound to the body by two belts. At the hinge joint in the axilla a metal wire was wound round the parts so as to

[1] *Kriegschir.*, Heft 29, p. 653, *Beitr. z. klin. Chir.*

LIBRARY U. OF I. URBANA-CHAMPAIGN

form a spring which held the limbs of the apparatus apart. Movements of the arm are stated to be greatly facilitated by this apparatus. Adduction of the arm by compressing the spring gave the impetus for abduction. Dr. Stracker reports that painters, tailors, builders, and others, have been rendered capable of resuming work with the assistance of this apparatus.

For paralyses of the flexors of the elbow Dr. Stracker found a spring running over the front of the elbow to be the most suitable contrivance. A metal rod passed down on either side of the limb was fixed by bands to the arm and forearm. The rods were hinged precisely in the axis of the elbow joint, and to them were attached two spiral springs so arranged as to cross in front of the elbow. One end of each spring was attached by means of a leather strap, perforated to enable the spring to be tightened or loosened as required. The springs were made of such strength as to keep the elbow flexed and at the same time allow the triceps muscle to overcome them.

For wrist-drop Dr. Stracker had used several types of appliance based on a design by Dr. Spitzy, consisting of a leather manchette for the forearm, on the flexor side of which a flat metal bar was fixed. The bar passed along the palm, and at its end was a transverse piece which supported the hand along the line of the metacarpo-phalangeal joint. The thumb was held away from the palm by a steel spring running from the outer side of the manchette. The support given by the transverse bar enabled the more delicate actions of the fingers to be executed, as in writing, playing, typewriting, sewing, and so forth. Where the aim was simply to keep the hand raised a metal knob acting against the hollow of the hand was substituted for the transverse bar. Where the action of grasping was required the metal bar was placed on the extensor side of the manchette, and the transverse bar, lying across the knuckles, was curved inward towards the palm at its extremities. To the hooks thus formed a strap was attached running across the palmar aspect of the metacarpo-phalangeal joints and supporting the hand, and the action of grasping was not interfered with.

For raising the point of the foot in "dropped-foot" Dr. Stracker used a very simple contrivance. From a metal bar attached on either side of the leg and passed down to the heel of the boot two short horizontal rods projected backwards above and below the hinge at the ankle. Between the extremities of these rods a pressure spring was inserted, the action of which was to dorsiflex the foot. Dr. Stracker concludes his report with what he appears to regard as the fundamental dogma of orthopaedics: "That which is simple is good; that which is complicated is bad."

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died of Wounds.

Captain J. Macallan, R.A.M.C.

Captain James Macallan, R.A.M.C., died on February 9th of wounds received on February 6th, aged 30. He was the fourth son of Mr. Andrew Macallan, solicitor and bank agent, of the National Bank House, Rutherglen, and was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1910, subsequently filling the post of senior house-surgeon of the Royal Infirmary, Wigan. He joined the Special Reserve of the R.A.M.C. as lieutenant on September 17th, 1914, was promoted to captain after a year's service, and was attached to the East Lancashire Regiment.

Died on Service.

Lieutenant-Colonel F. Flashman, A.A.M.C.

Lieutenant-Colonel Froude Flashman, Australian Army Medical Corps, died of pneumonia in No. 14 General Hospital, Boulogne, on February 12th, aged 46. He was educated at Sydney University, where he graduated M.B., and was assistant physician to the Prince Alfred Hospital, Sydney. He came to Europe in the Australian A.M.C. in July, 1915, and was for some time employed in No. 3 London General Hospital, Wandsworth, before going to France.

Wounded.

Captain A. H. Ernst, R.A.M.C. (temporary).
Captain W. S. Evans, R.A.M.C. (temporary).
Captain C. W. Robinson, R.A.M.C.(T.F.).
Lieutenant R. A. Slater, R.A.M.C. (temporary).

Deaths of Sons of Medical Men.

Clark, William G., Captain London Regiment, only son of Dr G. Clark, of Stockwell, reported missing on July 1st, 1916, now presumed killed on that date, aged 22. He attained the rank of captain on August 29th, 1914.

Stevenson, John Huntley Wickham, Second Lieutenant Indian Army, younger son of Surgeon-General H. W. Stevenson I.M.S. (retired), of Castletown, Isle of Man, died of wounds on February 5th. He was educated at Wellington, entered Sandhurst in August, 1914, got his first commission on January 13th 1915, and was posted to the 46th Punjabis.

Medical Student.

Stewart, N. W., Lieutenant Royal Scots, attached to Royal Flying Corps, the elder son of the Rev. Alexander Stewart of Edinburgh, who died of wounds on January 23rd, was a student of science and medicine at the University of Edinburgh, where he took first and second-class certificates and a medal.

HONOURS.

A FIFTH supplement to the *London Gazette* issued on February 15th contains the names of the following medical officers as recipients of honours and rewards for services rendered in connexion with military operations in the field:

To be C.M.G.—Colonel Patrick Hehir, C.B., M.D., F.R.C.S., I.M.S.

Awarded Bar to the Military Cross.—Temporary Captain Allen Coulter Hancock, M.C., R.A.M.C.

To be Brevet-Colonels.—Lieutenant-Colonels W. G. Beyts and L. P. More, of the R.A.M.C. (with effect from January 1st, 1917, inclusive).

To be Brevet-Lieutenant-Colonels.—Major F. A. F. Barnardo, M.D., F.R.C.S., I.M.S. (with effect from January 1st, 1917, inclusive); Major A. W. C. Young, M.B., I.M.S. (with effect from June 3rd, 1916, inclusive).

The King has granted permission to the following medical officers to wear the decorations and medals indicated, conferred upon them by the Allied Powers for distinguished service rendered during the course of the campaign:

By the Emperor of Russia.

Order of St. Anne.—Third Class (with swords): Colonel Gerald Cree, C.M.G., A.M.S.

Medal of St. George.—Second Class: Senior Subassistant Surgeon Maula Baksh, Imperial Establishment, Hong Kong Singapore Artillery.

By the King of Serbia.

Order of the White Eagle.—Second Class (with swords): Surgeon-General Francis Harper Treherne, C.M.G., F.R.C.S. Third Class (with swords): Lieutenant-Colonel (temporary Colonel) Alfred Ernest Conquer Keble, D.S.O., R.A.M.C. Fourth Class (with swords): Lieutenant-Colonel (temporary Colonel) Denis Joseph Collins, M.D., R.A.M.C., Lieutenant-Colonels Richard Reginald Sleman and John Robert Wha M.B., of the R.A.M.C.; Majors Richard James Bradley, M.I Robert Welland Knox, D.S.O., M.B., and Walter Scott Patto M.B., of the I.M.S.; Major Roy Stanley McGregor, Austr lian A.M.C. Fifth Class (with swords): Captain (temporary Lieutenant-Colonel) Henry Wade, M.D., F.R.C.S., R.A.M.C Captains (temporary Majors) Edmund Tytler Burke, M.I R.A.M.C.(S.R.), Edward Leopold Rowse, M.D., R.A.M.C.; Ca tains Heerajee Jehangir Manockjee Cursetjee, M.B., Herm Falk, M.B., Edward Slade Goss, and Vivian Bartley Gree Armytage, of the I.M.S.; Captains Robert Carlyle Carlyl M.B., James Gerald Fayrer Hosken, Robert Proudfoot, M.I and Hugh George Trayer, M.B., of the R.A.M.C.; Capta Wentworth Roland Caneagh Mainwaring, Australian A.M.C attached Australian Light Horse; temporary Captai Reginald Anson Mansell, M.B., and Joseph Arthur Arkwrigh M.D., of the R.A.M.C.; Lieutenant Nilkanth Sheiram Jat I.M.S.

Cross of Karageorge.—First Class (with swords): Assistant Surgeon George Tresham Wrafter, I.S.M.D., Subassistant Surgeon Rawail Singh, I.S.M.D. (attached Sikhs).

By the King of the Belgians.

Officier de l'Ordre de la Couronne.—Major Henry Session Souttar, R.A.M.C.

Decorations and medals have also been conferred upon a large number of non-commissioned officers and men of the Royal Army Medical Corps and of the Indian and Colonial Medical Corps.

England and Wales.

CENTRAL MIDWIVES BOARD.

AT the monthly meeting of the Central Midwives Board, on February 15th, it was announced that the Acting Registrar of the General Medical Council had asked the Board to forward to local supervising authorities (*a*) a copy of a circular letter addressed by the Council to all the registered medical practitioners in England and Wales calling their attention to the provisions of the Midwives Act, 1902, which prohibits any woman, not being certified under the Act, from attending women in childbirth habitually and for gain otherwise than under the direction of a qualified medical practitioner; (*b*) a copy of a warning notice issued by the Council pointing out that any registered medical practitioner proved to have been guilty of "covering" an uncertified woman, will be liable to have his name erased from the *Medical Register*. The Secretary stated that the Local Government Board would wish to distribute the letter and notice to the various local supervising authorities, and that the General Medical Council had agreed to this. The Board raised no objection to this arrangement being carried out.

In reply to a letter from the town clerk of a provincial city respecting the conduct and action of a local medical practitioner in connexion with an alleged breach of Section 1 (2) of the Midwives Act, 1902, on the part of an uncertified woman, the Board decided to forward the papers in the case to the General Medical Council and to express its readiness to appear as prosecutors in the case if so desired. In respect of a similar charge against a registered medical practitioner in another place the Board agreed to request its solicitor to consider the evidence available and advise as to whether action should be taken.

Revised lists of institutions at which midwives may be trained and of recognized lecturers for the year April 1st, 1917, to March 31st, 1918, were approved, and the names of fifteen women were removed from the roll on account of old age, ill health, and inability to comply with the rules.

CORONER AND DOCTOR.

At an inquest held at Altrincham by the coroner, Mr. Bates, on February 12th, some remarks were made about a medical man who had been in attendance on the deceased which can only be regarded as extremely unfair. It appears that Elizabeth Smith, aged 90, had been attended a short time before her death by Dr. Blease junior, and that having been left alone in her bedroom for a few minutes she was found lying on the hearth with her head on the fender. It was supposed that, feeling cold, she had seated herself near the fire and fallen on the bars. A verdict was returned of accidental death from shock brought on by burning. Evidence was given by the coroner's officer that when he went for what he called "the usual note" for the coroner, Dr. Blease senior ordered him out of the surgery, and Dr. Blease junior asked what authority he had to ask for the note, saying it was an attempt to get medical information for nothing. The witness replied that it was the usual custom for the doctor to send the coroner a note, but Dr. Blease refused to give it. The coroner said it was the first time he had ever been treated in so discourteous a manner by a medical man. The note was wanted to enable him to decide whether a *post-mortem* examination was necessary or not, and he considered it contemptible on the part of the doctor to charge him with trying to obtain medical information without payment. The foreman of the jury expressed sympathy with the coroner's view; but the coroner cannot well be ignorant of the fact that he had no right to demand medical information from the doctor unless a summons to attend at the inquest were issued; the doctor would then have been entitled to the prescribed fee, and Dr. Blease was perfectly within his right in refusing to give such information in response to a request made in the manner described. This being so, the statement of Dr. Blease that it was an attempt to obtain medical information without paying for it seems to have been a common-sense interpretation of the facts. If the jury were not distinctly informed of the doctor's rights, they can perhaps hardly be blamed for their comments, but the profession owes a debt of gratitude to Dr. Blease for resisting a practice which is far too common with coroners.

Scotland.

SPHAGNUM MOSS DRESSINGS.

A NEW dépôt of the Edinburgh Committee for the preparation of sphagnum moss dressings was opened by the Lord Provost on February 13th in Merchiston Crescent, Edinburgh. Among those who attended the ceremony were Lieutenant-Colonel Cathcart, F.R.C.S., the originator of the movement, Dr. McKenzie Johnston, director of the organization, and Sir John Cowan, through whose influence the large mansion house of Craigroyston was lent to the committee for its work. The Lord Provost said that in July last only 20 dressings were produced in the first week, but the average output for 1916 was 2,000 dressings a week. The committee had branches in all parts of Scotland to collect the moss, with the result that 68,000 dressings were sent out. There were other organizations at work in Glasgow and in many districts of England.

INSANITY AND THE WAR.

Dr. Oswald, medical superintendent of the Glasgow Royal Asylum, in making his report to the annual meeting on February 15th stated that there were 432 patients in the asylum at the beginning of the year, and 437 at its close, the average number resident being 436. The admissions into all Scottish asylums in 1916 showed that insanity was nearly equally divided between the sexes, the greater frequency of general paralysis and alcoholic insanity in men being balanced by the greater number of women who suffered from melancholia, or broke down at the climacteric period. He believed that the effect of the war, opening up to women a greater variety of occupations, would increase their mental stability, for a woman would be better able to find out for what occupation she was best fitted; undoubtedly some of the female admissions during the last year owed their illness in part to being engaged in work for which they were temperamentally unsuited. He referred especially to students or teachers. Patients suffering from delusional insanity were frequently dangerous and when the disease was confirmed their seclusion was necessary in the interests of society. Such persons were frequently clever and well educated. They were regardless of the rights of others, and among them were at least some of the eccentrics and "anti's" of present-day notoriety. The onset of the war had arrested for a time the course of the disease in some of these cases, owing to its compelling effect on the mind; time, however, bred familiarity even with a world-war, and old ideas, normal or abnormal, reasserted themselves; in the last six months he had seen a number of patients whose illness began before the onset of the war, which had checked it, but who had of late shown a return and aggravation of their symptoms. The definitely ascertained cause of the insanity in twelve men and five women was alcoholic excess, the largest number reported for ten years, and the highest percentage on the admission-rate for that period. The admissions, however, were drawn from so large an area and the figures were so small that he did not feel justified in drawing conclusions. He was informed, however, that the admissions into one of the district asylums in Glasgow in 1916 showed that alcohol was the cause of the illness in 5 per cent. more than in the previous year. The war, in his opinion, had not led to any increase of insanity among the civilian population, but among those on active service there were many instances of nervous and mental breakdown directly due to its effects. A large proportion would recover, and every effort was being made to lessen this terrible aftermath of the war. The influence of the war on the mental stamina of the nation in the near and remote future could not be estimated but was found to be far-reaching. He believed that there was at present no actual increase of insanity, and the report of the General Board of Control for 1915 showed an actual decrease of 130 patients for that year, the first time such a decrease had been recorded in any year. Insanity was most common among the poor, and poverty, insufficient nourishment and anxiety were powerful factors in its production. The high standard of living at present enjoyed by the poorer classes, their freedom from the fear of want, and their constant and well-remunerated employment had reduced the number of cases due to this cause. The medical officer of

LIBRARY U. OF I. URBANA-CHAMPAIGN

health for Glasgow had reported that the death-rate for 1916 was the lowest recorded, and Dr. Oswald believed it not improbable that when statistics were available, a low incidence of insanity would also be found. Of the therapeutic value of work on farm and garden as a healer of minds there could be no doubt, and he could see in the awakening practical interest taken in the cultivation of the land by a large number of men and women a double advantage—an increase in the national food supply and a betterment of the mental and nervous health of those who undertook such work. The Dean of Guild, who presided, warmly congratulated Dr. Oswald on his statement, and congratulated the directors on their decision to admit soldiers and sailors mentally affected by the war. This was regarded not only as a patriotic duty, but as a legitimate extension of the objects for which the institution was founded. He also congratulated the directors on the economy with which the institution was conducted; the cost of maintenance had increased by 30 per cent., but no increase had been made in the rates for patients.

Eyesight of Munition Workers.

At the annual meeting of the Royal Victoria Eye Infirmary, Paisley, Dr. Gilchrist stated that last year foreign bodies had been removed from the eyes of no fewer than 2,135 workers, many of them employed in munition and armament factories. A number of cases of burns of the face and eyes among men and women employed in factories had also been treated. He strongly urged that the use of protective spectacles should be enforced; by their use the number of cases of injury would be largely diminished, and some eyes which might be totally lost would be saved, compensation claims reduced, time lost by workers largely saved, and the work of hospitals lessened.

Ireland.

Dispensary Doctor of Military Age.

At the last meeting of the guardians of the South Dublin Union a letter from the Local Government Board was received pointing out that Dr. Andrew Ryan, who was elected by the guardians the previous week as temporary medical officer of the Clondalkin Dispensary District, was recently qualified, and eligible in respect of age for service in the R.A.M.C. In view of the urgent need for the services of such men in the army, and the fact that the guardians are in a position to make other sufficient arrangements for the care of the sick poor of Clondalkin by the appointment as resident temporary medical officer of a doctor above military age, or otherwise ineligible for military service, the Board declined to sanction Dr. Ryan's temporary employment in the dispensary district as proposed. It was ordered that a copy of the letter be sent to Dr. Ryan.

Blackrock War Hospital Supply Dépôt.

At a public meeting held at Blackrock, co. Dublin, under the auspices of the Irish War Hospital Supply Dépôt, Mr. J. P. McCabe, J.P., who was in the chair, said there was no work to which men and women could better give their time than helping wounded soldiers. Those who were fighting the good fight deserved the sympathy of all, and the dépôt had the hearty support of the Urban Council. Dr. R. C. Peacocke, Secretary of the East Leinster Division, British Medical Association, in proposing a resolution that the dépôt was worthy of every support in carrying out its work of mercy, said that the object of the meeting was to ask for volunteers to give their spare time in providing splints, crutches, etc. During the coming big push more and more bandages, splints, etc., would be wanted. The War Office had taken over the Meath Industrial School for the purpose of a military orthopaedic hospital. It would accommodate some 200 soldiers, and for it more hospital requisites than ever would be wanted. Lady Dockrell, who seconded the resolution, said that it was not only a work of mercy, but an obligation, to look after the maimed and wounded soldiers, and a work which demanded the support of all. The resolution was unanimously adopted. Working and general committees were appointed on the motion of Rev. J. Pearson, B.D.

Correspondence.

LOOSE BULLETS AND FOREIGN BODIES IN THE HEART.

Sir,—The case which you record[1] of the wanderings of a shrapnel bullet in the circulation is of very direct interest to us who are preparing for exhibition the War Office collection of pathological specimens.

In that collection there are three specimens where a bullet or part of a bullet was found free in the ventricle of the heart, and yet in which there was no trace of a wound in the wall of the heart. We had supposed that such bullets had found their way into a large vein, probably in that part of the inferior vena cava which is almost surrounded by the liver. We had a difficulty in supposing that a bullet could be carried along by the venous stream, but Dr. Grandgérard's case, to which you have drawn attention, sets our difficulties at rest. Dr. Grandgérard observed the bullet in motion in the auricular region of the heart, then saw it in the right groin, then over the base of the sacrum. So it is quite evident a bullet may be swept with, or fall against, the venous current.

My chief object in calling attention to the problem of intracardiac bullets—the condition is not rare, for I have seen records of at least eight cases—is in the hope that the officers of the R.A.M.C. may make a systematic search of the great veins in such cases, in order to determine the site where such bullets enter the venous circulation, and discover the reason why an entry may be made without noticeable haemorrhage.

In every case the bullet is coated with fibrin. In one case Colonel H. M. W. Gray successfully removed the bullet from the right ventricle, death occurring four days later, not as the result of the operation.[2] There is no record of such a bullet being carried into the pulmonary artery; that is a remarkable circumstance. If the bullet is loose within the right ventricle—or auricle—it might be possible, by manipulating the position of the patient, to bring the bullet into a part of the body which is more accessible to the surgeon, as in Dr. Grandgérard's case.

I should like to take this opportunity of stating that the collection of war specimens which is being assembled here by order of the Medical Department of the War Office, now amounts to over 1,200 specimens. Mr. S. G. Shattock and Mr. Cecil Beadles are, as your readers know, now engaged in preparing specimens for exhibition.—I am, etc.,

ARTHUR KEITH.

Royal College of Surgeons of England,
Lincoln's Inn Fields, W.C.,
February 19th.

THE PROPHYLAXIS OF VENEREAL DISEASES.

Sir,—Will you once more grant me space for a few remarks on this subject, suggested by the matter contained in your issue of February 10th relating to the discussion on January 31st at the Royal Institute of Public Health on the lecture by Dr. C. J. Macalister, as well as to the letter of Mr. Hugh Elliot on which you have commented?

It is gratifying to those who regard the prevention of all kinds of infective diseases by all possible means as the duty of all medical practitioners to know that at least two very prominent members of the National Council for Combating Venereal Diseases are wholly in accord with their views. This accord was proved by the speech of Dr. Mott, whose special knowledge and labours as a member of the late Royal Commission on Venereal Diseases were so invaluable, and by the striking and clearly reasoned remarks by Dr. Otto May—one of the secretaries to the National Council—who urged that the question of prevention was a purely medical one, and that propaganda on the prevention of infection by venereal diseases should be persevered with in spite of opposition.

The further facts that the lecturer, in his reply to the speakers at the discussion, agreed that the point as to prophylaxis must not be put on one side, and that no speaker challenged the apparently general unanimity of the meeting, indicate that not much, if any, opposition is likely to arise in medical quarters to the taking of practical measures towards widely popularizing a knowledge

[1] BRITISH MEDICAL JOURNAL, EPITOME, February 17th, p. 7.
[2] BRITISH MEDICAL JOURNAL, 1915, vol. ii, p. 561.

f the scientific means of prophylaxis that are now and ave for some years been available, and shown to be fficacious.

Although I welcome and agree with the views expressed by Mr. Hugh Elliot in his very interesting letter s to the necessity of keeping apart any moral or other uestion from the purely medical subject of prophyaxis, I am in accord with you, Sir, that Mr. Elliot has ot made out his implied contention that in the present nstance medical "trades-unionism" has played any part a putting obstacles in the way of public knowledge of he antivenereal prophylactics now in question. The eal cause of opposition has been, and is still in some uarters, of lay or non-medical origin. This is called public opinion," and the undue silence of the medical rofession on the matter is the result of undue submission o lay objections and to an untested and probably quite verrated or even non-existent "public opinion," rather an of any desire to preserve a monopoly of knowledge on edical subjects which are of the first importance to the ommunity.

These general considerations lead me to add that I o not think that the medical profession is exercising self, or will exercise itself much on the question as whether or not the knowledge of the means of preention should be given by medical men only to those ho consult them in special instances. It is far more obable that in view of the wide-reaching evils of these seases, and the impossibility of establishing a general adication or "functional paralysis" of a primary and ecessary instinct, medical practitioners will now feel it be their duty to pay less attention to sporadic, though metimes powerful, attempts to hinder their efforts, and spread their knowledge of scientific prophylaxis as far possible.

One word more concerning the efforts recently made to eck the evils caused by advertising and other unlicensed actitioners, especially in relation to venereal diseases. oubtless, apart from any governmental action, an imense reduction of this plague could be effected by a neral resolve on the part of newspaper proprietors to fuse admission to quack advertisements. But this can arcely be hoped for; and if anything practical is to be ne in this direction it must rest with the Local Governent Board, if not with Parliament. This matter, indeed, now apparently under consideration by the Board. opportunity thus presents itself for the Medical Departent of the Local Government Board to urge also the portance of no longer setting aside the question of ophylaxis, and of taking prompt steps to facilitate the der knowledge of practical means for efficient preven-n.—I am, etc.,

ondon, W., Feb. 14th. H. Bryan Donkin.

Sir,—In problems involving the consideration of sexual ations—the oldest question that has puzzled mankind—take any but the widest view is deplorable. Particuly repugnant to those who would honestly seek the best ution of these grave matters is anything in the nature "special pleading." Unfortunately, the letter of the tor of *Downward Paths*, in reply to Mr. Hugh Elliot, is n to this objection. For example, her argument, coming prophylactic advice regarding venereal disease to ice as to how to commit crime, is so grossly unfair and physiologically absurd as to need no refutation, while, eed, it damages the writer's admirable cause. Also the that "silence" is the best answer to the "taunt" of eserving syphilis in the interests of morality" may lead those unfamiliar with the ready wit and cleverss of woman in controversy. (When, by the way, does argument become a "taunt"?) So far as recollection ves, silence has not been commonly employed by nan equipped with a passable reply.

However, I have no desire to add any further "taunt" he one complained of, neither have I any wish to enter what at the best is a very difficult and delicate discussion, wherein one would find it wellnigh impossible to ress all that one believes without offending many of 's most respected fellow creatures. But I do feel most ngly that narrowness of view, and the import of ings and sentiments, whether religious, sexual, ethical, what not, must be sternly repressed in dealing with question, affecting as it does in the highest degree the future development and welfare of the human race. For what higher duty can we know than to work for that great end? I would therefore emphasize that the prophylaxis under discussion is *immeasurably the lesser of two evils*, and would beg that this fact may never be lost sight of.

In deciding the other ever-present and ever most serious question, as to how to minimize prostitution, do not let us forget that the physiological factor is one important issue involved. While the male can, perhaps without bodily harm, lead an absolutely celebate life, yet for the female to make the very best of her life and attributes the sexual act is a physiological necessity, a fact often unsuspected by the individual, to whom it may be most distasteful. The temptation to evade the terrible responsibility of advocating any particular means of dealing with these stupendous issues is very strong. Nevertheless the subject absolutely demands the fullest examination at the present time. Its urgency is such that we may yet see the man arise bold enough to place before the people reasons for the legalization of carefully regulated polygamy. Surely as worthy of consideration as regulated vice! At any rate, even this expedient of a lower type of civilization might be considered after the war, if only on account of the personal health of the surplus female, as well as to permit her the possibilities of happy motherhood.

Woman is so splendid in the crisis through which we are passing that one cannot imagine the man who, whatever his former views, would now deny the vote to those who want it, or, indeed, any other of the "woman's rights" she may wish to claim—even the right to lead a physiological life.—I am, etc.,

London, W., Feb. 17th. George Rowell.

Sir,—May I venture to trespass once again upon your space in order to reply to the question which you put to me in your issue of February 10th, and to reply also to the editor of *Downward Paths* in that of February 17th? You ask me where the obstacles lie in the way of a layman who desires to study medical science, and you point out very truly that it is open to any one to study medical writings. In reply, I would urge that in no science is mere book study of any great value. Practical work and first hand observation are essential to give reality and bottom to any scientific knowledge, and in the way of these there are great obstacles to study by laymen. In making this remark I do not for a moment suggest that these obstacles should be removed. They exist for the protection of society against unqualified bungling. I named the fact, not by way of criticism, but in support of my contention that medical knowledge is and must continue to be to a great extent a monopoly of those who have been able to devote five years or so of their lives to the exclusive study of this science.

Nor did I mean to suggest that the State has endowed the medical profession with any privileges to which they are not entitled. What I did mean was, that quite apart from any "social contract," laymen trust doctors to do all in their power for the suppression of disease, independently of any social theories as regards which doctors and laymen are on equal terms. If it is ruled permissible for a doctor to withhold important medical knowledge from a layman, on grounds not connected with medicine but with social theories from which the layman may differ, then it at once becomes a matter of urgency for laymen themselves to acquire such medical knowledge as they can, and to take into their own hands that power of self-protection which is denied to them by the official repositories of medical science. And this can only be done by upsetting to some extent the existing relation between the public and the profession—by breaking down the absolute dependence of the former upon the latter.

The editor of *Downward Paths*, by some circuitous process of logic, arrives at the conclusion that I would also require a doctor to furnish information to patients on the methods of procuring abortion. I fail to see any shadow of an analogy. Society has determined that procuring abortion is a crime; by withholding information on this subject, doctors are not giving rein to any social fancy of their own; they are not the arbiters, for it is society at large which has decided that this thing shall not be done. In fact, your correspondent fortifies my argument, instead of weakening it; for my whole contention was that it is the prerogative of society, and not of the medical profession, to

LIBRARY U. OF I. URBANA-CHAMPAIGN

set limits to the exercise of medical skill. Since the editor of *Downward Paths* is interested in analogies, may I present her with a better one? If, as she claims, it is right and proper for doctors to refrain from checking a particular disease on account of a personal whim, then they may also refrain from checking any other disease on similar grounds. They may decline to use the anti-serum for diphtheria or tetanus, because it involves vivi-section, of which they may happen to disapprove. They may refuse to a soldier the benefits of inoculation against typhoid fever, if they happen to think (as some Quakers do) that no man ought to go soldiering. And in general, once this principle is accepted, they may hold aloof from the best method of dealing with any disease on account of some conscientious twist which alienates them from giving the most efficient treatment, but with which the unfortunate patient is quite unconcerned.

Coming now to plain terms, it seems to me that those who wish to withhold from the public the knowledge of how to prevent syphilis lest the public should be en-couraged to vice, resemble those who used to advocate the doctrine of hell as an incentive against wrong-doing. It was a great comfort to the mediaeval moralist to adjure his audience that, if they did this or that or the other, they ran a grave risk of being consigned to perpetual flames. It was a great grief to him when that barbarous doctrine was at length exploded. So now those who arrogate to themselves the titles "conscientious," "moral," and "religious" are gratified to reflect that syphilis lies in wait for those who indulge in another kind of sin. Being offered by Metchnikoff the means of preventing and abolishing syphilis they cry out against the wickedness of any such proposal. Presumably if it lay with them to decide whether there should be a hell, that evil-doers might go there, they would advocate the proposal with all the intolerant bigotry that we are beginning to associate with the cries of conscience and of morals. We know, at all events, that if there were a hell, and if it lay with them to abolish it, it would not be abolished. To me the saddest feature of the present situation is this: That while we continue to talk about compulsory notification, about quacks, about punishing offenders; while we con-tinue to preach to young men, to harry prostitutes, to advocate continence, and to adopt all the other measures which during the past five centuries have so strikingly demonstrated their failure; while we have Royal Com-missions and public meetings, and talk, talk, talk—syphilis is growing fast throughout our country, spreading ruin, despair, and even suicide wherever it touches, because we have not the moral courage to take in hand the one effectual method of dealing with it so ably advocated by Sir Bryan Donkin and Dr. Mott. While we are chattering irrelevancies the devil is silently stalking through the land, securely smiling in the thought that our conscientious virtuosos will protect him from that smashing blow, the weapon for which lies feebly in our vacillating hands.—I am, etc.,

London, S.W., Feb. 18th. HUGH ELLIOT.

SIR,—I have read the recent correspondence on this subject with interest, and wish to express my appreciation of Dr. T. C. Mackenzie's excellent letter on the subject in your issue of February 3rd.

Sir H. Bryan Donkin and others urge that prophylaxis of these diseases is essentially a medical subject. No one is likely to dispute this, so long as a broad enough view be taken of what a medical subject includes and of what prophylaxis includes. But it is not exclusively a medical subject.

I would consider that the medical profession is con-cerned with the bodily and mental welfare not merely of individuals (women no less than men), but also of the race, and that no measure or influence should be neglected which is calculated to be of service. If, from this stand-point, we examine impartially the subject of sexual rela-tions, it will, I think, be evident that respect for moral and respect for physiological law attain the same result—the welfare of the race. The approach to the subject in the two cases may be from different sides, but the result is the same, and a breach of the one law will be found to be a breach of the other.

From the physiological side we may compare the pro-cesses of digestion and reproduction. They are both concerned with life—the one with the life of the indi-vidual, the other with that of the race. As the appetite for food contributes to the upkeep of the individual, so the appetite for sex contributes to the upkeep of the race. The eating of food which follows appetite is only the first of many stages in the digestive process which ends in the nourishment of the tissues. Any break in the chain of digestive events leads to sickness, disease, and death. Similarly, sexual intercourse, to which the corresponding appetite leads, is only the first of many stages in the generative process which ends in childbirth. Any break in the chain of generative events ends in failure of reproduc-tion, and the result of a sufficient number of such failures leads, as we know, to disaster to the race. But the welfare of the race is not achieved at the birth of the child. Its prolonged helplessness and slow development require the long-continued care and training to which both parents contribute, hence the manifest advantage of marriage from the physiological standpoint. So far, therefore, physio-logy and moral precepts are at one. Physiological law is evidently transgressed by solitary vice, by prostitution, by adultery, by illegitimacy, by checks to conception, and by artificial abortion.

In still another way, moreover, does physiology throw light on moral injunctions. The influence of the mind over gland secretions has been established by Pawlow and others. The imagination can summon glands into activity, and, as a reaction, the glands charged with secre-tion can stimulate the mind's activity in certain directions. This is the foundation on which rests the moral objection to suggestive books, posters, entertainments, and such-like. The harmfulness of these is to be judged by their sug-gestive effect on the individual. The mistake so often made is to ignore the danger of allowing the mind to dwell on suggestive images, whereas the real battle-ground for purity of action is purity of thought.

From these considerations, I hold that the medical profession can only hope to cope successfully with venereal diseases if it deals with the interests of both sexes equally and of the future race, on broad lines guided by physiology and aided by education and moral influence. These I take to be the principles which underlie the report of the Royal Commission on Venereal Diseases. It will, I am sure, be received gratefully by the bulk of the medical profession.—I am, etc.,

Edinburgh, Feb. 17th. CHARLES W. CATHCART.

SIR,—Mr. Hugh Elliot's letter (February 10th, p. 209) is very interesting as a "point of view," and as further evidence of even the educated layman's delusions as to the position of the medical profession in our social scheme. He appears to maintain that it is the duty of a medical man to give information to any one who may demand it, even though he knows that that information may cause injury, not only to the applicant, but to society in general, and may easily fail to prevent the evil which the applicant hopes to escape by its aid. Let us be quite clear. There is no "simple formula which will protect any one effectively against the infection of syphilis." When one is found, it will be time to reconsider the question, but at present the only safe advice is, "Don't expose yourself to infection, for infection is by no means confined to one part of the body, and, in spite of any simple formula, if you consort with prostitutes, you are likely to catch syphilis." To tell a young man that, with the aid of a formula, he can consort with prostitutes without risk of infection is to mislead him and to encourage him to wreck his whole future happiness and health, not by catching syphilis necessarily, but through the other evil influences of prostitution, some of which Mr. Elliot evidently recognizes quite clearly.

On the other hand, to point out to the applicant that we cannot guarantee immunity from syphilis by any formula, and that prostitution leads to many other evil effects on the health and happiness of others as well as himself, is to tell him the truth, and probably in some instances to deter him from indulging his desires. Mr. Elliot says, "We come to you for your medical knowledge," of which you are "trustees." The one piece of medical knowledge of which we are quite sure is that health and morality (public and individual) cannot be dissociated, and that they interact in many ways; and that, quite apart from venereal disease, prostitution is bad for individual and community alike—I mean, of course, purely from a health point of view, and quite apart from any question of religion. The financial trustee does not give his spendthrift ward blank

cheques on his capital, neither should the health trustee give blank cheques on his ward's vitality or future well-being. A trustee, however, is by no means always *persona grata* to his ward, and the medical profession must share the fate of other trustees if it is to do its duty. Neither in justice nor in kindness ought we to give bad advice to any one, and our advice should be based on our monopoly—medical knowledge.—I am, etc.,

Swinton, Feb. 11th. J. PRICE WILLIAMS.

THE MOBILIZATION OF THE PROFESSION.

SIR,—There is one aspect of the scheme for mobilizing the medical profession which appears to have been overlooked. I refer to the reserves. All military authorities realize that when their reserves are used up the position is indeed serious, and so it will be with the civil medical service, if I may use such an expression. Our reserves consist of gentlemen willing and able to act as locumtenents. What will be the position if they are all mobilized? In the R.A.M.C. occasional leave is granted during slack times. In towns short absence can also be obtained under similar circumstances. But in rural districts it will have to be fifty-two weeks a year, seven days a week, and goodness only knows how many hours a day, without any relief in sickness or in health, and it must be borne in mind that the men expected to do this are men who from age or health are considered unfit for active service.

I have myself recently had to carry on through a sharp attack of influenza. But in case of serious illness what will happen? Take my own district as an example: Before the war there were fourteen men in practice over a very scattered area. Seven of them have joined the R.A.M.C. Of the remaining seven one has been and is very seriously ill, and it will be long before he can attend to work again; and another has recently gone down with serious illness. At present they both have locumtenents. But when they cease to be available, what is to happen? The five men left cannot possibly do the work. Finally, what is to happen when the remaining five break down, also from overwork? I am sure there is not a man in the profession who is not willing to do all—even at the risk of health and life—for his country at the present time. But many of us left behind would much like to take a well-earned holiday by joining the R.A.M.C.—I am, etc.,

February 12th. A RURAL M.D.

THE APPLICATION OF SURGICAL METHODS TO THE TREATMENT OF CEREBRO-SPINAL FEVER.

SIR,—In reference to Captain Drew's logical suggestion as to continuous intrathecal drainage in cerebro-spinal fever, may I point out that in 1899 the late Mr. H. W. Allingham and I published a paper in the *Lancet* (vol. i, 1899, p. 889) on a case of "Cerebro-spinal meningitis treated by laminectomy, incision of the dura mater in the dorsal region, drainage, recovery, remarks." Before this date Waterhouse and Ord had successfully employed continuous drainage in cerebral tuberculous meningitis. In our case there was great difficulty in stopping the flow of cerebro-spinal fluid after the disappearance of symptoms, just as there was in StClair Thomson's cases of cerebro-spinal rhinorrhoea. In Heiman and Feldstein's *Meningococcus Meningitis*, p. 298, a brief reference is made to a number of surgical operations, in some of which an attempt has been made to secure permanent drainage, but the authors do not consider that any claim of permanent benefit has been established. Since the introduction of serum treatment little has been heard of surgical measures.

Captain Drew states that it does not appear that the injection of antimeningococcic serum "is more effective than simple tapping without it." It is true that this appeared to be so in the epidemic of 1914–15 in this country, a period during which the serum appears to have been devoid of antibodies; and Captain Drew's statement coincides with that of Foster and Gaskell in their recent monograph, also based on their practical experience of the 1914–15 epidemic. Since that was written Flexner's, Mervyn Gordon's, and others' serums have been available, and with their use the mortality of the disease has substantially diminished. It is important that the serum treatment of cerebro-spinal fever should not be regarded as futile because the serum was impotent in one epidemic.—I am, etc.,

Royal Naval Hospital, Haslar, Gosport, Feb. 19th. H. D. ROLLESTON.

Obituary.

SIR BENJAMIN FRANKLIN, K.C.I.E.,

FORMERLY DIRECTOR-GENERAL, INDIAN MEDICAL SERVICE.

SURGEON-GENERAL SIR BENJAMIN FRANKLIN, K.C.I.E., I.M.S., died suddenly from heart failure on February 17th. He was born in May, 1844, and received his education at University College, London. He took the diploma of M.R.C.S.Eng. in 1867 and that of L.S.A. two years later; in that year he entered the Indian Medical Service. He was civil surgeon at Lucknow from 1878–80, and at Simla from 1881 to 1886. He was surgeon to Lord Elgin, the Viceroy of India, from 1894 to 1899, and had officiated as Inspector-General of Hospitals in Bengal 1897, the North-West Provinces and Oudh 1899, and in the Punjab 1900–1. He was Director-General of the Indian Medical Service and Sanitary Commissioner with the Government of India from December, 1901, to the end of 1905, and acted as British delegate to the International Sanitary Conferences in Rome in 1907 and Paris in 1911–12. The honour of C.I.E. was conferred upon him in 1896 and that of K.C.I.E. in 1903. He had one son, a lieutenant-colonel in the Indian army, at present in India, and two daughters, one unmarried and the other the wife of Brigadier-General Onslow.

The funeral took place at East Sheen on February 20th. Sir Frederick Treves represented Queen Alexandra, who sent a wreath with the inscription: "In most grateful recollection of the splendid work done and self-sacrifice made for the benefit of the Red Cross. From Alexandra." Mr. Hughes Wemyss represented Princess Christian, and Colonel Bate, Dr. Fox Symonds, Mr. D. Pennant, and Mr. F. Hastings represented the British Red Cross Society.

Sir FREDERICK TREVES, Bt., writes:

Since practically the whole of Sir Benjamin Franklin's medical life was spent in India he would be little known personally to the medical profession of the present day. Those who did know him were impressed by his varied and interesting knowledge of men and of affairs and were attracted by his amiable personality and geniality of manner. He was possessed of sound natural wisdom, of acumen and tact, and of that well-balanced judgement which constitutes the judicial mind. He was a man to be depended upon as well in the council chamber as in the minor concerns of life. The characteristic about him which first impressed the stranger was his courteous and indeed courtly manner—a manner which gave a certain old-fashioned dignity to all he did, and recalled a time, now rapidly waning, when it was said "manners makyth man." He spoke, as he thought, with deliberateness, while he would display, from time to time, a quiet humour which was very attractive. He was an excellent companion, and I shall long dwell with pleasure upon many walks we had together in Burma and in England and in the beautiful garden at East Sheen, which was the pride and joy of his life.

From the time of his returning to England, after his work as Director-General of the Indian Medical Service was over, he took the most practical interest in the British Red Cross Society. He was a member of the council and of nearly every committee. From the first outbreak of war until the very day of his death he devoted the whole of his time to Red Cross work. In this work his long experience as an administrator was of the utmost service. No man was more regular nor more punctual in his attendance at his office in Pall Mall, and there was no work that he was not ready to undertake, and none which he failed to do honestly and well.

In September last he learnt that his heart was affected and that his time was short; yet every day found him in his chair at Pall Mall as busy as a man could be. He was at the Red Cross Head Quarters on Friday in his normal health. On Saturday he fell dead in his room in the act of dressing. He died as he would have wished to die, in the very height of his self-imposed service. As Berni says, "Andava combattendo ed era morto."

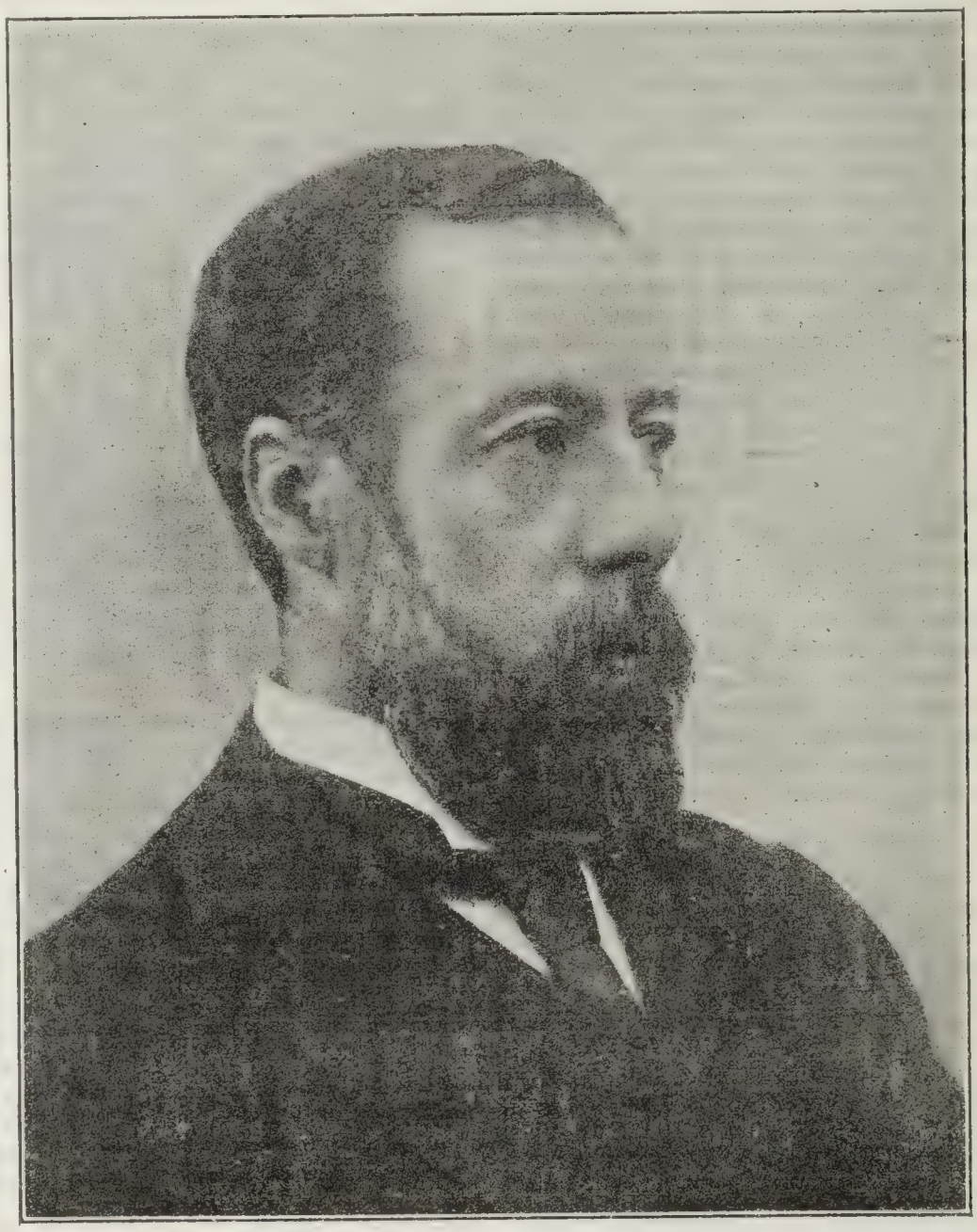
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

WALTER HAMILTON HYLTON JESSOP, M.A., M.B.CANTAB.,

SENIOR OPHTHALMIC SURGEON TO ST. BARTHOLOMEW'S HOSPITAL, AND PRESIDENT OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

WE regret to announce the death on February 16th, after a brief attack of pneumonia, of Walter Hamilton Hylton Jessop, President of the Ophthalmological Society, and senior ophthalmic surgeon to St. Bartholomew's Hospital.

Walter Jessop was the son of Mr. Walter Jessop, F.R.C.S., of Cheltenham, and was born in 1853. He was educated at Cheltenham College till his father died, when he was removed to the Modern School, Bedford, and having gained the Harpur Exhibition and the Tancred Scholarship in Medicine, which are held at Gonville and Caius College, Cambridge, he proceeded there in 1873. In 1876 he graduated in Arts, and entered St. Bartholomew's Hospital for the completion of his medical studies. He became M.R.C.S. in 1880, and four years later F.R.C.S.Eng. He graduated M.B. Cambridge in 1886.



DR. WALTER HAMILTON HYLTON JESSOP.

His first appointment in connexion with the school at St. Bartholomew's Hospital was as demonstrator of anatomy, and few surgeons, afterwards becoming well known in any special department of surgery, devoted so much time to anatomy as Jessop. In 1887–88 he was Hunterian professor of both anatomy and physiology at the Royal College of Surgeons of England, and he was for over ten years demonstrator of anatomy at St. Bartholomew's Hospital. For his Hunterian lectures he chose the subject of the intraocular muscles, while all his early writing showed the direction in which he proposed to succeed. As early as 1885 he read papers at the Ophthalmological Society on the use of cocaine in operations on the eye, and on the affections of the eye associated with herpes, while at the International Ophthalmic Congress in 1888 he read a paper on the physiology of the intraocular muscles, founded on his Hunterian lectures. He soon obtained appointments as ophthalmic surgeon to various charities—the Central London Ophthalmic Hospital, the Western General Dispensary, the Foundling Hospital, and the Paddington Green Children's Hospital, and in 1895 was appointed assistant ophthalmic surgeon to St. Bartholomew's Hospital. This appointment, which Jessop did not obtain without opposition and until he was over forty years of age, became vacant on the retirement of Mr. Henry Power and the appointment of Mr. Bowater Vernon to the senior post. Mr. Vernon retired in 1901, when Jessop became senior surgeon, a post which he was holding at the time of his death.

As will have been inferred from what has been already said, Jessop was first and foremost a clinical surgeon, and preferred to take his observations to the meetings of societies, where his conclusions could be criticized by his peers. He was the author of a *Manual of Ophthalmic Surgery and Medicine*, and contributed articles on the eye to textbooks of two of his colleagues at St. Bartholomew's Hospital.

Jessop's career was extremely honourable to himself, starting with no advantages except his own native ability and industry, he achieved conspicuous success in London, winning a high place in the estimation of his colleagues and earning also a distinguished position in the public eye, for at the time of his death he was actively conducting a very large practice.

Jessop had a very high conception indeed of the responsibilities of the ophthalmic surgeon, and it was his ideal to raise the standard of ophthalmic surgery not only in this country but throughout the civilized world by affording far more ready and easy means than as yet exist for interchange of knowledge between ophthalmologists. With this object in view he was a very punctual attendant at all international congresses, whether specially devoted to ophthalmology or holding sectional meetings in that science. He was known on the Continent to every prominent ophthalmologist, and was an honorary member of the Spanish, Belgian, and American societies, as well as corresponding member of the Buda Pesth Royal Society of Medicine. In order that the English share in international movements should not lose their force by diffusion or bad representation, he was very desirous that the Ophthalmological Society of the United Kingdom should be representative by inclusion within its field of the other ophthalmological societies of the country, and his work in regard to the recent merging of the three British journals—the *Royal London Ophthalmic Hospital Reports*, the *Ophthalmic Review*, and the *Ophthalmoscope* in one single journal—the *British Journal of Ophthalmology*—had the same object. At the arrangements precedent to this amalgamation Jessop laboured with extraordinary ardour, and it is good to remember that he lived to see his work widely appreciated.

Another side of Jessop's life was well known to his friends, and indeed to many of the art critics of London. He was a fine judge and discriminating collector of water colours and etchings. At all exhibitions, both public and of a private or semi-private character, Jessop's opinion was listened to with respect by lovers of art, and though he could be enthusiastic at what he considered the right place, his highly trained judgement did not permit this mood to be of frequent occurrence. His Whistler lithographs are famous, and he was justly proud of them.

MR. HOLMES SPICER writes:

From the time he left Cambridge perhaps the greatest interest in Jessop's life was St. Bartholomew's Hospital. After serving on the junior staff he was elected demon-

strator of anatomy in 1882, which post he retained till he became ophthalmic surgeon in 1894. It was during this time that he made lifelong friendships with colleagues such as Bruce Clarke and Lockwood, both of whom are now gone, but also with successive generations of Bart's men who owed much to his teaching. Life at this time was a struggle, there was no clear opening before him, it needed courage and tenacity to succeed. His election at Bart's was strongly contested, and it was only later that success came to him; with it the sunnier side of his nature developed, and his real character showed itself. There was a tradition in the eye department at St. Bartholomew's, and Jessop, who, though a Liberal in politics, was by nature conservative, set great store by the tradition; for example, it had been the custom to do the simple extraction of cataract without iridectomy, and Jessop followed the custom. There were ways of treatment, tricks of bandaging hallowed by custom and justified by experience, which he maintained through life. As a surgeon he rather followed the French school. He had received austere training at Moorfields under Nettleship and others which made his practice solid. As a colleague I can only say that during the sixteen years of our association we never had a disagreement, and rarely a difference of opinion; he was thoughtful and kind. As a story teller he could entertain one for hours with the peculiarities and weaknesses of the world, great and small; his method was impressionistic—a word, a half sentence, or a smile supplied the place of lengthy explanation. His love of art was genuine and enthusiastic. I remember spending a delightful afternoon with him at Sir Hugh Lane's collection of modern pictures in Dublin; although he did not himself practise any art, his judgement, taste, and knowledge were excellent. He loved to show his collections; his Whistler lithographs are famous. He would tell of the jealousies of collectors, and of a rival who, after offering very large sums for a unique specimen, finally handed him a blank cheque to fill in as he liked in exchange for the picture; that cheque was not filled in. At his country home he was always glad to see old friends or pupils, or to welcome distinguished foreign colleagues. The guest was free to follow his own way, to join him in a morning swim in the river or a hard spell of gardening. He lived the free life of the country whenever he could get away from his work, and took his full share as a county magistrate and in other ways in the social life of his neighbourhood.

LOUISA WOODCOCK, M.D., B.S.LOND., M.A.TRIN.COLL.DUBL.,

SENIOR PHYSICIAN TO OUT-PATIENTS, NEW HOSPITAL FOR WOMEN, EUSTON ROAD; PHYSICIAN, MILITARY HOSPITAL, ENDELL STREET.

THE New Hospital for Women has suffered an irreparable loss by the death from pneumonia of Dr. Louisa Woodcock, physician to out patients to that hospital since 1907. Dr. Woodcock was at work at the Military Hospital, Endell Street, to which she was physician, when on February 12th she was taken ill. In spite of unremitting and devoted care she died at her house on the afternoon of February 17th.

Miss Woodcock was educated at the Ladies' College, Cheltenham, and then at Somerville College, Oxford, where, after taking the Honours Schools in morphology and zoology, she devoted another year to the study of philosophy. She entered the London (Royal Free Hospital) School of Medicine for Women in 1894, graduated M.B.Lond. with honours in Medicine in 1900, and M.D. in Branch I (Medicine) in 1904. After holding house appointments at the Royal Free and New Hospital for Women, Miss Woodcock devoted a good deal of time to pathology, in which subject she held the Mabel Webb Research Scholarship. She later held a research scholarship at the London School of Economics, as a result of which she published, with Mrs. Sidney Webb, a report on the domiciliary treatment of the sick poor under the poor law in the Report of the Royal Commission on the Poor Law in 1907. At the time of her death Miss Woodcock was senior physician to out-patients, New Hospital for Women, Euston Road, and physician to the Military Hospital, Endell Street, a post she had held since that hospital was opened in 1915. She also held the post of medical inspector to Bedford College and to the North London Collegiate School.

From her student days Dr. Woodcock's work was characterized by quick insight, accompanied by the most painstaking investigation of doubtful points in a case or problem. These qualities alone would have made her loss a grievous one, both to her colleagues on the staff of the hospitals to which she was attached, and to the profession generally. But she was far more than a wise and skilful physician—a strong personality, spiritual, selfless, far-sighted, dwelt in that slight frame. There was about her a poise, a sense of balanced judgement, which gave a restful finality to her opinion on any subject, a finality in which there was no shadow of the dogmatic. It seemed rather that, having the power of seeing truth, she quite simply revealed it, revealed it with a charm of manner, tinted often by delicate humour which made a talk with her a pure delight. Probably always frail, such was the power of her mind and spirit that the idea of ill health never associated itself with her in the thoughts of those with whom or for whom she worked. She loved the work, but as cheerfully as she daily took it up, so when the call came, she gently laid it down.

> Now keeps she tryst beyond earth's utmost Sea,
> Wholly at rest.

SINCE the death of Mr. J. Barrett Collyns, a second nonagenarian who studied at St. Bartholomew's Hospital in the Forties has passed away. Mr. WILLIAM PROWSE died at his residence in Clifton, Bristol, on February 5th, in his 92nd year. He enjoyed very good health throughout his long life until the end of January. On February 3rd he was able to go down to dinner, but two days later he expired in his sleep. His father was Dr. James Prowse of Bristol, and his three sons are all in their father's and grandfather's profession. William Prowse began his professional education at the Bristol Medical School in October, 1843, where he won the prize for general proficiency in the first and second year. He subsequently studied at St. Bartholomew's Hospital when Sir James Paget was warden. He took the diploma of L.S.A. in 1848—sixty-nine years ago. In the following year he became M.R.C.S., and then went into practice at Millbrook, Devonport. Afterwards he went to Amersham, Bucks, where he remained for many years, but later on he moved to Woolton near Liverpool, Weston-super-Mare, and, lastly, Brighton; he retired from practice about fourteen years ago, and spent the last ten years of his life at Clifton.

MAJOR R. K. KILBORN, M.D., who died at Kingston, Ontario, on December 3rd, 1916, had been the medical superintendent of the Royal Military College, Kingston, for seventeen years. He was born at Frankville, Ontario, and graduated from the Medical College of Queen's University in 1879. He first went into practice at Toledo, where he remained until 1891. In 1896 he returned to Kingston and went into general practice there, and three years later received the appointment of medical superintendent of the Royal Military College.

COLONEL JOHNSTON SHEARER, C.B., Bengal Medical Service (retired), died at Bridge of Allan, N.B., on February 6th, aged 64. He was the son of Mr. J. Shearer, of Aberdeen, and was born in that city on October 22nd, 1852; he was educated at Aberdeen Grammar School and University, where he graduated M.A., with honours in Natural Science, in 1873, and M.B. and C.M., with honours, in 1877. He entered the I.M.S. as surgeon on October 2nd, 1880, became surgeon-major on October 2nd, 1892, and lieutenant-colonel on October 2nd, 1900. He was placed on the selected list on July 14th, 1906, got a brevet-colonelcy on November 11th, 1910, and retired on December 6th, 1910. His whole service was spent in military employment. He had a long record of war service, including six campaigns, as follows: Egypt, 1882, medal and Khedive's bronze star; Burma, 1887–88, operations of the 1st and third Brigades, and with the southern Shan column, medal with two clasps; North-west frontier of India, Hazara campaign, 1891, clasp, and second Miranzai campaign, 1891, clasp; Waziristan, 1894–95, mentioned in dispatches, G.G.O. No. 473 of 1895, clasp; Tirah, 1897–98, mentioned in dispatches, *London Gazette*, April 5th, 1898, D.S.O., and medal with two clasps. He received the D.S.O. on May 20th, 1898, and the C.B. on June 26th, 1908.

Digitized by Google. UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

Universities and Colleges.

UNIVERSITY OF BRISTOL.

The following candidates have been approved at the examinations indicated:

Final M.B., Ch.B. (*Part I only*).—D. G. Cossham.
D.P.H.—J. F. Blackett. (*Part II, Completing Examination*): J. M. Harper. (*Part I only*): I. B. Barclay.

Medical News.

Sir Frederic Eve left estate of the gross value of £52,853, with net personalty £50,105.

Dr. G. A. Crace-Calvert (Ruthin) and Dr. R. E. Lord (Colwyn Bay) have been appointed to the Commission of the Peace for Denbighshire.

The annual meeting of the Mental After-Care Association will be held by the invitation of Sir R. and Lady Armstrong-Jones, at 9, Bramham Gardens, South Kensington, on Thursday next, March 1st. The chair will be taken by the Lord Mayor of London at 3 p.m.

At a meeting of the Pathological Section of the Royal Society of Medicine on February 13th Dr. H. S. Stannus communicated a case of congenital hypertrophy of the lower limb which occurred in a male native of the New Langenburg District, German East Africa, about 17 years of age. The right lower limb was longer than the left at birth, the disproportion being maintained during growth. The length as measured from the anterior superior iliac spine to the tip of the external malleolus was 101 cm., as against 84 c.cm. on the left side. Radiograms showed that the several bones participated in the enlargement.

Army Council Instruction No. 210 of 1917 (February 4th) authorizes the admission of any discharged soldier into a military hospital for treatment of wounds, injuries, or disease caused or aggravated by military service, provided there is a reasonable probability of the man's condition being cured or materially improved by hospital treatment, and that a period of three years has not elapsed from the date of his being invalided out of the army. The admission of a soldier, in accordance with this instruction, is to be reported to the Secretary, Ministry of Pensions, Royal Hospital, Chelsea. The man's pension will be at the maximum rate while he is in hospital, but will be subject to a stoppage of 1s. a day.

Lady Tweedy presided at the annual meeting of the Royal Medical Benevolent Fund Guild on February 16th, when reports of the subcommittees were received, and Lady Bradford was elected president in succession to the Dowager Lady Broadbent. Lady Tweedy said that the need for new secretaries was illustrated by the fact that the Guild received applications for help from such widely scattered districts as the Shetland Isles, Wales, and Cornwall. The increase of applicants pleading for help had happily been attended by increasing support, and in two cases the Guild was benefited by gifts from the trustees of funds left for charitable purposes. This marked, it was hoped, the beginning of an important source of help.

The usual monthly committee meeting of the Medical Sickness, Annuity and Life Assurance Friendly Society was held on February 16th, when Dr. F. J. Allan was in the chair. The large number of claims arising from influenza during the previous month caused the experience to be in excess of the expectation, but it was reported that these claims were now diminishing, and appearances pointed to the possibility of a normal spring. For the first time for many years the half-pay experience of the society had been less than the expectation, owing no doubt to the more careful and rigorous medical examination that was enforced after the first year or two of the society's existence. A new annuity table has been introduced, which offers most facilities required by members desirous of obtaining deferred annuities. The society, therefore, now transacts the three forms of insurance for which it was originally founded, that is to say, sickness benefit during incapacity while a member is in active practice; annuity when this sickness benefit ceases, and life assurance to his representatives should he die. The annual report for 1916, to be presented at the annual meeting of the members on March 27th, was considered. All further information may be obtained from the Secretary, Medical Sickness Society, 296, High Holborn, W.C.

Letters, Notes, and Answers.

The telegraphic addresses of the British Medical Association and Journal are: (1) EDITOR of the British Medical Journal, *Aitiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES.

Garlic in Whooping-cough.

Pertussis asks in what way the use of garlic, as described last year, is supposed to act as a specific in whooping-cough.

We referred the inquiry to Mr. Mark Hovell, who made the suggestion (Journal, July 1st, 1916, p. 15); he has replied as follows: I believe the juice of garlic kills the micro-organism of whooping-cough, but in some cases this is not sufficient to reduce the swelling of the lingual tonsil, which, by touching the epiglottis, causes the cough, and therefore it is necessary to make applications to the root of the tongue with a strong astringent in order to stop the tickling. I find a strong solution of iron (240 grains to one ounce), made with equal parts of glycerine and water, effective and preferable to trichloracetic acid, as it does not cause the discomfort which sometimes follows the application of the other drug. Messrs. Hall and King, the Folkestone chemists, are making for me a preparation which will enable the juice of garlic to be taken by the mouth, which, if equally efficacious, will be better and more convenient than cutting the cloves into thin slices and wearing them between two pairs of socks, so that the juice may be absorbed through the soles of the feet.

ANSWERS.

Income Tax.

Captain R.A.M.C., who asks as to an assessment on his civil earnings, will find that the substance of the matter was dealt with in an article published in our issue of February 17th, p. 231, but reference is made to two specific points: (1) That deduction was refused for two-thirds rent and one servant; and (2) that from the eighteen months' account filed for reduction of the assessment to the figures for 1916 one half of the 1915-16 assessment was deducted. If our correspondent's locumtenent was living in the house we fail to understand the reason for refusing the allowance of the two-thirds rent, etc.; if, on the other hand, he was not residing in the house, there appears to be little or no ground for the claim. The question is one of fact—that is, to what extent the house was actually used for professional purposes. We do not quite follow the observations made on the second point, but if it is impracticable to file an account for twelve months—which the authorities apparently have the right to require—some adjustment of the eighteen months' account is necessary, and a deduction therefrom of half the assessment for the previous year does not seem altogether unreasonable.

LETTERS, NOTES, ETC.

The Prophylaxis of Venereal Diseases.

Dr. R. R. Rentoul (Liverpool) writes: For many years I have contended that we have been and are paying too much attention to the *treatment* of these diseases. In 1914 Metchnikoff and Roux showed that syphilis could be prevented. Their experience has been put into operation by different European and U.S.A. States. In 1907 I obtained reliable information relating to the German system of prevention, and this appears in my essay "The Prevention of Venereal Diseases" (Booksellers, Lord Street, Liverpool. 2s. 1d.). I then prepared a preventive outfit, containing drugs to prevent syphilis, soft chancre, and gonorrhoea; and if any doctor or chemist wishes to obtain a sample male box, I shall be glad to forward it on receipt of 5s. 6d. The prevention of venereal diseases will represent a serious financial loss to doctors, chemists, and others, as I have estimated that about £95,000,000 is spent yearly upon prostitution and its accompaniments in the United Kingdom.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

Note.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

An Address
ON
RADIOLOGY IN CLINICAL MEDICINE AND SURGERY.

DELIVERED TO THE MEDICAL STUDENTS' DEBATING SOCIETY AT THE UNIVERSITY OF LIVERPOOL.

BY C. THURSTAN HOLLAND, M.R.C.S.,
CAPTAIN R.A.M.C.(T.F.),
HONORARY MEDICAL OFFICER TO THE ELECTRO-THERAPEUTIC DEPARTMENT OF THE LIVERPOOL ROYAL INFIRMARY; PRESIDENT OF THE RÖNTGEN SOCIETY OF LONDON.

WHEN, in December of 1895, it was announced to the world that a German professor of physics—Professor Roentgen of Würzburg—had, by means of some new rays, called *x* rays, been able to photograph (if I may use this expression) the bones of living people, and had been able to demonstrate the presence of metallic foreign bodies embedded in the human flesh, the first feeling was one of incredulity. In a short period of twenty years we have all become so familiar with these facts and with other discoveries, such as radium, the direct consequence of the discovery of invisible radiations, that we are apt to accept them as the ordinary incidents of everyday life.

Let me shortly recall to your memories the manner in which *x* rays originate. Take a glass globe, fit into it two terminals, attach to these terminals wires from the discharging poles of an induction coil, and then pass the induced, interrupted current from the coil through the globe; certain phenomena take place inside. Pump all, or nearly all, the air out of the globe until a very high state of vacuum is reached; then from the terminal attached to the negative pole of the coil a stream of rays—termed cathode rays—passes across inside the glass. These cathode rays strike the glass wall, and at every place on which they strike the result is the formation of *x* rays, and these, but not the cathode rays, can pass through the glass and affect things on the outside.

The original *x*-ray tube was pear-shaped, and its cathode terminal—inside the tube—a flat metal disc. From such a tube as this *x* rays came off in all directions from all parts of the glass wall. The first successful radiograph I ever saw taken was by Sir Oliver Lodge; it was the hand of a boy in which a small bullet was embedded, and the exposure was one and three-quarter hours. Even then, owing to the rays coming off at all angles and in all directions, it was a shadowy production, and the correct reading of the shadows required imagination. Almost immediately Professor Jackson of King's College revolutionized the *x*-ray tube, and, indeed, made present-day *x*-ray work possible. First, by shaping the cathode as a concave piece of metal, the result of which was that the cathode rays were focussed on a point near the middle of the tube; and secondly, at, or about, this point he made the positive terminal (the anode) end in a small disc of platinum placed at an angle. The result of this was that the stream of cathode rays struck the platinum at a point, and the *x* rays formed there were deflected in the shape of a cone, of which this point was the apex. So to speak, the *x* rays were focussed, and the tube became known as a "focus tube." The immediate effect was that exposures were cut down to a few minutes, or even seconds, and radiographs became sharp and diagnostic. This was a great advance, and though many advances in technique and in apparatus took place as years went on, this remained the essential feature of tube construction until Coolidge, about two years ago, introduced his celebrated tube, which bids fair to eliminate all other patterns. I shall not enter into any details as regards this last tube, but it is one which has the advantages of allowing enormous currents to be passed through it, and which can be so regulated that the stream of *x* rays passing from it has higher or lower penetration, according to the control exercised.

This leads me to the next point—namely, the penetration of *x* rays. These rays, once formed, continue in straight lines and pass through everything until they are absorbed. For practical purposes, an *x* ray is neither reflected nor refracted, and in these respects differs from an ordinary light ray. The penetration of different substances depends on two things—the ray itself and the substance through which it is attempting to pass. X rays may have so little penetrating power that they may be stopped by a sheet of paper; they may have so great a penetrating power that a considerable thickness of a dense metal may be passed through; and a peculiarity of an *x*-ray tube when in action is that it produces a stream of rays which contains *x* rays of all kinds of penetrating power.

Place your hand upon a photographic plate, give a certain exposure from an *x*-ray tube set in action, and then develop the plate. All parts of the flesh, through which *x* rays pass easily, cast a shadow on the plate, but not a homogeneous shadow, the density of the shadow will depend upon the thickness of the flesh and the density of its different parts; and thus, on a good, that is a well-exposed radiograph, the flesh itself shows details of structure, and we can often see muscles outlined, tendons shown, blood vessels under certain conditions, and even organs such as heart, kidneys, and liver. Bones are more, very much more, opaque to *x* rays, and the result is that the bone shadows are easily seen; but, and this is important, they are also penetrated by some of the rays, and so the shadow again is not homogeneous, but the actual details of bone structure are well portrayed.

Metals, very opaque to *x* rays, stop most of them altogether, and so show as white areas on the developed plate; but even metals are penetrable according as we use hard (highly penetrating) rays and give long exposures. Place a coin upon a plate, and by careful exposure it is possible to penetrate it in such a way that, taking a penny for example, you can see on the plate the figures of Britannia and of the King's head, and the letters stamped on either side of the coin. That is, the different thicknesses of the metal show what may be termed a differentiated shadow.

Radiographs are, then, not photographs at all. They are images produced upon photographic plates by means of *x* rays.

In the early days of radiography it had extremely narrow limitations, and successful radiographs of the hand, the foot, and the thinner parts of the limbs, were looked upon as triumphs. Many attempts, with long exposures, anything up to even an hour, were made with a view to the examination of the thicker parts of the human body. The usual result of an hour or more of work of this kind was a plate, beautifully fogged, with practically no decipherable shadows upon it. Unfortunately at that time the reasons for failure were not known, but looking back it is easy to see that the apparatus at our disposal was not producing penetrating rays in sufficient quantity to produce the desired shadows. These attempts were doomed to failure from the start, and the risks our unfortunate patients ran are now, with present-day knowledge, appalling to contemplate. Many, indeed, did suffer from the production of acute *x*-ray burns, destruction and damage to the soft parts nearest the tubes, and these burns were disastrous as being exceedingly painful, and the ulcers caused difficult to heal as the cells in their neighbourhood were so much damaged. Numerous as such cases were, looking back on what we all did at that time, the wonder is that they were not much more numerous.

As apparatus improved, as it did rapidly, results became better and better; exposures were cut down from hours to minutes, minutes to seconds, and from seconds to fractions of a second, until now it is possible to take radiographs so rapidly that a bullet in the heart—moving the whole time—can be taken so fast that its shadow is quite sharp; and it is even possible to take a series of stomach radiographs so quickly that one can cinematograph the stomach movements.

This rapid improvement in technique opened up a vast field of work to radiography; and instead of being content with the portrayal of bones and foreign bodies, these are now looked upon as merely elementary parts of the work, and examinations of the organs of the thorax and most of those of the abdomen, to say nothing of the treatment of various diseases, are the everyday work of an *x*-ray department.

It is not too much to say that at the present time the *x*-ray department of a large hospital is the most important single department in the building, and one wonders what would happen if for any cause its work was suspended.

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

In order to understand this it is necessary to have some idea as to what is done in such a department, and, owing to the fact that *x*-ray work is not taught to students from an examination point of view, I am afraid that many of you, even when you are qualified, will not have taken the opportunity of realizing of what vast importance radiography in skilled hands is both to the general practitioner and to his patients.

It is not possible for me to do more than take a few examples to illustrate my thesis; I cannot attempt to deal with all the possibilities of radiography in a short address.

Fractures.

A good many of you have worked in the casualty department of the Royal Infirmary. A large number of accidents in which there is a question of bone injury attend there every day. What would happen if you had not the *x*-ray department to fall back upon? Why, the diagnosis of fractures or otherwise would cease to be an exact science. The question of fracture or not is answered with certainty over and over again every day, and the remarkable manner in which even the most obscure injury to the small bones of the hand or foot is shown is such that none of you can appreciate the conditions which existed when I was a student, and when often the greatest uncertainty existed in individual cases, and the differences of opinion and the discussions which often arose. Radiography has had a marked influence not only on the exact diagnosis in these cases of injury, but it has influenced to an enormous extent the treatment, not only of individual cases, but of fractures generally. No case of suspected bone injury is so trivial that a medical man can afford to do without an *x* ray examination. You may often have cause to regret that such an examination was not made early in a case, you will never regret having insisted that one should be made. It will make a certainty doubly certain, it will often disclose an unsuspected condition of affairs which will influence diagnosis and treatment and save you many days of anxiety and worry, to say nothing of possible law suits.

Thoracic Aneurysm.

In its early stage this is an *x*-ray diagnosis, and an *x*-ray diagnosis only. I do not know whether physicians nowadays teach the importance of the "tracheal tug" in the diagnosis of aneurysm; in my day we heard enough about it and its importance to fill up many a book; reams were written on the various signs and symptoms which went to suggest the presence of thoracic aneurysm, but the usual symptom—I quote from a well known textbook on medicine of that time—was "that a pulsating tumour was recognizable." When a thoracic aneurysm has got to that stage it is obvious that the unfortunate sufferer has not much longer to live, and the question of treatment can almost be put on one side. At the present time the examination of the chest by *x* rays has become so much of a routine that aneurysm can often be, and often is, detected before it has given rise to any symptoms which would suggest its presence to a physician; and although of course the treatment of this condition is never very satisfactory at any stage, it is obvious that the sooner it is diagnosed the better for the patient. The shadow of the normal thoracic aorta, especially in the neighbourhood of the arch, is so beautifully seen on the *x*-ray screen, that the smallest local bulging of an abnormal character is often easily detected. A rounded bulging shadow in the arch of the aorta the edge of which can be seen to pulsate is almost pathognomonic of aneurysm. *X*-ray difficulties of diagnosis sometimes exist between aneurysms and growths, and the exact diagnosis between the two cannot always be made by an *x*-ray examination alone, but it may be taken as a general rule that radiography can answer the question, "Is there an aneurysm or is there not?"

Other Conditions of the Thorax.

The light that radiography can, and often does, throw on many conditions affecting the thorax and its contents is such that it is never safe to neglect this means of diagnosis. The presence of fluid in the pleural cavity can be determined, but not the exact nature of the fluid. Pneumothorax, with or without the presence of fluid, makes a really beautiful *x*-ray picture, unmistakable and very striking. Mediastinal growths of all kinds are demonstrable. I do not wish to enter into detail as regards all the diseases and conditions affecting the thorax in which an *x*-ray examination is advisable, but it may be stated generally that in chest conditions of all kinds such an examination is almost imperative, as frequently negative *x*-ray evidence is as important as a positive result.

Two points are, I think, especially worthy of consideration. The first is, Of what use are *x* rays in the diagnosis of phthisis? This question must often arise, and the answer is simple. Every case of either definite or suspected phthisis should be subjected to an *x*-ray examination. In a definite case radiography will give a picture of the disease as regards the amount of lung involved, the presence of cavities or not, and their size if present, with which no other means of clinical examination can compete. Over and over again I have seen cases in which the disease has been supposed to be limited to one lung, but in which radiography has demonstrated beyond all doubt that the other is also affected. It occurs not infrequently that a case is sent to the department with a note "suspected phthisis." *X*-ray plates show lungs riddled with tubercle from apex to base. One value of radiography in a definite case is that by taking plates at intervals the course of the disease can be actually seen. As illustrating the limitations of percussion, auscultation, and so on in the examination of the chest, let me quote a case. A man was sent to the department by Dr. Hay—and none of us will question his ability to use physical signs and get the most out of them—with a request to examine the base of the left lung. Screen examination and a plate showed that there was an oval cavity in the lung several inches in length and half full of fluid, the space above the fluid being occupied by air. Dr. Hay examined the man again after this was demonstrated, and came even then to the conclusion that there were no signs (other than the radiographic) by which this condition was indicated. A fact of this kind, in which a large, a very large, lung lesion can be present without giving rise to definite physical signs, to my mind is of very great significance when we consider the question of the detection of very early and quite small pathological conditions.

This brings me to the question of the value of the negative *x* ray evidence in early phthisis. Can it be relied upon? It is beyond the scope of this address to enter into detail on a subject such as this; but I am convinced that an entirely negative *x*-ray examination carried out with the greatest care and efficiency is very strongly against tubercle, and in my private practice (where it is possible to carry out such examinations with greater precision than in a big general hospital department) I do not remember ever having known of a case in which all the *x*-ray signs were negative which went on to develop definite symptoms. There are, of course, great limitations as regards radiography in this respect, and I do not for a moment wish you to think that by means of *x* rays, and *x* rays alone, a diagnosis for or against phthisis is to be made. This is very far from being the case; but the value of skilled radiographic evidence in such cases is of enormous importance when considered with all the other obtainable evidence.

The second point to which I wish to draw attention is the value of a radiographic examination of the thorax in the presence of malignant disease elsewhere. There is no doubt whatever that secondary deposits of malignant disease in mediastinal glands and in the lung itself can be present without any symptoms, and without giving rise to any physical signs. There is equally no doubt that a certain number of patients undergo severe operations for primary growths in whom at the time of operation there are already such secondary deposits. We are in the habit of generally overhauling patients before operation with a view to finding out whether such secondary deposits are to be found, as of course, if such are present, operation on a primary growth with the object of cure is useless. The time has, I believe, arrived when it is necessary that the thorax of such patients should, as a matter of routine, be radiographed before operation. At the Cancer Hospital in London a large number of cases with malignant disease have been thus examined, and it is surprising how large a number show definite glandular or lung lesions secondary in character. Further, to quote Charles Mayo:

> Especially important is the aid of the Roentgen ray in the diagnosis of early metastatic carcinoma of the lung and bones. In these cases the Roentgen findings prevent serious primary

or secondary operations when the original lesion is in the mammary gland or the thyroid. When such malignancy has existed for more than a year there may be 14 per cent. of metastases in lung and bone.

The Diagnosis of Urinary Calculus.

This may be described as one of the great achievements of radiography, and at the present time no operation for stone, except in the case of a sudden surgical emergency, is justifiable without a previous *x*-ray examination. The accuracy of radiographic work in this direction is, to say the least of it, extraordinary, and so-called mistakes so few that one does not hear the last of it for some time when one occurs. The last one I made indicates to you the general character of these mistakes. An elderly and decidedly obese individual wrote me an indignant letter because, a few days after I had radiographed him with a negative result and had charged him what he considered a somewhat large fee, he had passed the enclosed. The enclosed on examination proved to be a tiny speck of uric acid the size of a pin's head. I replied to him that I considered his complaint a very great compliment to my work, inasmuch as he suggested that I should have been able, with the kindly assistance of *x* rays, to show such a small object inside such a very large one.

Stones cast *x*-ray shadows in ratio to their density, and thus the oxalates are the easiest to show and the uric acid the most difficult. Fortunately, oxalate stones, or at any rate mixed calculi containing oxalates, are the most common, whilst the pure uric acid stone, except when it occurs in the urinary bladder, rarely reaches what may be termed "surgical size." Pure uric acid calculi when they do occur cannot be demonstrated by radiography, and as not altogether unfrequently they reach a large size in the bladder the negative diagnosis as regards the bladder is not reliable. In all my experience I have never seen a pure uric acid stone removed by operation from a kidney or a ureter, but I have occasionally seen one passed after a negative *x*-ray examination. It seems to be a fortunate thing that if a stone forms in a kidney or lodges in a ureter it practically never attains any considerable size without taking unto itself salts which are opaque to *x* rays. The real difficulty in the radiology of this subject is not to show shadows but to interpret them. Other things—calcareous abdominal glands, gall stones, phleboliths, calcareous patches in ligaments, appendix concretions, and many other rarer conditions—will sometimes cast shadows very difficult to distinguish from stone shadows; and the more experience one has the more careful one becomes in dogmatizing as to the cause of shadows. You will see, then, how important an element is interpretation, and that a successful radiographer is not merely a successful photographic plate taker.

The importance of reliable *x*-ray work in the diagnosis of stone or otherwise cannot be over-estimated; and the negative evidence is of equal value as the positive. During my tenure of office at the Royal Infirmary, now getting on for twelve years, no stone has ever been found by operation which the radiographic department has failed to show on an *x*-ray plate. You are so accustomed now to see one of the surgeons cut down on a kidney or ureter with the full confidence that he is going to find and remove a stone, and you have had so many opportunities of seeing such operations, that it may possibly surprise you to know that in the eight years before I took charge of the department the reports indicate only twenty-two operations for stone, and of these cases stone was found at the operation in only twelve. Facts of this kind speak for themselves, but to my mind the present day surgery of stone has been made possible by radiography alone.

The Investigation of the Stomach and Bowel by the Opaque Meal.

Again has it been possible by radiography to render the invisible visible, and to put facts into the hands of physicians and surgeons which have revolutionized our ideas as regards the stomach and many of its disorders, which have proved beyond all doubt that the ideas previously held as to the possibility of mapping out a stomach by auscultation, percussion, etc., were absurd, and which are of the greatest diagnostic value and assistance in the directions of treatment and of surgical interference. Salts of bismuth and of barium are opaque to *x* rays, and certain of them, suitably prepared, can be safely taken in doses amounting to even 6 oz. at a time. Mixed with food, the food is made opaque to the rays, and a picture of this food as it is acted upon by the walls of the stomach or bowel can be seen on the screen, or recorded upon a plate. Neither the stomach nor the bowel are really made visible, but as the walls of these organs contract on any contents, and as the food fills up irregularities of shape, the shadow of the food really becomes the shadow of the organ containing it. The exact shape, size, and position of the living stomach in its natural conditions as it contains food in various amounts is an *x*-ray fact, and an *x*-ray fact alone; and it is of importance to remember that these facts are demonstrable in any position of the body, standing or lying down. In the pre-*x*-ray days a physician, usually irrespective of any preparation of the stomach, would by means of percussion, etc., draw an outline on the abdominal wall and say, "That is the outline of the stomach." There were no means by which these results could be controlled and verified. He would be a bold man indeed who would attempt to uphold such views now, when his outline drawings could be contrasted with the definite *x*-ray picture. One thing I believe *x* rays have done of the greatest importance—they have relegated that refuge of the destitute, "atonic dyspepsia," a diagnosis which has been used to cover up a multitude of sins, to the records of the past, and they have demonstrated that at any rate "chronic indigestion" is an organic condition, direct or indirect. Not every disease of the stomach or bowel can be diagnosed by means of radiography. Often the diagnosis is unexpected and obvious; for instance, in such conditions as hour-glass constriction from ulcer, or in malignant disease which has caused an alteration in the shape of the stomach; more often, perhaps, without definitely recording an exact diagnosis, the examination puts the physician in possession of facts as to the size, shape, contractions, and emptying which can only be revealed by *x* rays, and with these facts added to the history of the case the diagnosis becomes an easy one. An important point is that the question of operation is often decided by the *x*-ray examination. Often, very often, in malignant disease of the stomach, radiography reveals such extensive mischief as to put any operation, even a short-circuiting one, completely out of court, and, on the other hand, the reverse is often the case and an operation clearly justifiable. At the present time every case of so-called "chronic indigestion," every case, indeed, in which the stomach or bowel, or both, are suspected as the cause of the symptoms, should be subjected to a complete *x*-ray investigation; except in the acute emergencies, operations on these organs are hardly justifiable until such an investigation has been made.

Uses in Other Regions.

I have taken these large divisions of *x*-ray work—fractures, the thorax, the urinary tract, and the stomach—as best illustrating the scope and value of this method of examination, but they by no means represent all that can be done. Radiography is of assistance in many intracranial conditions, in the examination of the sinuses of the head, in the diagnosis of gall stones, in the observation of all diseases of bones, in the deformities of bones, in the examination of the teeth, and I do not intend this to be taken as a complete list. Also I have not touched upon the demonstration of, and exact localization of, foreign bodies situated anywhere inside the human body. The war has brought this branch of work into great prominence, and, amongst other things, is said to have been responsible for the introduction of some 250 different methods of localization. At any rate, it is a very simple matter nowadays to mark a spot on the skin and tell the surgeon the exact depth of any foreign body which may be underneath it.

I have not dealt with *x* rays in the treatment of disease, in which they are of increasing value in a large number of conditions as control of the output of an *x*-ray tube is becoming more possible. In exophthalmic goitre, in glandular tuberculosis, in rodent ulcer, in many skin conditions, and, lastly, in the various forms of malignant disease, *x*-ray treatment, carried out carefully and methodically, is of great value. Again this must not be taken as a complete list.

Perhaps a further use for *x* rays has hardly occurred to you. Very early on it was found that diamonds were

UNIV. OF ILL. URBANA-CHAMPAIGN

transparent to *x* rays, whilst paste—imitation diamonds—was quite opaque. It is thus possible to make use of them for the purposes of differential diagnosis, but some very startling uses have been made of them in the past two years. Many cases of attempts at smuggling have been thwarted, and *x* rays have occupied an important part in locating contraband material. Rubber has been detected hidden in bales of cotton waste, and mine cases and asphyxiating bombs have been found with their help in the personal luggage of a traveller. In other directions industrial uses have been made of the rays. Flaws have been detected in steel casings, defects in insulating material detected, porousness revealed in copper. One of the largest commercial applications of the *x* ray is at a certain tobacco factory, where the cigars are made and packed in boxes, and the boxes are exposed to definite doses of *x* rays. The result is that the tobacco beetle larvae, which are so small that they cannot be seen and which are very destructive to cigars, are destroyed without any damage to the cigars.

The Limitations of X-ray Diagnosis.

In medicine there is just a tendency to rely too much upon *x*-ray diagnosis, and, indeed, to expect too much from an *x*-ray examination. The limitations of this method must be remembered. Many radiologists undoubtedly try to read too much from *x*-ray plates and screen examinations, are too much inclined to over-estimate the diagnostic possibilities; in this respect they have been encouraged to some extent by those who refer the cases, and who expect to have a definite opinion and diagnosis in return. As I have already pointed out, in many cases of intrathoracic disease, kidney stones, and stomach cases, the diagnosis by *x* rays is so striking, so apparent, that nothing more is required. Perhaps in a still larger number of cases the *x*-ray points, without being absolutely diagnostic, are of the greatest assistance and aid to diagnosis, and the radiologist best performs his duties as regard these cases when he reports his facts and points out their significance, but does not venture on dogmatic diagnoses without knowing something more about the case. This leads me to another point. At the present time there is a great deal, a very great deal, too much sending of cases of all kinds to the *x*-ray department before proper and systematic examination of such cases has been made in the usual ways. I am sure that no case should be sent for an *x*-ray examination until it has been thoroughly and completely investigated in other ways and a definite diagnosis suggested. I regret very much that it has almost become a routine at the Royal Infirmary for stomach cases to come down to the department very soon after admission, and without a single note in the case sheets. This is a bad system from every point of view—bad for the physician or surgeon in charge of the case, bad for the students, and bad for the *x*-ray department. Whilst instancing the stomach cases as bad offenders in this manner I do not intend my remarks to be limited to them.

Many of you students will eventually become practitioners in remote country districts at home, or in remote districts in many parts of the world, often far from all possibilities of having *x*-ray examinations made. You will not be able to have the radiographs and the expert opinion of the radiologist to lean upon. You will have of necessity to make your diagnoses without this aid. It therefore behoves you now—and your teachers should see to this—that you do not learn the habit of a casual examination of a patient and then the immediate resort to the *x*-ray room. I am convinced that no case, however simple, should be allowed to be sent from the out-patient or casualty department to the *x*-ray department until a complete and thorough examination has been made, and a definite conclusion as to the diagnosis arrived at and put in writing. After the *x*-ray examination the case should be re-examined with the *x*-ray findings known, and comparisons drawn. In the same way no case should come down from the wards until full examination and full notes have been made. Unless this is done we are going gradually to slip into loose methods of examination, and students will not acquire the routine of methodical examination, will not recognize the real value of physical signs, and will fail to acquire the great art of deductive diagnosis without which the successful practice of medicine and surgery is impossible.

Teaching of Radiology.

I have said nothing as to the teaching of radiology, but this is a large subject in itself. The time is rapidly approaching when this subject will have to be added to the curriculum, when the unfortunate student, already said to be overburdened with lectures, classes, and subjects, will have perforce to imbibe a certain amount of knowledge of *x*-ray diagnosis and treatment before he goes up for his final examination.

To my mind, the whole subject of medical and surgical teaching and examination requires drastic overhauling. I believe you are taught how to perform the most intricate surgical operations, the most special of special operations on the eye, ear, and throat; you are taught about the most rare diseases which mankind is heir to; you may be examined on these operations and diseases—about operations which probably none of you will ever perform, as to diseases which probably none of you will ever see. On the other hand, any knowledge of radiology, a subject which you are, so to speak, up against every day of your professional career, is not insisted upon, and you are neither taught it nor are you examined upon it. I take it that at the present time, if an examiner either asked you any question as to radiography or showed you a radiograph and asked you to interpret it, you would be entitled to say that it was not any part of your examination work—although very possibly an answer of this kind would not be wise. However, if such a thing happened, you may take it from me that, with few exceptions, the examiner will know just about as much, or even less, than you—he has never been taught any radiography either.

There is a prevalent idea abroad that a radiologist is a mere photographer, and that any medical man can interpret radiographs. Never was there a greater mistake. The technique of plate-taking can be easily acquired by anyone; the more experienced one has become in the interpretation of radiographic findings the more conservative one becomes, and the more guarded in expressing dogmatic opinions. The examination of the thorax and abdomen can only be carried out by duly qualified, and especially qualified, medical men. I came across a case the other day in which clinically there was an obvious fracture of the upper end of the fibula; the ankle had also been injured, but radiographs showed no fracture in this region. The eminent surgeon whose case it was, was addressing his students; he could not understand why the radiograph of the knee did not show the fracture of the fibula—it showed how unreliable *x*-ray evidence could be, etc. The eminent surgeon, unfortunately, was looking at the plate of the ankle-joint, and did not know it was not the knee-joint. This is a fact—I need scarcely say that he was not a Liverpool surgeon.

In conclusion, I would urge each one of you that whilst you make a point of attending the *x*-ray department and become acquainted with its routine and with the general scope of its work, you do not also, especially in your student days, rely too much on this method of diagnosis to the exclusion of the development of those faculties of observation and deduction which are so important to a successful practitioner of medicine and surgery.

LIGATION OF THE INNOMINATE ARTERY FOR TRAUMATIC ANEURYSM OF THE CAROTID.

By Colonel THOMAS SINCLAIR, F.R.C.S., A.M.S.,
CONSULTING SURGEON, BRITISH EXPEDITIONARY FORCE, FRANCE.

Since the successful ligation of the innominate artery by A. W. Smyth, of New Orleans, in 1864, this vessel has occasionally been tied, though not so frequently as to render uninteresting a description of a recent case. It may also be desirable to record it as a contribution to the statistics of military surgery in the present war.

An officer, aged 20, was shot, on August 24th, 1916, in the lower part of the right anterior triangle, the bullet issuing close to the superior angle of the scapula on the same side. He lay out for thirteen hours, during which time he bled so profusely as to saturate his tunic and necessitate dressing four times.

He was admitted to a casualty clearing station on August 25th, 1916, and though he recovered speedily from shock, he showed marked anaemia. A traumatic arterial aneurysm

formed in the lower part of the common carotid, which was treated expectantly for some days, but the rapid daily enlargement compelled operation on the fourteenth day. By this time the aneurysm had attained the size of an orange, filling up the interval between the clavicle and the upper border of the thyroid cartilage, extending across to the line of the common carotid of the left side and overhanging the subclavian on the right. Its approximate measurements were 4½ in. in breadth by 4 in. in height. Hoarseness developed in the later days, pointing to pressure on the recurrent laryngeal nerve. The respirations were 24; the temperature varied from 100° to 101.8°, and the pulse from 100 to 112. Both entrance and exit wounds suppurated moderately.

Operation.

The artery was exposed by a rectangular incision in the midline and along the clavicle. After detachment of the sternal head and part of the clavicular head of the sterno-mastoid and partial division of the sterno-hyoid and sterno-thyroid muscles, it was found that no space was available between the clavicle and the aneurysm. Therefore, one and a quarter inches of the inner end of this bone were resected. The apex of the lung, with its uninjured pleura, appeared in the dissection. The inferior thyroid veins and the larger veins were retracted without damage; in fact, no artery or vein was clipped or ligatured throughout the operation. The innominate artery was found behind the middle of the manubrium, and in tracing it upward it became apparent that the common carotid was so incorporated in the aneurysm that the placing of a ligature upon it was impracticable, and therefore the innominate was tied with a single strand of No. 4 thirty-day catgut. The muscles were repaired with catgut sutures and a small drain tube left in for forty-eight hours.

The question of a distal ligature was now debated in obedience to the commonly accepted principle that the wounded artery should be doubly ligated and the contents of the sac turned out, or the sac excised, but these measures were advisedly omitted in this instance lest a copious bleeding from the sac in a markedly anaemic subject, or the prolonging of an already lengthy operation, should jeopardize the patient. It was felt that a distal ligature should be placed on the carotid some days later, should the progress disappoint. Fortunately, the need for this step did not arise.

The subsequent course was uneventful; no septic changes from the original bullet track were propagated to the operation wound; and the patient was evacuated to the base on September 16th, 1916.

Three months after operation (December 13th, 1916), an examination of the patient showed that no cerebral deterioration had resulted; his mental functions were normal. The vision of the right eye was perfect, though the vessels in the fundus were slightly reduced in size. There was no giddiness or disturbance of equilibration. The thrill, bruit, and pulsation could not be detected, and the aneurysmal swelling had entirely disappeared. A degree of muscular atrophy and the absence of the end of the clavicle rendered this examination more easy and convincing. Radial and ulnar pulses had not returned at the wrist; the circulation and sensation in the hand were good, but some feebleness with stiffening at the fingers remained, due, probably, to the prolonged disuse of the extremity rather than to tropho-neurotic changes. No doubt massage and exercises will remedy this temporary disablement. A satisfactory pseudo-arthrosis had formed with the first costal cartilage, and active shoulder and elbow movements were good.

The chief anxieties, apart from the immediate risks at the time of the operation, are secondary haemorrhage, septic complications in the neck and chest, embolism, and cerebral softening from ischaemia. Disastrous cerebral changes, which may begin in forty-eight hours or be delayed for a fortnight or longer, are more likely to arise in patients over 40 with arterio-sclerosis; but acute anaemia from recent haemorrhage may render even young persons liable. Detachment of emboli may, of course, occur under any condition, or at any age, but in the case here recorded the acceptance of some extra risk in this respect by omitting a distal ligature of the carotid, which shuts off useful refluent circulation through subclavian branches, was considered justifiable, in the expectation that the cerebral ischaemia might be rendered less profound and sudden in a very anaemic subject.

Surgeon-General Sir George H. Makins, in his admirable paper on "Vascular lesions in war," lays it down that, "In certain conditions a proximal ligature at the seat of election suffices to cure a false aneurysm; but the method is uncertain, and should not be adopted in any situation where the sac and the opening in the vessel can be dealt with locally." In a later paragraph, dealing with carotid aneurysms in particular, he says: "Still I think the more extensive operations must be used with judgement, since they are obviously more risky procedures if a large sac is present."

It is noteworthy that cerebral complications are more frequent after ligation of the common carotid than after ligation of the innominate artery. Delbet estimates their incidence at one-fifth and Jordan at one-fourth under modern surgical technique. Burns of Memphis in 1908, in a record of fifty-one innominate cases with eleven recoveries, speaks of six dying from shock, six from cerebral complications, and the balance from septic wound infections and secondary haemorrhage.

Various methods of exposing the innominate artery have been devised: Trephining the manubrium; vertical splitting of the manubrium; clipping away the upper margin of the manubrium, with resection of one or both sterno-clavicular joints—even the first costal cartilage has been resected; temporary displacement of the clavicle; resection of the sternal end of the clavicle. The last-mentioned plan was adopted and gave ample access. It was deemed better than temporary displacement of the bone, which, by its dangerous traction on the aneurysm and the subsequent difficulty of retaining it on replacement in its old socket, did not commend itself in this instance.

Major Gask, Captain Chubb, and Captain Manford kindly assisted at the operation, and took charge of the case after it; and the later treatment in London was carefully supervised by Mr. Laming Evans.

EARLY TREATMENT OF COMPOUND FRACTURE OF THE LONG BONES OF THE EXTREMITIES.

BY BASIL HUGHES, CAPTAIN R.A.M.C.(T.F.).

THE early treatment of compound fracture of the longer bones of the extremities forms a large and important branch of military surgery. Upon what is done for men suffering from such wounds in the hours immediately following their infliction depends to great extent their subsequent utility, and often their life.

There are points of difference between these fractures and compound fractures seen in civil life. In the latter there is not the same quality of damage to bone and the soft parts, and we have not the same type of infection to deal with. Further, in civil life men are not injured under the conditions which obtain in war.

In the case of a man wounded in action, we must consider (*a*) fatigue; (*b*) shock (specially in fractures involving the femur); (*c*) local tissue stupor; (*d*) infection.

Fatigue is a powerful predisposing cause to wound infection and to other trench ailments. I have pointed this out in connexion with "trench feet" and "trench pyrexias." Life in trenches under the conditions that exist there, with lack of sleep, are potent causes in producing trench fatigue. It is noticeable how rapidly rigor mortis occurs in men killed in the trenches.

Shock.—With severe wounds of soft parts, specially the thigh with fracture of the femur, shock is immediate and severe. It is not necessarily associated with loss of blood. It is much increased by motor transport if the limb is not securely immobilized.

Local Tissue Stupor.—This condition is brought about in the muscles and other soft structures as a result of injury caused by a piece of shell. The naked-eye appearance of such tissue is characteristic. The muscle looks dry and lifeless, it is quite insensitive, does not bleed when cut, and does not contract when stimulated. This tissue, though not dead, is very apt to die, and while in this stunned state is very prone to infection. If a tourniquet be applied to the limb above such tissue, or if antiseptics be used, gangrene is almost certain to ensue. Under these conditions, if necessary, a limb can be amputated quite painlessly. This I have done on more than one occasion in the trenches, and the cases have done well.

Infection.—All shell wounds are bound to become infected, whatever care be taken. This statement is clear to those of us who have had experience in the front line. Predisposing causes are fatigue, exposure to wet and cold, nerve strain, and tissue stupor. The bacteria most to be feared are: (*a*) *B. perfringens*, (*b*) Vincent's bacillus, (*c*) *B. tetanus*, and (*d*) *Streptococcus faecalis.*

It is therefore important as early as possible to follow out the rules applying to open wounds—namely: (1) Prevent further infection; (2) get rid, as far as is possible, of infection already carried in; and, in cases of fracture, a third may be added: (3) Prevent what infection has

already been carried in from becoming further disseminated by thoroughly immobilizing the limb.

Quite a number of wounds, chiefly in men who have lain out, though not always so, have become fly-blown, and within a very short time contain an abundance of maggots. The presence of maggots in such wounds seems to exert an inhibitory action on the growth of the more virulent bacteria, and so acts beneficially. Maggots only thrive in dead tissue, and seem to hasten its removal. Two of the worst buttock wounds that I saw became accidentally fly-blown, and from the time of the appearance of the maggots both cases started to improve.

Question of Transport.

From the battlefield these wounded men have to be carried to the regimental aid post or the advanced dressing station. From the latter place they go by motor transport to the field ambulance. This part of the journey has, as a rule, to be as rapid as possible, owing to enemy shell fire.

This necessitates shaking, and brings into consideration other complications—namely: (*a*) Embolism (pulmonary); (*b*) increased shock; (*c*) increased damage to tissue and so further dissemination of infection; (*d*) haemorrhage.

Embolism has happened frequently, and I have seen it occur between the firing line and the regimental aid post, and on several occasions it has occurred in the motor ambulance.

Increased shock has been occasioned by the pulling on large nerves of the fractured limb, and increased damage to tissue has taken place owing to the fractured ends of the bones having too free play amongst the soft parts.

Haemorrhage has also occurred during motor transport from divided vessels and from the fractured ends of the bone.

Early Immobilization.

From the field ambulance these men proceed by motor to the casualty clearing station, often a considerable journey. The condition of their wounds on arrival will depend upon the length of time they have been wounded and the manner in which the fracture has been immobilized.

If, therefore, the immobilization of the fracture be imperfect, especially in cases involving the femur, extensive and often irretrievable damage may happen both to limb and patient during motor transport. Perfect immobilization, as early as is possible, in the position in which the fractured limb is found, whether in trenches or in the open, is the first essential to success.

The earliest treatment falls to the lot of the regimental medical officer. When active fighting is in progress he has more than he can do, hence the importance of instructing stretcher-bearers and additional combatants in the first aid treatment of fractures.

This work has usually to be carried out under heavy fire, often for hours on end. It is this that makes the task of the regimental medical officer the most arduous and difficult of all. It calls for unlimited resource and endurance. Some cases have reached the clearing stations direct from the front line with serious compound fractures of the thigh perfectly immobilized, having travelled painlessly for some miles over rough roads. In other cases the splint has slipped, despite the time taken and patience exercised in fixing it. These latter cases suffer much pain during motor transit, shock is increased, infection is further disseminated, more damage is done to the soft parts, and haemorrhage has often taken place. If a limb is hopelessly shattered, with vessels and nerves divided, it is wiser to amputate at once at the regimental aid post, and tie the main vessels. Owing to tissue stupor the operation is painless, and the risk of shock and fatal haemorrhage during transport is avoided.

Tourniquets for transport should not be used. They tend to slip; they are painful, and increase shock; and they cause irretrievable damage to the tissues they constrict. From what I have seen of cases arriving at clearing stations with tourniquets applied, I am convinced that earlier amputation is the correct procedure, for such amputations do well.

The all-important part of conservative treatment in the line is a perfect immobilization of the fracture as it exists. There should be no attempt to reduce these fractures in the line, as infection is only further disseminated. This should be left until the casualty clearing station is reached and the wound can be disinfected.

Fractures of the bones of the forearm and leg do not usually show much displacement. For the leg the rifle makes a good temporary splint if padded with sandbags, and the limb so fixed is bandaged to its fellow of the opposite side. Sandbags rolled and stiffened with cardboard make excellent splints. For the forearm a clean sandbag rolled up makes a comfortable and efficient splint, and the arm is put in a sling.

Femur.

When the femur is the bone involved I have found the following method give good fixation for motor transport. A rifle padded with sandbags or a great-coat is placed with the butt end in the axilla. A strip of wood four or five inches broad broken off a ration box and rolled in another sandbag is fixed between the leg and the lower end of the rifle. The rifle is firmly secured around the chest with puttees, and is fixed to the leg below the knee with another puttee, the padded piece of wood intervening. Another strip of wood six or seven inches broad, broken off a ration box and padded with sandbags, supports the thigh behind, while a third piece, similarly padded, and reaching from the perineum to as far down the leg as possible, supports the thigh internally. The thigh, with its internal and posterior supports, is now fastened securely with puttees to the rifle. The limb so splinted is now securely bandaged to its fellow of the opposite side. Cases so treated have always travelled well.

Some fractured femurs have, on their way to the clearing stations, been put upon Liston's long splints, Page's splints, and the like, but invariably these splints have slipped, and have not proved efficient for motor transport.

Humerus.

Fractures of the humerus can be immobilized with rolled sandbags strengthened with entrenching-tool handles. The arm should be put in a sling and bandaged to the side. The bandages or puttees fixing the splint should not be applied too tightly, as the circulation is thereby impeded, and serious consequences result.

TREATMENT AT CASUALTY CLEARING STATION.

At the casualty clearing station these men are divested of their dirty clothes and provided with thick woollen pyjamas without disturbing the fracture. If the case is urgent and requiring amputation it is dealt with at once, but if not it is better to wait two or three hours. Chloroform induction, followed by open ether, has been the anaesthetic used, and if the case is severe subcutaneous saline, two or more pints, are slowly run in during the operation.

Not until the patient is anaesthetized is the splint removed and the wound examined. The skin is shaved, cleaned with petrol, and painted over with iodine. The edges of the wound are clearly cut away with all dead and stunned tissue in the wound itself. Foreign bodies are removed. Foreign bodies carried in the trouser pocket are apt to be driven into the thigh by a missile. I have extracted coins, buttons, a pencil, and even a piece of a miniature New Testament, from the soft tissues of the thigh.

After free removal of bad tissue with foreign bodies, the wound is thoroughly disinfected with hydrogen peroxide, and gauze wrung out of it is placed over the wound. Detached fragments of bone have been left if not too badly soiled and still attached to periosteum. Small spicules and completely detached pieces only have been removed. All bleeding vessels have been twisted off and not ligatured.

Traction is now made in the long axis of the limb by an orderly, while the fractured ends with detached fragments are manipulated into position by the surgeon. The splint is then applied with the extension apparatus before the final dressing of the wound, and the surgeon should satisfy himself that such a splint is adequately keeping up the reduction of the fracture before he adjusts the final dressing. Suture of a wound after excision has not been practised in wounds complicated by fracture of the long bones of the extremities.

Femur.

If the fracture be not too high up and complicated with wounds of the buttock, the perineum, or its immediate vicinity, then Thomas's knee splint gives the best fixation. Fracture of the shaft of the femur is often complicated with haemarthrosis of the knee, making extension and adequate fixation all-important as a safeguard against extending sepsis, which in a fissured bone progresses at the rate of about one inch a day.

Extension between the tuber ischii and the lower bar of the splint is maintained by strapping from the leg (Fig. 1). The lower free ends of the strapping are turned back, and through the loops so formed a piece of wood (A) is inserted. A stout piece of rubber tubing (B) passes round this piece of wood, and is fixed, after being put on the stretch, to the lower bar of the splint. This gives an excellent uniform extension, and is proof against jars that may happen during the journey to the base.

The thigh is supported behind by troughs of perforated zinc fixed to the bars of the splint, and a back splint

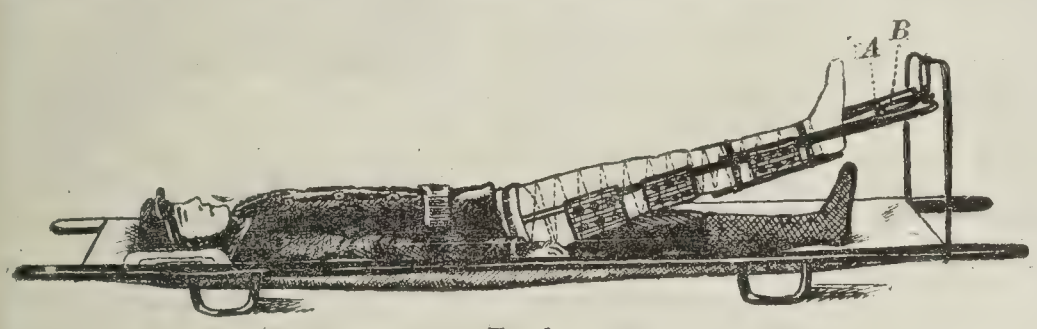


FIG. 1.

extending from just above the knee to the foot further steadies all. In the absence of perforated zinc, three-corner bandages have answered well.

The final dressing is now applied, and the lower end of the splint is suspended to the support bar provided with the service stretcher. The wound can now be inspected without disturbing the splint. Fig. 1 shows the apparatus applied, and the wounded man on the stretcher ready for transport to the base hospital.

If the fracture is high up and complicated with wounds about the perineum or buttock, the splint illustrated in Fig. 2 will answer all requirements. It consists of a leather-padded ring for the axilla. The space from A to B can be varied by two adjustable screws, C. At D is a hinge allowing of abduction only. Four narrow strips of metal, E, project from the frame, and from their extremities leather straps are attached. Two of these encircle the chest and two the leg. Extension by rubber can be taken from the stirrup, F, at the bottom of the splint. G is an adjustable footpiece. The splint is further secured to the chest by a roller towel. The thigh is supported behind by a convenient back splint. The framework does not touch

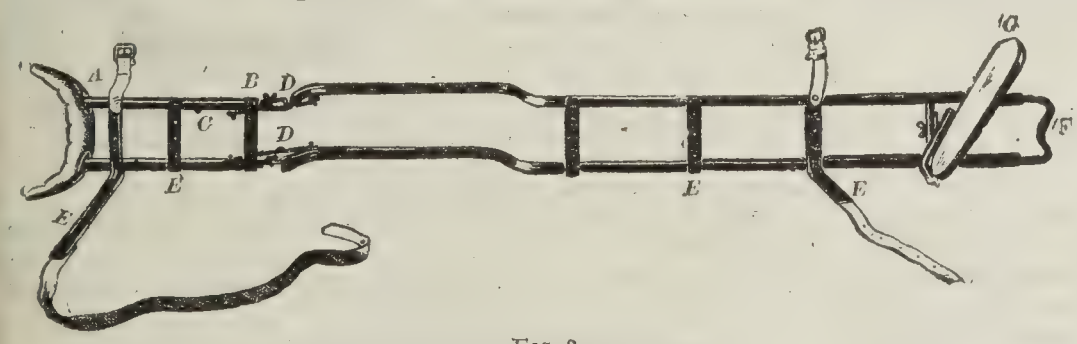


FIG. 2.

the thigh and allows of attention to the wound without disturbing the splint. This splint is also useful for fractures and wounds involving the hip-joint, allowing, as it does, of extension and abduction.

The Leg.

For fractures of the bones of the leg the splint illustrated in Fig. 3 will be found useful. It consists of two bars, A, ending behind in a broad-based stand, B, and connected behind by a curved bar, C; D is an adjustable footpiece. The space between C and D is made good by adjustable troughs of perforated zinc, E. On the footpiece is fixed an iron strap, F, to keep the foot in position. Dressings can be changed without disturbing the splint,

and the stand, B, not only steadies the splint during transport, but, with the adjustable footpiece, affords

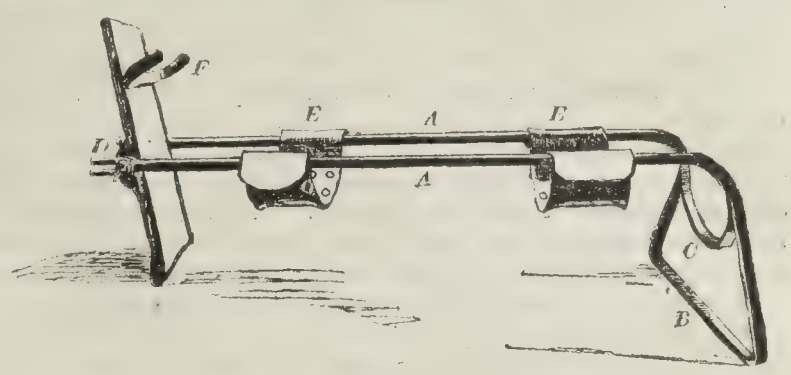


FIG. 3.

slight flexion at the knee, which adds to the patient's comfort.

Humerus and Forearm.

One of the most satisfactory splints for fractures of the humerus is the principle of Thomas's knee splint applied to the arm by Colonel Robert Jones. It is, however, not an easy splint for travelling, and is apt to get knocked.

Fig. 4 shows a splint which is useful for all fractures involving the upper extremity. It consists of a bent, leather-padded piece of iron, A, hinged on to a horseshoe-shaped piece of iron, B. This is again hinged so as to rotate horizontally at C. From this point a bar of iron passes down below to D and is here bent. This bar of iron, which is of adjustable length between C and D by means of a screw E, is hinged to a trapezium iron frame at F and G. Thus abduction and

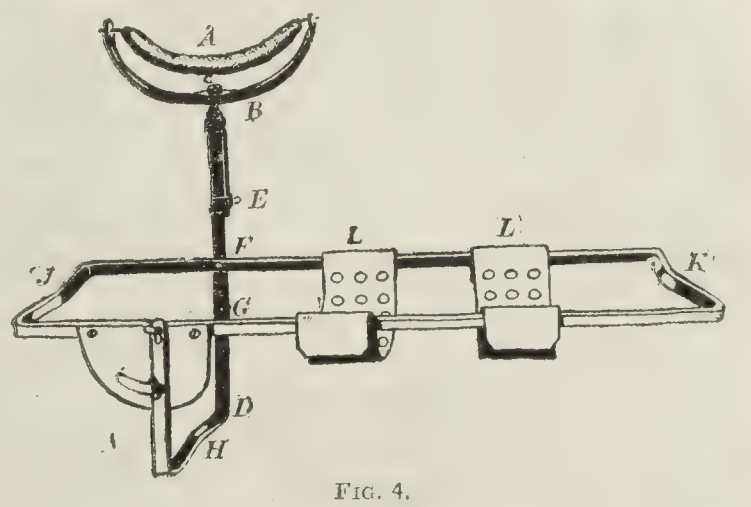


FIG. 4.

rotation are allowed to the humerus, and flexion is allowed for injuries about the elbow-joint. Extension for a fractured humerus is taken between the axilla and the bar H. Extension for the forearm is taken between the bars J and K. The forearm rests in adjustable troughs of perforated zinc, L. By bending up the distal part of the horizontal portion of the splint dorsiflexion for the wrist may be acquired.

The splint is efficacious, light, and easy to adjust, and answers all requirements for fractures of the upper extremity.

The Dressing.

If the wound be extensive, the dressing used for the first few days before sending these cases to the base has either been a salt pack or Carrel's tubes with Dakin's solution. The latter method requires more time, and can only be undertaken when there is not an undue rush of casualties. The salt pack has given good results, and does not require the same amount of attention.

After-Treatment.

This consists in treating the general condition and the wound. Plenty of fluid (water), nourishment of all kinds, with a brisk purge, are the main essentials, combined with rest in bed. Fatigue and shock are the conditions which militate against success for the day or two following the

operation. Saline given subcutaneously helps very much to combat these. If the temperature rises and there is pain, disinclination for food, and vomiting, the wound should be examined, and fresh spread of sepsis looked for. Should such be present and threaten life, amputation by the rapid circular method should be performed without delay.

If infection still persists in the wound, and is spreading, though not sufficiently to threaten life, treatment will depend upon the organism present. If *B. perfringens* and *Streptococcus faecalis* (for these two organisms generally coexist) be the cause, then a barrier of hydrogen peroxide or potassium permanganate (strong solution) injected into sound tissue above and below the infected area, and completely encircling the limb, has done good in some cases and sufficed to arrest further spread. Further incision and drainage of the affected part may be needed, and this can be combined with continuous irrigation of the wound with normal or slightly hypertonic saline solution, alternating with eusol.

If the infection be pyogenic, hot antiseptic fomentations, or charcoal and carbolic poultices, will often limit the process.

In a few desperate cases I have tried intravenous injections of eusol, as recommended by Fraser and Bates, but have had no success from its use.

Stimulants may be freely given, and do good in these cases. As soon as possible these men are sent to the base hospital, where more perfect conveniences for subsequent treatment exist.

It must be clearly understood that what has been said in this article refers only to the treatment of fractures between the firing line and the clearing stations. Many cases of serious compound fractures arrive at the clearing stations in a very septic and foul condition. The general condition of such wounded men is grave, and amputation is their only hope of salvation. Attempts to save such limbs have, time after time, ended in disaster, owing to the rapid spread of infection in these fatigued and worn-out men. This will explain the number of cases of amputation reaching the base hospitals from the clearing stations. Further, these amputations have to be performed exceedingly rapidly, as the condition of these men is often desperate. Such operations are purely life-saving operations, and so the same finesse cannot be looked for as can be obtained in later operations when the patient's condition warrants a longer anaesthetic; hence the crude appearance of some amputation stumps when the base hospital is reached.

I am indebted to Mr. R. Brown, of the Kensington "War Hospital Supply Dépôts," for the manufacture of these splints and for valuable suggestions; to Miss Hope and to my wife for the illustrations.

AN APPLIANCE FOR THE AMBULATORY TREATMENT OF FRACTURES OF THE THIGH.

BY C. MAX PAGE, M.S., F.R.C.S.,
CAPTAIN R.A.M.C.(S.R.).

THE importance and value of the ambulatory treatment of fractures of the femur at the earliest period practicable is well recognized. The restoration of full function of the limb, the union of the bone, and the repair of any wounds present are all favourably influenced by such treatment. Hardly less important is the improvement in the *moral* of the patient which occurs once he is able to move about again independently.

The apparatus which I propose to describe is made and applied by the surgeon from inexpensive and readily available material. Its chief advantage over the calliper type of splint is that at a certain period it leaves the knee-joint free.

DESCRIPTION OF THE APPLIANCE.

The appliance in its simplest form consists of two plaster-of-Paris collars; the upper one surrounds the thigh at the level of the great trochanter, and abuts on the tuber ischii; the lower is moulded on to the two condyles of the femur just above the level of the knee-joint. These two *points d'appui* are united by two extension screws, which lie just behind the central coronal plane of the femur.

The extension screws, when adjusted, procure long axis extension of the femur, and pass the weight of the body taken on the foot from just above the knee direct to the pelvis.

The principle employed is similar to that of Hackenbruch's "Distraktion-klammer."[1] The fixation at the knee is that used by Professor Delbet[2] in his spring splint for the thigh.

As indicated above, the appliance leaves the knee-joint free. If it is used in a case where little or no union is present, fixation of the knee-joint and an extension of the lower *point d'appui* to the ankle should be effected for a short period.

DETAIL OF MATERIAL.

The upper collar or ischial saddle is made from tarlatan. This material (cost about 3d. a yard) is usually sold 65 cm. wide. All descriptions below will be based on this size. It is formed as follows (Fig. 1): About 5 metres of tarlatan are folded so as to make a parallelogram 65 cm. by 25 cm., and containing twenty thicknesses of the material. This is then cut as shown in Fig. 1. The raw edges of the boomerang-shaped section are then roughly tacked. It has merely to be dipped into a plaster emulsion before use.

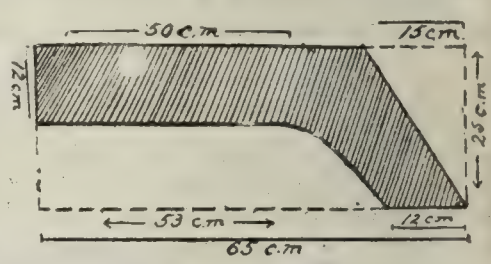


FIG. 1.—Ischial saddle, diagram of tarlatan section required; scale 1/10. It should contain twenty thicknesses of material.

The lower collar is made from one five-yard quick-drying plaster bandage 3 in. wide.

The extension screws are similar to those used for the wooden type of Macintyre splint. The most useful size for adult thighs measures 10 in. when screwed home, and 14 in. when fully extended. The two screws are attached to arches of perforated zinc by means of split rivets (Fig. 2). The zinc collars are cut for each case. The screws should lie symmetrically both above and below, about half an inch behind the coronal plane of the femur shaft.

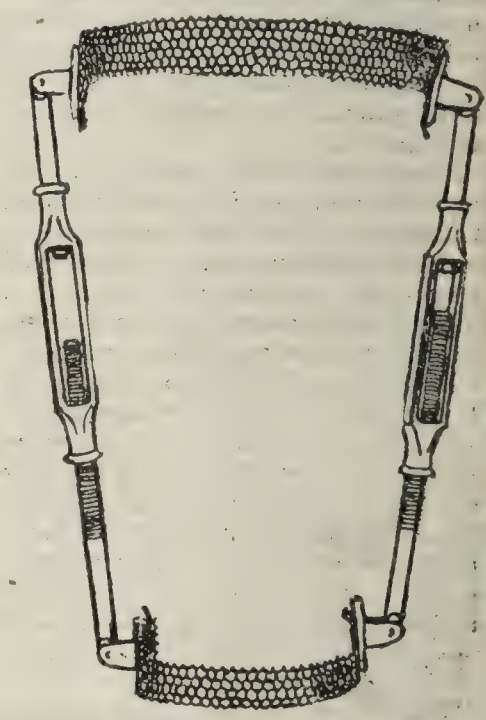


FIG. 2.—Extension unit, consisting of two screws attached to zinc arches by means of split rivets.

Tailed Pieces for Attaching the Extension Unit.—These are made from tarlatan. The one for the ischial attachment measures 110 cm. by 4 cm.; the lower one 90 cm. by 4 cm. (Fig. 3). Both should contain twelve thicknesses of material. They are cut like an elongated H, and the margins afterwards roughly tacked.

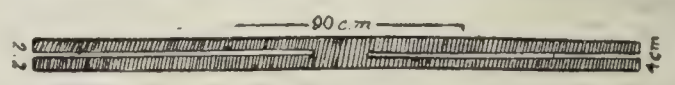


FIG. 3.—A tail-piece for attaching extension unit to the collars. The one illustrated measures 90 cm. and is for application to the supracondylar collar. It should contain twelve thicknesses of tarlatan.

APPLICATION OF THE APPARATUS.

Preparation of the Skin.—The skin around the ischial area and above the condyles should be rubbed with spirit, dried, and powdered daily, for a short period before the application. The thigh should be shaved.

An anaesthetic is only necessary in the case of very recent fractures.

Position.—The patient is placed (Fig. 4) on the operating table, and the trunk raised by resting it on a padded box. The lower edge of this should extend to about the third piece of the sacrum. The man is held in position by a perineal strut pegged into a prolongation from the deep

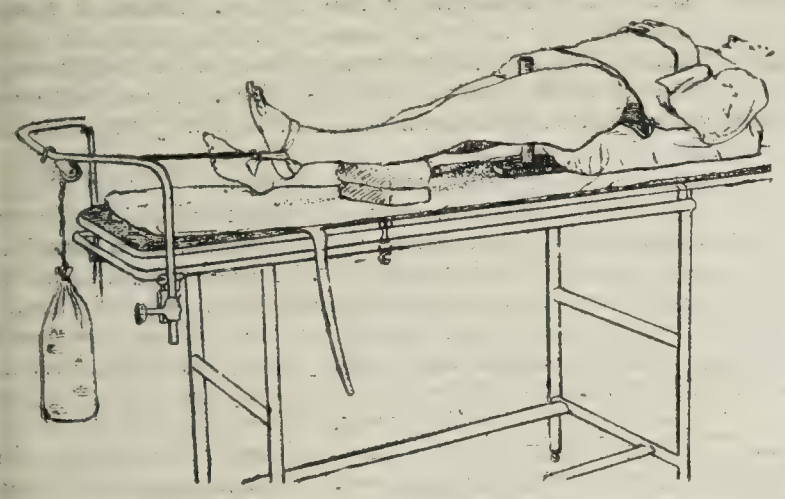


FIG. 4.—Position of patient, showing body rest, perineal prop, and method of leg extension during application of the apparatus.

surface of the box. The injured leg is steadied and extended by a weight attached to the foot by a cord which passes through a pulley hung on a bracket at the end of the table. A couple of sandbags support the limb just below the knee.

Application of Collars.

The supracondylar collar is formed by winding a 3-inch plaster bandage, moistened in hot water, around the thigh just above the knee. It is applied evenly and without tension, the upper margin lying about one inch above the upper surface of the condyles. The collar is then moulded above the condyles by the steady pressure of the tips of the fingers of either hand. The grooves so made are kept under moderate pressure till the plaster has set, say five minutes.

The ischial saddle is then applied. The section of tarlatan (Fig. 1) is dipped in a warm plaster emulsion of average consistence, and is then wrapped round the thigh, so that the peak or angle lies a couple of inches above and a little to the outer side of the tuber ischii. The whole is then fixed and reinforced by half a dozen turns of a plaster bandage. A groove is then moulded by steady pressure just below the tuberosity.



FIG. 5.—Front view of ambulatory appliance complete; no fixation of the knee.

The extension unit (Fig. 2) is then placed on the collars; the zinc arches lie on the front surface of the collars. The screws should be so adjusted that their lower extremities lie over the grooves above the condyles and level with the posterior surface of the femur. Care should be taken to place the upper extremity of the inner screw low enough for it not to foul the perineum when the screws are tightened up. The upper extremity of the outer screw should lie at the level of the great trochanter and just behind the posterior border of the latter.

Fixation of the Extension Unit.—The tailed pieces (Fig. 3) are dipped in plaster emulsion. The long one (110 cm.) is used for the ischial saddle, the other one (90 cm.) for the supracondylar collar. The base of the tailed piece is placed against the back of the collar opposite to the zinc arch, and the four tails are woven firmly round the extremities of the screws and over the zinc arches. The apparatus so completed is shown in Fig. 5.

Hardening of the Plaster.

This under usual conditions should be complete in about twenty-four hours. For this time a firm cushion must be kept under the pelvis in order to prevent deformation of the ischial saddle. Extension through the screws should not be applied during this period; if continuous extension be necessary it should be maintained by weight traction. Posterior support of the fracture can be obtained, if necessary, by passing a broad webbing strap from extension screw to extension screw over a firm pad applied to the exposed posterior surface of the femur.

Fixation of the Knee.

In almost all cases it will be found better to fix the knee in an extended position for the first few days that the patient is up. As soon as the muscles controlling the knee-joint (especially the quadriceps extensor) have recovered some function, knee fixation can be dispensed with, if union of the fracture is moderately advanced. For this temporary

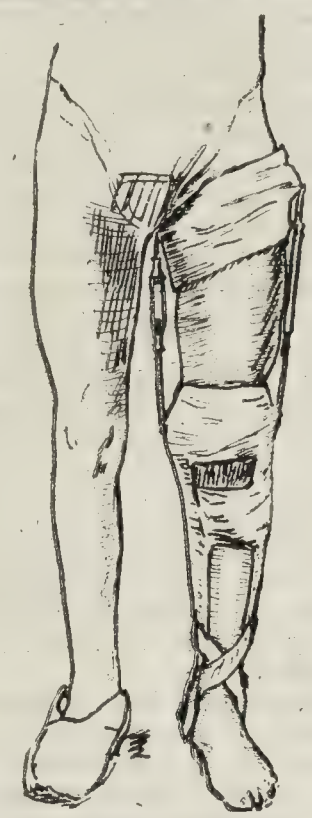


FIG. 6.—Front view of ambulatory appliance with Delbet leg extension.



FIG. 7.—Back view of ambulatory apparatus with Delbet extension; posterior support to the thigh is not shown.

fixation any well-moulded back splint will serve. In those cases in which little union is present, and therefore in which considerable and continuous screw extension must be maintained, it is better to fix the knee in an apparatus which extends the purchase of the lower *point d'appui*. I have found Delbet's method of plaster fixation for the leg the most satisfactory for this purpose. It is a little clumsy, but it leaves the ankle-joint free, and gets a firm purchase on the malleoli and back of the heel. The apparatus applied with this extension is shown in Figs. 6 and 7. The extension is made up from the following tarlatan units:

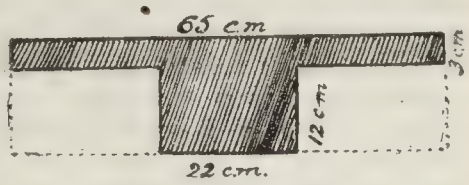


FIG. 8.—Heel-piece.

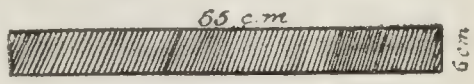


FIG. 9.—Tibial band.

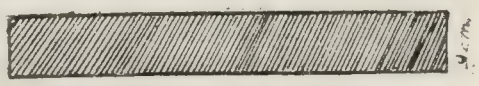


FIG. 10.—Side-pieces.

Diagrams of tarlatan units for Delbet's leg extension (introduced primarily for use in fractures of the tibia); scale 1/10. Each section is formed of eighteen thicknesses of the material.

1. The heel-piece (Fig. 8) contains eighteen thicknesses of the material, and is cut from a parallelogram 65 cm. by 15 cm., as shown in the figure, leaving a central heel flap 22 cm. wide, and two tails of the same length and about 4 cm. deep.

2. The tibial band (Fig. 9) measures 65 cm. by 6 cm., and contains eighteen thicknesses of material.

3. Two side-pieces 65 cm. by 9 cm. and of the same density.

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

4. A many-tailed bandage about 50 cm. square. The tails should be about 6 cm. deep and overlap half of the adjacent ones.

Application of Leg Fixation in Extension of the Supracondylar Collar.

The sections of tarlatan (1, 2, and 3) are dipped in plaster.

The heel-piece is then spread out on the table below the foot, with the tails perpendicular to the axis of the leg. The lower margin of the heel flap is flush with the sole of the foot; the tails will lie just above the level of the ankle.

The tibial band is spread out perpendicular to the leg just below the level of the tibial tubercle.

The side-pieces are then applied. The lower extremity lies flush with the sole of the foot, the upper extremity is incorporated with the supracondylar collar and turned back on itself to reinforce the plaster at the knee level.

Completion of Leg Extension.—While the side-pieces are held in position by an assistant, the tails of the heel-piece are wound firmly around, obliquely (Fig. 7), so as to bind the side-pieces. The tibial band is then wrapped round the leg horizontally, performing a like function above. The many-tailed bandage is then firmly applied over all, so as to mould the plaster on to the bony prominences while the plaster is in course of setting.

After-Care.

As with all plaster appliances in which pressure over bony parts is exerted, the main difficulty is the avoidance of pressure sores. For this appliance no form of padding is required, but sometimes a flannel lining to the *lower* part of the supracondylar collar may be used. Sores may appear over (1) the ischium, (2) the condyles, or (3) at the lower margins of the supracondylar collar. Their appearance can be avoided in any of these localities if due care be taken. As a first measure the preliminary hardening of the skin over exposed points by means of friction and the application of spirit is important.

The skin under the ischial saddle can be kept in perfect condition by the regular friction, and introduction of powder, effected by the passage of a "scratcher" of flannel. This consists of a strip of flannel passed between the skin and the plaster in front where there is no pressure. The "scratcher" is powdered, and worked backwards and forwards twice daily round the whole circumference of the ischial saddle. A similar appliance can be used for the supracondylar collar. Additional precautions to be taken at this level are (*a*) not to squeeze inwards too tightly when the collar is being moulded on to the condyles; (*b*) to cut away the lower edge of the collar at any place where it tends to dig into the skin. The screws should be left as slack as is safe when the patient is in bed.

Life of the Apparatus.

From the point of view of rigidity the collars, if they are set properly, will outlast the period of treatment. They may work too loose if they have been applied to a swollen thigh which decreases rapidly in size. Usually, however, the thigh swells a good deal when the patient first gets up; gradually, as this oedema disappears, the musculature improves, and so the collars maintain their hold. The extension screws may work loose in their bedding if this has not been soundly effected. They can easily be reset on the old collars with fresh H tailpieces. As a general rule, it is desirable to change the ischial collar after four to six weeks' use, if the apparatus is still necessary.

Type of Fractures Suited to the Appliance.

Simple Fractures.—Any simple fracture in which long axis extension maintains good alignment may be so treated. Plated fractures come under this category.

Gunshot and other Compound Fractures.—I have chiefly used the apparatus for cases of this kind, and have found it well adapted to fractures in the middle third of the femur. If there is a suppurating wound which would come under the ischial collar the apparatus cannot be used. In the case of compound fractures in the lower third of the femur, and in which the wound would be fouled by the supracondylar collar, the same principle can be applied by replacing the supracondylar collar by a plaster taking its purchase from about the ankle-joint. This involves fixation of the knee.

Time of Application.

The apparatus can be used in simple fractures as early as the eighth day. Its use at such a period involves continuous screw extension and fixation of the knee. In gunshot fractures I have found it most satisfactory when applied six to ten weeks after the injury. In such cases there should be fair union between the fragments in good alignment, and it is only necessary to exert strong screw extension while the patient is up and about. The likelihood of the formation of pressure sores is in this way reduced to a minimum.

Walking and Crutches.

The rapidity with which men will walk in this appliance without the aid of crutches or stick depends to a remarkable degree on individual mentality. In general it is wiser not to hurry a man to forsake his crutches. So long as he is taking a fair amount of weight on the injured limb, and moving both the ankle and knee joints, its function will rapidly improve.

Summary.

1. The moral and physical value of early ambulation in cases of fractured femur is great. The shortening of the period of convalescence so produced is at the present time very valuable.
2. The apparatus described can be fitted by any surgeon at a small cost.
3. When union of the fracture is fairly firm this apparatus permits of movement at the knee-joint.
4. The appliance is most easily managed when some union is present, and in general should be applied from six to ten weeks after the injury.

I am indebted to Lieutenant-Colonel S. G. Butler, D.S.O., R.A.M.C., for permission to publish these notes, and to Captain J. N. Fergusson, R.A.M.C.(T.C.) for the preparation of the photographs.

References.

[1] Hackenbruch, *Muench. med. Woch.*, 1912, lix, p. 1487. [2] Delbet and Laman, *Presse médicale*, December 2nd, 1915.

THE DRAINAGE OF SEPTIC KNEE-JOINTS.

BY

W. A. CARLINE, Lieut.-Colonel, R.A.M.C.(T.),

LINCOLN.

The very interesting article on the treatment of septic knee-joints by Colonel Andrew Fullerton in the JOURNAL of November 25th, 1916, induces me to give some notes of the methods adopted by me for draining the knee-joint.

Having no notes to refer to I can only recall the earlier cases, which impressed me by their frequency, and one recent case I operated upon shortly before going on two months' sick leave.

Septic knees were more common at this hospital in the early days of the war, and in one small ward seven cases were treated by drainage within a few weeks. Six of these recovered, some with good movement and others with a stiff joint. The case that died had a fracture of one thigh and a bullet wound through the other, the latter being very septic; the knee-joint became infected and was drained, but the patient died of septicaemia. At this time there were no conveniences for bacteriological examination nor for electrolysis with chlorine ions.

In a large number of cases of infected knee-joint it is possible to pass a drainage tube through the joint cavity on the inner side without the tube passing between the bones.

The early cases were washed out with 1 in 20 carbolic acid solution. All the tubes were closed by nipping them, except that engaged by the syringe, and the knee-joint fully distended by the disinfectant; the tube nearest the back of the joint was then freed and the disinfectant and pus allowed to escape, the process being repeated until the disinfectant came away free from pus. This treatment will be ineffectual unless the surgeon personally sees that it is carefully and efficiently carried out, and if he does so there should be no danger of "the entrance of microbes other than the original offenders," as suggested by Colonel Fullerton.

In the early Seventies the late Mr. T. Sympson treated cases of pelvic and other deep-seated abscess at the Lincoln County Hospital by a method then called hyperdistension. The abscess was opened by a valvular incision, and the pus

evacuated as far as possible; the cavity was then hyperdistended with a saturated solution of boric acid and again evacuated, the process being repeated until the fluid came away free from pus. I was much impressed by one of his cases (pelvic abscess following on confinement) which was cured in about ten days. I have had many successful cases since in treating deep-seated abscess in this manner, and the method I have described for treating infected knee-joints is only another application of it.

Many other cases of septic knee-joint have been treated at this hospital and cured with more or less stiff joints, and one of my colleagues informs me that he has had very satisfactory results from the same methods.

Lately I washed out the joint with a saturated solution of magnesium sulphate. The patient when operated on (October 19th) had a temperature of 104° F.; this had declined to normal on November 11th; there was one rise to 101° eight days later; the infection was streptococcal. The patient has now a slightly movable joint, which it is hoped will improve under chlorine ions.

I am aware that there are surgeons who claim that a stiff knee is not so useful as an artificial limb—a statement easily made but lacking in proof. The point could only be settled if some one with a useful stiff knee had subsequently to undergo amputation of the thigh owing to an accident.

INTRAVENOUS INJECTIONS OF ANTIMONY IN THE TREATMENT OF MALARIA.

BY

GEORGE C. LOW, M.A., M.D.,

ASSISTANT PHYSICIAN AND LECTURER, LONDON SCHOOL OF TROPICAL MEDICINE,

AND

H. B. NEWHAM, M.D., M.R.C.P.,

DIRECTOR, LONDON SCHOOL OF TROPICAL MEDICINE.

(From the London School of Tropical Medicine.)

IN the BRITISH MEDICAL JOURNAL for January 6th, 1917, Rogers described in a preliminary note the disappearance of crescents from the blood following intravenous injections of tartar emetic.

Ross[1] suggested that this work should be followed up at once by careful and long-continued researches by enumerative methods for the purpose of establishing the point with certainty. He indicated that such methods are the only ones which will finally settle the question, because the parasites vary naturally to such a degree from day to day that it is always difficult to distinguish between accidental and therapeutic improvements.

A case of heavy crescent infection being available at the Albert Dock Hospital, London School of Tropical Medicine, the opportunity was taken of giving antimony injections, a careful daily estimation of the crescents being made afterwards. The vitality of the parasites was also tested to determine whether they would flagellate or not after the administration of the drug.

These tests were begun on January 17th, the patient being kept in bed during the course. The accompanying table shows the results at a glance. The method of counting was as follows: Five hundred leucocytes were counted in well spread out films daily, the films always being taken at the same hour—11 a.m.; the crescents noted during these counts were carefully recorded. As the total number of leucocytes per cubic millimetre was low (between 4,500 and 6,000 during the counts), the time expended on getting the 500 in the films was considerable, practically the whole of a large slide having to be gone over. The method is not one of the greatest accuracy, it is true, but it sufficed for the purpose in this instance, as the parasites were so numerous.

A study of the table shows that the antimony had not the slightest effect on the crescents, their number fluctuating up and down quite irrespective of the injections. Six intravenous injections in all were given, beginning with 1 grain and increasing to 2½ grains, the last three consisting of the maximum dose. That the parasites were not dead was proved by the fact that they were alive and active in fresh blood, and proceeded to flagellation in a normal manner. In addition to the crescents a scanty ring infection was also present; again the drug appeared to have no effect upon these.

Date.	Treatment.	Crescents.	Rings.	Leucocytes Counted	Date.	Treatment.	Crescents.	Rings.	Leucocytes Counted.
1917 Jan. 17		162	+	500	1917 Feb. 5	A.T. gr.ijss	49	++	500
,, 18	A.T. gr.j	69	++	500	,, 6		42	—	500
,, 19		151	—	500	,, 7		48	—	500
,, 20		28	+	500	,, 8		64	—	500
,, 21		57	—	500	,, 9	Quinine gr.x twice daily; liq arsenicalis m 2 t.i.d.	20	+	500
,, 22	A.T. gr.jss	34	+	500	,, 10		18	—	500
,, 23		55	+	500	,, 11				
,, 24		69	++	500	,, 12	Ditto	8	—	500
,, 25	A.T. gr.ij	37	—	500	,, 13	Ditto	56	—	500
,, 26		50	+	500	,, 14	Quinine gr.x twice daily; liq. arsenicalis m 3 t.i.d.	7	—	500
,, 27		47	—	500	,, 15		15	—	500
,, 28		30	+	500	,, 16		3	—	500
,, 29	A.T. gr.ijss	134	+	500	,, 17	Ditto	4	—	500
,, 30		172	+	500	,, 18	Ditto	3	—	500
,, 31		60	—	500	,, 19	Ditto	36	—	500
Feb. 1	A.T. gr.ijss	52	—	500	,, 20	Quinine gr.x twice daily; liq. arsenicalis m 4 t.i.d.	10	—	500
,, 2		42	—	500	,, 21		7	—	500
,, 3		73	—	500	,, 22		2	—	500
,, 4		26	—	500					

A.T. = Antimonium tartaratum. First dose, January 18th, 3 p.m.; crescent count on that day from film taken 11 a.m., future counts also taken at same hour.

Leucocytes per cubic millimetre scanty, varying from 4,500 to 6,000 during the above counts.

After it was seen that no good was accruing to the patient from the antimony he was put upon quinine and increasing doses of arsenic, and the beneficial results of these are also brought out in the table.

One case does not prove a point, but, granting this, it is difficult to suppose that such injections would sterilize other cases after their complete failure in that here described.

Another point against the drug is Colonel Jackson's case of kala-azar, also mentioned in Ross's letter, which had a relapse of benign tertian malaria after long intravenous antimony treatment.[2]

It will be interesting to await the experiences of others who may try the drug.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, January 27th, 1917. [2] *Indian Med. Gazette*, December, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN APPARATUS FOR HOT-BATH TREATMENT IN WOUNDS OF THE LIMBS WHILE THE PATIENT IS IN BED.

SINCE hot-bath treatment is nowadays such a popular method of cleaning and combating sepsis in open gunshot wounds, it may be useful to describe a simple apparatus for giving this treatment to a patient in bed, without inconvenience. We employ two what might be termed bags made of indiarubber mackintosh sheeting, one inner and one outer. The inner one takes the form of a cylinder and is slid on up the arm or leg to cover the wound. It is made in such a way that it can be approximated to the skin above and below by means of plain indiarubber bandages; these bandages are only lightly applied. There is a tube of entrance and another of exit.

If we now run in water, with the exit tube closed by a clip, it will be found that, after filling the space between the skin and cylinder, the water will slowly drip out from under the loosely-applied bandages. To catch and collect this dripping water the outer bag is used. It takes the

form of a long, narrow kit-bag, which is made to reach to the top of the thigh in the case of the leg, and to the axilla in that of the arm. It has a tube of exit at the bottom which passes out of the bed into a pail or bucket.

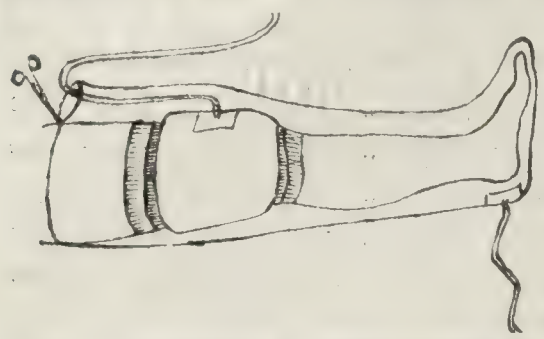


FIG. 1.—Apparatus in working order for a wound on the thigh.

It might be argued that in the case of a leg wound the water would escape into the bed through the upper end of the outer bag; if, however, two blocks are placed under the legs at the top of the bed, the water runs down and the outer bag is clipped at the top with a pair of Spencer Wells forceps, leaving the resulting fold uppermost; this fold is utilized as a means of entrance for the supply pipe. As a supply reservoir a two-gallon Lysol jar is used, which can be stood beside the bed on the patient's locker. Into the water in the jar is placed an electric heater, and into the circuit between the electric heater and the plug in the wall is fitted an ordinary electric light switch, which the patient can hold in bed. A screw clip is fixed on the supply tube, so that the rate of inflow can be controlled. Having put on the bags, and filled the reservoir with water, the rest can safely be left to the patient. He can switch the electric current off and on as he likes, he can feel the temperature of the water by placing his hand against the glass reservoir, and can regulate the inflow by the screw clip on the pipe. He can roll about in bed as much as he likes, and he can be entirely covered up with bedclothes.

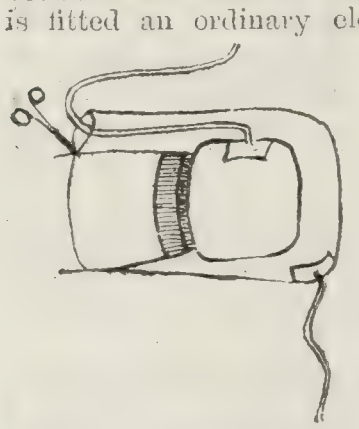


FIG. 2.—The bags in position for an amputation stump. The bags can be easily sterilized by wiping them down with some antiseptic solution, or by boiling.

From this description it will be apparent how readily we can give bath treatment to wounds in such awkward places as the knee, thigh, or upper arm. Amputation stumps can be dealt with in the same way, providing there is sufficient stump. In these cases the inner cylinder is replaced by a small edition of the outer bag. The amputation stump bag is found very useful, especially for the leg, even if bath treatment is only employed to clean the wounds prior to re-amputation.

The whole apparatus, including set of bags for arm, leg, and amputation stump, is made by Messrs. Allen and Hanburys.

BASIL SAMPSON, Captain S.A.M.C.
South African Military Hospital, Richmond Park, Surrey.

GENERALIZED POST-DIPHTHERIAL PARALYSIS.

A CHILD, aged 3½ years, was taken ill on November 8th, 1916. The case was diagnosed as diphtheria and admitted to the isolation hospital on November 9th. The symptoms were headache, vomiting, sore throat, and enlarged cervical glands; the temperature was 100.2° and the pulse 116.

When the child came into hospital the throat was very "dirty" and antitoxin (4,000 units) was administered. The report of the bacteriologist on the swab was "a very strong growth of *B. diphtheriae*."

Rectal salines (5 ounces) were administered for three days. The temperature stayed about 100° for four days, after that it never rose above 99°. The pulse went down to 86 on the fifth day.

On the ninth day the patient's voice became very nasal, and on the tenth day she had a very severe attack of vomiting, and on the eleventh the colour became very bad and the pulse was poor and thready. Again salines were administered and she became much better. On the seventeenth day after admission squint was very noticeable. On this day a swab was taken and the result was "no *B. diphtheriae*, but staphylococci and streptococci numerous."

On the eighteenth day paralysis of the muscles at the back of the neck occurred, and if the child was raised up from the bed by the hands the head fell back at once almost to right angles with the body. The paralysis was marked for about four weeks, but improved on small doses of strychnine and massage of the affected part. The patient was for some time unable to turn the head from side to side. Complete recovery ensued.

J. S. PEEBLES, L.R.C.S. and P.Edin., D.P.H.,
M.O.H. Ogmore and Garw Urban District Council

Reports of Societies.

THE LOUSE PROBLEM.

AT a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on February 23rd, Dr. C. J. MARTIN being in the chair, Mr. A. W. BACOT pointed out that of the three varieties of lice parasitic upon man only one, the *Pediculus humanus* (clothes louse) was of sufficient importance as a disease transmitter to cause serious anxiety. *Pediculus capitis* was so closely related that it could only grudgingly be allowed specific rank apart from the latter, and he did not deal with *Phthirius pubis* (crab louse). He described the life-history and characteristics of *Pediculus humanus*, and summarized the features of practical importance from the point of view of sanitary precautions. Under normal conditions—namely, in clothing that was constantly worn—eggs took seven to ten days to hatch; if clothing was discarded or allowed to cool for a period each day, the time might be extended to five weeks. Active lice could exist without food and apart from any host for periods up to nine days. Young lice took from ten to fourteen days to attain sexual maturity. Females, after attaining maturity, required two to four days before they commenced to oviposit. Egg production could not take place without food or under cool conditions (below 65° F.). Eggs laid by unpaired females did not hatch. Impregnation was not effective for more than twenty days. As many as 10 or 12 eggs a day might be laid by each female, and each might lay a total of 300 eggs. After reaching maturity the female might live for forty-six days, and before the close of her life a single female might have 4,160 living offspring. Pediculosis, he said, was a sign of a low standard of life. With the possession of a change of garments and the institution of the weekly washing of shirts and underclothing, the number of the parasites was speedily reduced; when sufficient means and leisure obtained among the people to allow of the regular change and cleaning of bedding as well as of clothing, *Pediculus humanus* must die out. With the advent of war armies were plunged back into a condition of barbarism, in which the washing and changing of garments, not to mention bedding, was erratic, and might not take place for weeks or months. The solution of the problem depended either upon campaigning under a civilized standard of life or upon the adoption of efficient remedies for the destruction of lice. In the West the stable front had rendered it possible for the troops in the field to enjoy, in large measure, the civilized custom of the washing and changing of clothing, but in the actual fighting line and in other areas this had not been found practicable, and dependence upon insecticides was essential. It was necessary to use relatively stable slow-acting remedies, in addition to one with a quick action of short duration. Those most serviceable in emergencies were impracticable for continuous use owing to the large quantity which their rapid evaporation rendered necessary. The treatment of discarded clothing should, wherever possible, depend upon the action of dry heat as more economical than hot fluids or steam. A chamber for drying clothes once established might be maintained above the level of the temperature necessary for the destruction of lice and nits, especially as it was almost certain that the same temperature would destroy the active females of the sarcoptes which caused scabies. The necessary temperature was 52° C. for thirty minutes, and hence, allowing a margin for contingencies, one of 55° C. for this period would be high enough if the garments were spread and hung. If great speed and economy of fuel were desired, a tubular oven with travelling hangers

could be arranged on the principle of a biscuit bakery. In washing or steaming garments or bedding the same temperature for thirty minutes was sufficient, and if penetration were obtained, the addition of chemicals was superfluous. If, on the other hand, the nits and lice could be killed more conveniently or cheaply by chemicals it was wasteful to use heat in addition. For dug-outs he advised that the woodwork should be flat-oiled if practicable, as creosote oil was very deadly to insects, and its application might considerably reduce the risks from lice resting on the woodwork. Treatment with Colorado vermin killer would be about equally efficacious. He described experiments he had undertaken which showed that, for practical purposes, it was necessary to use almost all insecticides as if they had a contact value only, because under conditions of use the diffusion of vapour at a concentration sufficient to kill was limited to so small an area that the advantage of the vapour poison over a contact one was of little or no moment. The main points for consideration were cost, speed of action in relation to its duration, and the manner in which the preparation was to be used. The difficulty with some very efficient remedies was to devise some means of distributing them evenly over the garments in quantities sufficiently small not to be disagreeable or wasteful, using, if possible, some vehicle which, retarding over-speedy action, rendered it effective over a longer period. For this purpose soap was very useful as it supplied an easy means of making a paste; if an emulsion of the remedy with soap was possible, impregnation by watery solution of any strength could be attained. Soap brought the remedy into contact with the surface of the insects easily and surely, and also aided in removing dirt. The only remedies which fulfilled these conditions experimentally were crude carbolic acid and cresol. The most feasible and effective method of use was to emulsify them with soft soap, using from 40 per cent. to 50 per cent. of soap. A perfect emulsion was produced at a heat sufficient to melt the soap. The correct strength of the solution to be used for impregnating the garments ranged from 5 per cent. to 10 per cent. During summer he had found that a shirt treated with a 5 per cent. solution was efficient in the destruction of lice for a period of five or six days; during the winter a 10 per cent. solution was necessary to produce the same results. Treated flannel could be kept for at least fifteen days before use without losing its efficiency. Thorough drying of the garment was essential before wearing. The fault of this remedy was that it was rather slow, and did not prevent feeding until in full action. The most efficient quick-acting remedy of low cost was naphthalene, especially in its crude cheap form. When used between clothing and body it killed in about two or three hours, and feeding was seldom observed to occur during the tests. Unless continued action was desired the quantity need not be large. It was more rapid in action when used as a powder, or when the fabric was impregnated with it, than if put up in packets. The impregnation of garments or blankets with it was not difficult, as it was readily soluble in benzine, methylated spirit and paraffin, and, what was more important, by heat in oil or oily fluids, which could subsequently be emulsified. At a concentration of 10 mg. per square inch it would kill all the lice present within two or three hours, but would be inactive within five. It was therefore unsuited for the purposes for which the crude carbolic soft soap emulsion was so well adapted, but as an adjunct to these for individual use in case of emergency it was invaluable, and might be supplied as a powder or put up as a paste by mixing with soft soap for the purpose of smearing it along the seams of garments. Mr. Bacot then dealt shortly with some other remedies, such as iodoform and cytisine, vermijelly, sulphur, anthracene, tar oil, sassafras oil, Legroux's method, and certain proprietary articles. None of these, he considered, satisfied the necessary conditions as nearly as the methods already described. Tar oil emulsion and a 5 per cent. solution of crude carbolic soft soap emulsion might be used for the treatment of heads; they were more effective than paraffin and cheaper than sassafras oil. For nits in the seams of clothing, either of these, or the Colorado vermin killer, would be effective, but the latter would be too irritating if it came into direct contact with the skin.

DISCUSSION.

Professor G. H. F. NUTTALL said that he had been unable from a study of the material of five continents to find any constant morphological differences between *Pediculus humanus* and *Pediculus capitis*. The average temperature of the body's surface clothed in a condition of comfort had been found to be 32° C., and this appeared to be the optimum temperature for lice. At 32° C. the metamorphosis occurred in seven days. At 30° C. it was delayed to twelve or so. He had deferred the hatching of eggs to thirty-five days by subjecting them for certain periods to lower temperatures. He could confirm the observation that if lice were more efficiently fed more eggs were laid. In experiments where they had been given opportunities for unlimited feeding he had found that the number of eggs laid was ten each day. The longest period of survival of unfed lice was ten days, during which time they presumably drew upon the large fat-body stored in them. Under normal conditions the life-cycle was complete in seventeen days. The conclusion with regard to their destruction was that few of the remedies proposed were of any use. He agreed that dry heat at 60° C. was the best for infected articles. It was essential that the hot air should circulate freely. The storing of infected clothing was another method. Naphthalene and sulphur had been tried very thoroughly in the German army and had been found inefficient. The Clayton apparatus injured metal, fur, and fabrics; it was not cheap, and its odour clung to clothing for a long time. Carbon bisulphide was inflammable and sometimes had a toxic influence. Five per cent. carbolic acid as a head wash had been found useful, and cresol soap gave satisfactory results. Silk underwear afforded a measure of protection, but if pediculi could not get wool they would lay on silk. The only way to remove dead nits from uniforms, etc., was mechanically or by singeing.

The discussion was continued by Professor MAXWELL LEFROY, Mr. F. M. HOWLETT, and Lieutenant-Colonel S. A. M. COPEMAN; and Mr. BACOT replied.

THE PRINCIPLES OF THE TRANSFUSION OF BLOOD.

AT a meeting of the Section of Pharmacology and Therapeutics of the Royal Society of Medicine on February 20th, the President, Dr. W. HALE WHITE, being in the chair, Dr. A. E. STANSFELD read a paper in which he said that the idea of the transfusion of blood from the healthy to the sick had appealed to the imagination of the profession for centuries, but no considerable progress had been made until recent years owing to the difficulties which the operation presented, and to the dangerous reactions which sometimes followed the more successful attempts. But the revived enthusiasm for transfusion during the last decade had finally established its value upon a sound experimental and clinical basis. Transfusion had been successfully employed in the treatment of various kinds of anaemia and in the arrest of spontaneous haemorrhage, whilst in combating serious infections and certain toxaemias, such as those of pregnancy, promising results had been obtained. How far the serum was responsible for these results it was not yet possible to say. So far as disintoxication and immunity were concerned transfusion might be merely a convenient method of transferring healthy or immune serum to the patient, but it was not proposed to deal with the domain of serum therapy. Blood therapy was still in its infancy; it could not be tested properly until an elaborate technique had been perfected and certain accidents liable to result from the chance admixture of different bloods had been excluded.

The advantage of transfusion in the case of patients who had been rendered anaemic by recent haemorrhage was sufficiently clear, but since the average existence of the transfused cells in the circulation of the recipient was no longer than ten days, it could do no permanent good in cases of anaemia due to other causes unless blood formation were stimulated or blood destruction diminished in the patient's own body. He recounted cases in which he had employed this method of treatment, including aplastic anaemia, spontaneous haemorrhages, and pernicious anaemia. Nine cases of the last had been so treated, eight of which had been selected because they were making no progress or steadily becoming worse under other methods of treatment, and one because the condition was regarded as too serious to justify a trial of other methods. Of these nine, four showed very marked improvement; three, of

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

whom two were still under treatment, showed definite but less improvement; one was merely kept alive for several weeks, and one derived practically no benefit.

The ultimate prognosis in cases of anaemia depended upon the power of reaction in the bone marrow, and this could only be determined adequately by observing the results of treatment. In cases of pernicious anaemia both increased red cell production and diminished red cell destruction might result from transfusion. The age of the patient, the duration of the disease, and the condition of the bone marrow, as indicated in the peripheral blood, had hitherto proved to be the best guide to the progress subsequent to transfusion. The optimum dosage for transfusion was not yet determined, but it was probable that moderate repeated doses were preferable to large single doses in the treatment of chronic anaemias. Very small doses might sometimes be of value. The results which he had obtained in cases of pernicious anaemia with 250 c.cm. doses compared favourably, even after a single transfusion, with those reported in America after such excessive doses as 1,000 c.cm. or more. The donor should be a healthy adult, with negative Wassermann reaction. His serum should not agglutinate the corpuscles of the patient, and the patient's serum should not agglutinate the donor's corpuscles. Agglutinins should be excluded by tests done immediately before the transfusion, and a single examination was not sufficient to establish the compatibility of two bloods on all future occasions. If agglutinins were absent, haemolysins would also be absent. If there were great urgency, and testing of the blood of patient and donor were impracticable, a small preliminary transfusion should be done half an hour before the main mass of blood was transfused, so that gross incompatibility might be recognized in time. Febrile reactions occurred after about 25 per cent. of transfusions, even though the bloods of donor and patient had been shown to be compatible. Rigors occurred in about 10 per cent. of the cases. It might prove desirable to investigate the bloods of donor and patient with regard to factors of which as yet nothing was known, not merely for the sake of avoiding accidents, but also to determine whether a given donor was likely to afford the maximum of benefit in a particular case. The methods which had been employed were direct, by anastomosis of vessels, with or without a cannula; or indirect (1) by transferring a syringe from a needle in the vein of the donor to a needle in the vein of the recipient, or by using a syringe with a two-way tap leading to the veins of the donor and recipient; (2) by the use of a receiver, either with a paraffin lining or with the addition of anticoagulant. The indirect method, by employing a glass receiver and sufficient sodium citrate to prevent coagulation of the transfused blood, was simple and involved no special dangers.

CONTINUOUS SPONGES FOR LAPAROTOMY.

AT a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland on February 2nd Sir WILLIAM SMYLY said that the continuous sponges introduced by Dr. Crossen, and fully described by him in the *American Journal of Obstetrics*, vol. lix, 1909, were designed to prevent the possibility of a sponge being left in the abdominal cavity during an abdominal operation; he claimed that by their use that object was attained, and further, that it was the only method in existence which did it. Having used these sponges for some months, he felt satisfied that they were under no circumstances inferior to or less convenient than separate sponges, but were better in many ways. They saved the labour and expense involved in the preparation and control of separate sponges.

Dr. MADILL said that, while he saw the good points of the routine, he had been unfortunate on the only occasion in which he had used the sponges. The case was one of pus tubes, where a great amount of sponging was required, and in manipulating the bag the entire sponge tumbled out; this he attributed to the want of practice of his assistant.

Dr. ALFRED SMITH, while aware of the advantages of the continuous sponges claimed by American operators, was satisfied with the security given by the "check" adopted in the gynaecological department of St. Vincent's Hospital, where the operator controlled the entire "team." Sponges in bundles of ten were counted under his observation, in an audible tone, from the bundle to the receiving basin. Before closing the abdomen all sponges were again counted, and hung upon a wooden horse provided for the purpose.

Dr. BETHEL SOLOMONS said that while he had never had any mishaps with the single-sponge method, having seen the continuous sponges in use under Sir William Smyly's guidance, he was struck by their advantages. He saw the slight disadvantages that might be present when working in different private homes or with different assistants. In minor laparotomies they might be extravagant, but the advantages were much greater than the disadvantages. Dr. R. WHITE considered that there would be difficulty in teaching the assistant to use the sponges correctly, and that there was a great danger of infecting the unused portion; but Dr. SHEILL remarked that it would be a simple matter to so design the bag and to so fold the continuous sponge that it would be quite impossible accidentally to pluck out the whole of it at one time. He suggested a bag triangular in section with the apex as the opening.

The PRESIDENT (Dr. Gibbon FitzGibbon) said there was always the fallibility of a count, and in difficult pus cases, where sponges were used rapidly, the risk was greatest, and the count could not be checked by the operator. He had tried the continuous sponge in one case, which, unfortunately, was a difficult one, and found the method inconvenient at first, but he thought the continuous sponge was an advance in operative methods, and was the way in which the risk of leaving sponges in the abdomen could be completely guarded against. It should be given a prolonged trial.

Reviews.

CHEMICAL PHYSIOLOGY.

PROFESSOR HALLIBURTON'S well-known *Essentials of Chemical Physiology*,[1] first published in 1893, has now reached its ninth edition. The previous edition came out in 1914, and full justice was done to its merits in a review published in the BRITISH MEDICAL JOURNAL of June 27th, 1914, on p. 1411. The ninth edition has all the virtues of the eighth, and has been thoroughly revised. It contains new sections on such subjects as the ninhydrin reaction, the urease method of estimating urea, the volumetric process for estimating sulphates, and the Lewis-Benedict method for determining the sugar in blood. The book is full of information that will be of service to the student in his examinations, the more so if he chances to be an exceptionally gifted chemist and therefore able to understand what he has to learn. When he has passed his examinations no doubt Dame Nature will see to it that he remembers no more of these *Essentials* than will be of practical service to him.

One of the books that is indispensable to physiologists and physiological chemists is HAMMARSTEN'S *Textbook of Physiological Chemistry*.[2] The eighth German edition of this Swedish professor's work has been translated by Professor MANDEL, and will be welcomed by all students of the subject. Professor Hammarsten, with the help of Professor Hedin, has brought the volume well up to date, and has valuable pages on colloids, osmosis, catalysis, and enzymes in the first chapter; these are all subjects of increasing importance in both physiology and medicine. The next three chapters deal with the proteins, carbohydrates, and fats in a general and specific way. The last thirteen chapters discuss the various solids, fluids, and organic processes of the body. The translation is excellent, the index fairly complete. The book has long been a standard work on the subject; it should be within the reach of all students of physiology and medicine.

Professor A. J. SMITH has performed a useful piece of work in translating the second of Professor VON FÜRTH'S

[1] *The Essentials of Chemical Physiology, for the Use of Students.* By W. D. Halliburton, M.D., LL.D., F.R.S., F.R.C.P. Ninth edition. London: Longmans, Green and Co. 1916. (Demy 8vo, pp. 332; 72 figures. 6s net.)

[2] *A Textbook of Physiological Chemistry.* By O. Hammarsten, with the collaboration of S. G. Hedin. Authorized translation from the Author's enlarged and revised eighth German edition by J. A. Mandel, Sc.D. Seventh edition. New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1914. (Med. 8vo, pp. 1034. 17s. net.)

two volumes dealing with the problems of physiological and pathological chemistry.[3] This volume contains twenty-five well written and fully documented essays on metabolism. The first five essays, or chapters, deal with problems in the chemistry of protein digestion. The next four are occupied with certain forms of nitrogenous excretion and purin metabolism. After this come four chapters on carbohydrate metabolism and diabetes. The rest of the book contains essays on such subjects as fat metabolism, the organs with internal secretions, acetone bodies and lactic acid, the nutritional requirements of the body, unorganized ferments, gas exchanges in the body, and fever. The Vienna professor writes with knowledge and authority; Professor Smith has done his part of the work satisfactorily, producing a readable translation. The book may be said to contain the most up-to date views and facts bearing on the many important metabolic problems with which it deals. It may be recommended to physiologists and to medical men and students with a scientific bent who are not to be intimidated by chemical formulas and the array of solid phalanxes of scientific facts. These essays have no direct practical bearing on medicine, perhaps, but no medical practitioner can read them without acquiring illumination on the obscurities of the physiological processes resulting in life, health, or sickness.

AMPUTATIONS.

Ligations and Amputations[4] is an English translation by Mr. ERNEST WARD, F.R.C.S., of a book by M. BROCA, of Paris, primarily intended for medical students doing a course of operative surgery on the cadaver; but it may well be of use at the present time to those who are called upon to operate as a result of the European war. The set operations of ligature of the vessels are clearly described and figured. The most striking part of the book is that devoted to amputation. The operations are described in great detail, and illustrated by figures which show every step, and follow one another in such close sequence that they may almost be compared to a cinematograph film. They are extremely well done, and show clearly the relative positions of operator and assistant. The text is so arranged that there is no need to turn over pages to find the accompanying illustration, and it becomes easy to follow every detail of each operation.

A chapter is devoted to the choice of operation, and the various factors determining this choice are discussed. All the well known amputations are described and figured, which is no doubt necessary, as the book is intended primarily for examination purposes.

As the result of the present war some views with regard to amputations have been modified. Those who have to do with the after-treatment of amputations, and more especially with regard to the fitting of artificial limbs, are without doubt in the best position to speak with authority on this subject. Their experience appears to show that certain amputations and disarticulations, such as Lisfranc's, Chopart's, disarticulations at the knee, wrist, and elbow, are of little value. Though the practical importance of these sections of the book is thus curtailed, this fact may make little difference from the student's point of view, as he may expect to be examined for generations to come on operations that are seldom performed.

BACTERIOLOGY AND HAEMATOLOGY.

DR. W. D'ESTE EMERY'S well known book on *Clinical Bacteriology and Haematology for Practitioners*,[5] now in its fifth edition, is an excellent work that contains all the practical instruction and advice required by the general practitioner of medicine, and but little that he will regard as superfluous. No better handbook for the laboratory could be desired. Two-thirds of the volume are given to bacteriology, the apparatus and processes employed being first described, then the methods of diagnosis employed in some twenty conditions of disease, and finally the methods of collecting and examining morbid materials. To diseases of the blood twenty pages are given, and cytodiagnosis is briefly but adequately considered at the end of the volume. The text is clearly written, direct, and practical. The plates and figures illustrating it are well executed; perhaps it would be an advantage if reference to these could be inserted in the index, and it may be noted that the word "streptothricosis" on pages ix and 77 should be "streptotrichosis." The book should be in the hands of all medical students and practitioners called on to make bacteriological and other laboratory diagnoses. We wish it all the success it deserves.

The eighth edition of MCFARLAND'S *Textbook of Pathogenic Bacteria and Protozoa*,[6] written for the use of students of medicine and physicians of every class, is described by its author as a medical work. The first twenty chapters and 300 pages are given to a general account of the subject; the remaining twenty chapters describe the specific micro-organisms of the chief infectious diseases. A clear and concise account of the subject is given, the information being almost entirely bacteriological and such as is of use in the laboratory; comparatively little medical or clinical knowledge has been incorporated in the various chapters, and very little pathological detail is to be found in the book. The illustrations are for the most part excellent. References to the literature are given; here the author is generally several years behind the times, and a good deal might be done towards bringing the book more up to date. Numerous errors are made in the spelling of the Latin and Greek names. The fact that Dr. McFarland's book has reached its eighth edition in twenty years may be taken as proof of its excellence and of the fact that it supplies a want in America. It may be recommended to those who find themselves dissatisfied with the various excellent bacteriological manuals of home production, for one reason or another, and wish for further light upon a rapidly progressing branch of science.

The *Laboratory Course in Serum Study*[7] followed by students in the bacteriological department of the College of Physicians and Surgeons at Columbia University, New York, contains thirty-three lessons in which the student traverses in practical work the whole range of immunization, serum testing, serum therapy in all its branches, and a few other closely allied subjects. Full details are given showing how the materials for experiment are prepared and how they are used, in both diagnosis and treatment. The course seems to be well thought out and complete; in the section on agglutinins, however, it would perhaps be better if the titration experiments were performed with smaller increments of agglutinin in the successive tubes. The method advised by the authors gives no indication either of the facility with which accurate measurements of agglutinating powers may be made, or of the great clinical value attaching to accuracy here.

NOTES ON BOOKS.

To all who have to use or deal in any way with the *x* rays we recommend the purchase of Captain G. W. C. KAYE'S admirable textbook on the subject,[8] now in its second edition. The reader will find in it a clear and intelligible account of a most complicated subject, presented without any excessive use of mathematical formulae, yet thorough and complete. The book is one primarily written, we suppose, for students of physics; yet it will be read with interest by many others who have only a comparatively trifling knowledge of physics as a science, and it certainly supplies a want long felt by many medical men and *x*-ray specialists with a desire to understand what they may of the mode of production and properties of the *x* rays of various qualities—wave lengths—they employ. Described

[3] *The Problems of Physiological and Pathological Chemistry of Metabolism; for Students, Physicians, Biologists, and Chemists.* By Dr. Otto von Fürth, Professor Extraordinary of Applied Medical Chemistry in Vienna. Authorized translation by A. J. Smith, Professor of Pathology and Comparative Pathology in the University of Pennsylvania. Philadelphia and London: J. B Lippincott Co. 1916. (Med. 8vo, pp. 682. 25s. net.)

[4] *Ligations and Amputations.* By A. Broca. Translated by E. Ward, M.A., M.D., F.R.C.S. Bristol: J. Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. Toronto: The Macmillan Co. of Canada, Ltd. 1917. (Demy 8vo, pp. 291; 510 figures. 8s. 6d. net.)

[5] *Clinical Bacteriology and Haematology for Practitioners.* By W. d'Este Emery, M.D., B.Sc.Lond. Fifth edition. London: H. K. Lewis and Co., Limited. 1917. (Demy 8vo, pp. 344; 11 plates, 55 figures. 9s. net.)

[6] *A Textbook upon the Pathogenic Bacteria and Protozoa, for Students of Medicine and Physicians.* By J. McFarland, M.D., Sc.D. Eighth edition, revised. Philadelphia and London: W. B. Saunders Co. 1915. (Med. 8vo, pp. 807; 322 figures. 18s. net.)

[7] *A Laboratory Course in Serum Study: Bacteriology 203.* By Hans Zinsser, M.D., J. G. Hopkins, M.D., and R. Ottenberg, M.D. New York: The Macmillan Co. 1916. (Roy. 8vo, pp. 197. 5s. 6d. net.)

[8] *X Rays.* By G. W. C. Kaye, M.A., D.Sc., Captain R.E.(T.). Second edition. London: Longmans, Green, and Co. 1917. (Demy 8vo, pp. 306; 115 figures. 9s. net.)

UNIV. OF ILL. URBANA-CHAMPAIGN

by Captain Kaye, even so profound a conception as Planck's quantum hypothesis becomes comparatively intelligible to the reader who is not a physicist. The book has been brought up to date as far as the middle of the year 1916, and is well illustrated.

In the issue of *The Western Front*[9] for March Mr. MUIRHEAD BONE enters upon another phase of his pictorial record of the war, for he has five drawings from munition works. Three of them illustrate the making of a great gun in the gun pit—the hardening of steel, a gun jacket entering the oil tank, and the great clutches of the crane—and a fourth its mounting. A fifth is a sketch entitled "The Hall of the Million Shells," where the travelling cranes are driven by women in overhead carriages. The remainder of the number is occupied largely with trench scenery, reproducing the life and landscape of the western front. There are one or two drawings also of interiors, including one of sleeping wounded from the Somme. There has been an exhibition of the original drawings in New Bond Street; it is now closed, but is to be reopened presently in Edinburgh.

In his short essay on *Dreams*[10] Mr. J. W. WICKWAR gives an intelligent and common-sense account of the occurrence of dreams, their nature, and the natural limits that should be placed on their interpretation. He wisely devotes a chapter to demolishing the position of the modern psychoanalysts who seek so eagerly to give obscene interpretations to dreams, following the lead of certain German and Austrian writers.

The National League for Physical Education and Improvement does good work by its publications. In *Mothercraft*,[11] Parts I and II, sanitary inspectors, health visitors, and other workers interested in antenatal clinics, baby consultations, and similar educational gatherings, will find helpful lectures by experts on how the health of the unborn babe can be safeguarded, and similar subjects. A useful part of the book is that devoted to questions and answers, and the examiner's notes thereon in the various examinations that have been held on these lectures.

[9] *The Western Front.* Drawings by Muirhead Bone. Published for the Government by *Country Life*, Ltd. (Price 2s. net, monthly.)
[10] *Dreams: What They Are and What They Mean.* By J. W. Wickwar. London: A. and F. Denny. 1917. (Fcap. 8vo, pp. 83. 1s. net.)
[11] *Mothercraft.* A Selection from Courses of Lectures on Infant Care delivered under the auspices of the National Association for the Prevention of Infant Mortality. Parts I and II. Second edition, revised and enlarged. London: National League for Physical Education and Improvement. 1916. (Cr. 8vo, pp. 487. 4s. 6d. net.)

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee, held on February 13th, twenty cases were considered, and £162 was granted to fifteen of the applicants. Four of the applicants were elected to vacant annuities. The Committee also decided to increase the number of annuities by twelve. The following is a summary of some of the cases relieved:

Widow, aged 40, of F.R.C.S.Eng. who practised in Rotherhithe and died in 1913. Applicant was left without means, and took a house in June, 1914, on a three years' lease, on the Kent coast, for paying guests. The prospects were bright, but the war stopped all visitors, and she has had the house on her hands, and had to work as a nurse to pay the rent. The landlord had consented to release her of her responsibility if she paid £10. One son a foundation scholar at Epsom. Voted £10.

Widow, aged 42, of M.B., C.M.Glasg. who practised at Blackpool and died in 1911. Applicant was left without means with one daughter. Her health is very bad, and the Glasgow branch of the Guild has provided her with a temporary home and is giving her invalid comforts. The daughter, now 14 years of age, is earning 8s. a week. This is the only income. Voted £12.

M.D.St.Andrews, aged 72, and married. Was a missionary in India, and afterwards for many years practised in the city of London. He lost his practice through the premises he occupied being required for City improvements. Has recently had an hemiplegic attack and is quite unable to work. Voted £5 and elected to an annuity of £26.

Daughter, aged 43, of L.R.C.P.Edin. who practised at Wymondham and died in 1882. Applicant was left entirely without means, and went with her mother to France, where they acted as governesses. The mother died, and the applicant returned to England and tried to earn a living by teaching French and Spanish, but was not very successful. At the present time is in great poverty, and health very bad. Relieved twice, £7, in 1911. Voted £7.

Daughter, aged 57, of M.R.C.S.Eng. who practised at Rotherhithe and died in 1879. Applicant suffers from chronic glaucoma, but previously had earned a living as a nurse. Only income £24 from friends and small investment. Relieved eight times, £79. Voted £12 in twelve instalments.

Widow, aged 69, of M.R.C.S.Eng. who practised in London and died in 1893. Applicant is a cripple, and only able to earn very little as an artist. She owns a house which is let, but practically all the rent goes in repairs. Relieved twice, £22. Voted £12 in twelve instalments.

Daughter, aged 43, of M.R.C.S.Eng. who practised at Scarborough and died in 1879. Was left without means, and owing to ill health is not able to earn sufficient by nursing to pay her way. Relieved twelve times, £117. Voted £10 in two instalments.

Daughter, aged 55, of F.R.C.S.Eng. who practised at Bedford and died in 1890. Applicant earns a little in domestic service, but health will not permit her continuing in one place long. Has recently poisoned her thumb and is in great distress. At the request of the Guild visitor an emergency grant of £2 has been sent to her. Relieved eleven times, £88. Voted £12 in four instalments.

Widow, aged 48, of M.R.C.S.Eng. who practised at Deal and died in 1904. Only income £20 from dividends. Shares a home with mother and sister, whose means are limited. Unable to meet expenses owing to the high cost of food. Voted £10 in two instalments.

Daughter, aged 52, of M.R.C.S.Eng. who practised at St. Clear's and died in 1878. Applicant suffers from double spinal curvature. Her mother is an annuitant of the fund. Relieved three times, £18. Voted £6 in twelve instalments.

M.R.C.S.Eng., aged 49, who practised mainly in West Africa. He is totally incapacitated from work owing to sunstroke and other trouble. Lives with an aunt whose means are very limited. A relative allows £24 per year. Relieved three times, £25, last £5 in June, 1916, with permission to apply again in six months. Voted £5.

Daughter, aged 69, of M.R.C.S.Eng. who practised at Battle, Sussex, and died in 1873. Lives with sister, who can only help her a little. Suffers from rheumatism and bad sight. Relieved thirty-three times, £266. Voted £12 in twelve instalments.

Subscriptions may be sent to the Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

A MEETING of the Committee was held on February 22nd at the *Lancet* offices, when a printed statement was presented of the progress and working of the Fund during its first two years. The method of distribution of the statement was agreed upon. Owing to the expense of paper, postage, and labour, it was not considered a fair demand on the resources of the Fund to send copies to all subscribers.

A communication was read from the London Branch of the International Relief Committee to the Secretary, Dr. Sprigge, stating that it would still be possible to transmit the monthly grant of £800 to the Belgian medical organization, as had been done for some time through Mr. Herbert Hoover.

The financial statement showed that the contributions since December 15th, 1916, had amounted to £176, of which £147 had been received from the College of Physicians of Edinburgh as a final contribution; £2,400 had been sent to Belgium since that date.

The Fund has received through Dr. William B. Coley and Dr. William K. Draper, acting as a committee of the New York Academy of Medicine, the sum of £132 12s. 5d.

SUBSCRIPTIONS.

	£	s.	d.
Doctors in the Belgian Congo (per M. Boulanger)—Dr. Marsez, 200 fr.; Dr. Etienne, 500 fr.; Dr. Heiberg, 500 fr.; Dr. Dubois, 50 fr.; Dr. Daniel, 100 fr.; Dr. De Lobelle, 500 fr.; M. Possaniti (pharmacien), 100 fr.; M. Boulanger (pharmacien), 100 fr.	80	0	0
Dr. G. D. H. Carpenter (eighteenth, nineteenth, twentieth, twenty-first, and twenty-second donations—total, £22) ...	5	0	0
Royal College of Physicians of Edinburgh (per Dr. Norman Walker)	147	2	11
Doctors of Invercargill, N.Z. (per Dr. Colquhoun)	21	0	2
Dr. F. de Havilland Hall (sixth donation—total, £12)	2	0	0
Mr. William Cook (per the *Chemist and Druggist*)	0	2	6
New York Academy of Medicine, 630 dols.	132	12	5

British Medical Journal.

SATURDAY, MARCH 3RD, 1917.

MOBILIZATION OF THE PROFESSION.

HE Director-General of National Service, in his peech on February 6th, stated that it was the duty f his department "to see that the doctors are so obilized and distributed that the needs both of the vil population and the army can be met." He has ow announced in a letter addressed to the Central edical War Committee, which is published in full in e SUPPLEMENT for this week, that he has decided to ll a conference, comprising representatives of the cottish Medical Service Emergency Committee, the entral Medical War Committee, and the Committee f Reference, with Sir Donald MacAlister, President f the General Medical Council, as chairman, to advise im as to the further steps which should be taken for e organization of the medical profession, with a iew to meeting the needs both of the military and ivil population.

The letter sets out certain subjects upon which the onference will be asked to express an opinion. The rst is the question whether the services to be given y members of the profession should be compulsory r voluntary. It will be remembered that as long go as December 30th last the Central Medical Var Committee informed the Prime Minister that ; "approved the general principle of mobilization f the medical profession, apart from any ques- ion of the general mobilization of the whole com- unity, so that any individual whose name is on the *edical Register* shall give such service, whether in a ilitary or a civil capacity, as he or she is competent o give, when required to do so by the State." On ecember 23rd the Scottish Medical Service Emer- ency Committee addressed a letter to the Prime inister, transmitting a resolution expressing its pproval "of the principle of the complete organiza- ion of the medical profession for the period of the ar and for six months thereafter, in order that every erson whose name is on the *Medical Register* shall e held bound, when required by the Government, to ive such service as he or she is competent to render o the country for naval, for military, or for civil ractice." The resolution had a rider to the effect hat it had been adopted "on the understanding that he organization referred to shall be in the hands of a edical Committee appointed by the Government for he purpose." The policy expressed in the resolutions f the two committees may be held to be identical, lthough the Scottish resolution would appear to have onveyed the idea that compulsion was necessary nore clearly than the other. The Manchester edical War Committee was very definite, for it xpressed the opinion that any scheme for recruiting nedical service at home would be impossible of uccess if based on a voluntary principle. The rider roviding that the organization of mobilization hould be in the hands of a medical committee vas endorsed by the Royal Colleges in Edinburgh nd in London.

The third subject to be discussed by the Conference s very nearly related to the first, for it has to do with he arrangements which should be made centrally and ocally for redistribution of medical men; while the second concerns the arrangements that should be made for the collection and distribution of fees, or other form of remuneration, in cases where doctors leave their own practices or take on the practices of others.

The last subject mentioned is the relations which should exist between any central executive or advisory body representing the profession and the department of the Director-General of National Service. There is, we trust, good reason for the hope that the Conference will advise Mr. Chamberlain to rely on the national committees, with their machinery of local committees and their accumulated information as to the conditions prevailing in various parts of the country, to continue their work in any new circumstances that may arise.

The whole nation is at present being tested to see whether the voluntary system will succeed or whether it must be replaced by compulsion. The medical profession is being tested with the rest, but it has this advantage, that through the work of the Central Medical War Committee, the Committee of Reference, and the Scottish Medical Service Emergency Committee, it has already machinery in working order which could easily be adapted to the desired purpose. If, so far as the medical profession is concerned, compulsion comes, it will be due to the man who is unwilling to share risks with his neighbours. The nature of these risks has, perhaps, been misunderstood; too much attention has been concentrated on what must be a very rare event, namely, removal of an established medical practitioner from one part of the country to another. It seems clear that voluntary mobilization must involve willingness on the part of the younger men unfit for military service, especially those who have few ties and have contracted few obligations, to undertake civilian work in other localities. It would also, we take it, involve willingness on the part of some proportion of the men between 41 and 55 to do what younger men are compelled to do—namely, take service in the army. The Committees, we have no doubt, will be careful to ask such service from those only who can be spared without great detriment to their own present interests and those of the public in the localities in which they practise. Voluntary mobilization would also involve willingness shown by those who remained to undertake the practice of younger men in a different part of the same town. Under a voluntary system the uprooting of a man from his accustomed sphere and his transplantation into another area might be expected to occur only in very exceptional cases; under a compulsory scheme it is not easy to foretell what would happen, but Government officials might find transplantation an easy method of escaping from a difficulty.

WAR AND OTHER CAUSES OF INSANITY.

SIR THOMAS CLOUSTON accustomed the medical profession to look to the annual report of the Royal Edinburgh Mental Hospital at Morningside for something more than formal statistics—for something which would help it to estimate the general trend of facts and opinions as to mental disease. His successor, Dr. George M. Robertson, has continued the tradition, and in his report for 1916 tells us that the statistics at his disposal afford no evidence that there was any increase in insanity in the civil population last year, either as compared with 1915 or former years.

The number of males admitted to Morningside and its dependent institutions was much the same, though it had been expected that there would be a fall in their number owing to the withdrawal of so many young adults from the civil population. There is, however, reason to fear that the strain of modern warfare has resulted in much mental derangement among young soldiers, but as these cases are being treated in special military hospitals they have not begun to affect civil statistics; as they are mostly of a recoverable nature it may be hoped that they never will. There was a fall in the number of females admitted, and though several of the breakdowns were due to the strain and excitement of unaccustomed war work, yet so far its effect would seem to have been on the whole beneficial and less injurious than the semi-employed and shut-in lives that many women formerly led. The number of cases attributed to bereavements the result of the war was not as large as was expected, and Dr. Robertson suggests that the righteousness of our cause, and the nobility of character displayed by the youth of the country, have softened the blow, while the knowledge that the sacrifices have not been in vain has proved a consolation.

He has, however, a grave warning to give about spiritualism. It was mentioned among the causes of the mental breakdown in some of the cases admitted, and he adjures those who are seeking consolation in their sorrows by practical experiments in this domain to beware. While going so far as to say that spiritualism is a subject worthy of patient and unbiassed inquiry by competent investigators, he insists that those who are unversed in normal, and particularly in morbid psychology, are not competent investigators, least of all those who are wishing and longing for and unconsciously expecting certain manifestations from dead friends. He reminds inquirers into the subject that if they wish to meet those who are hearing messages from spirits every hour of the day, seeing angelic and human forms surrounding them, and receiving other similar manifestations, they need only go to a mental hospital to find them. The modern physician has come to regard such phenomena as symptoms of disease, and if honest mediums exist who hear inaudible messages, or feel communications without words, or see forms invisible to others, is inclined to look on their "gifts" as, if not actually morbid, at least closely related to the morbid, with no element of anything "occult" about them. Dr. Robertson strongly counsels those who may possibly inherit a latent tendency to nervous disorders to have nothing to do with practical inquiries of a spiritualistic nature, lest they should awaken a dormant proclivity to hallucinations within their brains. This point is extended by the statement that while inquiries into spiritualism sometimes lead to insanity in the predisposed, more frequently the fact is that for persons suffering from the simple forms and early stages of mental derangement the theory of spiritualism has a great fascination. It is a simple explanation—that given by the primitive savage for all the actions produced by the mysterious forces of nature. When, therefore, a person suffering from early symptoms of insanity hears imaginary voices or experiences strange feelings and impressions, this simple explanation offered by spiritualism affords a ready and comforting explanation; but, though spiritualism may be injurious to these persons in retarding recovery, it would be wrong to say that it was the cause of their derangement.

Dr. Robertson congratulates the military authorities on the resourceful way in which they have coped, in association with other official and voluntary bodies, with the serious problems connected with the care and treatment of the large number of neurasthenic soldiers. The public rightly desires that such men should have a good chance of recovery without undergoing the legal process of being certified to be insane, and there is no insuperable difficulty in a mentally deranged patient being kept under observation and treatment in a special hospital for six months, if the case be notified to the Board of Control and medical certificates showing the necessity of the step be issued. In Scotland a mental case can be kept at present for six months in any private house for gain without notification, and the question may well be asked why he should not equally be placed in a well-appointed mental hospital, specially designed and organized for the care of such cases kept not for private gain, under the strict regulation of the Board of Control. The answer would seem to be, that even a short residence in a mental hospital, which is more commonly called a lunatic asylum, impresses on him a stigma not felt in the case of persons who have been inmates of hostels for neurasthenic patients, but Dr. Robertson asserts that the promoters of such hostels are doing a public disservice by speaking unfavourably of the useful and excellent work done in asylums; there ought to be no antagonism between such hostels and mental hospitals, for both are necessary for appropriate cases. He boldly asserts that whereas no case of neurasthenia has been sent to an asylum, the converse is not true, and that a man admitted to a hostel may find himself side by side with patients obviously suffering from mental disease.

In analysing the main cause assigned for the mental breakdown which led to the admission of patients to Morningside, or one of its dependent establishments, Dr. Robertson goes into some detail with regard to alcohol and venereal diseases. Alcohol was the direct exciting cause of insanity in 10.8 per cent. of the men admitted, and the disorder was of a curable type. Venereal disease was the definite cause in 14.7 per cent. of the cases of insanity occurring among men in 1916, and all of them were of incurable type; that is to say, one in every seven men admitted suffered from irrecoverable insanity, produced by a preventable cause and a disease very curable if the remedies medical science has discovered be used at an early stage. The return from the systematic treatment of syphilis now being organized by public bodies cannot be immediate so far as the prevention of this incurable form of insanity is concerned, for it does not develop as a rule till twelve years after infection, but in the end all outlays may be amply repaid.

No reference is made to insanity due to venereal disease among the women admitted, but it is stated that in 4.1 per cent. the exciting cause was alcohol. The statistics appear to indicate that there was slightly less drinking among men in 1916 and slightly more among women, but the figures compare favourably with the average annual percentages of the previous seven years. The number of cases of alcoholic insanity admitted has been decidedly less since the war began than in previous years, and there is no evidence in the statistics that women since the war have been drinking more. Dr. Robertson admits that there may have been more obvious drunkenness, for as he says, "a weekly or fortnightly drinking bout on pay day, however much to be reprobated from a moral or social point of view, is not so injurious to the nervous

stem as steady drinking to physiological excess, en if this be never accompanied by any signs of toxication." He recognizes that much requires to done, and expresses the hope, which, he says, is at of every medical man, that the Government now at it has begun, will continue to deal with the use d abuse of alcohol boldly and on rational lines.

CHEMISTRY AND THE WAR.

HE Registrar of the Institute of Chemistry of Great ritain and Ireland prefaces an interesting account he has ritten of the work done by chemists in the war by bserving that the Government has secured the guidance chemists and other men of science to assist in the vestigation of suggestions and inventions and to bring eir knowledge and experience to bear on measures and evices of offence and defence. The country had come to ly so much on foreign sources of supply that means had be found for dealing promptly and efficiently with the ifficulties which arose so soon as importation was stopped y the war. The laboratories of universities and colleges uickly became small factories for the preparation of rugs and medicaments, and many were entrusted with e examination of materials used in the manufacture of xplosives. Uniformity in method and the standardiza- on of processes was secured, and students unfit for ser- ice with the colours were set to work under the super- ision of their professors. Several hundred chemists ere engaged to assist in the laboratories and in Govern- ent and controlled establishments supplying arma- ents, munitions, and other materials of war, and in ome branches arrangements were made for probationary raining. The staffs of the chemical department of Woolwich Arsenal, and of the Government laboratory esponsible for the examination of foodstuffs and many ther requirements of the Expeditionary Force, were nlarged. A number of chemists were early given com- issions in the army for scientific work, and after the mployment of poisonous gases by the enemy men with raining in chemistry were enlisted for service in the field. With the assistance of the universities and technical olleges, and various bodies interested in chemistry, an ntirely new force was brought into existence; the officers ere mainly selected from chemists who already held com- issions, whilst non-commissioned officers with knowledge f chemistry were transferred from other units. Both Lord French and Sir Douglas Haig had in their dispatches spoken ighly of the work done by this force, which was obtained ntirely by voluntary enlistment. The majority of the niversity graduates and men possessing recognized iplomas who originally enlisted as corporals subse- quently received commissions, and when the force was nore completely organized a considerable number were ransferred to the Ministry of Munitions. During the ampaign against the rebels in South Africa and the Germans in South-West Africa chemists were attached, y direction of General Botha, to the different brigades, nd rendered valuable service. The experience gained in he campaign proves, the Registrar thinks, that it is dvisable that the State should have control of an rganization of professional chemists which would at ny time ensure their efficient service to meet the many equirements of the naval, military, and air forces. Chemists were required to control the manufacture of munitions, explosives, metals, leather, rubber, oils, gases, ood, and drugs; for the analysis of all such materials and for research; on active service chemists were required to assist in the control of water supplies, in the detection of poison in streams, in the analysis of water and food, and n the disposal of sewage, and both at home and on active service to assist in devising safeguards against enemy contrivances of a scientific nature, in devising methods of offence, and to instruct the troops in such matters. In summing up the matter, it is said that "chemists have met the situation with a spirit of true patriotism and have been promptly organized for the service required of them. It is not too much to hope that, as the discoveries of science have been applied to the destruction of humanity, they may be devoted more and more to the furtherance of the arts of peace, to the uplifting of civilization, and the pacification of the world."

"MANIPULATIVE SURGERY" AND MAN POWER.

FOR years we have heard the voice of one crying from Park Lane that the medical world is out of joint and that he has been born to set it right, aptly enough, by manipulative surgery. Mr. H. A. Barker has recently announced, that soon after the outbreak of war he offered through the proper authorities to relinquish his private practice in order to devote his time "entirely and gratuitously to those soldiers and would-be soldiers who might be helped in certain specific joint abnormalities which had not responded to orthodox treatment." He offered his help, he said, because he knew that such assistance would not be forthcoming from the R.A.M.C., and that to withhold it would mean that thousands of men who were susceptible of cure would be left unrelieved. He complains that this offer was rejected on the ground that he is not a registered practitioner. The claims of the practitioners of "manipulative surgery" are now, it would seem, to be advanced along with those of "osteopathy" a nebulous system of treatment for which its American originators have claimed wonderful results. The original intention of the champions of the bonesetters in the House of Commons was to obtain an official inquiry, but the osteopathic red herring would seem to have thrown them off that particular trail. Both sections have combined to form a committee or Commission to carry out an investigation on their own account. Two meetings have been held this week, and in addition to Mr. MacVeagh, who appears to be their leader, the members interested are understood to be Sir J. Agg-Gardner, Sir James Doherty, Sir George Greenwood, Sir J. D. Rees, Sir W. Byles, Sir Thos. Esmonde, Colonel Burn, Major Hunt, Mr. James Mason (Windsor), Lieutenant Gerald France, Mr. Cory, Mr. Bliss, Mr. R. Lambert, Mr. Anderson, Mr. Noel Buxton, Mr. George Thorne (S. Wolverhampton), Mr. Hugh Law, Mr. Joynson Hicks, Mr. Vaughan Davies, Commander Bellairs, Mr. J. J. Mooney, Mr. A. Bird, Mr. Whitty, Mr. Swift MacNeill, Mr. Pringle, and Mr. Peto. Mr. Pringle and Mr. Peto were elected honorary secretaries. We have no wish to hinder any fair inquiry, but with the recollection of similar investigations of cures for cancer and other loudly vaunted methods of treatment, we have no hope of any decisive result. For such an inquiry to be satisfactory, Mr. Barker and the osteopaths would have to make full disclosure of their failures as well as successes. The impartiality of an inquiry conducted by the group of members Mr. MacVeagh has gathered round him does not seem assured if we may judge from a letter published by him in the *Evening Standard* of February 17th. In it, while absolving Sir Alfred Keogh from any responsibility for what he calls a "scandal," Mr. MacVeagh places it on the shoulders of "a professional camarilla filled with insane jealousy of unqualified men who have beaten them in one branch of their own calling." What is this "camarilla"? Is it the General Medical Council? Mr. MacVeagh before rushing into the fray as a champion of the two experts in manipulative surgery who, according to him, "have 'made good,'" that is, as he explains, who "derive enormous fees and enormous incomes," and who "have treated men in the royal circle, generals in the army, admirals of the fleets, and hundreds of officers," should have learnt that the

Council, like the bench of judges, does not make but only administers the law. That law is contained in the Medical Acts, and, as Mr. Macpherson has pointed out, the War Office has no power to employ as a surgeon in military service any person not registered under those Acts. But why should Mr. MacVeagh's committee or commission confine itself to bonesetting and osteopathy? The cures sometimes wrought by Christian Science, too, are as unquestionable as those which can be claimed for manipulative surgery. The parliamentary advocates of manipulative surgery would do well to make themselves acquainted with what is being done for the army in respect of injuries of bones and joints. If they will, they can hardly fail to be convinced that Mr. Macpherson only spoke the simple truth when he said that we have not only the finest surgeons but the finest hospitals in which our soldiers are treated.

"STICKIT MINISTERS" OF MEDICINE.

THE "stickit minister" is a familiar character in Scottish life; Scott has drawn a classic specimen of the type in Dominie Sampson. Medicine, as well as divinity, has its "stickit ministers," men who, when putting forth on the incalculable sea of life, have seen their destination in the art of healing, but for one reason or another have changed their course. Of the great majority of these, the only record would be that their life was well spent if it be true that *Bene vixit qui bene latuit*, but some have writ their names large on the scroll of fame. The most illustrious example is Charles Darwin. The son of Robert Darwin, a well known physician of Shrewsbury, Charles was himself intended for the medical profession. He gives a charmingly naïve account of his father's view of the matter. Describing him as by far the best judge of character whom he ever knew, the son says his discerning parent declared that he would make a successful physician, meaning by this one who would get many patients. The elder Darwin maintained that the chief element of success was exciting confidence, but, says the son innocently, "what he saw in me which convinced him that I should create confidence I know not." The author of the *Origin of Species* studied medicine at Edinburgh for two years, but the discovery that he would have enough money to live on was sufficient to check any strenuous effort. Besides this, anatomy disgusted him, and the professor of the subject was deadly dull. He regularly attended the clinical wards in the hospital, and, though distressed by what he saw there, did not allow this to lessen his attendance. But he could not stand the operating theatre, and he fled to the less exciting classrooms of Cambridge. The loss to medicine from this desertion was the gain of science and doubtless of the world. But it would have been a misfortune for mankind if James Young Simpson had given up medicine in horror at the sufferings of patients under the knife. It is known that, after seeing an operation, he thought of taking up the law as a profession. Reflection, however, led him to the better course of determining to seek for some means of preventing the pain which caused him such distress, with the result known to all men. Sainte Beuve, the foremost literary critic of his day in France, got so far in his medical studies as to hold a hospital appointment under Dupuytren, a fact of which he was justly proud. The hero of his first novel was a medical student, unkindly described by Chateaubriand as a *Werther carabin*. Emile Littré was a student for ten years and was a hospital *interne*. The author of the great French dictionary was a man of vast learning in medicine as in philology and other departments of human knowledge, and among his works was the *Dictionnaire de medecine, de chirurgie, et de pharmacie*, which has gone through many editions. Léon Daudet, the son of a famous father, who has himself won a considerable name in literature, was a medical student for a number of years, but gave up the career in disgust at some real or fancied injustice of examiners. By way of revenge he produced a spiteful novel, *Les morticoles*, a satire on doctors, with the bitterness but without the wit or the power of imagination of Swift. Francis Thompson was the son of a doctor, and was a medical student at Manchester. He soon deserted medicine to follow the call of the muse, becoming one of the greatest of our nineteenth century poets. Among the original contributors to *Punch* who helped largely to build up its reputation were John Leech, Percival Leigh, and Albert Smith. Leech began life as a student of medicine at St. Bartholomew's Hospital. Percival Leigh, the author of *Pips his Diary*, was a qualified man, but did not practise; his early association with medicine earned for him the nickname of "professor" among his colleagues. Albert Smith passed the "College and Hall" but soon shook the dust of the surgery off his feet. His experiences of the profession were embodied in *The Physiology of the London Medical Student*, and *The Adventures of Mr. Ledbury*. Lessing, the German critic and dramatist, studied medicine at the University of Leipzig, but soon gave it up for literature. A. P. Tchehoff, the Russian writer of whom Tolstoi said he was one of the few whose novels are read with pleasure more than once, was a medical student at the University of Moscow. He says, "I did not know much about faculties at that time and I don't well remember why I chose the medical faculty; but I never regretted that choice later on." He did not graduate, but clinical work in a Moscow hospital and also during the cholera epidemics of 1892 brought him in contact with all sorts and conditions of men and women, and he says his scientific training was of great use to him in his literary work. A remarkable man who was driven from the profession by combined stress of politics and theology was George Hay, who kept alive the flame of Catholicism which had almost flickered out in Scotland in the eighteenth century. He was apprenticed to a surgeon in Edinburgh when the rising of 1745 took place. He "went out" with his master and worked among the sick and wounded of Prince Charles's army till he was invalided. On his release from prison he returned to his medical studies and worked under John Rutherford in the Edinburgh Royal Infirmary. He was a member of the Medical Society, but was prevented by the penal laws from graduating. After serving a short time as a ship's surgeon he went to Rome and became a priest, and ultimately a bishop. His numerous writings on controversial, devotional, and other subjects have passed through innumerable editions and have been translated into several languages.

DELAYED TUBERCULOUS INFECTION.

As a contribution to the jubilee of the late Professor Metchnikoff, of the Pasteur Institute at Paris, Professor Delépine, Director of the Public Health Laboratory, University of Manchester, sent an interesting paper[1] throwing light on the genesis of latent or delayed forms of tuberculous infection in some instances. He argues that tubercle bacilli of various strains or degrees of virulence are so commonly encountered in daily life that every one of us must be exposed frequently to the danger of infection thereby, and points out that this argument has been used to prove the view that the resisting power of the individual is the main factor determining whether infection takes place or no. This paradox, he holds, takes insufficient account of the normal variability in the pathogenic power of any given sample of the tubercle bacillus. To prove the correctness of his own view, he quotes certain experiments he has made on guinea-pigs. These experiments consisted in the inoculation of the animals with human tubercle bacilli of normal virulence, but first heated in the course of a few minutes to 78° C. or 92° C. in order to reduce their pathogenicity. Experiment showed that

[1] *Annales de l'Institut Pasteur*, Paris, 1916, xxx, 600.

hese heated tubercle bacilli produced but slight local esions at the end of eleven weeks, whereas before being neated they gave rise to local ulceration in a fortnight. 3ut further observation of the guinea-pigs inoculated with he heated bacilli proved that these microbes recovered heir normal pathogenicity when conveyed—no doubt by he phagocytes—to distant parts of the experimental nimals' bodies. The recuperation of the pathogenic power became more marked as the distance from the seat of inoculation increased; for, while the local lesions remained insignificant, those of distant organs became practically as extensive as those found in the animals inoculated with the unheated tuberculous milk. The period of latency in these experiments amounted to three or four weeks, and Professor Delépine argues that it throws light on a most important aspect of the processes of infection that has, perhaps, been neglected in the past. He also quotes experiments to show that tubercle bacilli can retain some of their pathogenicity for as long as 500 days if kept in the dark in milk at a low temperature—below 6° C. But after being kept thus for four and a half years these bacilli were no longer pathogenic to guinea-pigs.

A GALLANT ACT REWARDED.

On September 7th, 1916, an accident, which might easily have ended fatally, occurred at the ladies' bathing place of San Stefano Hotel, near Alexandria. Two Egyptian ladies, who were not good swimmers, had the temerity to venture out of the large bath into the open sea. They rapidly became exhausted, and found, to their horror, that the current was carrying them further and further from the bath. There were many ladies, of many nationalities, bathing at the time, and some of these screamed loudly for assistance. Before other help could come, Mrs. Alfred Tubby, who is a good swimmer and was fortunately in the sea not far away, swam to the rescue of the two ladies, brought in one of them and returned without delay for the second, who was already in a collapsed condition. Brigadier-General Boyle, C.B., heard this story, obtained documentary evidence from two English eyewitnesses, and forwarded it to the Royal Humane Society for its consideration. After due inquiry had been made, the bronze medal and certificate of the Society reached the General. At a private dinner given by Dr. Granville, C.M.G., to celebrate the occasion, at the Sultan Hussein Club, Mrs. Tubby, to her surprise and delight, received the honour at the hands of the General Officer in Command. General Boyle remarked that it could seldom have happened that the mother of a grown-up daughter had received this coveted reward for saving life from drowning. He referred also in complimentary terms to the valuable services rendered to troops in the Mediterranean by Colonel A. H. Tubby, C.M.G., consulting surgeon.

THE following are among the fifteen candidates selected by the Council of the Royal Society to be recommended for election into the society: Dr. H. D. Dakin, Director of the Herter Laboratory, New York; Professor J. S. Macdonald, Holt Professor of Physiology, University of Liverpool; and Professor S. G. Shattock, F.R.C.S., Pathological Curator to the Royal College of Surgeons of England.

THE city of Paris has adopted the rather doubtful policy of erecting in the gardens of its hospitals huts for men discharged from the army suffering from tuberculosis. Some 660 beds have already been provided in this way, and huts for 1,500 more are being put up as fast as the scarcity of labour permits. A sum of £200,000 has been voted for construction, and the expense of maintenance is estimated at £120,000 a year.

Medical Notes in Parliament.

THE arrangements of business in the House of Commons during the present week were considerably changed from the announced intentions. It had been expected that the Criminal Law Amendment Bill would be taken in Committee on February 27th, but, as noted below, the measure was referred to Grand Committee. It had also been intended that a debate should take place on that day on the revised Pensions Scheme, but the drafts giving particulars could not be issued until Wednesday morning, and the discussion was therefore postponed. Mr. Bonar Law's gratifying announcement that the subscription of new money to the War Loan amounted to a total of £1,000,312,950 was naturally received with immense satisfaction, so also was his announcement that the British Forces in Mesopotamia had occupied Kut. This was supplemented by information given by Lord Curzon in the Lords as to the character of the operations resulting in the capture of 12,000 of the enemy forces.

The Criminal Law Amendment Bill.—A short debate took place in the House of Commons on February 27th on the motion of the Home Secretary to discharge the order whereby the Criminal Law Amendment Bill was to have been referred to Committee of the whole House of Commons, and proposing instead that it should be referred to Grand Committee. Mr. Dillon thought it was "a cowardly thing" to send this measure to Grand Committee on the ground that the subject was not a pleasant one to discuss, and Sir Frederick Banbury urged that it was too important to be thus referred. Mr. Bonar Law, who earlier in the week had intimated that one advantage of the change would be that this bill and one to be introduced in the Lords by Lord Rhondda in regard to quack doctors would in due course come before the same Committee, held his ground, and a division gave 144 votes for the reference and 91 against.

Use of Cocaine by Unregistered Dentists.—In reply to questions by Mr. Raffan and Mr. Denniss, the Home Secretary stated on February 26th that the report of the committee to consider the question of authorizations for the use of cocaine by unregistered practitioners in dentistry had been received, and would be made available shortly. It raised some questions which required consideration, and it was therefore proposed to extend the general permit to unregistered practitioners in dentistry to use a solution of not more than 1 per cent. of cocaine for two months.

The Export of Morphine.—In reply to Sir William Collins, in the House of Commons on Monday, Mr. Balfour said that the quantities and value of morphine and morphine salts of British manufacture recorded as exported to Japan (including Formosa and Japanese leased territories in China) amounted to 252,110 ounces, valued at £118.794, in 1913; 352,130 ounces, valued at £143,975, in 1914; and 204,742 ounces, valued at £136,059, in 1915. These figures did not include exports by parcel post, respecting which no figures are available. The eventual destination of this morphine and the uses to which it was ultimately put were questions which concerned the Japanese administration, and were outside the competence of His Majesty's Government, which was of opinion that it would not be desirable to put the Opium Convention into force pending the deposit of ratifications by all the Signatory Powers. Sir William Collins asked whether this was not evidence that much of this morphine found its way into China in substitution for opium. Mr. Balfour replied that he had no information on this point.

Pharmaceutical Chemist with Colonial Diplomas.—In answer to Sir William Collins, the Home Secretary said that by-laws made by the council of the Pharmaceutical Society and approved provided for the registration under certain conditions of holders of Colonial certificates. No by-law had down to the present time been made by the council of the Pharmaceutical Society in respect to military dispensers or certified assistants to pothecaries, although it had been strongly urged by the Privy Council to give effect to the intentions of Parliament in the matter. Without further legislation there did not appear to be any action which the Government could take in the matter.

Asylum Dietary Scale.—In reply to Mr. Fell, who asked whether steps were being taken to bring the dietary scale in asylums to that enjoined for the public by the Food Controller, the Home Secretary said that the scales of diet in asylums were under the control of the local authorities. The Board of Control was in communication with the local authorities, and found them anxious to do their utmost to conform to the Food Controller's standards. Similar action was being taken in the case of other institutions connected with the department.

The Value of the Front Bench.—Mr. Arthur Lynch, M.P., writes: In your "Notes in Parliament" (p. 274) you have ascribed to me the quality of humour, to which I have never laid claim, and at the same time you have inadvertently done me a little injustice. Amid the fusillade of questions on "manipulative surgery," my intervention was in favour of the profession of which I am an honest, if poor, representative. I said: "As this question involves more technical considerations than my hon. friend (Mr. J. MacVeagh) seems to suppose, would it not be better to arrange a debate when the pros and cons might be heard?" It was Mr. MacVeagh who suggested that the life of one private soldier was more valuable than that of the whole Front Bench, but though I laughed with the rest of the House I must not be taken as endorsing unreservedly the proposition of my humorous friend. His method of disposing of the Front Bench is too drastic in its simplicity; I could have employed an adjuvant, a corrective, and especially a vehicle.

War.

Venereal Disease in the Army.—In a written answer to Mr. King on February 27th, the Under Secretary of State for War said that the present admission ratio for venereal disease for troops in the United Kingdom is 43.5 per 1,000 per annum. This was a reduction on that furnished on November 16th. In France the proportion is 24 per 1,000. In reply to a further question Mr. Macpherson said he had no information about the Allied or German armies. It may be noted that on November 16th Mr. Forster said that the admission rate to hospitals at home from the cause in question was 48.0 cases per 1,000 men per annum, which was slightly less than the ratio in peace time. No figures were then available as to the troops abroad.

Naval and Military Pensions and Grants.—Drafts of a Royal Warrant and of an Order in Council for the pensions of soldiers and sailors disabled, and of the families and dependants of soldiers and sailors deceased in consequence of the present war, were presented to Parliament on February 26th (Cd. 8485, price 3d. net). The draft warrant applies to soldiers, and the draft Order in Council to seamen and marines. Appended to the drafts are an explanatory note and an actuarial report by Sir Alfred W. Watson, chief actuary to the National Insurance Joint Committee. Subject to certain qualifications regarding liabilities which cannot be estimated, the actuary finds that the maximum annual charge to arise in the financial year 1918–1919 (or in the year next following if the war should be prolonged) will be £25,000,000; namely, to disabled men £14,100,000, to widows and orphans £8,200,000, to other dependants £2,700,000. He estimates that in the year next succeeding that of maximum liability the charge will amount to £23,000,000—namely, to disabled men £12,600,000, to widows and orphans £8,400,000, to other dependants £2,000,000. The Warrant and Order in Council do not apply to officers other than warrant officers and non-commissioned officers. In reply to Commander Wedgwood, Mr. Forster said that an announcement in regard to the question of separation allowances to the wives of junior officers during the war would be made very shortly.

Disabled Soldiers.—A series of questions addressed by Mr. Pennyfather to the Financial Secretary for War on February 27th brought from Mr. Forster the admission that some men suffering from disabilities due to or aggravated by service had been passed in error to Class W Reserve. The whole subject, however, was receiving immediate attention, and he hoped to be able to make an announcement shortly.

Medical Attendance on Officers' Families.—Colonel Yate inquired whether the War Office would consider the question of altering Paragraph 483 of the Regulations for the Army Medical Service so as to admit of the wives and families of officers resident at a station within the prescribed radius receiving medical attendance and medicines during the temporary absence of their husbands on duty elsewhere. Mr. Forster replied that medical attendance on families was a privilege and not a right. If the absence of an officer from his station was temporary and for a short period, attendance on his family was continued.

Visits to Military Hospitals.—On February 26th Mr. Forster promised Sir William Pearce he would consider whether concession tickets could be granted to relatives of sick and wounded soldiers at a distance of under thirty miles from the hospital at which a patient was under treatment.

The Training of Disabled Soldiers.—In a couple of questions addressed to the Minister of Pensions and the Under Secretary for War, Mr. Cory suggested that disabled soldiers in the Metropolitan War Hospital at Whitchurch, Cardiff, might be given facilities to use the workshops, kitchen gardens, and model farm there available, the suggestion being that this might be arranged through the Cardiff War Pensions Local Committee in conjunction with the Cardiff Technical Education Committee, who might provide the teachers. Mr. Forster (the Financial Secretary of the War Office) said, in reply, that he was in communication with the Minister of Pensions as to how the facilities afforded at this establishment might best be utilized to the advantage of disabled men.

Medically Unfit Soldiers.—Mr. MacCallum Scott asked Mr. Macpherson whether he was aware that the order of July 13th directing that attested men rejected as medically unfit upon re-examination should be given a certificate of discharge had been consistently disobeyed by the military authorities. Mr. Macpherson replied he was not aware that the War Office instructions were consistently disobeyed by the military authorities, but said that if Mr. Scott gave him particulars of the letter said to have been written by the Secretary of the War Office the matter would be investigated. Mr. Macpherson added that if Mr. Scott would give him specific cases he would certainly make inquiry. He was not aware whether it was true—as Mr. Pringle suggested—that men had been refused employment by employers because they could not produce their certificates of discharge. He was very sorry if that was so.

Manipulative Treatment.—In the Commons, on February 27th, Mr. Yeo asked what objection the Army Medical Department advanced to allowing Mr. Barker and other experts in manipulative treatment to assist and co-operate with the army surgeons in alleviating the sufferings of the wounded; whether he was aware of the extent of Mr. Barker's practice, and whether in view of the amount of support extended to him by members of the medical profession itself, he would dissociate the Army Medical Department from the attitude of the Council of the British Medical Association. Mr. Richard Lambert asked if the objection of the Army Medical Department was that Mr. Barker did not hold professional degrees; and, if so, whether Mr. Forster could state what was the objection to utilizing the help of doctors of osteopathy who held professional degrees. Mr. Macpherson replied he had no information as to the extent of Mr. Barker's practice. Independently of the attitude of the British Medical Association, the Army Council was, apart from other reasons, precluded by the terms of the Medical Act from utilizing the services of this gentleman. The British Medical Association had no official connexion with the War Office.

Mr. Pringle inquired whether the Government could not over-ride that Act by using the Regulations under the Defence of the Realm Act as it had in regard to so many other matters. Mr. MacVeagh asked what clause of the Medical Act prevented use being made of the services of these men, and Mr. Macpherson referred to Clause 36.

Mr. MacVeagh asked whether the Army Medical Department was yet in a position to say whether the British Medical Committee (Balneological Section) had reported on the use of manipulative treatment in France; and whether the Army Medical Department in our country proposed also to make use of every possible aid for wounded soldiers. Mr. Macpherson replied that the Committee had reported on certain methods of treatment all of which are in use in this country, and in reply to a further question by Mr. MacVeagh added that the Army Medical Department had sufficient assistance at present.

Replying to Sir Thomas Esmonde, Mr. Macpherson said the War Office had not received any report from General Count Gleichen on manipulative treatment, but he believed that an informal letter on the subject—of which there was no trace—had been written by Count Gleichen.

Mr. MacVeagh asked whether the Army Medical Department were aware that the Medical Act of 1858 applies only to persons falsely styling themselves physicians, doctors of medicine or surgery, or surgeons; whether the department is also aware that experts in manipulative treatment do not come within any of those descriptions, do not so style themselves, and have never asked to be so employed; and whether he can state what section of the Act can under those circumstances be construed as preventing the department from using the services of these experts. Mr. Macpherson replied: "No, Sir. I am not aware that my hon. friend's interpretation of the Medical Act is correct. I think if he refers to the Act he will find that it prohibits the appointment of any person as a medical officer unless he is registered. Every branch of medicine and surgery pursued by lawfully qualified medical men is represented among those employed by us."

On February 28th Mr. Noel Buxton asked Mr. Macpherson whether "In reference to the fact that manipulative treatment is in full swing in the army under well-known authorities on the subject, he will give the names of such authorities and state the source of their qualification in manipulative treatment." Mr. Buxton further asked whether the War Office would recommend a substantial increase in the number of manipulators available by employing others who had been specially trained and had passed qualifying examinations on the subject and who offered their services. Sir George Greenwood in a similar argumentative question asked whether the War Office had received the offer for services of 100 Canadian and American experts in manipulative treatment; whether he was aware that these gentlemen held the highest American qualifications in osteopathy.

Mr. Macpherson replied: Surgeons who have paid special attention to orthopaedic surgery are well acquainted with manipulative methods, and have them in constant use. Offers have, I believe, been received from time to time from America and elsewhere from osteopaths, faith healers, Christian Scientists, and others, but they have been refused on grounds I have now frequently stated to the House.

Mr. MacVeagh and others put several supplementary questions, and ground already covered was again gone over, until the Speaker humorously said, "We will resume this debate to-morrow."

THE WAR.

CLOSURE OF CRANIAL DEFECTS.

DR. R. PFLUGRADT, in dealing with cranial defects following gunshot injury,[1] referred to the earlier practice of endeavouring to close the defect by means of reimplantation of bone fragments. There were the same objections to this as a primary measure as to primary closure of the wound; the danger of primary infection in gunshot wounds, especially in tangential and segmental wounds, was now fully recognized. Moreover, as a preventive of prolapse of the brain the measure was probably useless, for it was now generally agreed that prolapse was due, not to the presence of the aperture, but to inflammatory swelling of the brain substance. Hence Pflugradt concluded that the closure of cranial defects after gunshot injury should only be undertaken secondarily.

As regards the desirability of operation and the length of time that should be allowed to elapse after the healing of the wound, there were differences of opinion. Many surgeons felt a disinclination to touch the healed wound at all; others would defer the plastic operation for a year after complete healing; others for six months. The indication for such an operation should be distinct, and the dangers weighed against the advantages offered.

Spontaneous closure of even small defects beneath a healed wound did not occur, and there would therefore almost certainly be adhesion of the brain wound to the scar in the soft parts. In such a condition the brain was liable to direct injury, and the patient was subject to congestion, headaches and giddiness resulting from variations in intracranial pressure. There was also the danger of secondary traumatic epilepsy. On the other hand, the dangers of the operation were slight. Injury of the brain or of a large vessel were avoidable accidents, and the danger from local anaesthesia was *nil*. As regards infection, no operation should be undertaken unless the wound were absolutely healed. Prolonged observation was necessary to exclude the presence of deep latent foci, especially when the healing of the wound had been delayed by suppuration. Observation extending over two to three months after healing and the subsidence of all symptoms was usually sufficient. Latent foci might persist longer than this, but their presence would merely necessitate a delay in performing the plastic operation. Pflugradt therefore considers the danger from infection to be avoidable.

The technical difficulties of the operation were usually not great. They were so only when the basis cranii was involved, and Pflugradt did not operate on such cases unless the sufferings of the patient were severe. The flap method was preferred to free transplantation, though the latter was justified by the results obtained. The addition of a second operation necessitated for the removal of a portion of tibia, scapula or other bone, could not but be regarded as a disadvantage. Of the flap methods for closing defects before the wound was completely healed, that in which the flap consisted of skin, aponeurosis, periosteum, and bone had an advantage over others. It had, however, certain disadvantages: it was unsuitable when several defects were present or when the surrounding bone was very thin, and with the thick layer of soft parts covering the bone the manipulations with the chisel were not under the control of the eye. These disadvantages were not present with a flap composed of periosteum and bone only; but the stalk in these was very thin, and Pflugradt's practice was to form the flap from aponeurosis, periosteum, and bone, with a view to securing better nourishment through the bridge of tissue. The subcutaneous and subaponeurotic flap methods he therefore regarded as the operations of choice, their advantages being the avoidance of disfiguring scars, their technical simplicity, the certainty of primary bony healing, the limitation of the operation to the injured region, and the almost unlimited applicability of the methods.

Local anaesthesia was induced by subcutaneous or subaponeurotic injections of a solution of novocain-adrenalin (0.5 to 1 per cent.). The scar on the skin was then either excised or cut round. Irregularities in the scar over the aperture were next smoothed down with the scalpel, care being taken not to open the subdural space; the dura was separated with a raspatory for about 1 cm. around the edge of the defect. A certain amount of bleeding always occurred between the bone and the dura, but this was readily arrested, even in the neighbourhood of the large sinuses. Cicatricial deposits were next sliced off with the knife, so that a thin fibrous layer remained as a substitute for dura over the defect. Next, the bony edge of the defect was freshened. For this purpose Pflugradt preferred to use a concave or flat chisel instead of bone scissors, as a smoother and more even edge with a projecting border of the inner table to support the bone flap was thus obtained. In forming the flap it was necessary to take care that the soft parts of the flap were wider than the defect, and the pedicle should be chosen so that no kinking or stretching occurred on sliding the flap into position. For cutting the bone flap Pflugradt used a straight, flat chisel with as broad a blade as possible. With this, by short tangentially directed blows, a bony plate of the size of the defect to be covered, and consisting of tabula externa only, was cut out. The plate of bone almost invariably broke across in several places, but this was an advantage rather than otherwise, enabling the flap to be more readily modelled with the finger to the normal curve of the cranium. It was important that the edges of the bone flap should lie in contact with the freshened edges of the defect; the existence of any interval between them would result in the union of the periosteum and dura over the edge of the defect and consequent cessation of the bone formation by which the defect was ultimately closed. Pflugradt never observed any indications of cerebral concussion from the blows of the hammer, but he recommended that a wooden mallet should be used, and that the blows should be counteracted by supporting the head with the left hand. After gliding the flap into position sutures were passed through the aponeurosis-periosteal layer, and finally through the edges of the skin incision. Pflugradt obtained closure of the defect and uninterrupted healing in all cases treated in this way. The size of the defects varied from 2 to 7 cm., the larger defects being closed by taking a periosteum-bone flap from opposite sides of the defect and suturing them in the middle of the aperture.

Jacksonian epilepsy was not present in any of his cases; he therefore did not excise the scars in the dura or brain, but simply pared them down.

[1] *Kriegschir.*, Heft 28, p. 465, *Beitr. z. klin. Chir.*

EXCISION OF WOUNDS.

DR. FRITZ KROH, Stabsarzt in a Feldlazarett, writing[1] on the treatment of primarily contaminated gunshot wounds, expressed surprise that the matter should still be considered open to discussion, considering the uniformly successful results of radical treatment in such cases. By radical treatment he meant the primary excision of all wounded tissues, leaving a new wound surface constituted of healthy tissues, and he held that the use of any other method in grenade wounds and mine wounds was not in the best interest of the wounded. Dr. Kroh's practice was to excise widely those wounds which were superficial, and, in the case of deep wounds, to resect all wound edges—skin, fasciae, and muscles. Through extensive skin incisions and the opening up of intramuscular areas all necrotic or doubtful tissues were removed, together with clots and foreign bodies, and new and clean conditions of wound surface and efficient drainage were established. This method, which he adopted early in the war, and applied irrespective of the presence of local or general infection, and, at times, as late as forty-eight or more hours after wounding, proved pre-eminently successful; in no case had he an unfavourable result; they all healed.

The following may be taken as an example: A grenade wound received fifty-two hours previously had been treated on conservative lines. The patient had general septic symptoms, and the whole wound, which was of the size of the fist, contaminated with dirt and fragments of clothing, and sloughing, was extirpated like a tumour, together with a superficial layer of the sacrum. The general condition rapidly improved, and in four weeks the wound cavity had filled up with healthy granulation tissue with a good spreading border of epithelium.

[1] *Kriegschir.*, Heft 28, p. 592, *Beitr. z. klin. Chir.*

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Dr. Kroh regarded the method, supplemented with the use of hydrogen peroxide, as the best prophylactic measure against gas gangrene, not a single case having occurred in his station. In his view intramuscular areas, which afford favourable paths for the extension of anaërobic infection, required especial attention. On three occasions he found, at a distance from the wound surface, light green gelatinous translucent masses in these areas. The significance of these masses was unknown at first, but they were recognized as the lesion of malignant oedema: they might occur alone or associated with gas gangrene. In a case of bullet wound of the leg the limb was amputated after four days of suppuration with gelatinous infiltration. A pure culture of *B. oedematis maligni* was obtained. For four days the general condition was good; after this signs of general sepsis appeared. On opening up the flaps the upper recess was found to be filled with gelatinous exudate which could be traced upwards into the thigh, which was incised for about 20 cm. The patella and surrounding synovial membrane was excised, together with the gelatinous infiltration in the thigh. Subsequent incisions in the thigh and flank showed oedematous swelling only. Healing was normal.

Dr. Kroh would not extend the radical treatment to bullet wounds; he pointed out, however, that they were at times the source of dangerous infection, and should in all cases be kept under strict observation and receive that treatment at the first sign of fever or increased frequency of the pulse.

As regards technique, all diseased tissues—skin, fascia, muscle, tendon, bone—were extirpated, the soft parts with the knife or scissors, the bone with concave chisel or forceps. Only unwounded nerves and large vessels were spared; if wounded, the ends of the vessels were resected and ligatured, the nerve stumps resected, and in some cases united. A drainage channel was provided of sufficient width to prevent the drainage tube obstructing the free outflow of exudate. In wounds with retention of the projectile Dr. Kroh extirpated the canal, and either converted the wound into a trough by splitting up skin and muscle, so that the whole was readily under control, draining above and below; or he made a flap through the canal if not too deep; or, in deep wounds, after excising the canal as far as possible, he worked through sound tissue to the lower end of the wound and drained from there. Treated in this way, 99 per cent. of his cases needed no further operation; phlegmon was unknown and suppurating sinuses never remained. Joint wounds were dealt with by excising the track, including the perforated portion of the capsule of the joint. Wounds in the hard structures were chiselled out, fragments removed, and the whole joint cavity treated with iodine and drained through the wound in the capsule. Functional results in cases so treated were not unsatisfactory, even when the joint cavity had been long kept open.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN J. A. HARPER, R.A.M.C.

Captain John Alexander Harper, R.A.M.C., was killed in action in France on February 14th. He was the second son of Alexander R. Harper, J.P., of Govan, and was educated at Hillhead High School, Glasgow, and at Glasgow University, where he graduated M.A. in 1908 and M.B., Ch.B. in 1912. After acting as resident physician in Professor Stockman's wards in the Western Infirmary, Glasgow, and as house-surgeon of the Glasgow Maternity Hospital, he took a temporary commission in the R.A.M.C. in December, 1915, and was promoted to captain on completion of a year's service. He received the Military Cross on March 30th, 1916, for bravery in action at Ypres. He was attached to the Yorkshire Regiment when killed.

DR. L. F. HANBURY.

Dr. Langton Fuller Hanbury, medical superintendent of the West Ham Borough Asylum, Goodmayes, Essex, who joined the army on November 1st, 1914, as a private in the Sportsmen's Battalion of the Royal Fusiliers, was reported missing in July, 1916, after a heavy engagement in Delville Woods in France, and is now officially reported dead. He received his medical education at St. Thomas's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1902. He was a member of the Medico-Psychological Association.

TEMPORARY LIEUTENANT C. STIEBEL, I.M.S.

Temporary Lieutenant Charles Stiebel, Indian Medical Service, was killed on February 2nd, aged 40. He was the son of the late D. C. Stiebel, of London, was educated at Clifton, at St. Thomas's Hospital, and at Trinity College, Cambridge, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1902, the M.B.Camb. in 1904, and the F.R.C.S.Edin. in 1911. After acting as house-surgeon in the West London Hospital, he went to South Africa and practised at Bloemfontein, then returning to England, served as assistant medical officer of the Bradford Infirmary, and as first assistant medical officer of the Marylebone Infirmary. In 1912 he went to India as a medical missionary of the Salvation Army, and held charge of their hospitals, first at Nagercoil in South India, and afterwards at Anand, in Guzrat. He took a temporary commission as lieutenant in the I.M.S. on November 17th, 1914, and served successively in the Kitchener Hospital at Brighton, at Alexandria, at Mudros, and in Mesopotamia. In 1912 he married Miss Agatha Cook, night sister at the Marylebone Infirmary, and leaves a widow and two daughters.

Died of Wounds.

CAPTAIN E. W. S. MARTIN, R.A.M.C.

Captain Edwin William Sidney Martin, R.A.M.C., is reported to have died of wounds recently in the East, aged 41. He was the son of Mr. J. E. Martin, J.P., of Tramore, Ireland, was educated at Queen's College, Belfast, and took the M.B., B.Ch., and B.A.O. of the Royal University of Ireland in 1899, and also the D.P.H. at Cambridge in 1905. Before the war he was in practice at Brithdyr, Tredegar, Glamorgan, and was medical officer to the Bedwellty Urban District Council. He took a temporary commission as lieutenant in the R.A.M.C. on April 5th, 1915, and was promoted to captain on completion of a year's service. He had served at Malta, and in Gallipoli, and was present at the evacuation of Suvla Bay. He was attached to the Worcestershire Regiment.

Wounded.

Captain W. M. Badenoch, R.A.M.C. (temporary).
Captain F. E. Chapman, R.A.M.C. (temporary).
Captain J. H. Cuthbert, R.A.M.C. (temporary).
Lieutenant J. M. Hammond, R.A.M.C. (temporary).
Lieutenant W. J. Pearson, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Cardew, John St. Erme, Lieutenant R.N. (retired), younger son of Mr. Arthur Cardew of Cheltenham, died at Cheltenham on February 9th, aged 25, of illness contracted on service in the North Sea. While in H.M.S. *Lizard* he took part in the naval action in the Bight of Heligoland, and in the bombardment of Ostend. In July, 1915, he was promoted to lieutenant, and appointed to H.M.S. *Canada*. He was taken ill in the following September, and invalided out of the service in July, 1916.

Ford, John Ballard Berkeley, Captain Royal West Kent Regiment, only child of Surgeon-General Sir Richard Ford, A.M.S., died of wounds on February 16th, aged 29. He was educated at Wellington, entered the army from Sandhurst in 1908, and became captain on April 19th, 1915. During the early part of the war he had served in Mesopotamia, and latterly on another front.

Fraser, James Lovat Hosack, Lieutenant Machine Gun Corps, formerly of the Cameron Highlanders, eldest son of Dr. J. Hosack Fraser of Bridge of Allan, died of wounds received on February 18th, aged 24.

Simpson, Frank W. H., Captain Royal Garrison Artillery, attached to Royal Flying Corps, son of Professor W. J. Simpson of London, killed February 16th, aged 25. He was educated at Winton House, Winchester, at Cheltenham College, and at the Royal Military Academy, Woolwich; joined the army in 1911, became lieutenant on July 20th, 1914, and had recently been promoted to captain. He joined the Flying Corps eighteen months ago.

Townsend, A. Eric, Lieutenant Durham Light Infantry and Royal Flying Corps, second and last surviving son of Dr. Townsend, of Normanby, killed on February 15th, aged 21. He was educated at Haileybury, and on leaving school joined the Cargo Fleet Iron Company. When war broke out he joined the East Riding Yeomanry, received a commission in the Durham Light Infantry in November, 1914, and six months later was invalided for rheumatism. He then rejoined the Cargo Fleet Iron Company, but after a year, having recovered, again got a commission in the Durham Light Infantry, and a month later was transferred to the Royal Flying Corps. He went to the front on January 17th. Dr. Townsend's eldest son, Lieutenant F. E. S. Townsend, was killed in France last September (BRITISH MEDICAL JOURNAL, October 14th, 1916).

MEDICAL STUDENT.

Humphreys, Arthur Idwal, Lieutenant Royal Naval Volunteer serve and Royal Naval Division, second son of the Rev. W. E. mphreys, headmaster of Nelson School, Wigton, Cumberd, was killed by a shell on February 5th, while attending a unded soldier. He was a medical student at Durham and inburgh Universities, enlisted in the Scottish Horse at the ginning of the war, got a commission in the R.N.D. in tober, 1914, and became lieutenant in April, 1915. He had rved in the Dardanelles and in France.

NOTES.

THE head quarters of the Army Medical Service have been nsferred to Adastral House, a large building on the Victoria nbankment, near Blackfriars Bridge.

A long list of names brought to the notice of the Secretary of ate for War for valuable services in connexion with the war s been issued, and we propose to print the names of the edical officers mentioned in our next issue.

CANADIAN ARMY MEDICAL CORPS.

Colonel G. la F. Foster, C.B., Deputy Director of Medical rvices, C.A.M.C., has been appointed to be Director of Medical rvices, C.A.M.C., with the temporary rank of Surgeon-neral, vice Surgeon-General G. C. Jones, C.M.C.

RED CROSS DECORATIONS FOR NURSES.

The King has awarded the Royal Red Cross decoration of e first and second classes to a large number of matrons, sters, and nurses for valuable services in connexion with e war.

SANITARY CONFERENCE.

A conference of sanitary representatives of the allied nations ok place in Paris last week. It was opened by M. Godart, nitary under-secretary of the War Office, and was presided er by the Italian senator Santo-Liquido. It was attended by presentatives of Belgium, France, Great Britain, India, Italy, pan, Portugal, Russia, and Serbia.

PENSIONS FOR LOSS OF LIMBS.

An Order in Council has been issued making certain additional gulations to have effect until the issue of other regulations by e Ministry of Pensions to seamen and marines discharged on count of disability. The regulations with regard to loss of mbs are as follows:

1. *Leg Amputations.*

	Weekly Pension.
(*a*) At hip	16s. 0d.
(*b*) Short thigh with pelvis band	14s. 0d.
(*c*) Above knee (other than *b*) and through knee	12s. 6d.
(*d*) Below knee including Syme's amputation and Chopart's amputation	10s. 6d.

2. *Arm Amputations.*

	Right.	Left.
(*a*) At shoulder-joint	16s. 0d	15s. 0d.
(*b*) Above or through elbow	14s. 0d.	13s. 0d.
(*c*) Below elbow	11s. 6d.	10s. 6d.

Men who have lost the *use* of a limb shall be granted pensions not less than 10s. 6d. a week—that is, the minimum rate lowable for loss of limb.

The draft Royal Warrant for the pensions of disabled soldiers d their families and dependants (see p. 306), which does not ply to officers, contains a schedule setting out the pensions for ecific injuries. In respect of amputations, it is based not on the specific operation performed, but upon its site. The aximum pension is given for the loss of two or more limbs; per cent. for amputation of the leg at the hip or the right m at the shoulder-joint; 70 per cent. for short thigh amputaon of the leg or of the left arm at the shoulder-joint, or e right arm above or through the elbow; 60 per cent. for nputation of the leg through the knee, or of the left arm rough the elbow or the right arm below the elbow; 50 per nt. for amputations of the leg below the knee—but here yme's and Chopart's amputations are specified—or of left arm low elbow; 40 per cent. for the loss of a thumb or of four igers of the left hand, or of three fingers of the right hand, d 20 per cent. for the loss of two fingers of either hand.

WE learn from the *Medical Record* that a bill designed legalize the dissemination of knowledge as to birth ntrol was introduced into the New York State Legisture on January 24th by one of the two Socialist embers of that body. Our contemporary adds that in leveland, Ohio, on January 17th, Dr. Benjamin L. eitman, of Chicago, was found guilty of distributing terature on birth control and was sentenced to pay a fine £200 and to serve six months in the workhouse; an peal has been lodged. In New York Mrs. Ethel Byrne as found guilty of the same offence and sentenced to irty days in the workhouse. She began a hunger strike, ut was promptly fed through the stomach tube.

England and Wales.

REFRESHMENT HOUSE EXPERIMENT IN CARLISLE.

THE report of the local manager on the first year's working of the experiment of the Liquor Control Board in Carlisle states that the establishment of the Gretna Tavern had proved a great success; the trade in food steadily increased and represented 70 per cent. of the total takings. Recently arrangements had been made to supply breakfasts, as it was found that the tavern was used by men who had been able only to find sleeping accommodation without facilities for obtaining food. Twenty licensed premises had been closed within the city, in three others "on" licences had been given up, and one house, suspended after a conviction, would not be reopened for the sale of intoxicants. In October sixteen licensed premises in the Longtown districts had been transferred to the Carlisle control, and since then nine more licensed premises in the county area had been so transferred. A new order, made by the Board of Control on the recommendation of the local advisory committees, came into force on February 24th prohibiting the sale and supply of spirits on Saturdays over a wide area, including Carlisle and the adjacent part of Cumberland and the Western Border area situated in Scotland. A similar order has been in force in the Longtown district for some months; it worked well for that district, but people from it went into Carlisle on Saturdays, and it is said that the favourite beverage consisted of two glasses of whisky diluted with a pint of beer. It recalls the mixture a London cabman considered the most intoxicating of all—namely equal parts of stout and gin. The Carlisle Committee has resolved to open twenty-six public-houses in the city for the sale of food and non-intoxicants on weekdays between 10 a.m. and 9 p.m. (except between 2.30 p.m. and 3 p.m.), and on Sundays between noon and 2 p.m., and between 4 p.m. and 6 p.m. The manager states that the additional male population of Carlisle, due to the influx of munition workers, was, in round numbers, 11,000.

ROYAL SOUTHERN HOSPITAL, LIVERPOOL.

At the annual meeting of the Royal Southern Hospital, Liverpool, on February 19th, over which the Lord Mayor presided, the annual report for the past year, the seventy-fifth, was presented. It stated that the number of beds available is now 223, that the total number of in-patients admitted during 1916 was 2,630, as compared with 2,503 in 1915, and that the average cost per bed was £93 5s. 5d. in 1916, as compared with £84 17s. 4d. in 1915. The number of beds set aside for the treatment of military patients was 70, and this accommodation had been fully utilized. Although the Liverpool School of Tropical Medicine, so long associated with the Royal Southern Hospital, has now new buildings close to the university, the ward for tropical diseases is still maintained owing to the proximity of the hospital to the docks, where great numbers of ships trading to the tropics are berthed. The total number of new out-patients in 1916 was 15,265, as compared with 15,937 in 1915. From a teaching point of view the departments representing the various specialities are thoroughly well organized and show a steady increase in numbers compared with previous years. The average cost per out-patient in 1916 was 2s. 7.15d., in 1915 1s. 9.40d. The treatment of venereal diseases has already been taken in hand in accordance with the Local Government Board regulations, July, 1916. Two small wards have been set aside, one for males and the other for females. Thus the Committee has lost no time in rendering more efficient the treatment of these diseases by organization of a department which will be administered by the hospital authority.

In spite of the war the annual subscriptions, donations, etc., patients' payments and receipts under the Insurance Act, show an increase over those received in 1915. Thus the total ordinary income from these sources in 1916 was £13,389 13s. 2d., as compared with £11,614 6s. 2d. in 1915. Unfortunately the debt due to the bank on December 31st, 1916, was £9,317 9s. 1d. The cost of provisions shows a great increase. In 1916 it amounted to £6,372 18s. 6d. as compared with £4,482 2s. 8d. in 1915. On the other hand, it is gratifying to note

that under the heading surgery and dispensary the increase in 1916 was only £9 over that of 1915. A considerable saving has been effected in drugs, dressings, and instruments. In these items there is always a danger of avoidable extravagance, and of these little but important matters waste in dressings especially should be rigorously kept within bounds. The number of military patients treated since October, 1914, to December, 1916, was 761. Many rejected recruits have been rendered physically fit for service, and systematic instruction has been given to V.A.D.'s during the past year.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.

Formation of London and Home Counties Branch.

At a conference held at the Royal Society of Medicine at the invitation of the National Council for Combating Venereal Diseases, on February 26th, when Lord Sydenham was in the chair, a London and Home Counties Branch of the National Council was formed. In seconding the principal resolution, which was moved by the Bishop of Southwark, Sir Malcolm Morris said that to ensure the success of the policy of the National Council, which was to diffuse knowledge, it was necessary to subdivide the country so as to get at the people who suffered, explaining to them that they could obtain free, sympathetic, and secret treatment, and that it was ridiculous to suffer in privacy. Sir Edward Henry, Chief Commissioner of the Metropolitan Police, said that about 80 per cent. of the force were married, and that the number of cases of venereal diseases was relatively small. Instructions had been issued that any man infected in the past should apply confidentially and undergo a test to ascertain whether he was free. Every recruit was given full instructions on the subject, and he thought that the services of the police should be utilized in passing on the information it was desired to impart to the public. An executive council was elected, including the following members: The Bishop of London, Sir Thomas Barlow, Sir John McClure, Sir Malcolm Morris, the Earl of Ancaster, Mr. E. B. Turner, Mrs. A. C. Gotto, Dr. Hogarth (Bucks), Colonel Smith (City), Dr. R. V. Clarke (Croydon), Dr. W. Benton (East Ham), Dr. Charles Saunders (West Ham), Lieutenant-General Sir Francis Lloyd, the Rev. Dr. Lidgett, Mgr. Brown, Sir Edward Henry, Dr. J. J. Pringle, Dr. James Sequeira, Mr. A. Moro, and Mr. H. S. Fox.

LONDON COUNTY COUNCIL.

The London County Council, on February 20th, agreed to the appointment of two additional women doctors, to be designated "medical inspectors," under the Midwives Act, making four such inspectors in all. It was stated that during the past two years the growth of the work had been very great, and it had not been possible to investigate fully all cases of puerperal fever and ophthalmia neonatorum, nor to make the necessary routine visits of inspection to midwives. If certain suggestions made by the Central Midwives Board with regard to the visitation of cases of stillbirths were adopted the work would be still further increased. The Council agreed to a motion that the increase in the routine visits paid to midwives and the full investigation of special cases and the visitation of cases of stillbirths were matters of urgent importance.

The number of applications for registration of establishments for massage or special treatments granted up to the end of 1916 was stated to be 848. Nineteen orders had been issued refusing registration, and in all these cases either the applicants had not appealed or the appeals had failed.

The Public Health Committee reported that on December 31st last 120 adults and 319 children were undergoing residential treatment for tuberculosis, that the offer of the Metropolitan Asylums Board of twelve beds for adult advanced cases at the Downs Sanatorium and thirty-two beds for children at the Northern Hospital had been accepted, and that schemes for the dispensary treatment of tuberculosis submitted by the Battersea, Camberwell, Hampstead, and Stoke Newington Metropolitan Borough Councils, and a joint scheme submitted by the Islington, Finsbury, and Shoreditch Councils, had been approved.

Scotland.

THE Morison lectures before the Royal College of Physicians of Edinburgh will be delivered on March 5th and 9th, at 5 p.m. on each day, by Dr. Edwin Bramwell. The subject of the course is the neurology of the war; the first lecture will deal with gunshot wounds of the peripheral nerves, and the second with shell shock and some effects of head injuries.

INSANITY AND THE WAR.

Dr. C. C. Easterbrook, Physician-Superintendent of the Crichton Royal Institution, stated in his report for 1916 that out of 157 patients received during the year the illness of 19 was traceable to the war. Two were women, one a mother broken with grief by the death of her son, and the other an excitable adolescent, a Belgian refugee. Of the seventeen men, four were nervous subjects, of whom two had worried unduly over their rejection for the army, and two had succumbed from overwork; all the other cases gave a history of anterior mental defect. In all the cases the common factor of nervous and mental instability was present, and the war, by influencing the lives of the individuals in various ways, had exposed and accentuated their inherent weakness.

THE CARNEGIE TRUST.

At the annual meeting of the Carnegie Trust, held in London on February 21st, Lord Balfour of Burleigh was elected chairman in succession to the late Earl of Elgin, whose work in that capacity many eulogistic references were made. The secretary, Sir William S. McCormick, reported to the meeting that under the quinquennial scheme, which came into operation on October 1st, 1913, a total sum of £203,250 was allocated among the universities and extramural colleges in equal annual amounts; of this sum £160,750 was applicable towards the cost of new buildings and permanent equipment, £21,250 for endowments and lectureships and other general purposes, and the remainder for libraries. St. Andrews University received £37,500; Aberdeen, including £40,000 to the University, £43,250; Glasgow, including £50,000 to the University, £60,250; and Edinburgh, including £52,500 to the University, £62,250. The operations of the Trust under the research scheme had again been affected by the war, since four Fellows and twelve scholars had been engaged on war duty. One Fellow and two scholars had fallen. Since the commencement of hostilities special arrangements had been made to hold over the awards of ten Fellows and twenty-four scholars in the hope that they might be able to resume work later. The ordinary activities of the laboratory of the Royal College of Physicians had to a large extent given place to special work. The expenditure under the scheme of endowment of research for the year 1915–16 was £5,200. The expenditure on assistance and payment of class fees had, owing to the depletion of the universities of Scotland of many of their students, declined from £33,800 paid on behalf of 3,246 individuals in 1914–15 to £29,400 on behalf of 2,445 individuals in 1915–16. Lord Balfour of Burleigh said that in response to the invitation of the Treasury the trustees had parted with their remaining bonds of the United States Steel Corporation in exchange for War Loan securities, which the Trust now held to the amount of £2,558,000. Its income was increased by something over £9,000. On the motion of Sir Donald MacAlister, three new trustees were elected to fill death vacancies. He pointed out that of the six trustees who had died since the formation of the Trust, four were scientific men, and as it was one of the functions of the Trust to encourage scientific research it was expedient to fill up the existing three vacancies by nominating scientific men of eminence. It was accordingly resolved to appoint Sir J. J. Thomson, President of the Royal Society, one of the most distinguished physicists in the world; Sir David Prain, Director of Kew, a representative of biological science; and Sir George Beilby, head of the Royal Technical College of Glasgow, now acting as the adviser of the Government on branches of science which might be applied to the purposes of the war.

The annual report of the Carnegie United Kingdom Trust, which was presented by the Executive Committee

trustees at a meeting on February 24th, was unanily adopted. It referred to the continuance of the of encouraging the formation and maintenance of and special libraries, and the establishment of a al library for students in Tavistock Square, London. regard to the inquiry into the problem of the cal welfare of mothers and young children, Dr. E. W. and Dr. Janet Campbell were making a report for and and Wales, Dr. W. Leslie Mackenzie for Scotland, Dr. E. Coey Bigger for Ireland.

d Balfour of Burleigh, at the meeting of the Carnegie on February 21st, said that the conversion of bonds at Trust, by the Dunfermline Hero Fund, the Dunine Trust, and the United Kingdom Trust, involving onversion of approximately five millions into very y six millions, was the largest single transaction the Bank of England had ever been responsible for short a time.

Ireland.

Regius Chair of Physic in the University of Dublin.

Board of Trinity College, acting on the unanimous nation of the University Council, has appointed or John Mallet Purser, M.D., Sc.D., F.R.C.P.I., to the is Professorship of Physic in the University of Dublin. or Purser was for more than twenty years Professor e Institutes of Medicine in the School of Physic, and ician to Sir Patrick Dun's Hospital. At the present ent he is honorary consulting physician to Sir ck Dun's and to Dr. Steevens's Hospital, Dublin. Purser's return to the School of Physic will give the est pleasure to many generations among the medical uates of the university.

Asylum Inmates for Farm Labour.

the last meeting of the Mayo Asylum Committee the ent medical superintendent, Dr. Ellison, suggested a number of the most intelligent male patients should red out, as tillage labourers, to persons living within a s of one mile of the asylum. Their labour would be r the immediate supervision of an attendant, and d only be available for persons who could not provide necessary labour to comply with the requirements of llage scheme. An order was made directing that all sylum surplus labour should be utilized in the manner sted by Dr. Ellison.

Food Control in Irish Public Institutions.

February 12th the Local Government Board of nd sent a circular to the clerks of all unions calling tion to Lord Devonport's recent appeal, and emizing the urgent need for some curtailment in food mption both by officials and inmates of the various houses. It was, the Board considered, essential that guardians should make every endeavour to comply the requirements, that the rations allowed at nt to the various officers admitted of considerable ction in the directions indicated, and the guardians ld, therefore, take into consideration their curtail for the period of the war. In cases of married als with families the guardians might allow the ns to remain as at present, provided the quantities not in excess of those mentioned by the Food Con- er. As regards the dietary of the inmates, the d expressed its belief that it would be quite ble to effect some economy, specially in bread; ace of the bread and tea allowed for breakfast and er it might be advisable to substitute porridge and at one meal, and the bread, when allowed, might be ced at each meal by an average of one ounce a head. necessary these reforms are will at once be apparent glance at the rations and dietary of the Dublin unions. instance, in the North Dublin Union the first-class ns for officers weekly is: Bacon 4 lb., butter 2 lb., 7 lb., sugar 3½ lb., milk 7 quarts, mutton 7 lb., toes 14 lb. A healthy inmate's allowance of bread is 6 oz. reakfast, the same quantity for dinner if no potatoes are d, while some have 6 oz. and others 4 oz. for supper; her words, from 10 oz. to 18 oz. of bread a day. At the Rathdown Board a guardian stated that the inmates only got a very meagre diet and their scale of rations could not be cut down. The letter was marked "read and noted." On the other hand, the South Dublin guardians ordered the master to report to the board as to the number of officers in the workhouse and their families, and the scale of diet. The letter was referred to the Finance Committee, and it was directed that the medical officers should attend and give all the information they could. The Lurgan Board of Guardians has approved the recommendations of a committee appointed to revise the dietary scale. It had made reductions in the allowances to officers and inmates amounting to £335 16s. 4d. a year. The infirmary dietary was not touched, though the allowance of bread for the sick inmates was 7 lb. a head a week. The Dungarvan Board of Guardians has decided to reduce the bill of fare for the workhouse inmates and officials, especially with regard to meat and bread. A committee was also appointed to inquire into the consumption of coal. The Clones Board of Guardians has adopted a reduced scale of rations for the indoor officials and the inmates based on a report submitted by the medical officer and a committee of the guardians. The Joint Committee of the Richmond District Lunatic Asylum has received a report from a subcommittee stating that the quota of the Food Controller in respect of meat and sugar for patients had already been adopted. Considerable reductions in the scale of diet given to attendants and officials were recommended, though even this reduced diet would be in excess of Lord Devonport's scale. The subcommittee recommended that this scale should continue in operation until September 1st, when it should be subject to revision. The report was adopted.

Slum Children of Dublin.

Mr. Conway Dwyer, ex President of the Royal College of Surgeons of Ireland, at the annual meeting of the St. Patrick's Nurses' Home, in proposing the adoption of the report, said he thought the committee was to be congratulated on the admirable manner in which, with a seriously depleted staff, they had succeeded in carrying on the work. The nurses did not entirely restrict their work to their nursing duties. They explained by example and precept the value of cleanliness, showed how a room ought to be kept, how food should be cooked, and how children should be attended to. The first humanizing and civilizing influence that had penetrated into the homes of the very poor had been brought by the nurses of that and similar institutions. The report stated that 608 children were attended to, and that forty were sent for treatment to the Cheeverstown Convalescent Home for little children. One of the most common and deplorable sights to be met with in Dublin streets at all hours were multitudes of children of both sexes in a state of dirt and squalor, and presenting the stigma of disease, induced by exposure and starvation. For them there was no school attendance, or if there was any machinery for compelling school attendance it was a dead letter. The need for the work done by St. Patrick's Home was, to a very large extent, due to the bad housing accommodation for the poor. Improvidence and intemperance contributed very materially to bring about a low level of life, but the dominant factor was the miserable housing accommodation of the poor, and nothing would be right until that was altered. Charitable institutions were treating the symptoms, but it was fatal to take symptoms for causes, and until the whole question of the housing of the poor was radically dealt with there would be abundant scope for voluntary charitable effort. Dr. Ella Webb, in seconding the resolution, said that something could be done to help child welfare without waiting for the conclusion of the war. Without adding to the staff or to the cost, the nurses could help a good deal. Dublin was receiving £1,000 out of the £5,000 grant to Ireland, and that money had been augmented by the corporation. There were eight nurses engaged by the Infant Aid Society and at the babies' clubs or clinics, and she suggested that the St. Patrick's nurses could help them to get into touch with the newly-born infants in Dublin.

Orthopaedic Hospital of Ireland.

The report presented to the annual meeting of the Incorporated Orthopaedic Hospital of Ireland stated that

during the past year 170 children were treated—145 for deformities and 25 for tuberculous bone disease. Of these, 74 were discharged cured, 20 were discharged improved, 4 were incurable, 1 died, and 71 remained in hospital on December 31st. The average number of beds in daily occupation was 75, and the average residence of each patient was 161 days. In addition a large number of patients were treated in the dispensary attached to the hospital. During the discussion of the report the opinion was strongly expressed that the work of the hospital during the last forty years had resulted in reducing the number of cripples in the country, and a tribute was paid to the memory of Surgeon Swan, who founded the hospital and had devoted his life to its success.

Victoria.

BRITISH MEDICAL ASSOCIATION (VICTORIAN BRANCH).

AT the annual general meeting of the Victorian Branch of the British Medical Association held in December, 1916, Professor R. J. A. Berry was unanimously elected president for the ensuing year, and Drs. McAdam and Ernest Jones were unanimously elected vice-presidents. The retiring president, Dr. A. V. M. Anderson, delivered a valedictory address of more than ordinary interest, as he touched upon many of the far-reaching results which the war is likely to have on the medical profession as a whole and in all parts of the empire. The keynote of his address, which has already been published *in extenso* in the *Medical Journal of Australia*, was that "sacrifices, even in time of peace, will be required of us."

REPORT ON TUBERCULOSIS.

The Federal Committee concerning causes of death and invalidity in the Commonwealth has just published its report on tuberculosis. Although the Australian rate for all forms of tuberculosis in 1914 was 45.1 per cent. lower than the rate for England and Wales, the Committee is of opinion that the existing tubercle rates of Australia are unsatisfactory, in view of the ample spaces available, the separate housing of families, and the high wages current. With further investigation the Committee hopes that tubercle in Australia, if not abolished, may be brought down to the rate that would correspond with the excellence of Australia's opportunity. The Committee makes various recommendations, the most important of which is probably that dealing with the greater need in Australia for co-ordinated investigation both in the laboratory and in the field.

THE ANNUAL RATE OF GROWTH OF THE BRAIN.

The investigation into an as yet entirely unknown subject, the annual rate of growth of the brain on the living subject between the ages of 6 and 21 years, has recently been inaugurated by Professor Berry and some of the students of the Anatomy Department. The research, which promises to be of more than ordinary interest, has already entailed the examination of 1,700 boys and girls. These comprise State and public schools and university students, controls having been sought amongst the mentally deficients and the deaf and dumb. The Director of Education has been sufficiently interested in the preliminary results submitted to him to promise the co-operation of his department for the further prosecution of the work, and arrangements are now completed for a considerable extension of the investigation during the current academic year. Although the physical method alone can hardly predict individual intelligence from the size of the head, it seems certain that in the cases of abnormally small or large headed children much valuable information can be placed in the hands of the mental expert and the educationalist. As Mr. S. D. Porteous, of the Bell Street State School for mentally deficient children, has taken an active part in the investigation there is, for the first time, the necessary combination of the physical and mental experts.

THE UNIVERSITY OF MELBOURNE.

Dr. W. A. Osborne, Professor of Physiology in the University of Melbourne, has been granted short leave of absence, and is at present in England. Dr. Gilbert Lamb lecturer on histology and embryology, has resigned h appointment, to the regret of all associated with him. it has been found impossible at the present juncture to the vacancy, the work is to be temporarily divided betwe Dr. P. G. Dane, of the A.A.M.C., and the Professor Anatomy.

Correspondence.

THE PROPHYLAXIS OF VENEREAL DISEASES

SIR,—I should be glad of space to reply briefly to certa criticisms evoked by my letter in your issue of Februa 17th, p. 243.

My reference to patients who come seeking advice abo abortion has been misunderstood by two correspondent It was never meant to imply that the act of prostitution a crime. According to some of your correspondents, it a necessity; according to others, unnecessary and a against the welfare of the race. One gentleman sugge it is a necessity for women and not for men; a priv correspondent informs me it is so profoundly necessa for men and unnecessary for women that women cann understand the question at all. The fact that it is no crime is the one point on which we are all likely to agr My contention that Mr. Elliot's dicta would compel medical practitioner "equally to give the benefit of his sk to the ladies who come for information how to procure ab tion," etc., had reference solely to his original statemen "We come to you for your medical knowledge . . . alon we come to you to draw the interest on that capital kno ledge of which you are the trustees, and you have no rig or option to withhold from us the proceeds and benefits medical knowledge, which are our property and our d at least as much as they are yours." It is now admitt (February 24th) that the layman's property in his medi adviser's knowledge is not absolute but ceases if the kno ledge is sought for a purpose which "society has det mined is a crime." Society, then, and not the individ layman, as appeared from Mr. Elliot's first letter, is to be t arbiter. Now English society has not decided, and I tr never will, that the act of prostitution is a crime, but does very definitely penalize persons who facilitate t traffic (such as the keepers of disord rly houses, and t proprietors of music halls frequented by prostitutes), a furthermore it has refused to make arrangements for t comfort or convenience or safety of persons who choose frequent prostitutes. In refusing to give prophylac advice the doctor may be right or wrong, but is only act in the closest accordance with Mr. Elliot's chosen arbit society. The reasons for the refusal of the doctor and "society" are probably the same—neither believes th any known method exists whereby prostitution can made physically safe either to prostitutes or th customers; neither can see prostitution as anything l morally and physically damaging to the community; b decline to sponsor illusory safeguards.

In conclusion, may I respectfully urge Mr. Elliot, whose views on syphilis and hell I so heartily concur, t to waste time in tilting at the almost non-existent peo who want to preserve either? In a wide experience religious and philanthropic circles I have only met t such persons. One was a drunken policeman in the Ou Hebrides and the other the inmate of a lunatic asylu both were foemen unworthy of his steel.—I am, etc.,

February 26th. THE EDITOR OF "DOWNWARD PATHS."

SIR,—Dr. Charles W. Cathcart, in his letter published your issue of February 24th, says: "Physiological law evidently transgressed by prostitution, by adultery, checks to conception, and by artificial abortion."

I wish to enter an emphatic protest against the unfa ness of bracketing checks to conception with the oth things enumerated in his indictment. Probably Dr. Ca cart did not deliberately intend to prejudice the quest of the use of "checks," but such a juxtaposition is c tainly calculated to have this effect, and is frequen employed for this very purpose.

I would suggest to Dr. Cathcart that it is also unfai say that the use of checks "transgresses" any phys

ogical law. It would be fairer to say that it "defeats" or "counteracts" the physiological law under which human beings, like all other animals, tend to multiply beyond the means of subsistence.—I am, etc.,

Leicester, Feb. 26th. C. KILLICK MILLARD.

SIR,—The outspoken letters which have been appearing under the above heading make one feel that this terrible war will have some great compensations. My point of view in the matter is briefly as follows: Prostitution will only be reduced to the perhaps unavoidable minimum when there comes to be practically universal early marriage—that is, when young adults are all made aware of birth control and encouraged to marry. Early marriage, with spacing out of births, is the physiological law. During the war, however, we shall surely best be serving the race by rapidly reducing the number of young men who get infected with venereal diseases, and this will only be done by giving them information on prophylaxis.—I am, etc.,

London, S.W., Feb. 23rd. BINNIE DUNLOP, M.B., Ch.B.

HOT SAND BATHS FOR JOINT AFFECTIONS.

SIR,—I am interested in Dr. Gordon's letter in regard to "hot sand as a preparation for massage and manipulation," published in the BRITISH MEDICAL JOURNAL of February 10th, 1917, page 191, and I thoroughly endorse his advocacy of the use of hot sand baths in the treatment of certain affections of joints, such as the knee, ankle, elbow, or wrist, particularly in country districts where radiant heat is not available, or for poor persons who cannot afford more expensive measures. The following is the technique I have employed:

A large cubical biscuit tin should be filled with perfectly dry, fine silver sand, and the whole heated to as high a temperature as can just be borne by the hand immersed in it. If the application is to be made in the evening, a convenient way of warming the sand without special expense is to have the tin with the sand in it standing close to the kitchen fire, or on the range, if there is one, all day. The application is made when the patient is lying upon a convenient couch, or in bed, and by means of cushions, or other similar contrivances, a sort of hollow or pool is arranged all round the knee or other part that is to be treated. Under the knee and over the surrounding cushions is placed a strong mackintosh sheet. The hot sand is then poured out of the tin gently and steadily on to and all round the knee, so as to fill up the space between it and the surrounding cushions, and also to cover the knee itself as deeply as possible. The limit to which the sand should be poured on depends upon the degree of pressure that the affected joint can stand. Sand being very heavy, an acutely painful joint can only stand a thin layer over it, whereas a less painful more chronically affected joint may be covered to a depth of two or three inches or more. Sand retains its heat for a long time; but to prevent it cooling more rapidly than necessary, it is wise to throw over the whole a second mackintosh sheet to keep in the heat.

One of the chief factors in the treatment is the active hyperaemia produced around the diseased part, just as in the case of Bier's hyperaemia and of the treatment by means of radiant electric heat. One supposes that when more blood is brought to the affected region in this way, the natural powers of recovery are stimulated and relief given. It has been suggested—and I think with some degree of probability—that the hot sand bath acts in another way also, and this is by reason of the heated sand becoming electrically charged, which may have some obscure but real influence upon the parts. At any rate, the relief that may be afforded by means of so simple a treatment continued for half an hour at a time, once, or possibly twice a day, is sometimes very remarkable, and the method has the advantage of being applicable even in the poorest households in which radiant electric heat baths for lesions of this kind may be entirely out of the question.

When the joint or other part has been embedded in the hot sand for twenty minutes or half an hour and the time for stopping the application has come, the uppermost mackintosh sheeting is taken off, the limb carefully raised out of the sand, allowing as much of the latter as will fall off from it to do so. The underneath mackintosh sheet, with the sand upon it, is then lifted up bodily and removed, the sand being put back into the tin ready for use in a similar way on the next occasion. A basin of hot water is placed beneath the knee, and the particles of sand that have stuck to the perspiring skin are gently removed by pouring hot water over the part by means of a soft sponge. The limb can then be dried gently with a hot towel, and any other application that may be thought desirable may be made to the part.—I am, etc.,

London, W., Feb. 20th. HERBERT FRENCH.

THE EFFECTS OF CINEMATOGRAPH DISPLAYS UPON THE EYES OF CHILDREN.

SIR,—In your issue of February 17th Mr. Bishop Harman states, as a "recent observation," that some school children who have defective vision are found on examination "to have nothing the matter" with their eyes, and this loss of vision, he thinks, is due to cinematograph displays.

In the BRITISH MEDICAL JOURNAL for 1907 there is an article by Dr. H. Wright Thomson on the results of an examination of over 50,000 children in the Glasgow schools. These results showed that while the percentage of ocular defects remained constant all over the city, the percentage of defective vision showed remarkable variation. In the poorest and most closely built districts the percentage of children with defective vision was 53, and in the open districts, in the outskirts of the city, it was only 20 per cent. The principal cause of this defect is imperfect environment.—I am, etc.,

The Lord Derby War Hospital, Warrington, Feb. 20th. J. A. WILSON.

THE MOBILIZATION OF THE PROFESSION.

SIR,—I have been much interested in the various "reflections" which have from week to week appeared. One hears very different accounts of the work entailed in the R.A.M.C. Some men give one to understand that at times it is really arduous, whilst one gathers from others that three or four are apt to gather together and kill time with cigarettes and cards. Probably both accounts contain a large proportion of truth.

There seems, however, to be one striking difference between civil and military work. The civil doctor is expected to go without any holidays in war time, and is, in fact, regarded as somewhat of a slacker if he is not doing collar work all the time, whereas it is quite pretty to see how often we may greet our khaki friends on leave. This fact brings me into complete accord with "Rural M.D." in his happy suggestion of taking a well-earned and much-needed holiday by joining the R.A.M.C. On the other hand, one must admit that the civil doctor would have a very easy time (now and always) were the average case he is called to anything but trivial. A night call is, I think, in nine cases out of ten due to nothing more terrible than flatulence, but the fact remains that one is disturbed just the same, so that the aggravation is doubled and therefore the fee ought to be trebled.

The moral is that more civil doctors could be spared if the ridiculous inconsiderateness of the civil population could be curbed by the imposition of fees to fit the offence. But the millennium is not yet.—I am, etc.,

February 25th. BRISTOL.

Universities and Colleges.

UNIVERSITY OF LONDON.

War List.

THE Vice-Chancellor of the University of London will be glad to receive the following information with regard to members of the University who have served or are serving in His Majesty's Forces: Name (Christian names in full), College and University career, rank and regiment or other unit, particulars of service (including war distinctions, and whether wounded, retired, or fallen), with dates. Replies should be addressed to "University of London War List, South Kensington, London, S.W."

Obituary.

ROBERT HENRY KINSEY, M.R.C.S., L.S.A., J.P.,

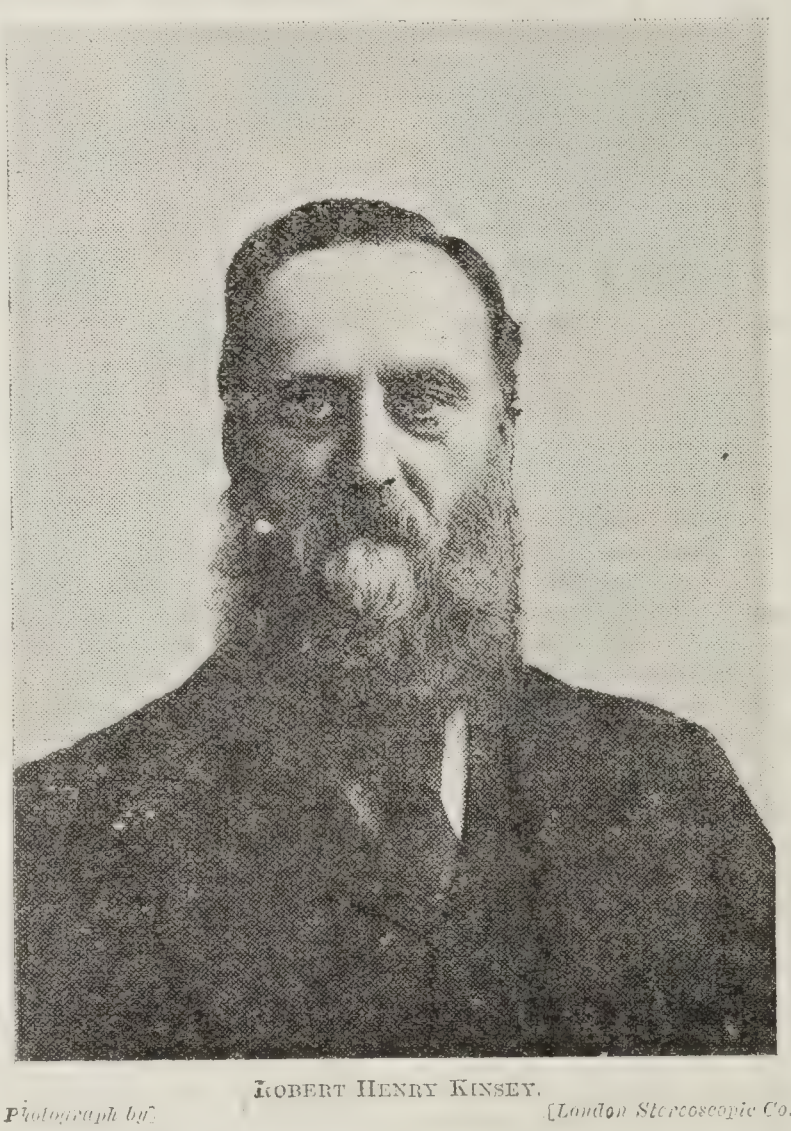
CONSULTING SURGEON TO THE BEDFORD COUNTY HOSPITAL.

WE regret to record the death of Mr. Kinsey, which occurred at Bedford on February 18th in his 77th year.

Mr. Kinsey, the son of Robert Bancroft Kinsey, Deputy Inspector-General of Hospitals, Bombay army, was born in 1840, and was educated at Emmanuel College, Cambridge, and St. Bartholomew's Hospital, London. He took the diplomas of M.R.C.S. in 1865 and L.S.A. in 1866, and became House-Surgeon at St. Bartholomew's. A severe attack of septicaemia caused him to relinquish this post and take a voyage to Australia in a sailing ship. On his return he became assistant to the late Dr. Drage of Hatfield.

He settled in Bedford in 1867, and devoted himself most assiduously to work there until he retired in 1899, at a somewhat early age, owing to increasing deafness. He was appointed surgeon to the Bedford General Infirmary and Fever Hospital (now the County Hospital) in 1874, and held the post until 1896, when he was appointed consulting surgeon.

About thirty years ago he was President of the South Midland Branch of the British Medical Association, and in 1897 of the Bedford Medical Society. He took a great interest in all local medical developments such as the rebuilding of the County Hospital, the building of the Bedford Provident Dispensary, and the Bedfordshire Trained Nurses' Institute and Nursing Home.



ROBERT HENRY KINSEY.

Photograph by [*London Stereoscopic Co.*

He was a Justice of the Peace for Bedford, and for a few years a member of the Town Council. He was a member of the Council of the British Medical Association from 1899 to 1910, and was a member, and afterwards chairman, of the Central Ethical Committee. He was a most regular attendant at the meetings both of the Council and of the Committee, and his equable temperament, calm judgement, and conciliatory attitude made him a most valuable member. He gave a great deal of time and thought to his duties as chairman of the Ethical Committee—a position which calls for just those qualities by which Mr. Kinsey was most distinguished.

His kindly cheerful disposition and keen mental vigour brought him a very extensive practice of the best kind in and around Bedford. He was exceedingly fond of children, although he had none of his own; and children and young people always liked him. He gave all his energies to the demands of a very busy practice, and the conscientious discharge of these duties left him little time for relaxation. This, combined with a natural modesty as to his professional attainments, prevented his contributing to current literature the results of his great practical experience. He had great powers of organization, and when he wanted anything done, or was a candidate for any appointment, he acted with the greatest promptitude, and obtained his wishes whilst another man would have been considering the ways of obtaining them. He was an excellent fighter for any cause he considered worthy.

No account of his career would be complete without some reference to his private life. He was a man who stood firm for everything that was upright and honourable, and was quite fearless of consequences. He was a great friend of the poor, unceasing in his efforts for the amelioration of their condition, a strong advocate of temperance in the best and widest sense, untiring in everything that tended to the welfare of the town in which he had lived for nearly fifty years, and which is now deprived of the advice, counsel, and example of one of its noblest citizens. He was a devout and sincere Christian, having a passion for righteousness, with his face set steadfastly to the Eternal Goal. Devotion to his Master, Christ, led him to put his whole strength into the furthering of the missionary cause. For this he prayed and worked, and gave to the utmost of his ability. His example and enthusiasm have stirred very many, who learnt from him to put foreign missions, medical, industrial, and evangelistic, in the foremost place.

FRANCIS POOLE LANSDOWN, M.R.C.S.Eng., L.S.A.,

CONSULTING SURGEON TO THE BRISTOL GENERAL HOSPITAL; SURGEON LIEUT.-COLONEL V.D. (RETIRED).

MR. F. POOLE LANSDOWN died on February 12th, 1917, after a short illness, at Lydford, Devon, at the advanced age of 83. He was the second son of Mr. J. Goodale Lansdown, a well known surgeon in his day, and one of the earliest surgeons to the Bristol General Hospital. He was one of the first batch of boys who entered that now famous school, Marlborough College, on its opening term. His medical education was received at the Bristol Medical School and Guy's Hospital; he obtained the diplomas of M.R.C.S. and L.S.A. in 1856. Shortly afterwards he was appointed house-surgeon to the Bristol General Hospital, and from that time until the day of his death, a period of sixty years, he was connected with its surgical staff. He became surgeon to the hospital in May, 1861, and was for many years senior surgeon, retiring in April, 1893, when he was appointed consulting surgeon. He was for a time lecturer on anatomy in the Bristol Medical School, and for many years held the post of surgeon to the General Post Office at Bristol and several posts under the Charity Trustees.

Mr. Lansdown was a past president of the Bath and Bristol Branch of the British Medical Association and also of the Bristol Medico-Chirurgical Society, the highest honours in the control of the local profession. These facts will serve to indicate the respect and esteem in which he was held by his professional brethren, among whom he had passed the active period of his life.

In early days Mr. Lansdown was an ardent volunteer, serving as surgeon to the Gloucester Volunteer Artillery, and reaching the rank of Lieutenant-Colonel.

As a surgeon he was a calm, careful, and skilful operator, taking no unnecessary risks. His was a sound opinion in surgical cases, and he kept himself well abreast of the surgery of the day. He saw the dawn of anaesthetics, antiseptics, and abdominal surgery, but retired too early from surgical work to be able to avail himself of the more modern aids to surgical diagnosis. He was by nature modest and unassuming, yet steadfast and firm of purpose; he was punctual and methodical in the performance of his many and varied duties; a good friend, a loyal, agreeable and most helpful colleague, as the writer of this notice can affirm after being associated with him professionally for nearly fifty years.

The Lansdowns have been a landmark in the surgical story of Bristol for the best part of a century, three generations—father, son, and grandson—having each in their order been surgeons to the Bristol General Hospital, the present representative on the surgical staff of that institution being Major Robert Lansdown, who is busily and exclusively engaged in civil and military surgery, now abundant in Bristol in consequence of the great war. The latter's son, a graduate of Cambridge, is now a student Guy's Hospital, a goodly family record, from a surgical int of view, to the fourth generation.

Mr. Lansdown had for many years a considerable practice in Clifton; he retired about twelve years ago, and went to reside at Lydford, on the fringe of romantic Dartmoor. In this respect two lines from a great poet, who was also a doctor, might appropriately be quoted:

> How blest is he who crowns in shades like these
> A youth of labour with an age of ease.

Mr. Lansdown was twice married, and leaves a widow, two sons, and one daughter, to keep his memory hale and green.

WILLIAM PRICE, M.B.LOND.,

CARDIFF.

By the death of Dr. Price, on January 11th, South Wales lost one of its most distinguished medical men. He was born in the Vale of Glamorgan in 1845, and received his first educational training at the Eagle School, Cowbridge, Glamorganshire. From there he went to the Normal College, Swansea, a private school conducted by Dr. Evan Davies, and celebrated for the number of eminent medical men it gave to the Principality, including Sir John Williams, Bt., and the late Dr. Thomas D. Griffiths of Swansea, a past president of the British Medical Association. The school had an excellent chemical laboratory, the teacher being Professor Greville Williams, F.R.S., the discoverer of so many products from coal tar. After his school days, in accordance with the custom then, Dr. Price was articled to Dr. William Edwards, a well-known physician in Cardiff, and afterwards entered University College, London. His record there was excellent, and after taking the diplomas of M.R.C.S. and L.M. in 1868, he became demonstrator of anatomy at the college, and afterwards was appointed obstetric assistant and physician assistant at University College Hospital. He took the diploma of L.S.A. in 1869, that of L.R.C.P. in 1870, and graduated M.B.Lond. in that year. Dr. Price was sought highly of by Sir William Jenner, and when the latter was away on holiday frequently acted as his locumtenent. This gave him an opportunity of becoming acquainted with some of the celebrities of the day. For a quarter of a century he remained one of the leading consulting physicians in South Wales. He had "an infinite capacity for taking pains," and as a diagnostician was almost unerring. Dr. Price was never inclined to lead, often difficult to draw, but any remarks he did offer were always shrewd and thoughtful. He was one of the most generous of men, and gave freely towards all philanthropic and charitable funds. The Prince of Wales's Fund, the Royal Medical Benevolent Fund, and the B.M.C.A. work all profited by his liberality. He was particularly interested in the medical school in connexion with the University College of South Wales and Monmouthshire, Cardiff, and was at one time a prominent member of its council. It did not come as a surprise when it became known that he had bequeathed a princely gift of some £20,000 to that institution. May the writer suggest how fitting it would be were some permanent memorial of such a sympathetic patron placed in the college?

About fifteen years ago Dr. Price retired from practice, and went to live on the coast near Southerndown, Glamorganshire. He was fond of his native Wales, and in particular of the Vale of Glamorgan. The restless sea had an irresistible attraction, and the sound of the breakers was sweet music to his ears. In his retirement Dr. Price loved to entertain old friends, and was never happier than when recounting with them reminiscences of former days. He will be missed by all who admire skill, knowledge, generosity, and true Christian broadmindedness. His religion was not moored to the dogmas of any particular sect. He respected all sincere conviction. "Blessed are the pure in heart, for though their eyes be closed they shall see God."

DR. WENDELL REBER, a leading ophthalmologist of Philadelphia, died on December 30th, 1916. He was born at St. Louis in 1867, and took his degree at Jefferson Medical College in 1893. He was professor of ophthalmology at the Polyclinic Post-graduate School and ophthalmologist to the General and several other hospitals of Philadelphia. He was a Fellow of the American College of Surgeons, a former president of the American Academy of Ophthalmology and Otology, and the American representative on the council of the Oxford Ophthalmological Congress.

DR. CHARLES FRANCIS WITHINGTON, of Boston, who died recently, took his doctor's degree at Harvard in 1881, and for many years was physician to the Boston City Hospital. From 1886 to 1891 he was an editor of the *Boston Medical and Surgical Journal;* to this and other periodicals he made many contributions. In 1914 he was elected president of the Massachusetts Medical Society.

DR. MACKER, the oldest member of the medical profession in Alsace, died recently at Colmar at the age of 85. He studied medicine in the old faculty of Strasbourg, where he had Boeckel and Koeberlé among his fellow students. As hospital interne he worked under Sédillot, Schutzenberger, Forget, Hirtz, and Tourdes. After graduation he settled at Colmar, where he was appointed surgeon to the hospital. He acquired a very large practice, his field of work extending from the Vosges to the Rhine.

THE LATE COLONEL T. H. HENDLEY.—Captain Charles F. Harford, R.A.M.C., writes of Colonel Hendley, C.I.E., of whom an obituary notice was published on February 10th, 1917, that he was much occupied during the later years of his life in connexion with the medical departments of various missionary societies. At the time of his death he was Chairman of the Medical Board of the Church Missionary Society, of which he had been a member since 1904. It is difficult to speak too highly of the painstaking way in which he sought to solve the many problems associated with the health of Europeans in tropical climates and the class of candidates who should be accepted for work in these climates. His great experience of official work in India enabled him to look at the medical side of missionary work from a somewhat different standpoint to those of his colleagues whose chief experience had been in connexion with the missionary societies, and his contributions to the discussion of these subjects were exceedingly helpful. He was an active member of the Association of Medical Officers of Missionary Societies, and one of the subjects in which he was particularly interested was that of furloughs. He was most anxious to see a more uniform system adopted by the missionary societies generally, and certain proposals initiated by him are now before the societies. Shortly before the outbreak of the war he was compelled to give up his attendance at the Medical Board of the Church Missionary Society owing to serious ill health, but when several of his colleagues were called away for military service he again offered his services, and thus was still doing active work up to within a short time of his death.

The Services.

INDIAN MEDICAL SERVICE.

THE Secretary of State for India again gives notice that the absolutely indispensable needs of the Indian Medical Service are being met by nomination by the Secretary of State. Applicants, who must be over 21 and under 32 years of age, may apply for particulars to the Secretary of the Military Department, India Office, Whitehall, S.W.

EXCHANGE.

LIEUTENANT, R.A.M.C.(T.C.), in Ambulance on Western Front, wishes to exchange with M.O. on hospital train or barge—Address, No. 750, BRITISH MEDICAL JOURNAL Office, 429, Strand.

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

Medical News.

MR. ERNEST LANE, F.R.C.S., will deliver the Harveian Lecture of the Harveian Society of London on "The Treatment of Syphilis" at the Stafford Rooms, Tichborne Street, Edgware Road, W., on Thursday, March 22nd, at 8.30 p.m.

OF the fourteen successful candidates for sanitary inspectors under the Public Health (London) Act, 1891, held by the Sanitary Inspectors' Examination Board, all were women; ten were trained at the National Health Society and two each at the Royal Sanitary Institute and the Bedford College for Women.

ON January 20th the Kansas City Board of Health opened a school of hygiene and sanitation where all persons in the employ of the health department will receive instruction. At the opening session, the State veterinarian, Dr. D. F. Lucky, gave an address on animal tuberculosis and other diseases transmissible to man.

THE Children's Code Commission has introduced in the Missouri State Legislature thirty-five bills providing for the enactment of laws for the protection and care of children, destitute and neglected, defective and delinquent, for child workers, State medical inspection of school children, protection of the eyes of newborn infants, and for the establishment of county boards of child welfare.

A COURSE of advanced lectures on infant care to teachers, infant welfare workers, mothers, and others, has been arranged by the National Association for the Prevention of Infant Mortality and the Welfare of Infancy. They will be given at the College of Ambulance, Vere Street, Oxford Street, on Mondays at 5.30, commencing on March 12th. Further particulars can be obtained from the secretary at 4, Tavistock Square, W.C.

AT the beginning of 1914 a French Sanitary League was founded, under the auspices of the Ministry of the Interior, to wage war against flies, rats, and other animals carrying parasites which cause epidemic diseases. At present the fly is the chief object of pursuit and a campaign by cinema film has been opened in 3,000 establishments. The film was recently presented to MM. Malvy and Justin Godart at a meeting held at the Ministry of the Interior under the presidency of Dr. Raphaël Blanchard.

THE hearing of the case, commonly called the White City case, terminated on February 28th in a verdict of guilty against four of the accused. The charge was of conspiring to defeat the provisions of the Military Service Acts by enabling persons liable to military service wholly or partially to escape from that liability. One of the medical men, W. B. Caley, and two of the other defendants were convicted also of conspiring to accept gifts. Caley was sentenced to eighteen months' imprisonment in the second division. The other medical man, A. R. Dow, who was not charged with accepting gifts, was sentenced to nine months' imprisonment in the second division. It was stated by counsel during the hearing that there was no imputation against Dr. Dutch, whose name had been mentioned in the case.

IT has already been announced in the JOURNAL that after thirty months of suspended animation the *Archives Médicales Belges* was to awake to new life under the auspices of the Inspector-General of the Belgian Health Service, with the assistance of the Ministry of War. Its object is to centralize the scientific work done by the Belgian profession, especially in military medicine in its largest sense. The first number, dated January, which has just reached this country, contains papers by Dr. Derache on wounds of the knee-joints by projectiles, by Dr. Renaux on malaria in Flanders, and by Dr. R. Sand on social medicine in England. Dr. Marchal contributes a critical review of work done on lesions of the peripheral nerves. The progress of general medicine is shown by a number of abstracts of foreign literature. Altogether our contemporary presents a highly creditable appearance in its revived form, and is a striking testimony to the unsubdued spirit of Belgium. The journal is under the direction of a committee, which includes the names of Drs. Depage, Willems, de Marneffe, and other leading members of the Belgian profession; the editorial secretaries are Drs. Stassen and J. Voncken. It is published monthly by J. B. Baillière et fils, 19 rue Hautefeuille, Paris, and the annual subscription for foreign countries (other than France) is 18 francs. A point of particular interest is that it is printed by war cripples at the Belgian Military Institute of Professional Re-education, at Port-Villez, in the north of France: we heartily congratulate them on the excellence of their workmanship.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITI MEDICAL JOURNAL are requested to communicate with the Offi 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATI and JOURNAL are: (1) EDITOR of the BRITISH MEDI JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerra (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Adv tisements, etc.), *Articulate, Westrand, London;* telephone, 26 Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westra London;* telephone, 2634, Gerrard. The address of the Irish Of of the British Medical Association is 16, South Frederick Str Dublin.

☞ *Queries, answers, and communications relating to subje to which special departments of the* BRITISH MEDICAL JOURN *are devoted will be found under their respective headings.*

ANSWERS.

MUCOUS COLITIS.

IN answer to "Perplexed," who asked for any suggestion the treatment of a man aged 60 who suffers from muco colitis, we print the following communications we ha received:

Dr. A. Campbell (Uley, nr. Dursley) suggests R A sulphuric. aromat. mxv, tr. opii mvij, decoct. haematox. ad to be taken three times a day. He adds that the use of the l tube with 20 oz. distilled water in which is dissolved 20 gra of silver nitrate occasionally proves an immediate cure; t solution must be warm.

Dr. A. T. Brand (Driffield) recommends the inquirer consult the article on the subject in *Clinical Memoran* (Baillière and Co.).

Dr. W. J. Midelton (Bournemouth) relates the case of a l aged 63 who had suffered many years from this conditi chronic arthritis, and bronchial catarrh. "She was th nervous, and almost afraid to eat. At times she passe series of large loose motions containing mucus. At ot times she was constipated. I treated her by means of multi superficial acupuncture and counter-irritants, which I rely to rid the system of germs and toxins and improve functi of all kinds. The result was most gratifying. The pati gained weight and strength, and for several years her mala have troubled her very little."

LETTERS, NOTES, ETC.

THE FUTURE OF BRITISH SPAS.

WE regret to find that in the annotation on Dr. Fortescue Fo paper on British spas, published in the JOURNAL of Febru 10th, p. 201, a reference of Llandrindod Wells was accidenta omitted. The spa was mentioned by Dr. Fox an representative from Llandrindod was invited to take p in the discussion.

FEES FOR ATTENDANCE ON PATIENT IN A COTTAGE HOSPITAL.

AT the Wood Green County Court on February 26th, Dr. F. Wiles, a member of the honorary medical staff of the W Green Passmore Edwards Cottage Hospital, sued Wal King for five guineas, fees for attending his son whil patient in the hospital. The son met with a motor cycl accident in June, 1915, and elected to go to the hospital. T plaintiff, who had been on the rota of the hospital for twe one years, was on duty that week, and availed himself of t council's privilege to take the son in as a private patient a attended him for three weeks. The father asked for the b but when it was presented refused payment, tendering a s of two guineas for certain outside attention. It was s mitted for the defendant that as the doctor was on the h pital staff he could not recover fees for attendance in t hospital; the plaintiff had made a contribution of £5 to t hospital funds, and tendered two guineas for the doct services in the street when the youth met with the accid and the consultations after his discharge. His honour, Ju Cluer, said he was bound to find that the doctor was justi in making the charge, and that there was no evidence tha was an unreasonable amount; he therefore gave judgem for the plaintiff for the amount claimed.

SCALE OF CHARGES FOR ADVERTISEMENTS IN T BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payabl the British Medical Association at the General Post Office, Lon No responsibility will be accepted for any such remittance no safeguarded.

Advertisements should be delivered, addressed to the Mana 429, Strand, London, not later than the first post on Wednesday morn preceding publication, and, if not paid for at the time, should accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *restante* letters addressed either in initials or numbers.

Observations
ON
THE TREATMENT OF GUNSHOT WOUNDS OF THE ABDOMEN.

WITH A SUMMARY OF 500 CASES SEEN IN AN ADVANCED CASUALTY CLEARING STATION.

BY

A. L. LOCKWOOD, M.C., M.D., C.M.McGILL, C. M. KENNEDY, M.B., F.R.C.S.,

R. BUTE MACFIE, M.B., F.R.C.S.EDIN.,
CAPTAINS R.A.M.C.(T.C.),

AND

S. F. A. CHARLES, M.D., LIEUTENANT R.A.M.C.(T.C.).

MOST articles published on wounds of the abdomen begin with a treatise on the effect produced by various projectiles, at various distances, on various organs, and evolving theories therefor. Ignoring this interesting study, we are going to describe "gunshot wounds of the abdomen" as seen in some 500 cases admitted to an advanced casualty clearing station while active fighting was in progress, referring particularly to their condition on arrival in hospital, indications for operative or palliative treatment, anti operative and post-operative measures carried out, and the results and conclusions arrived at.

GENERAL CONDITIONS UNDER WHICH PATIENTS WERE RECEIVED AND TREATED.

Our unit was the most advanced casualty clearing station in the area during the time when these cases were admitted. In quieter times our cases usually arrived within five hours after being wounded, but these 500 cases were admitted while active fighting was in progress—the time when most cases of such a nature occur—and because of the difficulties of evacuating wounded and the rush of other cases in an advanced casualty clearing station during such pressure the treatment of wounded and the results should be studied entirely separate from wounds seen during ordinary trench warfare. During the time which this article embraces our cases never arrived earlier than nine to ten hours after being wounded, usually it was twelve to fifteen hours and often thirty-six to forty hours.

Cases of "gunshot wounds of the abdomen" came in rushes with a large number of other cases—in one night, between 9 and 12 p.m., 36 cases of abdominal wounds were admitted, besides 60 other cases requiring operation; this was at the end of four days' continual rush of wounded. Two tables were devoted to these 36 abdominal cases, and 32 of them were operated on—the remaining four were moribund and died some hours after admission; all were intra-abdominal conditions.

Obviously cases treated under such conditions must be studied quite apart from cases treated in areas where active fighting is not continually being carried on. Working under this pressure, 710 cases diagnosed as "gunshot wounds of the abdomen" were admitted, of which 500 were considered here as intra-abdominal lesions; 356 were operated upon and 144 left; of the 144 left, 6 were not operated on because, in spite of the fact that they were apparently through-and-through wounds, they did not present sufficient intra-abdominal disturbance to make operation necessary; the remaining 138 were moribund and all died within a short time after being admitted, except 12 cases which developed faecal fistula—8 of these were evacuated and 4 died.

RESUSCITATION ON ADMISSION.

Every case admitted complaining of abdominal pain, with a wound anywhere near the abdomen, was at once seen by a surgeon; if examination suggested operation and the man's condition would permit, he was prepared for immediate operation; if not, he was sent to a ward, where resuscitatory measures were at once carried out—salines (subcutaneous or intravenous), warmth, elevation; if restless, omnopon (Roche) (1 ampoule) or camphor in oil. (C. M. K. did not use camphor in oil.) As soon as the patient's condition would allow he was taken to the theatre.

We were impressed by the marvellous effect of resuscitatory measures in apparently hopeless cases, but we early recognized that one must not delay too long, for in many cases the golden opportunity is lost, and the patient sinks again in spite of the most heroic efforts. A very high percentage of cases required resuscitation, but we found that those requiring resuscitative measures before going to operation must be very carefully differentiated from those requiring immediate operation.

DIAGNOSIS BEFORE OPERATION.

Each individual case must be carefully examined, but we soon learnt to recognize certain conditions:

Pain.

Pain may vary from a dull ache—general or local—to a sharp stabbing type. It is not diagnostic of any particular organ, but in certain areas of the abdomen it suggests certain conclusions.

Wounds involving the diaphragm (perhaps also the pericardium or lower chest) give a very acute pain in the epigastrium; wounds involving the stomach also give acute epigastric pain, especially if large or allowing escape of the acid contents.

Wounds of the large bowel seem to give more pain than those of the small bowel, but neither are characteristic.

Wounds of the liver do not cause characteristic pain, but are often associated with wounds of the diaphragm, when the patient has severe pain, more right-sided.

Wounds of the kidney often induce severe pain, elicited especially on deep palpation over the kidney area.

Pain, especially of a dull aching nature, is often present in the lower abdomen, due to retention of urine, and may be relieved by micturition or catheterization.

Pain varies with the interval since being wounded, and with the individual, and is frequently masked by morphine, previously given to enable the patient the better to stand the journey to hospital.

Site of the Wound.

The site of the wound is not the most important factor in answering the question whether there is abdominal involvement. A foreign body may enter almost any part of a man's anatomy and in its course traverse or lodge in the abdomen. We were impressed by the great percentage of shell wounds of the buttocks and back that enter the abdomen. A very high percentage of wounds involving the kidneys, colon (ascending or descending), liver, and spleen, enter behind a line drawn from the mid-axilla to the anterior superior spinous process of the ilium. A very high percentage of wounds of the caecum and pelvic colon were produced by foreign bodies which entered through the buttock.

Particular attention should be directed to the entrance and exit wounds where both exist, the plane of abdominal involvement, and the possible structures traversed.

The Pulse.

Usually a man wounded in the abdomen with a pulse over 120 was not fit to stand prolonged anaesthesia; such a case required rest, elevation, warmth, salines, and camphor in oil; but haemorrhage must be suspected, and, if such is the case, immediate operation is the only course left. Whether to operate at once or not depends on the pulse—it is *the* factor in determining when to operate.

Rigidity of the Abdomen.

This was of most important diagnostic value, and varied from a general rigidity of the entire abdominal wall to a small localized area; this latter is often seen in late cases with lateral wounds involving the colon only, where a faecal fistula or nicely walled-off faecal abscess had already formed. Most cases of abdominal involvement had some degree of rigidity, but we early recognized what we termed the "flaccid abdomen," which was usually associated with extensive laceration of the small intestine, sometimes large intestine, and rarely in cases with much intra-abdominal haemorrhage seen generally not later than ten to twelve hours after being wounded, and before general peritonitis had become established. The "flaccid abdomen" soon became recognized as a very bad prognostic condition.

The degree of movement of the abdomen on respiration was an important sign. A freely moving abdomen had no

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

marked intraperitoneal injury, but the limitations of movement, like the rigidity, varied from the entire abdomen being wholly or partially immobilized to immobilization of one side or the lower abdomen only. Wounds of the pleura and lung occasionally evinced some abdominal rigidity—usually incomplete—and greatly complicated the diagnosis of a purely abdominal condition.

On inspecting the abdomen the contour was of diagnostic value, but it was necessary to determine whether the roundness and bulging was that of marked haemorrhage or of late cases with a paralytic condition and gaseous distension of the intestine, or due to general peritonitis.

The Facial Aspect.

This is important to note; one needs to see a few cases only to recognize the anxious, drawn expression of a patient suffering from intraperitoneal injury, especially when profuse haemorrhage has occurred.

Vomiting.

Vomiting had usually occurred if the stomach or intestine had been perforated, or if there had been much intraperitoneal haemorrhage from any source.

The Urine.

The condition of the urine should be noted, whether blood-stained or not.

The Typical Picture.

The typical picture of a case of "gunshot wound of the abdomen" requiring operation was this: A history of a wound usually somewhere about the abdomen and received some hours before; pain in the abdomen; rigidity of the abdominal wall, general or local; limited abdominal movement on respiration; vomiting, and a pulse varying from 90 to 120.

OPERATION.

Preparation.

At once, or as soon as the patient's condition would allow, he was taken to the operating theatre; preferably he had had omnopon and scopolamine (1 ampoule) one hour before, and had been washed; the abdomen had been shaved, and he had been dressed in clean pyjamas.

The anaesthetic used was combined hot ether and oxygen, administered through a modified Shipway apparatus. Saline was given subcutaneously throughout the operation. The skin was prepared with picric acid, 1 per cent. in spirit

Long sleeved gowns (changed between operations), gloves, mask, and cap were worn by operator and assistant, but one was usually obliged to operate alone.

Diagnosis of Site and Extent of Injury at Operation.

The wound was usually excised first, and the exact track of the missile explored. If the excised incision could not be carried on to a paramedial one, or was not in itself sufficient, the peritoneum was at once closed, or the track carefully packed; used instruments, towels, gloves, etc., discarded; the skin again cleaned up, fresh towels used, and in nearly every case a paramedial incision made, high or low as required.

Occasionally the costal incision was used, but only when the spleen, hepatic flexure, or splenic flexure was involved; it is seldom necessary even in such cases, but may be preferable in very thick walled individuals, or in through-and-through wounds well out to the flank.

If the wound was in front and could be excised widely and continued into a paramedial incision this was done, but unless we could excise widely we made a paramedial incision. In either case we cleaned up the incision with Dakin's solution, smeared 1 per cent. formalin in vaseline over the edges of the incision, and covered over the exposed edges with American dental tissue or green-protective tissue, extending it from the peritoneum to the towels, not leaving any exposed skin.

If haemorrhage had been profuse we first examined the spleen, liver, and large vessels. If the site of the wound suggested injury of a particular organ this was examined first, then the small intestine, large intestine, and stomach.

We found it wiser to go over the small intestine 10 to 12 in. at a time than to deliver the whole bowel at once, but if the patient's condition was bad and great speed necessary it proved wiser to deliver the entire length of bowel externally, keeping it continually covered with gauze wrung out of hot 1 per cent. saline, and then go over it carefully with as little manipulation as possible. We found that it was rough manipulation rather than the exposure which affected blood pressure so markedly. Before returning the bowel we carefully wiped it over with gauze wrung out of hot 1 per cent. saline, being careful to avoid any saline entering the abdomen.

Wounds of the ascending and descending colon must be carefully searched for; many wounds of these parts occurred posteriorly and were drained posteriorly, no intraperitoneal extravasation had occurred; too hasty examination may tear the reflected peritoneum, break down the barrier, and allow faecal matter to infect the entire abdomen; these cases demanded the greatest care in examination.

In stomach cases the anterior and posterior walls were carefully examined.

Haemorrhage from mesenteric vessels was the most common source of intra-abdominal bleeding, and the bleeding point required careful searching for and ligation.

Treatment of Injured Organs.

Intestines.—Having located the perforations or lacerations, results proved that resection should always be avoided if possible; double resection should practically never be done. Purse-string suture, reinforced with Lembert suture, was possible in most cases, and gave the best results. We found that resection was only justifiable or necessary in cases with many perforations or lacerations over a short section of gut, where too much constriction would result after purse-stringing; where the bowel was too traumatized to recover; or where there was such extensive destruction of the mesentery that the blood supply to that particular portion of gut was cut off. Shock was undoubtedly greater in resection than in purse-stringing.

Before purse stringing the perforation or laceration, if the edges were frayed we excised them. We inserted a purse-string of No. 0 catgut to control the bleeding from the freshened edges if necessary, then a purse-string of linen and, if necessary, reinforcing Lembert sutures. This applied to small intestine, large intestine, and stomach equally.

In every case of resection end-to-end anastomosis was done. Although it required a little more care in choosing the site of the resection and in approximating the severed bowel, it was quicker and more satisfactory than the lateral anastomosis.

Stomach.—Only once was resection, or rather partial resection, of the stomach necessary, and that in a case in which a large section of the greater curvature had been completely blown away. A gastro-enterostomy was not found necessary in any case.

Rectum.—Wounds involving the rectum intraperitoneally were always closed by purse string and Lembert suture, but in these cases, if the perforation or laceration was low down, and especially if it was one that tracked backwards through the posterior wall of the rectum or the floor of the pelvis, we brought up the posterior parietal peritoneum in front of the sutured area so as to occlude the traumatized area entirely from the abdominal cavity.

Splenectomy or nephrectomy was done only when the organ was grossly lacerated or was bleeding at the time. Even when the kidney was bleeding and badly lacerated, if the patient's condition was precarious we found it wiser to check the bleeding with hot saline compresses, and then remove these and quickly pack the bleeding surface with rubber tissue—with gauze in the folds of the tissue if necessary, but not in direct contact with the kidney substance. In many cases nephrectomy was necessary later, but the patient was in a much better condition to stand such interference. A certain percentage of lacerated kidneys entirely recovered. Where the ureter was found to be severed, the kidney lacerated, and urine escaping into already infected tissue, we found the results disastrous unless nephrectomy was done at once.

Liver.—Wounds of the liver were treated expectantly if the liver alone was involved, but if the wound was a nasty jagged one, carrying bits of dirt and cloth with it, or if there was the least question of a hollow viscus being also involved, the abdomen was opened. The wound in the liver was examined, the track if gaping and dirty was thoroughly cleaned out with gauze wrung out of Dakin's solution, then with gauze wrung out of saline, and if widely gaping or if it had been particularly dirty we drained the track

with a soft rubber tissue drain which was brought up to the abdominal wall, and led through a large rubber tube which just traversed the belly wall. Haemorrhage from the liver was controlled by deep catgut sutures in clean lacerations, and by the rubber tissue packing when there was much loss of liver substance or a widely gaping track. We found that gauze should never be packed into the liver substance, nor should a rubber tube be introduced into a track in the liver. We found that the resistance of the liver to infection was very low, and that the "toilet" of the liver wound must be most thorough and careful.

Foreign Bodies.—We early recognized that no foreign body should ever be left in the substance of the liver, spleen, or kidney; regardless of the immediate consequences, it must be removed at once.

Mesentery.—Tears of the mesentery and omentum should always be carefully repaired with catgut.

Diaphragm.—Perforations and lacerations of the diaphragm were very common in these "gunshot wounds of the abdomen." They were particularly fatal if not closed, but if closed the immediate effect was remarkable, and the mortality-rate from such conditions greatly lowered.

Immediately on opening an abdomen, if the diaphragm was found to be torn, it was repaired—at once the breathing became easier, the patient took on a better colour, and the pulse improved. A certain percentage of cases were seen with an extensive wound along the costal margin of the abdomen, with the diaphragm torn away from its attachment and flapping freely. In most cases it was possible to repair the tear, even if an antero-posterior tear also existed, repairing the latter first and then bringing out the free edge and anchoring it with heavy catgut to the fascia under the ribs. The immediate effect was marvellous, and the prognosis was good regarding the diaphragmatic condition. Death certainly ensued if something was not done to repair the diaphragm.

Intestinal Paralysis.—In many cases of small bowel injury, if seen later than ten to twelve hours after being wounded, we found gaseous distension, particularly of the proximal part of the gut. In such cases especially, post-operative paralysis occurred; this dangerous and troublesome complication practically never occurred after we adopted the practice of gently milking the gut from just above the distended area to just below the sutured area before closing the abdomen.

Extravasation.—In cases with considerable extravasation of bowel or stomach contents abdominal lavage with hot saline was tried with disastrous results. The patient's condition at first improved, breathing was deeper, colour was better, pulse fuller, and for a few minutes the hot saline seemed to have done good, but, often even before the patient left the table, his blood pressure fell, breathing became shorter, the pulse became quicker and more thready, and he left the table, in the majority of instances, in a badly shocked condition. Escaping faecal matter, stomach contents, or blood clot was carefully wiped out with gauze wrung dry out of hot saline. We found it unwise to allow any free saline whatever to enter the abdomen or to be left there; it has no value and necessitates drainage.

Some one has said that no surgeon has started to do abdominal surgery till he quits draining the abdomen; this is particularly true in "gunshot wounds of the abdomen." Following repair of the small intestine, the only drainage used was a large split tube into the pelvis, which was aspirated every six hours for thirty-six hours and then removed.

After repair of the stomach or colon, if there had been considerable extravasation, or if the tissue about the sutured area had been badly contused or was exceptionally dirty, we draped soft rubber tissue about it to entirely exclude it from the rest of the abdomen; a split or well perforated tube was passed down the centre of the tissue, just to, but not touching, the repaired surface, and this tube was aspirated every four or six hours and removed as early as possible, usually not later than seventy-two hours. The pelvic drain was not used in these cases unless there was considerable free blood in the belly, or in late cases, where we often found a free serous effusion collected in the abdomen. After repair of the pelvic colon, the rubber tissue drape with central split tube was used for the first forty-eight hours. Faecal abscesses, seen usually in late cases, and most commonly about the ascending or descending colon, were carefully mopped up and the rubber tissue drape with central split tube used and aspirated every six hours. Unprotected gauze was never left in the abdomen.

Closure of Abdomen.

The abdominal incision was closed in layers, but if the tissues were particularly oedematous or suggestive of gas gangrene, the peritoneum only was closed, silkworm gut sutures being introduced through the skin and rectus sheath, but not tied for twenty-four to forty-eight hours, till the danger of gas gangrene was probably over. If the incision was completely closed a wide mastisol dressing was applied to seal off the incision from soiling from without, and to relieve tension on the sutures (except in C. M. K.'s cases). A binder was applied, care being taken not to roll the patient from side to side, but to raise his buttocks carefully; the slightest turning or moving of the patient often caused an immediate fall of blood pressure.

The patient was sent back to a warm bed, and, if his condition would permit, the head of the bed was at once elevated.

POST-OPERATIVE TREATMENT.

In post-operative treatment we were guided by the following principles:

Position.—Exaggerated Fowler's position as soon as the patient had recovered from the anaesthetic and his general condition would permit.

Omnopon (Roche), one ampoule, if restless.

Warmth.

Aspiration of pelvic tubes (except in C. M. K.'s cases).

Heart Failure.—Nothing was found to be of any use to whip up the failing heart except camphor in oil.

Pituitrin given intramuscularly in half-ampoule doses, repeated as indicated, was valuable to induce peristalsis, but was a most dangerous drug if given to patients suffering from shock or collapse with the blood pressure already much lowered.

Eserine was found useful to induce peristalsis.

Saline (7 oz.), with or without brandy (1 oz.), per rectum three-hourly, was given as routine in all cases for two or three days.

Food.—If the lesion was a stomach one nothing was given by the mouth except one teaspoonful of tepid barley water, or raisin tea, for the first two or three days. In lesions of the large intestine, or ileum, small repeated sips of barley water or raisin tea were given for the first twenty-four to thirty-six hours, and gradually increased in quantity.

Vomiting or hiccough was usually quickly relieved by small sips of brandy or champagne, or 8 minims of tincture of iodine in 1 drachm of water. The stomach tube was occasionally necessary. These were very serious prognostic conditions and could not be ignored.

Thirst.—As has been found with the dirty dry tongue of typhoid, chewing-gum was most valuable to sweeten the mouth, clean the tongue, and allay thirst.

Rectal feeding was not found necessary or advisable, and milk by the mouth was avoided.

Post-operative paralysis was never seen where the intestine had been thoroughly milked at operation, but, in occasional cases seen late, where thorough milking of the bowel had not been possible, pituitrin or eserine, the rectal tube passed high up, and gentle abdominal massage relieved most cases.

RESULTS.

The earlier the patient could be operated on the better were the results. As late as twenty hours after being wounded operation was considered the best course, and our results justified us. Judgement in cases seen after twenty to thirty hours presented much greater difficulties; there was always the danger of increasing the damage by manipulation during the operation.

If general plastic peritonitis had developed, interference was not only valueless but dangerous; we were content to insert a pelvic drain, or, if a faecal fistula was found, to mop it out carefully and drain.

A few cases were operated on by us after thirty hours, but usually to drain a faecal collection. One case, done forty-six hours after being wounded, was found to have two perforations of the small intestine; there had been very little faecal extravasation, and the loop of bowel was found partially adherent to the anterior abdominal wall; the perforations were carefully purse-stringed, the foreign body removed from the greater omentum, and, without further exploration of the abdominal contents, the

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

abdomen was closed without drainage. The patient made an uninterrupted recovery; he had lain out in a shell hole for forty hours, and also had a compound fracture of the right leg at the ankle.

Cases that had already developed faecal fistulae, walled off and draining freely, were not interfered with otherwise than to clean up the wound, and that without an anaesthetic if possible, lest vomiting or restlessness after operation should break down the early adhesions. We recognized that faecal fistulae should not be closed too early, and they often close spontaneously, and too early interference too often ended disastrously.

Autopsy was performed in some 80 per cent. of the cases which ended fatally without operation having been attempted; haemorrhage was found as the commonest cause of death.

Shock accounted for most of the deaths within the first twenty four hours after operation. General peritonitis was rare in cases operated on not later than twelve hours after being wounded, but later than that was present in about 50 per cent. of deaths.

Gas gangrene, especially of the posterior abdominal wall, was the cause of death in at least 30 per cent. of cases.

After nephrectomy and splenectomy death from embolism and infarct occurred in a small percentage of cases.

In about 8 per cent. of cases operated on wounds of other parts of the body caused death.

Conclusions.

Our conclusions from observation of these 356 operated cases and the 144 non-operated cases are these:

1. Wounds of the large vessels to the liver, kidney, and spleen are fatal before they can come to operation. Wounds involving the pancreas are seldom seen on the operating table, by reason, perhaps, of the contiguity of the organ to large vessels; only one case was seen here. In that a foreign body was lodged in the tail of the pancreas.

2. Antero-posterior wounds, especially in the epigastrium, are least dangerous, and wounds from side to side, especially low down, are dangerous.

3. Wounds of solid viscera are not so dangerous as those of hollow viscera.

4. Cases that come to operation with a herniated loop of bowel exposed do badly, especially if much bowel is lying exposed; the same is true when the stomach is partially herniated.

5. Wounds of the stomach, colon, and especially the small intestine, require exploration, but in posterior wounds involving the colon the greatest care should be taken not to convert a retroperitoneal condition into an intraperitoneal one.

6. Wounds of the liver and kidney should be carefully determined as such only, and then treated expectantly, doing no more than exploring and cleaning up the track, and not that if probably a through-and-through wound produced by an undistorted rifle bullet or shrapnel ball.

7. Avoid resection.

8. End-to-end anastomosis is preferable to lateral when resection is essential.

9. Wounds of the diaphragm are not necessarily fatal, nor even to be greatly feared. Careful repair gives excellent results.

10. Multiple drainage tubes are rarely necessary, and always to be avoided if possible.

11. Abdominal lavage is a dangerous practice.

12. Never leave free, unprotected gauze in the abdomen.

13. Paul's tube should be relegated to the museum, except in very rare cases.

14. Speed in operating is essential, not only for the benefit of the patient, but because of the demands of scores of less vitally wounded men requiring attention during an active offensive.

15. Resection for faecal fistula is better done late when the patient is in England.

During a heavy rush of work the question inevitably arises, "Is it possible to give every case of penetrating wound of the abdomen the chance of operative interference, without prejudicing the chances of others who are wounded less vitally?" The answer is obvious—that granted an adequate and sufficient personnel, surgeons, nursing sisters, trained orderlies, etc., it should be feasible to deal with every case as its urgency demands, and that no class of case should be relegated to expectant treatment when surgical interference is indicated and capable of giving a wounded man even a remote chance of life.

The results which have been quoted in this article are, we submit, proof that abdominal surgery is at least as profitable—in a military sense—as the surgery of compound fractures of the femur, skull, etc.; the patients who recover make a rapid and complete recovery and become a satisfactory military asset sooner than the men who have been disabled by compound fractures of the skull, etc.

It was our aim at this casualty clearing station to operate on every case whose need of surgical interference did not warrant the delay his move to the base by ambulance train would involve.

Table of 356 Cases of Penetrating Abdominal Wounds.

Class, and Organ Involved.	No.	Per Cent.	Recoveries. No.	Recoveries. Per Cent.
Hollow Viscus (42.40 per cent.):				
Small intestine	57	16.01	33	57.89
Large intestine	38	10.67	20	52.63
Small intestine and large intestine	24	6.74	5	20.80
Stomach	4	1.12	3	75.00
Stomach and small intestine	1	0.27	0	
Stomach and large intestine	1	0.27	1	100.00
Bladder	13	3.65	5	38.46
Bladder and small intestine	8	2.24	4	50.00
Bladder and large intestine	4	1.12	1	25.00
Solid Viscus (17.13 per cent.):				
Liver	29	8.14	20	68.96
Kidney	13	3.65	9	69.23
Spleen	4	1.12	3	75.00
Kidney and spleen	4	1.12	3	75.00
Kidney and liver	3	0.84	2	66.66
Omentum	8	2.24	8	100.00
Pancreas	1	0.27	1	100.00
Hollow and Solid Viscera (3.65 per cent.):				
Liver and small intestine	4	1.12	1	25.00
Liver and large intestine	5	1.40	3	60.00
Kidney and large intestine	4	1.12	3	75.00
Stomach, liver, and spleen	1	0.27	0	
Diaphragm (14.04 per cent.):				
Uncomplicated by abdominal injury	10	2.80	5	50.00
Complicated by wound of—				
Liver	10	2.80	7	70.00
Spleen	8	2.24	3	37.50
Spleen and kidney	4	1.12	1	25.00
Stomach	4	1.12	0	
Kidney	1	0.27	0	
Stomach and liver	5	1.40	1	20.00
Liver and kidney	3	0.84	0	
Spleen and stomach	3	0.84	0	
Kidney, stomach, and liver	1	0.27	0	
Spleen and spine	1	0.27	0	
General (22.44 per cent.):				
Haemorrhage, non-visceral	9	2.52	1	11.11
Intraperitoneal, non-visceral	23	6.46	23	100.00
General peritonitis	21	5.87	1	4.76
Gas gangrene	24	6.74	4	16.66
Abdominal and spinal	3	0.84	0	
Total abdominal operations performed	356		171	48.03

Note.—Wounds of the bladder are included in these figures only when intraperitoneal. The treatment will be described in a later paper on "Gunshot Wounds of the Bladder and Rectum." Suture of the laceration without drainage of the bladder itself was the treatment adopted.

A Clinical and Experimental Study OF THREE HUNDRED PERFORATING WOUNDS OF THE ABDOMEN.

BY

J. FRASER, M.D., F.R.C.S.E., CAPTAIN R.A.M.C.,

AND

HAMILTON DRUMMOND, M.B., F.R.C.S.E.,

CAPTAIN R.A.M.C.

(*Report to the Medical Research Committee.*)

[WITH SPECIAL PLATE.]

SOME time ago we published a summary of some seventy cases of perforating wounds of the abdominal cavity. We have had an opportunity of increasing our experience of these cases, and the following article is an embodiment of that experience. We have been more especially induced to publish this further summary as increased experience has taught us that we must alter certain opinions expressed in our earlier publication. The paper is introduced by an account of a small amount of experimental work which we have done in attempting to throw light on certain clinical problems which perplexed us. There follows a consideration of various abdominal wounds as they occur locally. The paper concludes with a summary of general remarks.

EXPERIMENTAL SUMMARY.

In the course of carrying out the clinical work, part of which is here summarized, certain problematical points arose, and it was with a view to throwing light on these points that the experimental work was undertaken. We shall summarize the work in the form of question and answer.

1. *What are the relative values of end-to-end and lateral anastomosis?*

Belgian hares were used in these experiments. End-to-end anastomosis was unsatisfactory, as rabbits operated on in this way all succumbed after an interval of from two to three days. *Post mortem* there was found to be very marked distension of the intestinal canal above the site of suture.

When lateral anastomosis was employed the results were different — no complication developed, and the animals, without exception, made good recoveries. One naturally asked oneself the question, What was the feature in end-to-end anastomosis which rendered its results so unsatisfactory? There was no complete obstruction, for, both at operation and in later investigation, intestinal contents could always be forced through the opening; it was observed, however, that in end to-end anastomosis the mucous membrane surrounding the line of suture became intensely oedematous; therefore a series of experimental operations were performed in which the mucous membrane was snipped away as closely as possible around the open lumen of the gut. The anastomosis was completed in the usual way, but fewer Lembert sutures than usual were necessary. When the anastomosis was performed in this way the animals invariably recovered.

From these experiments one would draw the following conclusions: Lateral anastomosis is, on the whole, a more reliable proceeding than end to-end anastomosis; the results of end to end anastomosis are rendered more satisfactory when the mucous membrane at the open ends of the gut is clipped away.

2. *When distension of the intestine occurs after resection and anastomosis of intestine, is it influenced by the presence of blood in the peritoneal cavity or by peritoneal infection?*

A series of experiments was performed in which the gut was anastomosed either by end-to end (modified method) or by lateral anastomosis. After each anastomosis was completed, a measured quantity of blood was spilt into the peritoneal cavity together with contents of small intestine.

In every case the animal made an uninterrupted recovery, and no paretic distension resulted. It would therefore appear that haemorrhage *per se* or combined with intestinal infection is not responsible for subsequent intestinal distension.

3. *What are the relative values of the different forms of lateral anastomosis?*

There are two possible ways in which lateral anastomosis can be accomplished. The ends of the bowel may be laid side by side and the anastomosis so completed. (See Diagram 1.) Or the two ends of the bowel may be brought so that the two blind ends are in apposition. (See Diagram 2.)

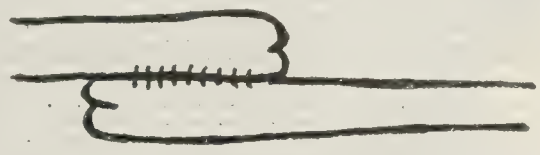


Diagram 1.

The second method of approximation may sometimes be of great value—for example, in cases in which it might be impossible to secure the first mentioned approximation. A series of experiments was carried out to explore the values of these methods.

The various anastomoses were completed and the parts examined at varying later periods. No difference could be detected between the two methods—both did equally well. A further series of experiments was carried out to prove whether there was a tendency in either of these forms of anastomosis for intestinal contents to collect in the blind ends of the gut. For these experiments the animals were fed upon food in which small shot were mixed.



Diagram 2.

It was found that in the first method of anastomosis (Diagram 1) there was a greater tendency for arrest of contents to occur than in the second method.

Both forms of anastomosis give excellent results. As far as the arrest of intestinal contents in the blind ends of the gut is concerned, the second method of anastomosis (Diagram 2) is even preferable to the first method.

Illustrations of these experimental anastomoses are shown in the Plate (Figs. 1 and 2).

4. *To what extent is devascularization of the gut possible without damaging the vitality of the gut?*

This is a matter of great clinical importance, as in the cases of wounds of the abdomen one is constantly meeting with examples of tearing of the mesentery, and it is frequently debatable whether or not resection should be done.

Devascularization of the Colon.

In a large rabbit 1 inch of colon was devascularized by ligaturing four vessels of supply close to the edge of the gut.

A later examination showed the devascularized colon to be apparently unaltered, but, as though in protection, a portion of omentum had come down from above and surrounded the related bowel.

In a second animal the devascularization was carried a step further, and five vessels were ligatured, implicating 1½ in. of colon. Later examination showed no change in the bowel.

In a third animal a still more extensive devascularization was performed. The colic artery was ligatured just below the origin of the inferior mesenteric artery, and again all four vascular loops passing to the bowel. The involved bowel at once became of a bluish colour; it was returned to the abdominal cavity, and the wound closed. Three days later the colon was examined, and found normal in every respect.

These experiments showed that the colon rapidly establishes a collateral circulation, and that a very considerable devascularization must occur before the vitality of the gut is interfered with.

Devascularization of the Small Intestine.

By ligature of the mesenteric vessels 1 in. of bowel was cut off from its direct blood supply. After some days no change was apparent in the related loop.

In a second experiment 1½ in. of gut was devascularized and returned. Forty-eight hours later the area was examined. The section of bowel the vessels of which had been ligatured was found surrounded by an omental graft.

After removing this graft the underlying small intestine was found to be gangrenous—there was a central perforation about ⅛ in. in size surrounded by an edge of gangrenous bowel ½ in. wide.

The experiment was repeated in another animal—a cat—the

vitality of the intestine of which is notorious: 1½ in. of the small intestine was devascularized; at the end of forty-eight hours the related bowel showed a complete ring of gangrene at the centre of the related gut.

From these experiments one may draw the deduction that the colon bears devascularization more readily than the small intestine, and that both portions of bowel stand really a very considerable devascularization without their vitality becoming affected. From clinical experience we believe that 3 in. to 4 in. of the small intestine may be devascularized without gangrene ensuing, and from experimental evidence we believe that even a greater degree of colon may be affected without gangrene resulting.

5. *Omental grafts. What are their uses and values?*

In cats the omentum was completely removed from its attachments and left free in the peritoneal cavity; the animals died within a week to ten days. They gradually wasted away, becoming more and more drowsy and refusing food.

In a second group of experiments the omentum was completely freed from its attachments, but coincidentally the peritoneum over a loop of small intestine was scratched and partially removed. No ill result followed the operation, the animals were scarcely any worse than after a simple laparotomy—the omentum apparently obtained a new blood supply from the loop of bowel to which it became attached.

The Behaviour of Free Omental Grafts on the Normal Intestine.

Small portions of omentum loosely tacked on to the normal bowel wall by a fine suture of fine thread were practically unaltered when examined a few days later. After three days the graft was found to be adherent with fine adhesions to the loop of bowel to which it had been applied—there were no adhesions to the surrounding loops. Six days after application the grafts no longer adhered to the bowel wall to which they were originally attached except at the points at which the sutures had been applied. There was no further attempt at fixation except where the graft was actually secured by sutures. It was noticed that after fixation of the graft the fatty elements in its constitution gradually lessened.

Omental grafts applied to damaged intestine showed that when the damage produced sepsis the graft was of little value; this was demonstrated by the following experiments. The small intestine of a dog was crushed with artery forceps, severely damaging all coats of the bowel wall. A free omental graft was applied to the bowel damaged in this way, while another portion of the intestine similarly damaged was left free in the peritoneal cavity and the abdomen closed. The animal was upset and ate little for three days; after that period it began to improve.

Laparotomy five days after the original experiment showed that the omentum was firmly adherent to both the crushed portions of bowel. The area covered by the free graft on separation of the omentum showed the graft to be infected with patches of necrosis. The area of bowel crushed and left free in the abdominal cavity showed (after removal of the omentum which had become fixed there of its own accord) very little destruction to the crushed segment of gut. Repair in this latter case was much more perfect than in those in which the detached graft had been applied.

If the small intestine was devascularized to such an extent as to cause gangrene, and free grafts applied, the grafts became infected and did not prevent the animals from dying of peritonitis.

The conclusions drawn from these experiments are that free omental grafts are only safely used in cases where no sepsis is present. Grafts remain free in the peritoneal cavity, and do not adhere to the loops of gut; they are useful in covering raw or denuded areas of peritoneum, or in strengthening suture lines. See Plate, Fig. 3.

6. *What deductions may be drawn from the experimentally produced wounds of the intestine?*

We were led to investigate the point by observing clinically that in extensive wounds of the small intestine there is a remarkably slight escape of intestinal contents. We made the further observation that the less the degree of damage the greater possibility was there of intestinal content escape.

Experiment 1 (Cat).—The small intestine (ileum) was divided half across; omentum was laid over the wound and the viscera returned. Twenty-seven and a half hours later the abdomen was opened; the injured gut lay where it had been placed; the omentum was no longer over the wound, but rather to one side; there was no peritonitis present and there was no escape of intestinal contents.

Experiment 2 (Belgian Hare).—The jejunum was recognized and divided half across. After seven hours there was no sign of peritonitis and no intestinal contents had escaped.

Experiment 3.—The jejunum was brought out and divided half across; into its lumen shot was placed, as shown in sketch

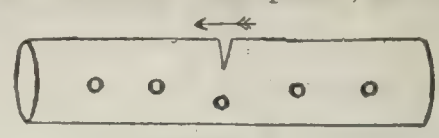


Diagram 3.

(Diagram 3). Five hours later the abdomen was reopened and the loop examined; the contents were found to be as shown in the accompanying sketch (Diagram 4).

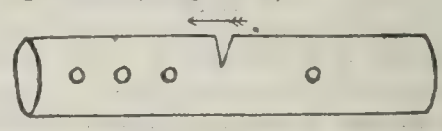


Diagram 4.

As in Experiment 2 there was no extravasation. This experiment illustrates the considerable arrest of peristalsis which followed the injury to the gut wall.

7. *When the wound runs in the long axis of the gut, has it a greater tendency to leak?*

Clinically we would answer this question in the positive, and say that wounds in the long axis of the gut certainly have a greater tendency to leak than those that occur across the long axis of the gut. We investigated the matter experimentally.

Experiments 4 and 5.—Large hares were used for the experiments. A loop of jejunum about 8 in. from the stomach was chosen, and a longitudinal cut ½ in. long was made in the long axis of the bowel; the omentum was laid over the wound, and the abdomen was closed. Ten hours later the animal, on examination, was found to have a marked general peritonitis, with extravasation of small gut contents all over the peritoneal cavity. Fluid from the peritoneum examined showed abundant organisms, mostly large and of the *perfringens* type; there were very few leucocytes present, and these showed no tendency to phagocytosis.

The results of these experiments are very striking when compared with transverse wounds of the small intestine; it would appear that the transverse division of the longitudinal muscular fibres diminishes, for a time at least, the liability to leakage.

We have made the clinical observation that isolated perforated wounds of the small intestine had a greater tendency to leak than more extensive wounds.

We believed that this demanded two explanations: First, that the comparatively slight degree of injury did not result in any lessening of the peristalsis, and secondly, that the non-division of the longitudinal muscular fibres rather tended to increase the risk of extravasation.

This observation was not confirmed by experiment.

Experiments 6 and 7.—A large hare was used in this experiment. The lowest loop of ileum was brought out and three small holes were made into the lumen at different places. Into each of these holes a single piece of shot was introduced. At once the mucous membrane pouted out through the openings. The animal showed no ill result from the experiment and it is now perfectly well.

Experimentally complete division of the small intestine is followed by extensive leakage. This is shown in the following experiment:

Experiment 8 (Belgian Hare).—Laparotomy performed; the ileum was completely divided 6 in. from the ileo-caecal junction; the intestine was returned. Six hours later the abdomen was again opened. There was a great amount of extravasation and a general peritonitis was commencing. It was noticed that the distal end of the gut was firmly contracted and no leakage appeared to have occurred from that end. The upper end was distended and liquid contents persistently leaked from it.

We have repeatedly observed that wounds of the large intestine, in contradistinction to wounds of the small intestine, universally leak. This was experimentally investigated.

Experiment 9.—A large Belgian hare was used in the experiment. The transverse colon was exposed and the gut was wounded transversely; the omentum was laid over the opening and the intestine returned. Six hours later laparotomy showed extravasation of gut contents, but the escape was quite localized. The escape, however, was marked in comparison with a similar experiment performed in small intestine. The perforation was sutured and the gut returned: the animal recovered.

In the course of these experiments we have noticed that the degree of extravasation largely depends upon whether the intestinal tract at the time of operation has a large or small amount of content. The smaller the

amount of content the less likelihood is there of an early extravasation.

This observation is in keeping with the good results obtained in perforating wounds of the intestine in such a campaign as the South African war.

WOUNDS OF STOMACH.

Morbid Anatomy.

Under this heading there are one or two observations to be made.

Occasionally entrance and exit wounds of the anterior wall of the stomach are found with an extraordinarily small extent of stomach wall separating the wounds; it is difficult to surmise how such mechanically occur.

We have confirmed a former observation that while entrance and exit wounds of the body of the stomach are very similar in size, an exit wound in the thicker musculature of the pylorus is generally considerably larger than the entrance wound.

While the peritonitis which results is, as a rule, of slow development and subacute course, if bile has escaped from the stomach wound the peritonitis is much more intense.

Clinical Features.

In addition to the signs common to wounds of any hollow viscus there are certain distinctive features.

Sickness is usually more pronounced than in wounds of the other abdominal viscera, and in the vomited matter it is rarely that one fails to find the presence of blood. The degree of collapse is less marked than that found in intestinal injuries, but whether or not this is related to the comparatively smaller amount of haemorrhage one cannot say.

It is interesting to note that, while the pulse and respiration rates are both increased, the respiration rate has proportionately increased more rapidly than the pulse rate. The degree and the variety of the clinical features are influenced considerably by the situation of the lesion. Pain would appear to be more intense when the cardiac or pyloric ends of the stomach are involved; it is correspondingly less so when the wound is related to the body of the stomach.

Wounds of the curvatures of the stomach, with the greater destruction which invariably accompanies them, are associated with severe symptoms of collapse. The clinical features are also influenced by the condition of the stomach at the time of injury; if the stomach contains a quantity of food, the wound is followed by more intense clinical features than if the organ had been empty.

Treatment.

We would remark upon the importance of routinely examining the posterior wall of the stomach. A wound of this region is very apt to be overlooked.

Wounds may occur in the cardiac region which are almost impossible of access for suture unless the tear be a very large one. Such wounds may be left with a fair degree of certainty that natural healing will occur with little or no leakage.

Results of Stomach Cases.

Total cases, 24.

Bullet wounds	14
Bomb and shell wounds	10
Simple suture	20
Suture and gastro-enterostomy	1
Gastro-enterostomy	1
Resection and gastro-enterostomy	1
Complicated wounds	22
Results:	
Recoveries	10
Died	13
Unoperated on	1

WOUNDS OF SMALL INTESTINE.

Morbid Anatomy.

When a bullet passes through the pelvis it is not uncommon to find the loop of intestine which was lying in the pelvis at the time of injury riddled with holes over a very limited area. In one case, where the bullet entered the sacrum and passed through the pelvis, there were eight perforations, all of them within one foot of the caecum.

We have observed that wounds of the left flank, damaging the descending colon and apparently out of the small intestine area, may wound coils of the jejunum.

It is remarkable how seldom there is a massive escape of contents from the lumen of the gut. Rarely have we seen it occur to any marked degree. Apparently there is a complete inhibition of peristalsis for some time subsequent to the injury. Further, the less the degree of damage to the gut and the fewer the number of perforations the more likelihood is there of extensive peritoneal soiling. We believe the converse holds good.

We have had several examples of cases in which intestinal contents have escaped between the layers of the mesentery. They have been cases in which the projectile has not actively perforated the gut, but, by passing near it, has exerted such a force that the gut wall ruptures in that portion which is unsupported by peritoneum—namely, between the layers of the mesentery. This is a serious type of injury, as it invariably necessitates resection of the damaged area.

When the blood vessels in the mesentery are damaged the surgeon is faced with the question whether the viability of the associated gut is or is not interfered with. We have carried out some experimental work, noted above, to assist us in coming to a decision on that point.

Experimentally and clinically it would appear that there must be a considerable destruction of the vascular supply before the vitality of the gut is interfered with. The colon is more liable to subsequent necrosis than the small intestine.

The practical bearing of the point is that cases of mesenteric injury previously dealt with by resection we now treat by simple suture of the mesentery and ligature of the divided vessels. The extensive injuries of their blood vessels must, of course, be dealt with by resection.

In this relation we have observed that, while interference with the mesenteric blood supply may not actually endanger the viability of the gut, that portion of gut is particularly liable to a subsequent distension, which may pass to an actual paralysis.

Clinical Features.

The clinical features are generally those of commencing peritonitis, coupled with the evidences of rapid and progressive haemorrhage.

Under the influence of morphine, and sometimes when the intra-abdominal bleeding is profuse, we have seen the muscular rigidity of the abdominal wall almost disappear.

Treatment.

Later there are described measures we have carried out preliminary to all abdominal operations for this class of case—measures which are intended to antagonize the shock and loss of blood which occurs. As a preliminary to operating for perforating wounds of the small intestine these precautionary measures are of the highest importance, as the amount of shock and the loss of blood in these cases are often exceptionally severe.

To open the abdominal cavity we have almost invariably used a middle-line incision; it is important that there should be no hesitation in making the incision one of considerable length. In localizing the sites of injury we have followed a well-defined routine. After opening the abdomen the caecum is identified, and from it the small intestine is traced upwards, beginning with the lower end of the ileum. As each perforation of the gut is exposed, it is wrapped up in a small moist swab; to one side of the swab a length of tape is stitched. This is slipped through the mesentery and doubled twice round the gut covered by the swab; in this way each perforation is marked, and there is less chance of massive infection from the injured gut. The whole length of the small intestine must be examined before any decision as to treatment is arrived at. There is nothing more disconcerting than to deal with a perforation by resection and to find that a few inches further on there is another perforation which could have been included in the same procedure.

When the degree of damage to the gut has been brought under review, there are three varieties of operative treatment which may be followed. These are: (1) Simple suture of the perforation; (2) resection of the damaged intestine, followed by a lateral or end-to-end anastomosis; (3) resection of the damaged intestine with an accompaniment of a temporary enterostomy.

1. *Simple Suture of the Perforation.*

In a former paper to which we contributed it was held that cases suitable for suture of the perforation were in the minority. It was believed that a wound to be suitable for suture should be small, without damaged edges; and

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

with an intact mesentery. Further experience has shown us that the range of possible suture is very much more extensive than we had at first imagined—there are very few wounds of the small intestine which do not prove amenable to suture. It may be said that there are three possible contraindications to its use: (1) Extensive damage to the mesentery; (2) a wound which, when sutured, results in marked narrowing of the gut, and the type of wound which most commonly results in this complication is one running obliquely across the long axis of the gut; (3) when the perforation is associated with resulting necrosis of the surrounding bowel—a condition which is more common in the colon than in the small intestine.

The method of suture has the advantage of speed (when the perforations are not too numerous), of simplicity of technique, and of lessened post-operative shock.

There are, of course, distinct disadvantages. The suture may result in considerable narrowing of the lumen of the gut, and where there are a number of similar sutures within a short distance of each other the multiple narrowing becomes a very real objection. The second disadvantage is, that if the perforations are very numerous their closure would take considerably longer than the time which would be entailed in a resection of the damaged gut.

In the suture operations which we have done we have not excised the edges of the wound, and we have used a linen thread for stitching.

We have from time to time made use of omental grafts to reinforce doubtful suture lines. The matter is dealt with more fully in the experimental section of this paper.

2. *Resection of the Damaged Intestine, followed by Lateral or End-to-end Anastomosis.*

As has been said, we originally favoured this method of treatment in preference to multiple and extensive suturing. We believed that the indications for the operation were the multiplicity of the perforations, the extent and degree of the perforations, and the involvement of the related mesentery; we now consider that only the last constitutes a real indication.

Under exceptional conditions, such as have been already stated, the first two indications may be entertained.

The advantages of resection may be summarized as follows: The operation is complete and thorough, the risk of damage following a mesenteric involvement is minimized, there is less likelihood of sloughing of devitalized intestine, and there is less possibility of subsequent stricture.

Several disadvantages may be quoted: The complexity of the technique, the time the operation takes, and the intense degree of shock which almost invariably follows it. The first and the second are no real objections, but the third is a more potent one; it is the one feature which has led us to abandon the resection operation for the multiple suture. The degree of shock is infinitely greater after a resection operation than after an extensive multiple suture operation.

Having weighed the choice of the operation, the question next arises whether the anastomosis is to be lateral or end-to-end. When we began this work, we favoured and used an end-to-end anastomosis, on the ground that it could be accomplished in a shorter period of time than the lateral anastomosis. We discovered that this method was apt to be followed by a certain degree of paresis in the proximal segment, with subsequent distension and eventual obstruction. On several occasions we have had to perform a second short-circuiting operation to overcome the obstruction.

DESCRIPTION OF SPECIAL PLATE.

FIG. 1.—Experimental (Belgian hare). Small intestine anastomosis. Lateral, with blind ends laid apart from one another. Resection and anastomosis of this type gave very much better results than in the cases where the resection was followed by end-to-end anastomosis. Large anastomotic opening and long blind ends.

FIG. 2.—Experimental (Belgian hare). Small intestine anastomosis. Lateral, with blind ends together. The results of resection of gut and anastomosis of this type were even better than those done with the blind ends apart, as in Fig. 1.

FIG. 3.—Experimental (cat). A free omental graft, one month old; implanted on to normal small intestine. The graft is firmly united to the mesentery of the gut, but is only adherent to the bowel wall at the points of suture.

FIG. 4.—Experimental. Free omental graft applied to the normal small intestine. When examined, a week after its application, the graft was found to be universally adherent to the underlying gut.

FIG. 5.—Bullet wound of anterior stomach wall. The missile completely divided the right gastro-epiploic artery, and the wound extended on to the posterior wall of the viscus for half an inch.

FIG 6.—Bullet wound of small intestine. The specimen illustrates the extensive damage to the mesentery which is so often sustained.

FIG. 7.—Twelve inches of small bowel (ileum). The gut shows three perforations. A and B are typical bullet wounds with eversion of mucous membrane; C shows a rupture between the leaves of the mesentery. The peritoneum at this point is sodden and gangrenous from escape of intestinal contents into the mesentery. Removal of the overlying damaged peritoneum exposed a similar wound showing everted mucosa.

The gut appears to be predisposed to the distension from various causes: the general degree of nerve shock, and more especially of sympathetic nerve shock; the paresis of Auerbach's plexus as a result of the blow; the presence of blood in the peritoneal cavity, and the degree of the peritonitis which is invariably present. As a result of this disadvantage we began to employ a lateral anastomosis, and from it we had undoubtedly greater satisfaction and better results. At this point one must allude to the bearing which experimental work had upon the feature. End-to-end anastomosis of small intestines in animals was inevitably followed by distension of the gut above the suture, with subsequent death of the animal. When lateral anastomosis was performed no complications arose, and recovery was invariably the result. The technique of the end-to-end anastomosis was then modified in so far as the mucous membrane was clipped away around the cut edge of the bowel; a subsequent distension did not occur, and recovery followed the operation.

The influence of blood and peritoneal infection was submitted to experimental investigation. After resection and anastomosis of the gut, both end-to-end (modified method) and lateral, a quantity of blood was placed in the peritoneal cavity and a peritoneal infection was started by allowing a slight escape of intestinal contents; no subsequent distension occurred, a fact pointing to the conclusion that these complications have little bearing on the development of the subsequent distension.

In point of time the lateral anastomosis takes a few moments longer, in so far as it involves closing the open ends of the gut, but it apparently largely overcomes the possibility of distension of the proximal segment. We do not intend to enter into any details of the operation beyond mentioning that when the resected gut involves the extreme lower end of the ileum, we have anastomosed the proximal bowel to the centre of the transverse colon. Short-circuiting, so to speak, by a unilateral short circuit the caecum, ascending colon and hepatic flexure, there are obvious mechanical advantages related to this method.

TABLE I.—*Results of Small Intestine Cases.*

Total cases, 96.

Bullet wounds	47
Bomb and shell wounds	49
[Complicated wounds	80]
Operations:	
Suture	57
Resection	38
Enterostomy	1
Results:	
Recoveries	37
Died	59
Analysis:	
Suture operations	57
Recoveries	29
Resection operations	38
Recoveries	8
Bullet wounds	48
Recoveries	15
Bomb and shell wounds	48
Recoveries	22
High small intestine cases	44
Recoveries	17
Low small intestine cases	54
Recoveries	21

It is interesting to note that in uncomplicated wounds of the small intestine demanding a simple suture operation there was a recovery-rate of 100 per cent.—

Uncomplicated wounds of small intestine	9
Recoveries	9



FIG. 1.



FIG. 2.



FIG. 7.



FIG. 3.



FIG. 4.



FIG. 5.



FIG. 6.

LIBRARY U. OF I. URBANA-CHAMPAIGN

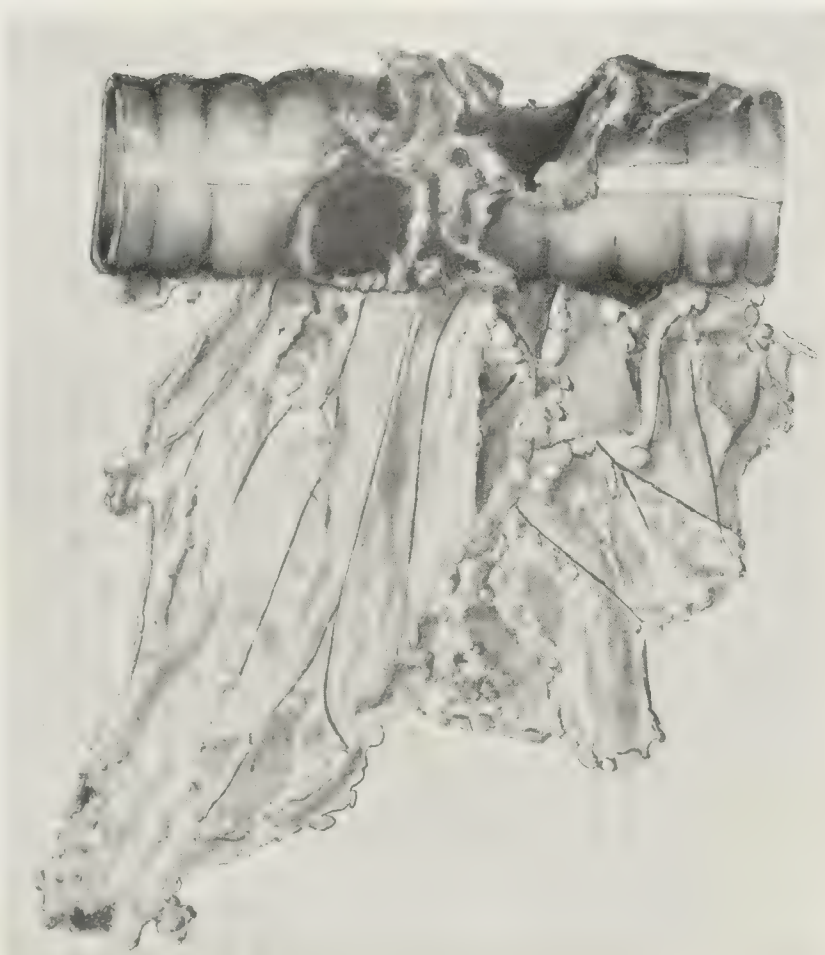


FIG. 8.

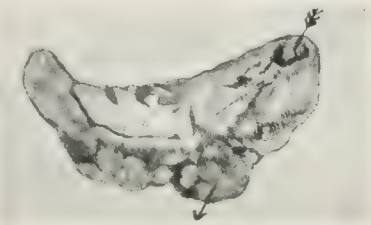


FIG. 9.



FIG. 10.



FIG. 11.



FIG. 12.



FIG. 13.



FIG. 14.

WOUNDS OF DUODENUM.

Wounds of the duodenum have a very high mortality, d the majority of the cases die before surgical assistance n be obtained. This is explained by the proximity of e duodenum to such structures as the aorta, vena cava, d portal vein, wounds of which would necessarily be pidly fatal.

In the majority of the cases we have seen the second t of the duodenum has been wounded—more exactly at e junction of first and second portions; in one instance e third part of the duodenum was injured. The thin-alled duodenum is very readily torn, and the wound is rger than is usual in small intestine. Haemorrhage is t generally severe; there is an escape of bile into the ritoneal cavity and occasionally of food; there is ually an associated wound of the right kidney. In veral instances we have found multiple fat necrosis.

Clinical Features.

The clinical features are similar to those of wounds of nall intestine; there is generally intense shock, and ckness is usually pre-nt.

Treatment.

Operative treatment nsists in suture of the rn bowel; the possi-lity of performing at the me time a gastro-terostomy must be con-dered. Suture of the odenum may result in ntraction and narrow-g, and further, duodenal ounds are especially able to leak after suture; oth of these possible dis-dvantages are avoided by e performance of a astro-enterostomy.

Suture of the duo-enum is facilitated when e intestine is mobilized the manner suggested y Kocher by incision of the parietal peritoneum on the ter side over the right kidney.

TABLE II.—*Summary of Cases of Wounds of Duodenum.*

No.	Position of Wound.	Complications.	Treatment.	Result.
1	Junction of first and second parts	Wound of liver	Suture	Died.
2	Junction of first and second parts	Perforation of colon	Suture	Died.
3	Junction of first and second parts	Perforation of colon and liver	Suture (colostomy)	Died.
4	Complete division of second part of duodenum	Perforation of the stomach, ruptured kidney and liver	Suture and gastro-enterostomy	Died.
5	Perforation of third portion of duodenum	Perforation of kidney	Suture	Recovery
6	Perforation of second portion	Perforation of liver and colon	Suture	Died.

WOUNDS OF COLON.

Morbid Anatomy.

Effusion from a wound of the colon has a tendency to ecome shut off and localized, more especially when the ound occurs in the ascending or the descending colon. n late colon wounds it is common to meet with a collection f faecal and semipurulent matter entirely shut off and pening into the underlying colon.

Effusion from a wound of the colon too often extends nto the retrocolic and retroperitoneal tissues. When his occurs the result is frequently fatal; absorption of he extravasated material appears to occur very rapidly, nd an extremely virulent septicaemia is established. In wound of the colon of fifteen hours' duration, we have ound *post mortem* the evidence of an intense septicaemia nd haemorrhages in splenic tissue, multiple septic throm-bosis, etc. Naturally it is subsequent to wounds of the fixed portion of the colon that this complication generally develops. The clinical features associated with such a colon septicaemia are discussed under the next heading.

Colon wounds appear to be peculiarly liable to secondary haemorrhage; in several instances we have lost cases at varying dates after operation as a result of this complication. The haemorrhage is the result of septic change in the gut, and it generally appears on the third and fourth days after operation.

Clinical Features.

The clinical features are very similar to those of small intestine injury; they are, primarily at least, not so widespread. Subsequent to the injury three possibilities may develop:

1. The effusion and infection may remain localized.
2. The infection may spread and a general peritonitis result.
3. The infection may extend into the retrocolic and retroperitoneal tissues and the group of symptoms which we have called "colon septicaemia" may develop.

1. In the first instance (if the effusion and infection remain localized the patient's general condition is good) there are signs of a local inflammatory focus and further neglect of the condition will result in abscess formation and the establishment of a faecal fistula.

2. The second possibility is accompanied by all the signs and symptoms of a general peritonitis—the peritonitis is generally an acute and progressive one.

3. In the third instance the features of an intensely rapid septicaemia appear. The signs may appear and develop with startling suddenness. Patients suffering from this condition have generally a grey pallid appearance, and it suggests that there has been an extensive loss of blood, but investigation of the history will show that this has not been the case. There is restlessness and great uneasiness. Signs of delirium appear and become established. The pulse is characteristic: from the normal rate it very rapidly increases, so that in the course of a few hours it may have reached a speed of 150 a minute. The respiration rate increases until it reaches 40 to 50 a minute.

The temperature behaves variously; in the most intense cases it falls to subnormal and remains so, in less acute cases it rapidly rises to a considerable height (104° to 105°), and shortly before death it falls with a crisis. Vomiting is common, frequently in mouthfuls, ultimately resulting in acute dilatation of stomach. Before death the delirium passes into complete loss of consciousness, and the extreme general pallor is replaced by a slightly jaundiced appearance. The abdominal signs are primarily those of localized infection. Later the abdomen becomes markedly distended; there is not the same degree of tenderness or muscular rigidity as one associates with a generalized peritonitis.

Post mortem the signs are those of an acute septicaemia, with marked congestion of the viscera; frequently there are haemorrhages throughout the substance of the spleen. The *Bacillus perfringens* has been isolated from the blood and from the visceral lesions.

Treatment.

We have drawn attention to the liability of wounds of the colon to become localized, and this fact has a bearing on the operative treatment. The bearing is that if the patient comes under treatment at a period longer than twenty-four hours after the receipt of the injury, it is a

DESCRIPTION OF SPECIAL PLATE.

FIG. 8.—The middle third of the transverse colon, showing multiple shell fragment wounds; in addition to the perforation the bowel showed considerable bruising and tearing of the mesentery.

FIG. 9.—Gunshot wound of the gall bladder. The entrance and exit wounds of a rifle bullet are as outlined by an arrow.

FIG. 10.—Small intestine. This portion of gut was not actually pierced by a bullet, but it lay in close proximity to the passing projectile. The areas marked A and B showed an effusion of infected fluid beneath the peritoneum. Examination showed that all the coats of the intestine had given way except the peritoneum.

FIG. 11.—Portion of the descending colon showing three gangrenous patches with extensive ulceration caused by a bullet wound. The missile passed down the outer aspect of the bowel without actually cutting the coats of the gut. At the operation one gangrenous patch was seen, with no extravasation of gut contents.

FIG. 12.—Shell wound of right lobe of liver.

FIG. 13.—Gunshot wound of kidney. Almost complete destruction of the lower pole of the kidney.

FIG. 14.—Bullet wound of colon. Note the comparatively large wound of exit.

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

wise principle, primarily at least, to enlarge the original wound, on the possibility that the infection is becoming localized. At an earlier period than twenty-four hours it is probably better to open the abdomen through a separate incision.

We have been impressed with the risk run of overlooking injuries to the colon; the risk is greatest when the wound lies in one or other of the flexures of the gut.

The actual operative treatment may be summarized in the following methods: (1) Simple suture; (2) suture with a proximal colotomy; (3) colotomy at the site of injury. The operation of resection may be left out of account; it is rarely advisable to practise it in this type of surgery.

At first we followed the practice of a proximal colotomy in combination with the operation of suture. There are the obvious advantages that it increases the safety of the suture, while it obviates the passage of faecal matter through the damaged gut. At this time we were suspicious regarding the viability of the line of colon suture, and we felt that the colotomy added greater security. Later we recognized that the performance of proximal colotomy was rarely necessary, and we have therefore almost abandoned its use. We now reinforce the suture line by an omental graft. We believe that our results have improved since we have altered our procedure.

When the wound of the colon is very extensive colotomy at the site of injury is the only possible procedure.

We believe that all wounds of the colon should receive very thorough local drainage. In wounds of the ascending and the descending colon we have been impressed with the advisability of draining the retrocolic space by a tube passing into the loin. The establishment of efficient local drainage is the means of lessening the likelihood of development of infection of the retrocolic tissue and the establishment of colon septicaemia.

TABLE III.—*Results of Colon Wounds.*

Total cases, 85.

Bullet wounds	34
Revolver bullet wounds	2
Shell wounds	42
Bomb and grenade wounds	7
Complicated wounds	64
Pure colon wounds	21
Treatment:	
Simple suture	55
Suture with proximal colotomy	25
*Colotomy	4
Resection	1
Results:	
Recovered	37
Died	48

* That is to say, colotomy at the site of injury.

WOUNDS OF RECTUM.

Morbid Anatomy.

Wounds of the rectum may be intraperitoneal, extraperitoneal, or a combination. The entrance wound is generally in the buttocks. Of all possible types of wound, that most commonly met with is the wound of the anterior wall of the rectum, low down and immediately above the floor of the pouch of Douglas. The wounds are nearly always complicated by compound fracture of the pelvis or wounds of the small intestine or bladder.

There is liability to severe bleeding from the large pelvic vessels in close relation to the rectum. Unless the wound is large, it is unusual to find intestinal contents escaping to any degree.

Clinical Features.

There are all the features which one associates with injury to the abdominal viscera; in the early stages the symptoms are ill defined and are liable to be overlooked.

Recent haemorrhage is usually found escaping from the rectum. There may be retention of urine, and if urine is voided, pain is complained of in the region of the bladder.

In uncomplicated wounds of the rectum the degree of shock is not severe.

Treatment.

It is necessary in every case to explore the abdomen. It is possible that beyond an infiltration of blood in the pelvic tissues, no wound may be found. In such a case the injury is probably extraperitoneal.

If an intraperitoneal wound is discovered, it is sutured with a primary layer of catgut and a series of linen thread Lembert sutures. The question has then to be considered whether or not a temporary colostomy is necessary. If the wound in the rectum is severe, it is advisable to do a temporary colotomy. The problem of whether an inguinal or a transverse colotomy be performed must be decided by such points as the situation of the surface wounds, and the degree of damage and position of the rectal wound.

Transverse colotomy has the advantages that it is more easily controlled, that the restoration of the continuity of the bowel is more easily accomplished when the need for the artificial opening is past, and that should surgical interference be necessary later in order to repair the damaged rectum, the pelvic colon can be mobilized and brought down to the injured part.

If it is found that the wound of the rectum is extraperitoneal, the entrance wound is opened up and efficient drainage established; in fact, in every case of wound of the rectum it is advisable to open up the entrance wound very thoroughly, as this diminishes the risk of a subsequent pelvic cellulitis. The question of whether a colotomy is necessary in an extraperitoneal wound must be decided by the character and position of the wound.

TABLE IV.—*Results of Wounds of Rectum.*

Total cases, 10.

Bullet wounds	4
Bomb and shell wounds	6
[Complicated wounds	9]
Treatment:	
Suture	3
Simple drainage	2
Drainage and colotomy	5
Results:	
Died	7
Recovered	3

WOUNDS OF THE BLADDER.

Morbid Anatomy.

The missile may reach the bladder laterally, anteroposteriorly, or from above or below; the relationship of the wound to the peritoneum will vary according to the portion of the bladder which is injured.

Complications are exceedingly common; generally the pelvis is fractured, frequently the hollow viscera are injured—the small intestine or colon.

The missile may be arrested inside the lumen of the bladder, and this is most likely to occur when the projectile enters the full bladder. If the bladder is empty when hit there is more likelihood of there being entrance and exit wounds.

We have seen a non-penetrating bullet wound of the abdominal wall, sustained by a man with a full bladder, produce a large intraperitoneal rupture of the posterior wall of the bladder.

Clinical Features.

The clinical features are generally disguised by the fact that they are complicated by the signs and symptoms of other wounded viscera; occasionally there has been an opportunity of observing an uncomplicated case.

The features are those of a slowly developing peritonitis with at first local pain over the bladder and afterwards general abdominal pain. If the patient can void urine haematuria will probably be present. Urine, however, may be discharged into the peritoneal cavity in such quantity that none is passed by the urethra.

When the wound is extraperitoneal, dullness appears above the pubis and there is tenderness and rigidity over the lower abdomen. The infiltration spreads in the pelvis and escapes by the sciatic notch into the buttock, by the obturator foramen into the upper part of the thigh, or along the inguinal canal into the scrotum.

The use of the cystoscope is not of diagnostic value as distension of the viscus cannot be obtained.

Subjectively there is pain, tenesmus, and frequent desire to pass water with inability to do so; often a few drops of blood are passed after much straining. Rectal spasm may also be present. Urine mixed with blood may escape from the wound.

Treatment.

In the intraperitoneal variety the abdomen is opened and xplored, the tear in the bladder wall sutured and drainage the pelvis established. We afterwards tie in a urethral atheter in order to prevent overdistension of the viscera, id so avoid strain upon the sutures.

When the rupture is extraperitoneal a suprapubic in- sion is made down to the bladder and the anterior wall xamined. If the rupture is easily accessible the wound sutured and a suprapubic drain inserted in the bladder. the rupture is inaccessible, the bladder is drained supra- ubically, and if necessary a counter drain is inserted in ie perineum.

TABLE V.—*Results of Bladder Wounds.*

Total cases, 14.

Bullet wounds	11
Bomb and shell wounds	3
[Complicated wounds	13]
Treatment:	
Suprapubic cystotomy	10
Suture	4
Results:	
Recoveries	4
Died	10

WOUNDS OF KIDNEY AND URETER.

Morbid Anatomy.

A certain proportion of kidney wounds are slight, more specially those in which the edges or poles are affected. When the centre of the body of the kidney is injured, the amage is severe and the kidney may be found to be rup- ured into several portions. But the apparent triviality of he kidney wound is sometimes no guide to the organic lisintegration which occurs; even in the slightest wounds he organ often shows extensive microscopical changes of minute necrosis and haemorrhage.

The bleeding is not as a rule excessive, unless some of he larger vessels have been divided; as a rule it ceases pontaneously.

Generally blood is present in the urine; occasionally he pelvis of the kidney and the upper end of the ureter ecomes blocked by blood clot and this sign is then in beyance.

Haemorrhage from the kidney extends widely over the etroperitoneal tissues, and if an infection develops in this egion the result may very easily be fatal.

Clinical Features.

The first indication that the kidney has been damaged s generally got from the position of the wound. One would reasonably expect haematuria to occur, but, as we ave pointed out, under certain conditions this sign may e absent. When the wound is uncomplicated, involving he kidney alone, the physical signs are those of a retro- eritoneal injury; the general condition is good, the pulse ate being only slightly increased. The local signs are hose of partial fixation and rigidity of the abdominal wall, tenderness on palpation usually confined to one-half of the abdomen, and occasionally the presence of fluid, demon- strated by percussion in one or other flanks.

Treatment.

Generally speaking there are three possible operative procedures which one may be called upon to perform: (1) Simple drainage; (2) suturing the kidney; (3) nephrec- tomy.

Simple drainage will be the operation of choice in the majority of cases; we would modify any former remarks by saying that in many cases in which formerly we would have removed the damaged organ we now rely upon efficient drainage, leaving a nephrectomy, if necessary, until a later date. To expose the viscus we employ a vertical posterior incision. Suture of the damaged kidney we have only employed in one instance—the viscus was almost severed into two halves by a horizontal tear on its posterior surface; with a view to saving the organ, and as the bleeding was not severe, the two halves were stitched with interrupted catgut sutures. The result was unsatis- factory, for sepsis developed with disastrous results.

The indications for nephrectomy are extreme laceration of the kidney, and haemorrhage from the larger renal vessels. As it is very often necessary to examine the ab- dominal viscera in addition to dealing with the kidney, we originally removed the kidney through an anterior incision. We believe that this operation is associated with very con- siderable shock, and that it is advisable first to explore the abdomen anteriorly, afterwards removing the damaged kidney through a lumbar incision.

TABLE VI.—*Results of Kidney Wounds.*

Total cases, 29.

Bullet wounds	8
Shell and bomb wounds	21
Pure kidney wounds	12
Complicated kidney wounds	17
Right kidney affected	16
Left kidney affected	11
Both kidneys affected	2
Treatment:	
Drainage operations	21
Suture operations	2
Nephrectomy	6
Results:	
Recoveries	17
Died	12

Wounds of the right kidney are more fatal than wounds of the left kidney. This is shown by the following table:

Died, 12 cases.

Right kidney	8
Left kidney	2
Both kidneys	2
Drainage operations	21
Died	7
Nephrectomy operations	6
Died	3

WOUND OF URETER.

We have had two instances of this injury, and we offer no comment beyond briefly describing the cases.

CASE I.

The man was shot at close range by a machine gun bullet. On operation there were found to be eight perforations in the small intestine. In addition to blood, the abdominal cavity contained a quantity of fluid, apparently urine; this was found to have escaped from a wound of the left ureter, when it passed into the pelvis. As the patient's general condition was grave, no attempt was made to repair the ureter wound, but a drainage tube was sutured in position, and drainage was also established in the flank. After the second day there was no discharge of urine, and the patient made an uneventful recovery.

CASE II.

A man was wounded by a shrapnel bullet which entered just below the left anterior superior spine of the ilium. The entry to the peritoneal cavity was found on the left lateral wall of the true pelvis close to the commencement of the rectum.

Four perforations were found in the ileum with considerable damage to the mesentery of the gut. Resection and lateral anastomosis was done. A shrapnel bullet was removed from the recto-vesical pouch. The abdomen was closed, and the entry wound in the left side was drained with a large tube.

For the first two days following the operation clear urine came away in quantity through the wound in the left side. No urine was discharged after this time, and the patient made a complete recovery.

WOUNDS OF SPLEEN.

Morbid Anatomy.

Wounds of the body of the spleen pass through the organ without producing extensive damage. There is a small central perforation with radiating fissures.

When either pole of the spleen is wounded the damage is more extensive, and sometimes one or other pole is entirely torn off.

In one instance we have met with a curious type of injury to the spleen. The man was wounded by a rifle bullet in the lowest rib at the posterior axillary line. Upon opening the abdomen the cavity was found to be full of blood, the spleen was disorganized into a mass of bleeding pulp, the lower ribs were fractured and their sharp ends had been driven into the spleen, and the re- peated movement of respiration had continued the damage thus begun. The damage was so extensive that splenec- tomy was necessary.

When the wound involves the hilum the bleeding is intense; in other situations it has a tendency to cease spontaneously, and it is very readily controlled.

Wounds of the spleen are nearly always complicated by wounds of one or more of the neighbouring viscera—the left kidney, the left pleural cavity, and the splenic flexure

DIGITIZED BY THE INTERNET ARCHIVE IN 2011 WITH FUNDING FROM UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

of the colon. It is interesting to note that wounds of the spleen and the stomach are very rarely associated.

Clinical Features.

The clinical features are best described by quoting the history of two uncomplicated cases, one observed early, the other late. The first case was observed about six hours after the injury was sustained. The general condition was wonderfully good, the pulse being only 88; there was some muscular rigidity along the left side of the abdomen; the abdominal cavity contained a quantity of free fluid; the temperature was normal. These signs, together with the entrance and exit wounds, were the only clinical evidences. The second case was different in so far as forty-eight hours had elapsed since the receipt of the injury; during that time haemorrhage had been continuous. When admitted the patient was pulseless, there were all the evidences of intense haemorrhage, the abdomen was distended, rigid, and contained a large amount of fluid.

Treatment.

The treatment of wounds of the spleen varies according to the degree of damage sustained. A small penetrating wound unassociated with much bleeding is better left uninterfered with. Wounds accompanied by extensive destruction of the organ, or complicated by severe bleeding—for example, wounds of the hilum—are best treated by removal of the organ. The middle group of cases are those with a limited wound of the region associated with moderate bleeding; the local treatment of these consists in arrest of the haemorrhage and, if possible, closure of the wound in the spleen; these *desiderata* can be attained by the use of sutures and packing.

In gaining access to the spleen we have generally used an incision parallel to the costal margin.

TABLE VII.—*Results of Spleen Wounds.*

Total cases, 14.

Bullet wounds	7
Bomb and shell wounds	6
Fragment of earth	1
Treatment:	
Suture	9
Splenectomy	5
Results:	
Recoveries	9
Died	5

WOUNDS OF PANCREAS.

We have had only one instance of undoubted wound of the pancreas, and we quote the case without remark.

There was a bomb wound of the left loin. The abdomen showed all the signs of injury to the abdominal viscera, the signs being most marked in the upper abdomen; there was persistent sickness.

The abdomen was opened in the middle line; there was some free blood in the peritoneal cavity. Examining the stomach, the gastro-hepatic omentum was found to be perforated and the lesser curvature of the stomach torn; the coronary artery was divided and bleeding. The posterior wall of the stomach was exposed but no perforation was found. There was a quantity of free blood in the lesser sac of the peritoneum. On examining the pancreas it was found to be perforated through and through, immediately to the lateral side of the aorta; the projectile was finally found embedded in the left lobe of the liver.

A rubber tube was sutured to the anterior wall of the pancreas and brought to the surface above the stomach through the gastro-hepatic omentum. No complications developed and the patient made a good recovery.

WOUNDS OF LIVER, GALL BLADDER, AND DUCTS.

In discussing wounds of this region we shall bring a series of cases under review, but it must be understood that only a certain proportion of these required operation.

Morbid Anatomy.

The close relation of the right pleura and lung to the right lobe of the liver is responsible for the fact that a wound of the liver is very frequently accompanied by damage to the overlying lung or pleura. This fact is important, as the latter condition is apt to be overlooked. We have seen a case in which the lung wound had been unnoticed until the degree of fluid in the right pleura actually endangered the patient's life. It would appear to be unusual to have much destruction or disruption of the liver tissue; probably for this reason the occurrence of post-traumatic jaundice is uncommon. There is generally an escape of blood into the peritoneal cavity, and occasionally it can be demonstrated in the retroperitoneal tissues.

We have only two instances to record of wounds of the ducts—a case in which the cystic duct was divided close to its entry into the gall bladder, and a wound of the common duct. Duct wounds are so frequently accompanied by injury to large vessels that the result is generally fatal before they can be given surgical assistance.

We have on two occasions met with wounds of the gall bladder—once with a wound of the cystic duct, and once with a wound of the common bile duct.

Clinical Features.

The clinical features may be remarkably scanty. If the wound has involved the lung and pleura the pulmonary signs frequently disguise the abdominal features. Generally pain is complained of over the liver and beneath the right scapula. The pulse, temperature, and more especially the respiration, are increased. There is usually some rigidity of the upper part of the abdominal wall; we have observed that the rigidity is increased and becomes more generalized when there is a considerable effusion of blood into the peritoneal cavity. By percussion an effusion can sometimes be demonstrated in the right iliac fossa. One would expect greater interference with the excretory function of the liver than is actually the case. On only one occasion have we seen a large effusion of bile into the peritoneal cavity. Post-traumatic jaundice is exceptional, and when it occurs it generally indicates a septic change secondary to the wound. There is no alteration in the bile contents of the faeces, and the urine is free from bile.

Treatment.

We have only operated on such cases as showed progressive haemorrhage, or which, from the clinical features, we suspected to be complicated by wounds of other viscera. In one instance we operated for a wound of the cystic duct. In another instance a late operation was necessary on account of the accumulation of bile in the peritoneal cavity.

We have employed Kocher's paracostal incision or the angled incision recommended by Mayo Robson; both incisions have given excellent access. The operation has generally been confined to investigation, plugging, and drainage.

TABLE VIII.—*Results of Liver Wounds.*

Total cases, 33.

Bullet wounds	15
Shell wounds	15
Shrapnel bullet wounds	2
Bayonet wounds	1
Pure wounds of liver	15
Complicated with wounds of thorax	8
Complicated with wounds of abdominal viscera	11
Results:	
Recoveries	19
Died	14

GENERAL REMARKS.

We are convinced that in the vast majority of cases of penetrating wounds of the abdomen operative measures offer the best chance of success. We would qualify the statement by excluding from the category uncomplicated wounds of the liver and certain wounds of the kidney and spleen. When the wound affects the hollow viscera of the abdomen we are satisfied that it is only as the rarest exception that a spontaneous recovery occurs. When these cases arrive in hospital they are almost universally in a state of intense collapse. We have therefore found it advisable to wait for a period of from one to two hours, until the increased shock of the journey has subsided. To this rule we make one exception—those cases which show evidences of rapid or progressive haemorrhage; in such cases the risks attendant on immediate operation are undertaken. We have occasionally found that these patients arrive in hospital having been very heavily dosed with morphine, which greatly militates against their eventual recovery; very rarely should the amount of half a grain be exceeded. We believe that this is an important detail in the pre-operation treatment of these patients.

During the interval of waiting it is difficult to decide whether or not active stimulant measures should be

lopted. These cases are generally complicated by some egree of haemorrhage, and stimulant measures in all obability tend to increase the bleeding. We therefore nit the pre-operation stimulation to getting the patient oroughly warm and administering 1 c.cm. pituitary xtract hypodermically.

During the operation every precaution is taken to inimize the degree of shock. The theatre is thoroughly eated, the table is provided with a hot-water bed. ately we have found it advantageous to operate on these ases while they are in the Trendelenburg position.

Immediately before the operation commences the dministration of subcutaneous saline by a Lane's bag begun, and it is continued throughout the operation; to 4 pints of fluid are frequently given in this way. We ave tried several different methods of anaesthesia. We ave had good results from the use of spinal anaesthesia, ut there is difficulty in obtaining the freshly prepared naesthetic, and it would appear that this is an important etail. In two instances we have had patients collapse ddenly after the administration of this anaesthetic. fore lately, and on the suggestion of a paper by Yandell enderson, we have employed closed ether anaesthesia. is paper adduced evidence that by this method of naesthesia shock is considerably lessened.

We have made great use of the method of warmed ether dministration, using the apparatus supplied by Mayer nd Meltzer. During the past four months we have had onsiderable opportunity for using ether intratracheal naesthesia. In surgery of the upper abdomen we have ound it very pleasant to work with, but we do not favour as a general routine in abdominal surgery. There is a ype of case which is, we believe, suitable for intravenous ther anaesthesia, namely, cases which are obviously very ill advised, and yet which demand urgent operation. Our xperience of this method, however, in this type of case oes not exceed some six cases.

Operative Technique.

Briefly, the operative technique which we have mployed is as follows:

The abdomen is opened in what would appear to be the nost suitable situation, and generally in the middle line. A large incision is employed. If the abdominal cavity ontains a large quantity of blood, enough of this is apidly swabbed away with a long roll of dry gauze to lear the view. A systematic examination of the various iscera is now carried out. We begin by picking up the aecum and recognizing the ileo-caecal junction; we work back rapidly along the whole length of small intestine, examining not only the gut but also its mesentery. The arge intestine is reviewed, special attention being paid to he various flexures. If necessity arises the stomach on both aspects, the duodenum, the liver, and spleen, are examined. It is a wise precaution to palpate both kidneys, especially the left kidney, in cases of damage to he spleen. The pancreas is reviewed during the examination of the posterior wall of the stomach. The pelvic viscera are examined last, and to facilitate their examination the residual haemorrhage is more completely cleared away.

Where areas of obvious soiling and sepsis are present we mop away the infecting material, afterwards swabbing the part with warm eusol. We have entirely given up systematic washing out of the peritoneal cavity.

Drainage is called for less often than one would expect. We entirely close up all wounds of solid viscera and the majority of cases of wounds of the stomach and small intestine, exception, of course, being made where there is very obvious soiling.

In wounds of the colon, however, the question of drainage is on an entirely different footing; these wounds cannot be drained too thoroughly, more especially the fixed portion of the colon, the ascending and the descending; the drainage should be established as much as possible in the loin. Unless it is already infected, great care should be taken to avoid opening and so infecting the retrocolic tissues.

When the seriousness of the patient's condition demands great celerity, we close the abdominal wall with through-and-through sutures of silkworm gut, guarded when they pass over the wound junction with small pieces of capillary rubber tubing; in the insertion of these we employ a Doyen's handled needle.

Throughout the operation speed is an important factor, coupled with every possible avoidance of shock.

As regards the post-operative treatment, special attention is paid to the administration of fluids, for choice by continuous rectal salines and by subcutaneous infusions.

We have noticed that acute dilatation of the stomach is an occasional complication in the post-operative history. It occurs subsequent to intraperitoneal wounds, and also secondary to retroperitoneal wounds and infection. About forty-eight hours after the operation the patient complains of epigastric distension and a feeling of sickness, frequent mouthfuls of stomach contents are evacuated, and, later, large quantities of foul fluid containing bile and retained pancreatic juice are vomited. The signs and symptoms somewhat suggest a general septic peritonitis, but the distension and discomfort are at first, at any rate, localized to the epigastric region.

In its early stages the complication is easily arrested by stomach lavage, and if signs of repeated sickness come on we at once pass the stomach tube. The process may have to be repeated several times before relief is complete.

In operating on these cases we have purposely avoided the use of gloves, for by doing so we believe that we have diminished the length of time taken up by the operation.

In dealing with the post-operative treatment, mention must be made of our experience of Sampson Handley's operation for peritonitis. Sampson Handley originally recommended the operation in cases suffering from pelvic peritonitis secondary to appendicitis and producing a condition which he called "ileus duplex," the obstruction being in the lower ileum and the pelvic colon. The operation consists in anastomosis of the lower ileum to the pelvic colon, or, under certain conditions, of the lower jejunum to the transverse colon, a caecostomy being done in each instance. After certain cases of wounds of the intestine a slowly developing peritonitis appears; it is most marked in the pelvis, and pathologically it produces a condition of ileus very similar to that which Sampson Handley describes. In four cases we have performed the suggested operation, in three cases anastomosing the lower ileum to the pelvic colon, and in one instance the lower jejunum to the transverse colon.

In one case the peritonitis was so intense and so general that the patient succumbed on the following day. In the other three cases the patients survived for five to seven days after the operation. For about three days there was an improvement, the bowels moving and sickness being arrested, but from this point the peritonitis appeared to re-establish itself and to progress with results eventually fatal. The operation was of temporary benefit, but it did not arrest the eventual development of the inflammation.

The diagnosis of perforating wounds presents little difficulty, and in any case of doubt it is well to err on the safe side, opening and exploring the abdomen.

Wounds of the back and loins invading the retroperitoneal space are the type which most frequently simulate true perforating wounds; they may be excluded by the fact that in these cases the general condition is good, that the pulse rate shows only a moderate increase, that there is not the same degree of rigidity as is found in true perforating wounds, and that there is not the same tenderness on palpation of the abdominal wall.

PROGNOSIS.

The prognosis of these cases depends upon a great variety of features. Some of the features which affect the prognosis are entirely incidental; take, for example, such an instance as the following:

Some time ago a party of Australians were caught in billets under heavy shell fire. Six of them suffering from abdominal wounds were admitted under under our care; five of the cases suffered from penetrating wounds of the small and large intestine, the sixth from a penetrating wound of the stomach. Within twenty-four hours after operation every one of these cases developed infection with a gas-producing organism; the infection was in the intraperitoneal tissues. All the intestinal cases died, only the stomach case survived.

It was interesting to note that these patients were all men who had fought in the Gallipoli campaign, and all of them wore the same uniform as they had used in Gallipoli; it was apparently highly infected with organisms, and it was from the carrying in of portions of torn uniform by the shell fragments that the fatal infection developed. This

UNIV. OF ILLINOIS-URBANA-CHAMPAIGN

experience illustrated one of the accidental features which affects the prognosis of abdominal wounds.

This is an interesting fact: it has been our experience that uncomplicated wounds of the small intestine which are suitable for treatment by the operation of suture all recover; the operation is no more serious than an appendectomy. Lately we had a case which showed fifteen perforations throughout the length of the small intestine, but all were suitable for suture, and an uneventful recovery was made.

Stomach wounds offer quite a good prognosis when they are uncomplicated, but unfortunately this last desideratum is very rarely present.

Wounds of the colon, even when uncomplicated, demand a grave prognosis. The gravity arises from the liability which there is of infection of the retrocolic and retroperitoneal tissue.

In uncomplicated wounds of the solid viscera a good prognosis may be given.

But as we have said in a former paper, there is this fact to be recognized, that one must be prepared for repeated most bitter disappointments; yet, when a series of cases is reviewed, the gains seem infinitely greater than the losses. The prognosis, of course, very largely depends on the degree of the injury sustained; but an even more important factor is the length of time which has elapsed since the injury was sustained. Early operation offers the best and surest chance of ultimate success. In reviewing the statistics of the results of such operations as these it is impossible to consider the question *en masse*. Each individual case must be considered, for the chances of success depend upon so many factors that it varies enormously in different instances.

We wish to acknowledge our indebtedness to Colonel Cuthbert Wallace, A.M.S., Colonel Hewetson, A.M.S., Lieutenant-Colonel Wear, R.A.M.C.(T.), Lieutenant-Colonel Frankau, R.A.M.C.(T.), and to the officers of No. 3 Mobile Laboratory.

ABDOMINAL INJURIES IN A CASUALTY CLEARING STATION.

BY

MAJOR A. DON, F.R.C.S., R.A.M.C.(T.).

IN civil life, when a surgeon was confronted with an acute abdomen, his advice, if he saw the case in time, would always have been unhesitatingly "exploratory laparotomy." In fact, that term stood for diagnosis, treatment, and prognosis, all in one. Out here we hesitate. Some of the cases get well under expectant treatment, and it is then never known for certain what, if any, injuries they have had; others die, and even if *post-mortem* examinations reveal the causes of death, one cannot be sure what would have been the result of operative interference.

There seems, however, no reason to depart from our previous pre war attitude. We have learnt a good deal, and advanced considerably, thanks to the work of Surgeon-General Bowlby, Colonel Wallace, and others in this field. An abdominal injury now means to most of us "see and treat," not "wait and see." Even if the patient be *in extremis*, there is a better chance by operation. There is often none after waiting. Even in the presence of advanced peritonitis an operation with drainage has occasionally succeeded, and the suggestion of high entero-colostomy put forward by Mr. Sampson Handley in the BRITISH MEDICAL JOURNAL (April 8th, 1916) seems a distinct advance on the treatment of peritonitis by drainage alone.

In many cases there is merely a continuous haemorrhage going on, and, when that is so, the chance of recovery, even in the most serious case, is good, once the haemorrhage is arrested. Ether anaesthesia and saline always bucks a patient up a little, and haemorrhage from abdominal injuries is by far the commonest cause of death within the first twenty-four hours. Peritonitis is a later danger, arising from rupture of a hollow viscus, or infection of the effused blood, and except in wounds of the stomach and upper part of the small intestine, where the contents are acid and irritating, peritonitis does not produce at first painful and alarming symptoms or so great shock as does simple haemorrhage. The escape of the contents of the small intestine lower down, and of the colon, is rare in cases seen early in the casualty clearing stations—say during the first twenty-four hours. It seems as if the bowel were so completely paralysed by the blow caused by the rapid transit of the missile that no movement takes place for at least twenty-four hours, and infection only in the track of the wound is found on opening the abdomen. So slight may be the change in position of the bowel that the injured part is almost with certainty located at once on opening the abdomen, lying just beneath the wound. Perhaps the morphine usually administered in the field ambulance helps to produce this effect, while the motor ambulance journey from the front may help occasionally to cause escape of bowel contents. Wounds of the stomach, the contents of which are often aseptic, may get sealed up by omentum or otherwise during this period of quiescence, and such wounds may heal without operative treatment if the patient is kept quiet and food withheld, but it is a hazardous chance to take.

INDICATIONS FOR LAPAROTOMY.

The indications for laparotomy would seem to be pain and rigidity of the recti, and marked shock or signs of haemorrhage. When these symptoms are marked, the diagnosis of serious intra-abdominal lesion is certain in nine cases out of ten, and in the tenth or doubtful case no harm will come from exploring. But there are ways and ways of exploring, and one of the most deadly is to evacuate the whole contents of the cavity all at once. It is an excellent method of finding the damage quickly, but it is equally quick in killing the patient by shock.

Pain varies in degree, but haemorrhage pure and simple into the peritoneal cavity has seemed to cause more pain and greater early mural rigidity than any other condition. It is not easy to explain this almost constant feature. There is practically no immediate peritonitis in pure blood effusion. The intestines, away from the point of injury, are normal in appearance in every case. There are no flakes of lymph, and yet the patient may have been alarming the whole ward by his shouts and moans, and have his recti as tense as boards. The amount of blood in the peritoneal cavity is often extraordinary, and bleeding is generally still going on. This last feature is in part due to the pumping effect of respiration in producing a vacuum at every inspiration. For the abdominal cavity becomes a rigid closed cylinder into which the blood is sucked from the wounded vessels by each upward movement of the piston—the diaphragm. Nature's method of minimizing this pumping effect may be to keep the walls of the cavity taut. Wounds of the liver, colon, and spleen give rise to most speedy haemorrhage, but one may find the abdomen full of blood from rupture of one vessel in the omentum or mesentery. The facial expression and pallid appearance is that of haemorrhage more than of shock or of peritonitis—the well known "facies hippocratica." The abdominal wall, tense and retracted at first, becomes later full and plump, suggesting to the eye an ascitic condition. Dullness in the flanks and fluid in the pelvis may be made out, if searched for. The pulse is small, thready, and rapid. Everything suggests urgency. Nothing is to be gained by delay, and these cases are sent to the operating theatre as soon as it can be got ready. One cannot but deplore the loss of time due to the distance the patient has had to travel, the consequent great loss of blood and the shock of a cold and rough journey from the trenches to the casualty clearing station, and speculate on the advantages to these cases of a similarly equipped station a mile or two behind the firing line.

OPERATION.

In the majority of cases I now prefer to enter by the wound, which is made the centre of the incision. The incision itself goes obliquely downward, in the line of the nerve supply, when the wound is outside the rectus, and vertically downwards when in the area of the recti. An elliptical cut excises the wound first completely down to the peritoneum, and sufficiently wide to give a clean edge. The end of the elliptical incision is prolonged, giving an opening 7 in. to 9 in. towards the exit wound, which may even require to be extended in one or both directions later. I do not hesitate to divide both recti straight across if necessary, and to do this quickly I fix the muscles to their sheaths above and below with safety pins before dividing

m; this prevents retraction, and facilitates suturing r. Such wounds heal well.

s already mentioned, the injured organ will usually ound immediately underneath the entrance wound, and also gives the direction in which one ought to search injuries. The small bowel is examined from above nwards or from below upwards, according to the side which the operator is standing. The assistant examines side and returns the bowel, while the operator examines side next him as he pulls the intestine out. Not more n 2 ft. of small bowel should be outside at one time. is minimizes shock considerably, and I am convinced t even where the intestines are covered carefully with saline cloths there is greater shock. It may be the tact of a foreign substance or merely of the air, for ths usually become quickly cooled, and the exposed vel as quickly becomes red and inflamed and very much tended. The loss of heat must be very great, for the ck is considerable, and there is difficulty and delay in urning the dilated bowel and suturing the wall of the lomen at the end of the operation. It is curious that ans with no apparent sensory nerve supply cause atest shock in surgical handling. When a rent in the vel is found, it is immediately dealt with either by ple closure or by excision. Two clamps are put on just ht enough to prevent slipping, one on either side of the t injured, and with their points meeting on the sentery (Fig. 1). The injured part of the bowel between



FIG. 1.—The dotted line shows the incision; the clamps are brought together in the direction of the arrows for suture.

e clamps is cut away, leaving an inch of bowel and half inch of mesentery outside the clamp for suturing. An d-to-end anastomosis is done immediately. The operator quires no assistance for this, and the assistant is free to arch for and remedy other injuries. I have not had to move more than 1½ ft. of small intestine at one place, en where there were multiple rents and bruising. Care ust be taken when putting in the inner bowel suture herwise obstruction will occur, as happened in one of r cases (Case IX). I have seen no advantage in excising ide of the injuries, as the bowel is usually quite rmal up to the edge of the rent. One's chief aim ght to be speed and short exposure with efficient rkmanship.

The traverse of the missile must not be the only area amined for injuries. Several times in my first cases I id to regret not having examined wider, especially when ne had been hit by the missile on entering. Two cases ed on consecutive days from perforation of the small wel by splinters from bone. In the first case (Case XI) ere was a pelvic wound involving the urethra. A small rforation of the peritoneum was noted at the operation, id the pelvic portion of the small intestine was bruised, it apparently not perforated. At an autopsy two small nts were found higher up with a spicule of bone sticking one of them. There was also general peritonitis. The her case had a wound of the left costal margin, where e spleen and stomach were herniated into the pleural ivity through a rent in the diaphragm. Four perfora- ons were found after death in the jejunum, close together, ith general peritonitis. In neither of these cases was ere much blood in the peritoneal cavity, but both patients ad bled much before operation, and were so bad that robably they would not have survived had an abdominal cision and suture been added to the other treatment hich had to be done to stop haemorrhage and repair the ladder and diaphragm.

The concussion force of the missile is sometimes so reat that organs like the liver, spleen, and kidneys are ruptured and even completely destroyed without being in what one might designate the traversed area. I have not found a hollow viscus burst by the centrifugal force or concussion wave from the missile, but I have met this condition in civil practice and recognize its possible occurrence.

After thorough search has been made through the entire abdominal cavity and repair effected, normal saline as hot as can comfortably be borne by the operator's arm, is poured in from a jug by an orderly and the whole abdominal contents thoroughly washed. This should be repeated till the saline is almost colourless. Enough fluid is left in to fill the pelvis and lumbar pools, but not to prevent easy closure of the wound by floating the omentum and intestines into the operator's way. The stimulation from this treatment has always been noted by the anaesthetist as very beneficial to the heart and respiratory organs. It restores a patient who has been causing anxiety almost immediately, and I have never noted bad effects from it subsequently.

Drainage by a split tube and gauze wick is used only where there has been a possibility of leakage of bowel contents, not in cases of pure haemorrhage, and latterly often not even in cases of perforation, where there is no evident soiling. Subsequent peritonitis where haemorrhage has been arrested and all perforations closed has been rare.

AFTER-TREATMENT.

Intravenous salines are given before, during, or after operation, as seems advisable. After the patient is returned to bed warmth and quiet is most essential. The bed is raised at either end, according to circumstances. If the patient is suffering from shock the head is kept low, and if there is a liability to peritonitis and a pelvic drain has been left the head is raised. The greater proportion of the cases are treated in the horizontal position right through, and are allowed to lie in the position of greatest personal comfort. After the effects of the anaesthetic have passed, good results and an absence of thirst may be got from Lieutenant Lawrie's drip method of hypodermoclysis, or saline enemata may be administered at intervals. Feeding by the mouth with tea, beef-tea, and milk is begun as soon as patients recover from the anaesthetic. An egg-flip with the juice of half a lemon and a dessertspoonful of sugar is often appreciated, and is given when thirst is excessive and there has been no high perforation of the alimentary canal. Of drugs, few besides morphine before operation and pituitrin when the bandage begins to tighten, have been in use. Eserine seems to possess no advantages over pituitrin, and I have thought its action less certain. A turpentine enema relieves flatulence if given half an hour after the pituitrin.

These patients may be sent to the base after six or seven days if necessary, but in normal times they are retained at the clearing station till all danger is past. They should be well wrapped up and dispatched to the train with the last ambulance car.

WOUNDS OF THE VARIOUS ORGANS.

By the time these cases reach us there is little to guide one as to the organs injured, and it is just as well, since some surgeons advise leaving alone injuries to particular organs. It is nearly always possible to distinguish severe haemorrhage from simple perforation of gut. The symptoms of haemorrhage are much more severe by the time the cases reach us—generally six to twelve hours. Simple rupture is very apt to escape notice when other injuries of a severe nature are present, and the only way to avoid mistakes is to follow every missile likely to have penetrated the abdomen.

Liver.

Haemorrhage is the chief danger, and many cases reach us in a dying state with the abdomen full of blood, and that from comparatively small tears from rifle bullets. The bleeding is generally from the under surface and is difficult to control by suture. Bile is a post-operative complication up here, and as the worst wounds are drained it escapes along the tube track to the outside. The extent of the damage to the liver bears no relation often to the apparent traverse of the missile, especially in tangential wounds on the right costal margin. The concussion force may destroy half the liver, even where the bullet has not

hit the organ at all, and in one of the cases (Case XII), when the bullet just touched the lower border externally, passing along the anterior and outer side of the chest and fracturing the ninth rib, the whole of the liver to beyond the portal fissure was blown to pieces, leaving a few tags of tissue sticking to the almost uninjured upper capsule. The centrifugal force of the concussion waves was also shown in this case by the right kidney being split into four completely separated pieces, and yet the kidney was two inches or more from the nearest point of the bullet track. Liver tissue is quite easily sutured with strong catgut, the needle being entered after the eye. Where there is a gap in the liver tissue a piece of undetached omentum should be stitched into the gap to control the bleeding and make the grip of the sutures more secure.

Spleen.

Wounds of the spleen are not so numerous. I have seen only five. Haemorrhage would seem to be severe at first, as I have found in all but one of my cases the abdominal cavity full of blood, and very little, if any, active haemorrhage. The omentum has in every case formed adhesions so firm that they surprised me at first. The one with little haemorrhage was herniated into the pleural cavity and the vessels strangulated in the opening of the diaphragm. The spleen is difficult to suture and bleeding from the fresh needle holes is serious. A covering of omentum may be tacked on if the spleen is so little damaged as to be useful. It is better to leave it if possible, as blood repair is much more speedy than when the spleen is removed. In the three cases when I removed it, two died, though one had perforation of the small intestine as well, and the other had a completely destroyed left lung with haemothorax.

Stomach.

Wounds of this viscus are frequent, and are supposed not to be so serious, as it has been suggested that operative interference here is unnecessary. They give rise to great pain, and as undigested food and free gas meets one on opening the peritoneum these injuries are not easily overlooked. The posterior rent may escape notice, and is often difficult to repair. In one case I failed to find the posterior rent even after careful search, and almost absolute certainty of its existence from haemorrhage into the lesser sac. It was found *post mortem* at the cardiac opening quite out of reach. I have not had to excise any part of the viscus nor to do a gastro-enterostomy.

Colon.

I have not met with any wound of the middle part of the transverse colon, though several times there has been much blood effusion, both in the mesocolon and into the walls of the bowel. In one case the mesocolon was ballooned with gas, the piece of shell having passed right through it between the colon and stomach. The liver was damaged, and five days after operation food and bile passed out from the tube track. The ascending colon has been torn in several cases, once completely across. This patient recovered and had the colostomy repaired in Scotland. All the other cases were dealt with by simple suture, and with one exception, in which nothing was done owing to injury to the right kidney and shock, recovered. Only one wound in the descending colon has been treated. The chest and spleen were badly lacerated and drained, and a shrapnel bullet passed per anum with the first motion of the bowels. Rectal wounds are fairly frequent, but seldom fatal if the peritoneum is not opened. They are best treated by a colostomy. My fatal case was wounded behind the left trochanter, and the missile passed between the rectum and bladder and tore three rents in the pelvic small intestine (which were repaired), and passed out through the right pelvic wall, tearing the internal iliac vessels and causing severe haemorrhage, which had not completely stopped on the rectal side before the operation.

Bladder.

Injuries have occurred in four other cases, in one with extensive wounds of the small intestine. No treatment beyond catheterization has been necessary in any of them to allow their removal to the base. Suprapubic drainage would be required for more severe lacerations of the viscus.

Small Intestine.

Injuries to the small bowel are very frequent, and in my experience seldom fatal if got in time and uncomplicated by other gross wounds. Lately we have had only one death in uncomplicated cases. In all cases a circular anastomosis is done as described. In the fatal case the anastomosis was impervious, and, though a lateral anastomosis was done several days later, the patient succumbed to paralytic ileus. This would have been a good case to have tried Handley's operation, while doing the second operation, as vomiting continued more or less to the end (Case IX). There is practically no haemorrhage from simple tears of the small intestine and very little evidence of peritonitis from escape of bowel contents.

Accidents.

Twice there has been hernia of small intestine from giving way of a stitch in cases of through-and-through sutures put in for speed. Reposition under an anaesthetic was easy in both cases and both went to the base. I do not recommend the through-and-through suture, except when the patient is very ill and minutes are of importance.

A very collapsed condition from cold may be avoided if hot-water bottles are put round the patients in the field ambulances and the blankets properly tucked in. The stretcher canvas is no protection in itself from cold, and blankets must be put under as well as over the patient. Mistakes are very unusual, but very detrimental to recovery.

Records of Some Typical Cases.

CASE I.

Pte. O. R. Shell wound to right and below the umbilicus. Abdomen very rigid. Condition fair. Pulse 82, temperature 99.6°, respirations 20.

Operation.—Vertical incision through the wound. No free gas in peritoneal cavity, but some flaky fluid. No rent of viscus discovered. A pelvic drain was put in. Temperature never rose above 100° and pulse 120, on the second evening; the temperature was normal on the sixth day, pulse 72. Sent to base on the eighth day.

This was one of my first cases out here. Very little search was made for injury, and the result might be called fortunate in a case that might have done well without surgical intervention. I trusted to the absence of gas and faecal fluid as being an indication that there was no perforation of the bowel.

CASE II.

Pte. G. P. Wound in left thigh three inches below the trochanter major. The track went upwards in front of the femur towards the abdomen. There was no complaint of abdominal pain, but some rigidity of lower half. He was very much collapsed, and a drain was put into the thigh with some saline packing round about. His temperature at night was 99.8°, pulse 80. Next day he complained of slight abdominal pain and rigidity was more marked, and extended to the level of the umbilicus. Temperature 99°, pulse 84. Next day the temperature was 99.6°, and the pulse 90. Operation by paramesial incision; omentum adherent to the abdominal peritoneum, and some matting. Omentum pulled up, and about two pints of faecal and blood-stained fluid welled out from pelvis with some gas. He died the same evening. Two small rents were found in the pelvic part of the small intestine, one being blocked by a large piece of shell 1 in. square by ⅛ in. thick.

This was nearly a year ago, when operation on all cases was rather deemed inadvisable. This result, which might have been avoided by operation, led to my operating on nearly all cases showing any abdominal symptoms.

CASE III.

Pte. I. B. Accidental bomb wound to left of middle line in lower abdomen; much collapse.

Operation by incision through wound six hours after the accident. A small amount of blood-stained fluid in pelvis, three small tears in pelvic small intestine. Simple suture and drain left in pelvis; no lavage with saline. Second day, temperature 101.2°, pulse 98, respirations 26. He was in fair condition; drain removed. Temperature and pulse became normal on the fourth day, and he was sent to the base two days later. The condition found here was practically the same intra-abdominally as in Case II.

CASE IV.

Pte. B. K. T. Two wounds from trench-mortar shell thirteen hours before admission. Very collapsed, almost pulseless, abdomen very rigid all over and pain severe. Temperature 97.8° and pulse 130. The wounds were in the lumbar region, the larger just outside the erector spinae swelling and midway between the pelvic brim and the twelfth rib; the lesser on the left side of the third lumbar spine.

Operation.—Incision right paramesial, with centre below the umbilicus. Intravenous saline given during operation, about two pints; the peritoneal cavity was filled with blood; a large rent was found on the outer aspect of the ascending colon 1 in. above the ileo-caecal junction; bleeding still free, and some gas escaped as the colon was being brought up into the wound; no faecal escape. There was much bruising and infiltration of gut near the wound, which was closed in the usual way. Missile not found but probably in the colon. Abdominal cavity washed out with hot normal saline. Drain brought out behind through original wound. The temperature on the third day reached 101.6° and pulse 112. Sent to base on tenth day with no abdominal symptoms.

CASE V.

Pte. W. B. Shell wounds of head, left shoulder, and chest at level of the ninth rib in posterior axillary line. Admitted at 7 a.m.; wounded in early morning; too bad for operation when admitted. Pulse imperceptible at wrist, cold, and collapsed. He was warmed up and wounds dressed at 9 a.m. He had two pints of saline intravenously, and warm saline enema with one ounce of brandy. He recovered somewhat, and was taken to the operating theatre at 2 p.m. for examination of the chest wound. This wound was found to penetrate the chest cavity, to pass through a tear in the diaphragm, and to have torn the spleen. The splenic flexure of the colon was badly bruised and infiltrated but no rent was found. There was much blood both in the pleural and peritoneal cavities, and both were drained through the wound; part of the wound was excised and closed. The wound in the back was explored for ten inches and laid open and excised. A large piece of shell was found at its lower end, and pieces of cloth. The head wound was dressed merely, as he was too ill for further operative treatment. The same evening the pulse was 136, temperature 101.2°, and respirations 30. He improved somewhat next day, but on the third day his pulse was 124, temperature 104°, and respirations 32, and there was a good deal of dirty purulent discharge from all the wounds. Intellect clear. He became very emaciated, but temperature and pulse improved till on the tenth day they were 101.4° and 98 respectively; respirations 28. Pus contained *Staphylococcus aureus* and *albus* and streptococci, and a Gram-negative mobile bacillus. He went to the base on the thirtieth day with wounds almost healed.

CASE VI.

Lieut. F. Admitted 1.30 p.m.; wounded by rifle bullet from sniper at 7.30 a.m. Entrance wound in front of and just below tip of twelfth rib, and exit wound in front 2 in. below tip of ensiform in middle line. He was very collapsed and cold, and bleeding was free from the anterior opening. Taken to operating theatre at once. Incision excising anterior wound. A piece of edge of liver between gall bladder, which was intact, and the round ligament, was torn out, extending 2 in. deep into its substance. Severe haemorrhage on removing clot. This was controlled by a plug of gauze, while the rest of the abdomen was explored. Mesocolon much bruised and inflated by gas. Cavity washed out with hot saline. Liver injury sutured after plugging with omentum. Tube put down to depth of wound. No other wounds were found, but the patient was too bad for prolonged search. Intravenous saline given during operation.

Second day: Had fair night, still collapsed, pulse 130, temperature 102.2°. Third day: Temperature 103°, pulse 126. Blood in urine both yesterday and to-day. Much discharge of blood-stained bilious fluid. Fifth day: Tube removed, and being difficult to replace, was left out. Complained of tightness in evening. Wound opened by dressing forceps and about one pint of bilious fluid escaped; smaller tube inserted. Sixth day: Temperature 101.5°, pulse 116, respirations 28. Some milk given by mouth escaped through the wound. The temperature came down to 99° on the ninth day, and he was sent to the base on the tenth day, when he was able to take a fair meal. He wrote three weeks later from England that the wound had closed and he was feeling pretty fit.

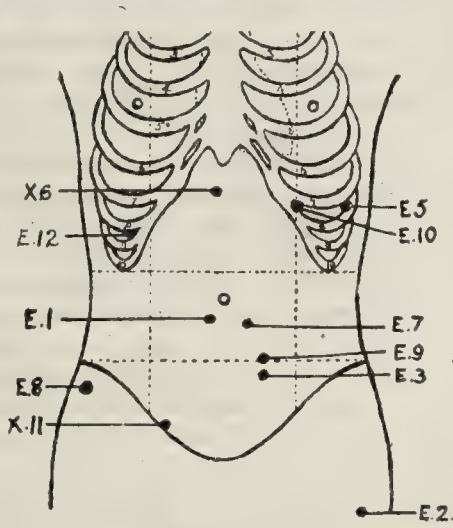


FIG. 2.

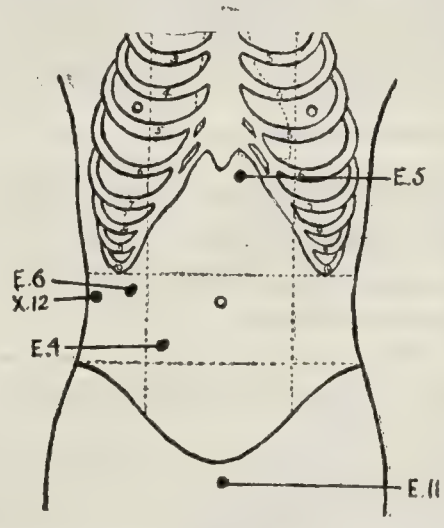


FIG. 3.

Diagrams to show position of wounds: E, entrance; X, exit. Fig. 2 shows wounds in front. Fig. 3 shows wounds behind. Numbers correspond to the number of the case in text.

CASE VII.

Pte. C. S. Admitted 7.30 a.m. Shell wound half an inch in diameter over outer edge of right rectus, two inches below the umbilicus. Very cold and collapsed. Pulse 120, temperature 96°. Abdomen rigid and very painful; urine drawn off, one pint, clear.

Operation 9 a.m.—Incision round wound. Much blood, one tear in caecum found. No escape of faeces, but still bleeding—sutured; peritoneal cavity washed out with hot saline; drain into pelvis. Had saline hypodermically by Lawrie's method.

Second day: Improved. Third day: Patient cold and blue. Pulse regular but feeble, 118; temperature subnormal. Colour dark and some yellow staining of conjunctiva; vomiting bilious fluid. Diarrhoea. Fourth day: Distinct improvement, bowels moved twice. Some suppuration from pelvic end of incision. Fifth day: Is much better, no diarrhoea, abdomen soft. Still having saline. Abdominal wound suppurating top and bottom. He continued to improve, and went to the base on the twelfth day.

CASE VIII.

Pte. I. M. T. Shell wounds of abdomen and leg; wounded the day before. Wound over right ilium 1½ in. below crest and on outer side. Other wound through right calf. Tibia shattered, and much gas and haemorrhage. Very collapsed. Abdomen very rigid. Pulse 116, respirations 38, temperature subnormal.

Operation on Admission.—Paracentral incision on right side. Much blood; two tears, each 2 in. in length, at hepatic flexure, one in ascending and one in beginning of transverse colon. Sutured and drained through right lumbar region. Piece of shell not found, but the patient's condition prohibited a thorough search. Second day: Had a fair night; complains of pain in breathing. Pulse 120, temperature 101.4°, respirations 34. Third day: Bronchopneumonia with pleuritic friction sounds. Pulse 116, temperature 102.2°. Sixth day: Temperature 101°, pulse 108, respirations 30. Leg not doing well. Incised for gas and dressed with hypertonic saline packs. Abdomen soft. No discharge from drain wound. Bowels moving daily. He was sent to the base on the seventh day.

CASE IX.

Shell wounds of abdomen and left hip. Abdominal wound half-way between umbilicus and pubis, and just outside rectus on left side. Second wound large tear above and behind trochanter major through glutei. Collapsed; much external haemorrhage. Wounded seventeen hours before admission. Opening made obliquely through oblique muscles and left rectus. Many rents in small intestine in two places; 1 ft. excised at one place, and end-to-end anastomosis done; 3 in. removed at a second spot three feet from the first. No other perforations found, and piece of shell not found. Wound closed without drain. Did well for three days, then vomiting and other signs of obstruction developed. Abdomen reopened on fourth day. No peritonitis; obstruction at place where most bowel had been removed. Lateral anastomosis done. He improved slightly after the second operation, but gradually got worse again, with signs of ileus, and died on the eighth day. The wound in the thigh was very septic.

CASE X.

Shell wound of abdomen. Admitted 11.30 p.m.; wounded during afternoon.

Operation 3 a.m.—Pulse 120. Much rigidity and pain. Second wound on right side of chest. Incision included chest wound over ninth costal cartilage and passed down the middle of the left rectus. The missile had passed through the liver. Some haemorrhage. Wounds closed by suture. The peritoneal cavity contained lymph flakes and undigested food. A wound found in the anterior wall of the stomach was sutured; and a wound in the omentum and jejunum was closed. The peritoneal cavity was washed out with hot saline and a drain left in the pelvis.

Second day: Very bad, delirious. Pulse 160, temperature 99.5°. Third day: Has had a better night. Getting rectal salines and hypodermoclysis. Fifth day: Improved and conscious. Wound of skin septic; was strapped. Pulse 90, temperature 99°. Very peevish and thirsty and vomits frequently. Tenth day: Has been much better and retains food. Is anxious to get home to England. Twelfth day: Sent to base. Wrote afterwards that he was doing well.

CASE XI.

Captain E. Admitted 2 a.m.; wound in right groin; soaked with blood. Very collapsed. Pulse 126. Almost moribund from loss of blood. Wound, a round hole 1½ inches across, above Poupart's ligament, exposing iliac vessels on either side. Transfusion with saline. Second wound, entrance (?) in perineum, small slit ¾ inch long. Injured previous afternoon.

Operation on admission. Great difficulty in arresting haemorrhage from neck of bladder and obturator vessels and cord, which had been divided by bullet. Testicle removed. Two small openings found in peritoneum. Pelvic small intestine bruised; no perforation. Drain through lower wound, upper wound closed. He did not improve after operation, but lived thirty-six hours. *Post-mortem:* Small hole in caecum, gas escaping, and piece of bone blocking hole in small intestine. General peritonitis in lower half of abdomen.

CASE XII.

Corporal S. M. Wound of right side of chest three inches below nipple. Entrance wound one inch below costal margin on right side; exit wound in right lumbar region. The ninth rib was broken. Almost moribund. Pulse weak and uncountable.

Operation.—Wound excised along whole extent. Tear in peritoneum 1½ in. long. Liver examined and sutured along what seemed a torn margin for 8 in. Tube left in. No injury to hepatic flexure. Further examination negatived by condition of patient. Did not rally, and died six hours after operation, in spite of intravenous and rectal salines.

Liver found completely destroyed to beyond the gall bladder. Sutures were holding edges of superior and posterior parts of liver capsule. Right kidney split into four pieces. No injury to bowels.

I wish to acknowledge my indebtedness to Lieutenant Connell for taking notes of these cases, and to Captain W. A. Rees and Lieutenant Lawrie for able assistance at operations and for the after-care of patients.

NOTE.—This paper was written and sent for publication in March, 1916. During the first ten days of July, 1916, 42 cases of abdominal wounds were admitted to the casualty clearing station. Owing to the number of wounded many were necessarily not operated on and the statistics are rather curious. Of 12 cases operated on, 8 recovered; of 30 not operated on, 18 recovered—giving a mortality of 33⅓ per cent. after operation and 40 per cent. without operation. These statistics alone are very misleading, as all the cases selected for operation had been wounded within twenty-four hours of their admission to the station, while the thirty cases not selected for operation had all been wounded for more than twenty-four hours, and most had been lying out for two or three days. No doubt these were the survivors of many more serious abdominal wounds, most of whom had died before the battlefield could be cleared, and no conclusion can be drawn from such statistics as to the value of operation, though one might say that after the first twenty-four hours the benefit to be gained from operation is questionable.

ON THE INDIAN OPERATION OF COUCHING FOR CATARACT.

BEING A SUMMARY OF HUNTERIAN LECTURES DELIVERED AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

BY

LIEUT.-COLONEL ROBERT HENRY ELLIOT, I.M.S.(RET.).

THE operation of couching for cataract was practised and described by Celsus at the very beginning of the Christian era, and many contributions to the literature of the subject have since been made. It is probable that it was introduced into Europe from the East, and it was certainly known and practised in the Orient for many hundreds of years before its first whisper in the annals of Western surgery. From the time of the first advent of the British surgeon to India, couching attracted much notice, but it was not till the work of Lister began to bear fruit that the crude and filthy methods of the coucher excited a due amount of horror in the minds of the exponents of modern surgery. The lecturer said that he had studied the methods of these men for over twenty years and had collected carefully-compiled records of 780 cases of couching; in addition he had been able to obtain fifty-four globes on which the operation had been performed. This latter collection he has now presented to the Museum of the Royal College of Surgeons of England.

There are two distinct operations performed—namely, the anterior, in which the lens is attacked through the cornea or limbus from in front, and the posterior, in which the incision is placed behind the ciliary body, well back in the sclera. The latter is by far the more scientific procedure, two instruments being used, and a deliberate attempt being made to break down the suspensory ligament of the lens, before its dislocation is attempted. Owing to the dirty methods of its exponents, and to the crude instruments used, the results of couching are very bad indeed, only 21.64 per cent. of the operations yielding a visual result equivalent to 1/10 or better. It is estimated that the coucher loses 60 per cent. of eyes which might reasonably be saved by better and cleaner methods of operating for cataract. The principal causes of failure are, in order of frequency, iridocyclitis, glaucoma, and imperfect dislocation. In a few cases these men mistake other conditions —such as glaucoma, optic atrophy, and retinitis — for cataract, and operate on them. The lectures dealt with the pathological side of the question, and took up a number of subjects in turn.

THE VARIOUS DIRECTIONS IN WHICH THE CATARACTOUS LENS MAY BE DISPLACED.

Dislocation forward was only found four times in all the fifty-four globes examined. In one the lens lay impacted in the angle of the chamber; in one it was fixed between the ciliary body and the sclera, having reached that position by way of the broken-down pectinate ligament; in one the capsule of a Morgagnian cataract blocking the angle of the chamber over a wide area was the only evidence of the lens remains; the nucleus and the contained fluid had escaped.

Dislocation backward was the rule. For convenience sake all such dislocations were classified into a number of groups according to the position of the lens and the greater or less amount of fixation it displayed in its new position.

1. The lens was found floating freely in the vitreous, which was little altered in structure, though presenting slight filmy evidences of inflammatory infiltration.

2. The lens was entangled in a more or less consistent exudate, which occupied the anterior portion of the vitreous chamber and which distinctly limited its movements.

3. The lens was fixed to the back of the iris and ciliary body or to some neighbouring part by definitely organized inflammatory tissue, which represented a farther stage of the process sketched in the previous class. The degree of organization present in the shrunken cone of vitreous, which was usually in continuity with the inflammatory tissue fixing the lens, varied very greatly in different cases. In some, definite fibrous tissue was abundantly in evidence.

4. The lens was matted in a dense mass of cicatricial tissue, lying between the inflamed iris and ciliary body in front and the completely detached retina behind; the detachment of the retina had been produced by the shrinkage of the inflammatory exudate poured into the vitreous cavity. In these cases the septic infection had clearly been of an intense character, and the inflammation set up had been correspondingly severe.

5. The lens, though dislocated backward, lay in front of the anterior hyaloid membrane, and therefore outside the vitreous chamber. The septic infection also appears to have been less intense. These two factors distinguish the globes of this group from those just previously considered, with which in other respects they have distinct affinities.

6. The peripheral cortical remains of the lens lie *in situ* imprisoned in the capsule, and are all that is left of the cataract; they correspond to the after-cataracts met with after extraction.

7. In two cases the lens was thrust in its capsule through the retina, and lay between that membrane and the choroid coat.

ACCIDENTAL INJURIES TO OTHER STRUCTURES THAN THE LENS DURING COUCHING.

Though the object of the coucher is to dislocate the lens, he may accidentally injure any of the other structures of the eye. These are now taken in turn.

The Cornea.—Opaque scars on the cornea are frequently met with clinically, but are hard to recognize in formalin-hardened specimens. In one case a fistula of the cornea was present; it had been associated with anterior staphyloma, which had burst along the track of the original injury, leaving a permanent drain behind. In another case there was a capsulo-corneal synechia, and in a third a retino-corneal synechia.

The Sclera.—Injuries of this coat are common, as the incision is made through it in the posterior operation, but they are hard to discover, and there is an element of chance in their detection. They are best recognised by the pigmentation that follows disturbance of the underlying uveal coat. In one case a scleral fistula persisted as a result of the operation, and gave rise to a filtering cicatrix on its surface. In another case the scleral wound had closed firmly by cicatricial tissue, in which the ciliary body was impacted. Lastly, there was an instance of a wound through the limbus, in which the scar could be followed throughout its course in microscopic sections of the part.

The Uveal Tract.—Injuries to the iris are quite commonly seen clinically, and are also to be found in evidence in the series of globes before us, either in the form of tears, which widely alter the outline of the pupil, or in that of atrophic scars. In one case, already referred to, the ciliary body is extensively detached from the sclera by traumatism, and in a number of others a similar detachment is due to the shrinkage of inflammatory exudates within the eye. Wounds of the ciliary body itself are common; some of these lie across the front of the ciliary processes, or at their junction with the iris; others cut right through the processes themselves; whilst yet others lie in the orbiculus ciliaris. Nor does even this mark the posterior limit of the scars made by the coucher's incisions, for there are globes which show these lying on the equator of the eye, and even well behind it. Not the least interesting of these is one in which a strictly localized inflammation within the tunics of the eye marks the spot at which the copper tip of a coucher's probe had probably been broken off during the operation.

Uveitis.—The type of inflammation of the uvea found in these specimens was, with one exception, plastic, and was mostly confined to the iris and ciliary body. The intensity of the septic infection varied greatly in different specimens, and this was faithfully reflected in the severity of the inflammatory process found in different globes. In some the latter was extremely slight, whilst in others it led to severe matting of the parts, which wholly obscured the normal anatomical arrangements. All intermediate stages between the very slight and the very severe inflammations could be readily traced. The lenses involved in the inflammatory changes showed phagocytosis, liquefaction, or calcification, as the case might be. In only one instance has any evidence of proliferative uveitis come to light, and in this one the nodule in the iris consisted of mononuclear leucocytes; epithelioid and giant cells were conspicuous by their absence. The interest of this observation lies in the evidence it affords that the danger of sympathetic mischief in the second eye is not great after the operation of couching. The lecturer's clinical experience bears out the correctness of this view.

THE CHAMBERS OF THE EYE.

The anterior chamber was found very shallow in a large percentage of cases; in several of these *l'iris bombé* was present. A rare condition was the complete obliteration of the cavity by adhesion of the iritic exudate to the posterior surface of the cornea. Abnormal contents were found in a number of cases; these consisted of pus, of blood, of a mixture of pus and blood, of vitreous, of lens matter, and of structureless albuminous exudate.

The Vitreous Chamber.—In the great majority of the eyeballs the vitreous body had become infiltrated with inflammatory material, which tended to undergo organization, to contract adhesions to the retina and to the iris and ciliary body, and finally, to shrink and become detached, dragging the retina away from its bed in the process. The steps would appear to be: (1) an infection of the vitreous body, and of the structure surrounding it, by septic matter during the operation; (2) the outpouring of an inflammatory exudate into the vitreous, partly as a result of inflammation of the uveal tract and of the retina, and partly in consequence of the chemotaxic attraction exerted by the infected hyaloid body; (3) the organization of these products and the contraction of adhesions between them and the retina; and (4) their contraction, resulting in retinal detachment. The organization of the exudate was most marked in the neighbourhood of the optic nerve and in that of the ciliary body. In some cases a definite cone of exudate was present; in others the effusion was represented by a mass occupying the anterior portion of the chamber. This latter appearance is due simply to an artefact, the apex of the cone of exudate being broken across, either in the preparation of the specimen or in the subsequent handling. This has been proved in a number of ways. These cones of exudate are intimately connected with and frequently form part of the inflammatory material which has been described in a previous section as fixing the dislocated cataract immovably in its abnormal position.

THE RETINA.

Detachment of the retina occurred in over 70 per cent. of the globes. All stages were represented, from very slight and partial detachments up to absolutely complete ones, and to those in which the retina was rolled up like a stick. In the immense majority of the cases, the cause of detachment was contraction of the exudate, which occupied the vitreous cavity. The following three other causes were operative in a very limited number of cases: (1) direct trauma from the push of the operator's knife; (2) displacement due to the lens being thrust through and under the retinal coat; and (3) the pouring out of blood between the retina and the choroid as a result of the wounding of the vessels of those coats.

Dots on the Retina.—A striking feature of a large number of the globes of this series is the presence of numerous dots on the retina. These varied greatly in size, in colour (from white to grey or glistening), and in number; but in one form or another they could be recognized in more than 50 per cent. of all the eyes examined. Some of the specimens show them so prominently that it would be hard to overlook them, whilst in others a careful search with a loupe was required to reveal their presence. Most of the cases were of very long standing, indicating that probably the phenomenon is a degenerative one; but on the other hand it is to be remembered that though the histories given showed it was many years since the couching, the actual loss of sight had not infrequently been due to a comparatively recent intercurrent inflammation. Considerable difficulty has attended our search for the anatomical cause of these dots, and the investigation is not yet complete, but three appearances have been found which seem likely to be sufficient to account for the dots in different cases; it is quite certain that the cause is not the same in all. These three phenomena are: (1) Localized proliferations of cells along the course of some of the retinal vessels; (2) collections of mononuclear cells on the surface of the retina, lying external to the limiting membrane; and (3) small cysts developed in the walls of the retina, as the result of the coalescence of oedematous spaces therein formed. Of the latter process there is abundant evidence in quite a number of the specimens.

GLAUCOMA.

If due allowance be made for the fact that a number of the globes had undergone late changes which were calculated to hide the evidence of a previous glaucoma, we find that 19 out of the 30 left had suffered from high tension. In 3 of these the angle of the chamber was freely open, and in 16 it was closed. Of the 3, one showed a free communication between the aqueous and vitreous chambers; in the second a bulky Morgagnian lens closed a large part of the angle of the chamber; and in the third there was good reason to think that the glaucoma had existed before the operation was undertaken. Taking the remaining 16 cases together with certain others in which the presence of glaucoma could no longer be established, the following conditions found present afford reasonable explanations of the causes of the raised intraocular pressure. In one there was a corneal fistula following a corneal staphyloma; in one there was a capsulo-corneal synechia; in one a retino-corneal synechia; in 5 the ciliary body was involved in the scar; in 6 the dislocated lens pressed extensively on the iris base; in 3 the lenses were tilted at right angles to their normal position; in 5 the pupil was blocked, and in 3 of these *l'iris bombé* was present; in 2 the anterior layer of the hyaloid was much thickened by inflammatory exudate; in one there was a dense after-cataract; and in one glaucoma had evidently been present before the operation.

The lecturer concluded with acknowledgements to those who had assisted in various ways.

IN January the (American) National Committee for Mental Hygiene began the publication of a new periodical entitled *Mental Hygiene*. It will be issued quarterly under the editorship of Dr. Frankwood E. Williams, and is intended for the discussion of mental factors in the problems of the individual and of society especially in relation to the study and practical management of delinquency, crime, and inebriety. The new periodical will endeavour to supply trustworthy information on those and kindred subjects not only to doctors, but to lawyers, clergymen, educators, public officials, and students of social questions.

Reviews.

LEONARDO DA VINCI AS AN ANATOMIST.

PROBABLY no man in human history has equalled, certainly none has surpassed, the prodigious versatility and range of achievement of Leonardo da Vinci. Supreme as a painter, he was also sculptor, architect, engineer, mathematician, physicist, and anatomist. For more than forty years he kept notes of experiments and observations in almost every branch of natural science, but he never found time to put them in order, and their importance was not appreciated by his biographers; hence the records were long lost to the world. Among them is an anatomical sketch-book which shows that Leonardo studied the structure and functions of the human body with the single-minded regard for facts which marks the man consumed with the divine thirst for knowledge. The drawings were intended to illustrate a great work on anatomy which was to have been written in conjunction with Marc' Antonio della Torre, the famous professor of Pavia; probably owing to the death of his collaborator it remained in the limbo of the unaccomplished. The notebooks were bequeathed to his friend and executor Francesco Melzi, who kept them as a sacred deposit during his lifetime; they afterwards lay forgotten in the Ambrosian Library at Milan, and ultimately found their way to the Royal Library at Windsor Castle, where they remained undiscovered till 1902.

Thanks to the pious care of three Norwegian lovers of art and science, they are now being given to the world in a splendid reproduction. By permission of King George, photographs of the sketches, with English and German translations of the notes and summaries of the contents of each folio, have been prepared by Mr. OVE C. L. VANGENSTEN, professor of Italian; Dr. A. FONAHN, professor of the history of medicine; and Dr. H. HOPSTOCK, prosector of anatomy, in the University of Christiania.[1] The labour must have been very great, for Leonardo's script is difficult to decipher, and, besides abbreviations of words and sentences and occasional *lacunae*, the notes are so fragmentary and the language sometimes so obscure that it is not easy to be sure of their meaning. His eager brain was always busy about many things at the same time, and he jotted down his thoughts just as they came to him. Thus several sheets are filled with drawings illustrating the phenomena of light and shade, sketches of cranes, balances, cogwheels, and geometrical figures and ornamental designs. Sometimes the notes are hints to himself. The following is an example:

> When you figure the lungs make them perforated that they may not impede what is behind them, and let the perforation be all the ramifications of the trachea and the vessels of the artery [aorta] and of the vena cava, and then outside of these draw a profile round these which shows the true shape, site and quantity of these lungs.

Or he sets himself such problems as "to know what weight a ship can carry," and "to know how much the ship weighs in the air." He reminds himself to "reserve the drawings till the last of (the book) *On the Shadows*, and they were to be seen in the study of the miniature painter Gierardo, in San Marco, Florence," and to "give or lend the book *On the Water* to Meser Marcho Ant." Elsewhere there is the ground plan of a house with the note, "give the proportionate measurements," and such entries as "Guido the cobbler," and the suggestive word "money." Leonardo, though he received large sums and was patronized by Popes and princes, was a poor man all his life.

In more than one place he speaks with scorn of those who depreciate mathematical science. Mingled with praises of the Creator are sly hits at priests and even, it may almost be suspected, at the mysteries of religion. He defends dissection, and evidently had done much work in that way himself, or looked on while Marc' Antonio used the scalpel. One wonders where they got the material. Possibly the protection of Leo X made things easy till a charge of body snatching, brought against him by German craftsmen who lodged in his rooms, led to the temporary withdrawal of the papal favour. The charge may have been well founded, for only a few years later Vesalius had to find material in the cemetery and on the gallows.

Many of the drawings are finished and coloured; not a few are rough sketches, but all reveal the hand of the master. The notes and illustrations fill six folio volumes, four of which have appeared. The first, which was published in 1911, and briefly noticed in the BRITISH MEDICAL JOURNAL of October 25th, 1913, contains 13 folios, 22 pages reproduced in collotype, and 40 designs. The subjects illustrated are respiration, the alternating motions of the diaphragm and the abdominal muscles, the passage of the food through the alimentary canal, and the heart. The second volume, published in 1912, contains 24 folios, 33 pages of reproductions in collotype, and 240 designs. The sketches illustrate the anatomy and physiology of the heart and lungs. In the accompanying letterpress Leonardo gives an account of experimental work on the circulation and respiration. The third volume, which appeared in 1913, consists of 12 folios, and 20 pages reproduced in collotype; it deals with the organs of generation, the fetus, and its position in the womb. The drawings show that the artist had dissected the gravid uterus. Incidentally he refers to a question which has recently been discussed in our columns, the so-called *vagitus uterinus*, which he declares to be a delusion: "When women say that the child is heard sometimes to weep (*piangere*) within the uterus, this is rather the sound of some flatus which rushes out." The fourth volume has not been received.

Some years ago E. Jackschath, of Berlin, put forward a claim on behalf of Leonardo that he was the real founder of modern anatomy, and that Vesalius stole not only his discoveries but his drawings. It may be admitted that the painter of The Last Supper, with the collaboration of Marc' Antonio della Torre, was a pioneer in anatomy, but the fact remains that his work remained unknown for five centuries. Vesalius was the Columbus of a new world of science, and his *De Corporis Humani Fabrica* contained the announcement of discoveries which once for all upset the reign of authority in anatomy, and taught later toilers in the same field to seek for knowledge not in the works of the ancients but in the direct study of Nature. It is a somewhat sad coincidence that only nine years after the publication of that great work another famous anatomist, Eustachius, had a fate similar to that of Leonardo. His magnificent *Tabulae Anatomicae*, the first anatomical plates wrought in copper, were completed in 1552, but for some reason, possibly want of funds, the author was unable to publish them. For a hundred and thirty-eight years they remained in the possession of the family of Pinus, an intimate friend of Eustachius, and afterwards they were buried in the Papal Library at Rome. When discovered they were given by Pope Clement XI to his physician Lancisi, who published them in 1714. If they had appeared in the lifetime of the author anatomical discoveries of the eighteenth century would have been anticipated by two hundred years.

The editors of Leonardo's *Quaderni d' Anatomia* are to be congratulated on the scholarly thoroughness brought by them to the accomplishment of a task which could only have been undertaken as a labour of love. They have made not only students of anatomy and medical history, but all those interested in that glorious new birth of the human mind, the Renascence, their debtors. The publisher, too, is entitled to the highest credit for his enterprise in bringing out in so splendid a form a work which can scarcely be remunerative in a commercial sense. It is to the credit of the University of Christiania that it helped the undertaking by a subvention.

[1] *Leonardo da Vinci: Quaderni d' Anatomia.* II. *Ventiquattro Fogli della Royal Library di Windsor. Cuore: Anatomia e Fisiologia.* Pubblicati da Ove C. L. Vangensten, A. Fonahn, H. Hopstock. Con Traduzione Inglese e Tedesca. Christiania: Casa Editrice Jacob Dybwad. 1912. III. *Dodici Fogli. Organi della Generazione-Embrione.* 1913. (Large 4to; illustrated.)

NOTES ON BOOKS.

THE thirty-third annual issue of *The Year-Book of the Scientific and Learned Societies of Great Britain and Ireland*,[2] containing a record of the work done in science, literature, and art, during the session 1915–1916 by numerous societies and Government institutions, is compiled from official sources. It is a book serving every department of science, literature, and medicine. Some thirty-five pages are given to the heading Medicine.

[2] *The Year-Book of the Scientific and Learned Societies of Great Britain and Ireland.* Thirty-third annual issue. London: C. Griffin and Co., Ltd. 1916. (Demy 8vo, pp. 339. 7s. 6d. net.)

British Medical Journal.

SATURDAY, MARCH 10TH, 1917.

THE ARMY AND THE MEDICAL PROFESSION.

SEVERAL incidental references in the British communiqués to places south of the Somme have been crystallized into the statement, made by Reuter's correspondent at British Head Quarters on March 4th, that the British army is now holding more than twice the length of front it was occupying some twelve months ago, and that the number of German divisions confronting it is more than double. It is added that at the present moment the British are probably faced by nearly as many of the enemy as are the French, and that these include a very large proportion of what remains of the flower of the German army. When the full significance of this statement is pondered it will surprise no one to learn that the Medical Department of the War Office is compelled to make a further rather large call on the medical profession at home to supply more medical officers for the Royal Army Medical Corps. In the debate on the Army Estimates the Under Secretary for War said that between August, 1916, and the present time about a million and a half men had been examined by medical recruiting boards. It is obvious that the length of the British line cannot be doubled and another million and a half men taken into the army without a demand arising for a corresponding increase in the number of medical officers. Medical officers are as essential to an efficient army as those of any branch, and the Financial Secretary to the War Office paid a just tribute to the manner in which the medical service of the armies at our five fronts had done its duty. As he truly said, it is a most remarkable thing, considering the vast numbers of men, their density on the soil, and the highly cultivated and therefore poisonous condition of much of the soil, especially in France, that typhoid fever has been almost completely abolished, so that, taking France, Salonica, Egypt, and Mesopotamia together, there were only twenty-four cases in the last weekly return, and that, even when all diseases of the enteric group were included, the number of cases in France down to November 1st, 1916, was only 4,571, of which only 1,684 were definitely typhoid fever.

The work, then, has been well done; it is a point of honour with the profession that it shall not be allowed to fall below the high standard hitherto attained, but we must not blink the fact that it will not be easy to find the number of medical officers that the army requires to accept commissions in the Royal Army Medical Corps. The army has already absorbed the large majority of civilian medical men eligible by reason of age and physical fitness. At the end of 1915 it had claimed over 6,000; we shall probably not be far wrong in guessing that the number has since doubled. It is a matter of anxiety to the national professional committees to know from what sources the demands of the army—which are continuous owing to the wastage of war and increasing owing to the increase in the numbers of the army—are to be met.

We do not profess to have any special information, but it is clear that the possible sources are not very numerous. The second Military Service Act, passed in May last, altered the position, inasmuch as it imposed compulsory service upon all males between the ages of 18 and 41. The army and the navy, therefore, have a statutory claim upon all medical men under the age of 41. In estimating the effect of this, however, two circumstances have to be remembered: first, that a very large number of men under the age of 41 had voluntarily entered the service; and secondly, that they did so under a contract permitting them to relinquish their commissions at the end of any year of service. As a set off we have to reckon the number of men who will qualify during 1917. It appears from the tables supplied by the President of the General Medical Council and published in the SUPPLEMENT to the JOURNAL last week, that the number of male candidates for qualification in the three kingdoms will be 1,088, but as the Military Service Act does not apply to Ireland, we must strictly deduct 190 from this total, leaving 898. There is, however, good reason to expect from past experience that a large number of Irish medical students, on qualifying, will volunteer, so that, after making an allowance for men rejected by the army as physically unfit, we may expect in round numbers a total of, say, 900 newly qualified men available at various times down to the end of this year. But it would be rash to assume that more than half this number will be available by July, and most of these will probably be needed to fill the wastage due to sickness and casualties and to the relinquishment of commissions.

When we look at other sources we find, first of all, men under 41 who have not yet served. The army puts them in four classes: (1) Those fit for general service; (2) those fit for garrison duty abroad; (3) those fit for home service only; and (4) those altogether rejected. Something might be done to meet the demand by utilizing all men passed as fit for garrison duty abroad and filling up the places of those hitherto retained at home by men passed as fit for home service only. This, of course, would mean that men in this third category would receive commissions and be posted to any duties in any part of the country that the military authorities considered proper. We suspect that it will be found necessary to carry out this policy, and we shall not be surprised if it is found necessary also to tighten up the regulations with regard to the men under 41 who relinquish their commissions after one or more terms of service. They are, of course, still subject to the Military Service Acts, and if places to which they have returned in civil life can be filled by substitutes without serious detriment to the civil population, it may, we imagine, become necessary for the War Office shortly to call upon the majority of them to serve again. Should this course have to be taken we feel certain that the War Office will give favourable consideration to their special circumstances. On the strict interpretation of the law they might possibly be called back on conditions, both as to terms of service and pay, inferior to those they previously enjoyed, but it must be remembered that they are all men who volunteered. Their patriotic action in so doing gives them a strong claim to reinstatement at the same rank and emoluments.

There is at least one other source which will occur to everybody. The War Office nearly a year ago arranged to take for general service medical men between the ages of 41 and 45 who were willing to accept commissions in the R.A.M.C.; a large number of such men are now serving abroad. It may be considered proper to make a fresh appeal to

CHAMPAGNE-CHAMPAIGN

men of these ages, and possibly to extend it to men between the ages of 45 and 50. Men of that age may not be physically fit to stand the hardships and privations of the trenches, or the front line of a mobile force, but they could certainly undertake work such as many of their contemporaries are now doing at the bases and on the lines of communication.

The demands of the army, however, cannot be considered apart from those of the civil population, and if the further demand which we have suggested as probable in fact arises, it will make the mobilization of the civil profession more than ever an urgent matter. A conference of Local Medical War Committees for Scotland recently declared its opinion that the further substantial calls likely to be made can be met only by mobilizing the whole profession, by which is to be understood mobilization for the double purpose of meeting the demands of the army and of providing for the needs of the civil population.

The conference of representatives of the Central Medical War Committee, the Committee of Reference, and the Scottish Medical Service Emergency Committee, which the Director-General of National Service proposes to summon, under the chairmanship of Sir Donald MacAlister, has not yet met, but it will have been observed from the text of Mr. Chamberlain's letter, published in the SUPPLEMENT last week, that the first question for its consideration will be whether the service to be given by members of the profession should be compulsory or voluntary. It is, as the profession knows, definitely the opinion of the Manchester Medical War Committee that mobilization must be compulsory, that in that district all naval, military, and civil requirements could in that case be met, and that the Manchester system could be adapted to every area in the country. We believe that it is the general opinion of those who have studied the subject during the last two years that voluntary mobilization is likely to be unfair in its operation and not successful in attaining the end desired.

RESEARCH IN MENTAL PATHOLOGY.

THE importance of combining the clinical study of mental diseases with research in the laboratory dates back, we believe—in Great Britain at any rate—to Sir James Crichton-Browne's time at the West Riding County Asylum. The investigations then instituted were largely anatomical and histological, but the principle has now been applied in other directions to include biochemical investigations not only into the tissues after death but into the excretions during life. The doctrine that laboratory research should be a part of the work of every well appointed asylum or hospital for mental diseases is now very generally accepted, and it is not too much to hope that it is only a matter of time before it will be everywhere applied.

We have on several occasions been able to give some account of the pioneering work done by Dr. Mott in the London County Council laboratory established in connexion with Claybury Asylum, as also of the Scottish Asylums Conjoint Laboratory at Edinburgh under the able direction of Dr. Ford Robertson. We now have before us Dr. Easterbrook's report on the Royal Crichton Institution, Dumfries, for the year 1916, in which a good deal of space is devoted to the value of the work done by the laboratory established there some years ago.

We are glad to see from this report that, in spite of difficulties caused by the war, the work has been continued, and that valuable results have been reported. The fact that the association between the clinical work of the wards and the scientific work of the laboratory has become constantly more intimate was illustrated during 1916 by the increased number of examinations of blood, cerebro-spinal fluid, sputum, and other discharges; and therapeutic work with eusol was also conducted. Dr. Cruickshank, who, as pathologist and clinical pathologist to the institution, is in charge of the work at the laboratory, and who since the war had acted also as one of the assistant physicians, offered his services for the Royal Army Medical Corps early in the year, but it was arranged that he should not be called upon until some one else had been found to carry on the work. He was thus able to complete some investigations, which had occupied him two years, into the relative weights of the grey and white matter of the brain and of the water contained therein, as ascertained in a series of normal brains, and in another series of pathological brains exhibiting the characteristic wasting of prolonged mental disease. Hitherto it has usually been assumed that the wasting affected only the cortex, which was known to present marked structural changes in the form of degeneration and wasting of the constituent nerve cells and fibres. Dr. Cruickshank has shown, by the dissection and weighing of the two tissues of the fresh brain, that the white matter loses relatively more in weight than the grey, and this conclusion was borne out by estimates of the relative amounts of water contained in each. It was increased in both, but relatively more in the white, although in health the grey contains the larger proportion. Dr. Easterbrook considers that these conclusions, though revolutionary, are quite in keeping with the modern knowledge of the development and functions of the white nerve fibres. Before joining the Royal Army Medical Corps in November to take charge of a mobile laboratory with the British Expeditionary Force in France, Dr. Cruickshank also did some interesting experimental work in connexion with the Lange colloidal gold test of the cerebro-spinal fluid, but he had not time to prepare his results for publication.

Dr. Cruickshank was able to go into the Royal Army Medical Corps because in July Professor W. H. Thompson of Trinity College, Dublin, who had received permission from that college to take up work which would release a younger man for military service, joined Dr. Cruickshank in the laboratory of the Crichton Institution. The services of Professor Thompson were required from the beginning of this year by the Ministry of Food; but while he was at the Crichton Institution he not only carried out the routine work but, with the aid of the excellent equipment of the laboratory, was able to bring to a conclusion an important piece of biochemical research which he had begun in Dublin with reference to the origin of creatine. Its occurrence in muscle is of course well known, but it was not known how it was formed; Professor Thompson has found that when arginine, a body chemically related to creatine, which is present in most articles of diet, is injected intravenously or subcutaneously, it gives rise to an increased formation of creatine. Thus one at least of the modes of origin of creatine has been established. Dr. Easterbrook recalls that the widespread interest the subject of creatine formation has evoked during the past few years, particularly amongst American investigators, took origin in a research carried out by Professor Folin, now of Harvard, but at that time assistant in pathological chemistry in the laboratory of the M'Lean Hospital, Waverley, Boston, Massachusetts, one of the leading mental hospitals in America.

THE TRANSMISSION OF DENGUE.

SINCE the original work of Graham in 1903, of Bancroft in 1905, and of Ashburn and Craig in 1907, *Culex fatigans* has generally been supposed to be the real carrier of dengue. It is true that Bancroft had apparently two successful cases of infection with *Stegomyia fasciata*, the subjects being bitten by such insects twelve and ten days after they had bitten dengue patients. Clelland, Bradley, and McDonald have recently[1] followed up the insect carrier in an epidemic of dengue which was raging in Queensland, and had extended to some of the north coast towns of New South Wales. In a critical analysis of the previous work they point out that Graham admits that in many, perhaps in all, of his experiments *Stegomyia fasciata* was present amongst his mosquitos, and that therefore all he proved was that mosquitos can carry the disease, the variety or varieties remaining in doubt. They further criticize Ashburn and Craig's account of transmission by *Culex fatigans*. "The successful case," they say, "was probably one of dengue, but arguing on analogy with yellow fever, the very short mosquito 'ripening' period (less than two days) would make one accept it with reserve as originating from the mosquitos. One cannot certainly exclude the possibility of there being other sources of infection. Failing other evidence, the case is undoubtedly very suggestive of the possibility of Culex being a vector of dengue, but we can hardly understand the importance attributed to this isolated case by most textbooks." The three observers made two series of mosquito experiments. In the first, four persons were bitten by Stegomyia and two by Culex. The results were negative. There was, however, a large mortality in the mosquitos collected, and, except one individual who received ten bites, the bitings were unsatisfactory; these results are not further referred to in the paper. In the second series of experiments a collection of about 100 *Stegomyia fasciata* and 112 *Culex fatigans* was made from the district in which dengue fever had occurred; in some cases the insects were taken from the actual bedrooms where patients were lying sick with the disease. This heterogeneous collection was then given the chance of feeding upon a dengue patient, and many of both types bit freely. They were then taken to Sydney, a town free from dengue cases, and there produced the disease in four out of seven persons on whom biting experiments were made. That the disease produced was really dengue was proved by the fact that blood taken from three of the cases reproduced the disease when injected into other persons. Two cases were heavily and repeatedly bitten by *Culex fatigans* with no result. These experiments prove that *Stegomyia fasciata* can spread the disease, but whether *Culex fatigans* also may not do so is not quite clear from the context of the paper. It is, at any rate, not absolutely disproved. The failure of *Culex fatigans* to produce the disease in the two cases mentioned may have been due to non infection of the insects or to some insusceptibility of those bitten. More experiments are required to prove this point. It would be well to rear the mosquitos from larvae and then let them bite infected cases; this would also afford useful information as to the length of the cycle of development in the mosquito, the incubation period in man, and other interesting points. The observations, however, as they stand are very interesting and suggestive, even though they do not finally settle the point as to whether one genus of mosquito or more is implicated in the spread of dengue.

[1] *Medical Journal of Australia*, September 2nd and 9th, 1916, vol. ii, No. 10, p. 179; vol. ii, No. 11, p. 200.

THE WAR AND THE SUPPLY OF DRUGS.

IN a paper read before the Royal Society of Arts on February 28th Mr. F. A. Hocking, B.Sc., Pharmacist to the London Hospital, discussed from a practical standpoint the effect of the war on the supply of drugs. A large proportion of his paper was concerned with the relative numbers of drugs of first-rate importance hitherto obtained from the Central Empires and from other sources respectively. Mr. Hocking showed quite conclusively that, apart from the class of drugs known as "synthetics," we have actually been far less dependent upon Germany and Austria for our supply of important drugs than has sometimes been supposed, and that even in the production of medicinal chemicals English manufacturers have not really been, in the past, nearly so remiss as was frequently stated. He pointed out that even before the war efficient English substitutes could be obtained for many of the well-known German proprietary preparations. He also expressed the opinion that the shortage of certain vegetable drugs produced by the war hardly justified the large amount of attention lately paid to drug growing in this country, and asked, with a certain amount of justification, whether some of the energy expended in this direction would not be better employed in the production of food. Other points mentioned were the difficulties caused by the stoppage of the potash and bromine derived from the Stassfurt deposits, the profiteering indulged in by certain middlemen at the commencement of the war, and the fact that in some cases rises in prices have been caused by neutral producers taking advantage of the removal of German competition. The later part of the paper was devoted to a brief account of the very considerable progress achieved during the last two years by British manufacturers of medicinal chemicals in the face of great difficulties, and to a short discussion of the probable position of the drug trade at the end of the war. With regard to the latter question, Mr. Hocking rightly pointed out that the question of legislative assistance is difficult, and that in any case it is very necessary that manufacturers should co-operate with one another instead of indulging in unnecessary and wasteful competition, and that they should, if possible, be brought more closely into touch with British workers in the field of medicinal research than has been the case in the past.

BARLEY FLOUR.

THE restriction of the use of wheat flour has recently attracted considerable attention to the possibility of replacing it, at least partially, by other cereal flours, and, as stated in a recent issue of the JOURNAL, the Government regulations regarding milling now permit millers to add to wheaten flour a small proportion of flour derived from either barley, maize, oats, or rice. Of the four grains mentioned, from a dietetic standpoint, barley and maize are decidedly the best, since rice is seriously deficient in protein, while oat flour is liable to contain too high a proportion of husk for persons having delicate digestions. As regards the supplies available, barley probably possesses the advantage over maize, especially in view of the severe restrictions now imposed upon brewing, and, taking everything into account, it may be regarded as the most suitable substitute for wheat. Even barley, however, has the distinct disadvantage, when compared with wheat, of containing a decidedly low percentage of gluten; consequently, bread and pastry prepared wholly or principally from barley flour is "heavier" and distinctly less nutritious than corresponding articles in which wheaten flour alone has been employed. For these reasons, if barley flour is used in baking, it should be mixed with a somewhat large proportion of wheat flour; probably about 10 per cent. of the former may be used in bread and a somewhat larger proportion in most other articles, without seriously affecting their digestibility or nutritive value. Barley flour of good quality may be obtained from Messrs. H. O. Short and Son, Berwick-on-Tweed.

WAR LOAN AND LIFE ASSURANCE.

THE adaptability of assurance to the circumstances and needs of modern life has been illustrated during the last few weeks by the various schemes of war stock purchase put forward by several of the leading life offices while the

lists of subscribers to the War Loan were still open. To many medical men who, perhaps, have not yet had opportunity to accumulate resources outside their professional incomes the life assurance schemes which provide repayment of the cost of the war stock through the medium of a policy—usually an endowment assurance payable at the end of, say, twelve years or previous death—have appealed successfully. Others, who, having obtained accommodation from their bankers for the purpose of bearing their share in the country's financial burden, have been considering their position as borrowers with reference to future rates of interest and terms of repayment, may be interested to know that at least one life office of repute is prepared to consider proposals for the immediate repayment to the bankers of such loans. The advance would be secured by the transfer of the stock into the joint names of the office and the borrower, coupled with the deposit of a new endowment assurance policy on his life, to return the capital on June 1st, 1929, or previous death; provided the policy is duly kept up, the office guarantees that earlier repayment will not be required, while the interest is provided by the dividends on the stock. Further particulars can be obtained from the Medical Assurance Agency, 429, Strand, London, W.C., and as the amount available for advances has been definitely limited, early application is advised.

MEDICINE AND GEOLOGY.

The Lyell medal of the Geological Society has been awarded to Dr. Wheelton Hind, surgeon to the North Staffordshire Infirmary, Stoke-on-Trent. In making the announcement the President said that on the side of descriptive and systematic palaeontology Dr. Hind's two memoirs on the carboniferous lamellibranchiata, published by the Palaeontographical Society, had long taken rank as standard works, and he had supplemented them from time to time by many other contributions dealing with the same subject. He had brought his palaeontological knowledge to bear upon important questions of stratigraphy, and had shown that the lamellibranch faunas of different groups of rocks furnished valuable data for comparison. In this way he had taken no small part in the correlation of the carboniferous strata in different areas in Britain, and had further pushed his inquiries to the continent of Europe. The quantity, as well as the quality, of his geological work was the more remarkable, when we remember that his researches have been carried out at intervals, none too frequent, of a busy professional life. In conferring upon him a well-earned mark of recognition, the Geological Society was honouring one of those amateur workers to whom British geology had always been signally indebted. Dr. Hind, who holds a commission as major and brevet lieutenant-colonel R.A.M.C., and is at present serving in Ireland, was unable to be present, and the medal was received for him by Dr. Smith Woodward, Keeper of the Geological Department of the British Museum. In accepting it Dr. Woodward said that geological science had already been greatly indebted to medical men for important advances made in their brief intervals of leisure, and Dr. Hind had for many years excellently maintained the old tradition. Recognizing the importance of combining work in the field with detailed palaeontological research in the study, he soon became one of the most successful exponents of the modern methods of stratigraphical geology. Beginning researches on the carboniferous rocks in his own district of North Staffordshire, he had gradually extended his domain until, as the President had said, he has taken no small part in the correlation of the carboniferous strata of Britain. Dr. Woodward concluded by expressing his confident hope that as soon as he was released from his military duties Dr. Hind would return with renewed vigour to the geological work which had so long been his recreation.

THE MENTAL AFTER-CARE ASSOCIATION.

The annual meeting of this useful and unique charity, which has for its object the assistance of poor persons discharged convalescent or recovered from institutions for the insane, was held in London, on March 1st, at the residence of Sir Robert and Lady Armstrong-Jones, under the presidency of the Lord Mayor. The speakers included the host, the Lord Mayor, Sir W. J. Collins, M.P., Sir John Jardine, Bt., M.P., the Right Hon. Sir David Brynmor-Jones, K.C., Sir R. Douglas Powell, Bt., M.D., the Rev. Prebendary W. S. Swayne, the Rev. C. J. Mead-Allen, Miss Evelyn Fox, Dr. David Nicolson, C.B., Sir George Savage, M.D., and Dr. Shuttleworth. The annual report was read (on behalf of Miss Vickers, the Secretary) by Dr. H. Rayner, chairman of the council, and furnished interesting evidence of the philanthropic operations of the association, 508 cases having been dealt with during the past year (377 women and 131 men), 984 interviews held at the office, 630 visits paid, and 154 situations found; 203 convalescent patients had spent various periods of time in one or other of the cottage homes of the association. Typical instances were given of the beneficial results attained by the ministrations of the society in the way of improved health, mental and physical, as a result of recuperative rest at these homes, and of suitable employment found for patients who were little able to "fend for themselves" though discharged from asylum treatment. Incidentally, gifts of money, clothing, tools, and even such adjuncts as a dental outfit or a glass eye, had helped many to make a fresh start in the world, and so prevented relapse. The multiform and tactful work of the executive officers calls for cordial sympathy and support, and although the funds have been well maintained, in spite of the war, further aid will be gratefully received at the offices of the association, Church House, Dean's Yard, Westminster.

Medical Notes in Parliament.

Mr. Forster's Tribute to the Army Medical Service.

The Triumph of Science over Disease.

In his review, on March 1st, of army administration and work during the past twelve months, Mr. Forster, the Financial Secretary for War, paid in the House of Commons last week a particular tribute to the Army Medical Service. Having spoken on the improved military condition in Mesopotamia, he referred to the medical service in that theatre of war, where the War Office is now directly responsible, and frequent reports had been received from the medical and sanitary authorities of the force. The Special Sanitary Committee had made an exhaustive examination of the conditions existing there, and the general conditions might now be regarded as fully satisfactory. During the summer there was necessarily some considerable sickness, but the admission ratio had steadily diminished since then, and he thought that the health of the army at present might be considered satisfactory. An abundant supply of nurses and other medical personnel had been furnished for hospitals. These hospitals had recently been visited by a representative from the War Office, who reported that they were not unequal to any of the hospitals at the other fronts. Speaking broadly of the military conditions in Mesopotamia, Mr. Forster mentioned the great development of railway and river transport. The up river traffic in January, as compared with last July, had increased by one thousand per cent.

Mr. Forster went on to speak of the medical services elsewhere. In France, Salonica, and Egypt the general condition was, he said, satisfactory. A great strain had at different times been put upon medical resources in the various theatres of war, but the difficulties had been met. A good deal of malaria had occurred in East Africa, owing to the exceptionally unhealthy climatic conditions in which operations had to be carried on. He thought that nothing in this war was more striking than the triumph of science over disease, wholly upsetting the experience of former

wars. One of the most remarkable facts was the almost total disappearance of enteric fever—that dread scourge which in former wars had decimated our armies even more effectually than the efforts of the enemy. This was the more surprising when account was taken of the vast numbers of men employed, their density on the ground, and the condition of the soil, especially in France. As showing how this danger was being kept under, Mr. Forster gave the last weekly returns of the numbers of typhoid patients. In France there were four cases; in Salonica nine; in Egypt three; and in Mesopotamia eight—making a total of twenty-four. He was able to give also the total number of cases of typhoid fever in British troops in France. Down to November 1st, 1916, these had been 1,684, paratyphoid 2,534 and of indefinite cases 353, making a total of 4,571 cases of the typhoid group of diseases. That should be compared with what had happened in the South African war, when nearly 60,000 cases were admitted to hospital, and there were 8,227 deaths. Thus four times as many died from this disease in South Africa as there were cases in France up to November last, and that despite the fact that the army in France was infinitely larger. The admission ratio of typhoid fever amongst the troops in France who had not been protected by inoculation was fifteen times higher than among those who had been inoculated, and the death ratio seventy times higher. He thought that the bald narration of figures like these bore eloquent witness to the debt owing to the Medical Service. At home during the past year a system of convalescent hospitals, command dépôts, and orthopaedic hospitals had been developed and extended. Arrangements had been made with the Ministry of Pensions by which the problem of the training and treatment of discharged soldiers would be more effectively dealt with, and the treatment in the military hospitals had been linked up with that afforded to discharged soldiers on the out-patient system under the local committees of the Statutory Committee on War Pensions. The strain on the medical department in providing accommodation for the sick and wounded from the various fronts over seas had been very great, but they had received the most valuable assistance from the voluntary hospitals established throughout the country. The system of utilizing the services of the members of the Voluntary Aid Detachments had been highly successful; a system of Voluntary Aid Hospitals had been invaluable in linking up the military medical system with the large number of sympathetic workers amongst the civil population. Mr. Forster went on to eulogize the British Red Cross Society, and referred to the recent setting up of a Special Committee for dealing with certain classes of disabled soldiers, such as neurasthenics, epileptics, and other cases requiring institutional treatment. Mr. Forster was glad that this committee included representatives both of the War Office and Ministry of Pensions, and said that it would still further strengthen the link between the military hospitals and civil institutions.

Mr. Forster referred finally to the subject of venereal disease. He thought it ought to be generally known that the venereal rate in the army to-day was no higher than it was in ordinary times of peace. The absence of statistics for the general population in pre-war days made it impossible to say whether the total number of cases of venereal disease in the army was higher than in a corresponding portion of the civil population of corresponding ages. Every effort was being made to reduce the rate still lower. The National Council for Combating Venereal Disease had given great assistance by providing lecturers specially chosen to speak to troops in camp and barracks.

In the course of the debate Major Wheler referred to the position of the junior officers of the Royal Army Medical Corps, Territorial branch. He put the case of the pay of those officers and compared it with the pay of the regular officers of the R.A.M.C. A captain's pay in the Territorial Force was 15s. 6d. a day, with allowances, which brought it up to £280 a year, less income tax. These officers were not qualified for any extra pay under paragraph 358 of the Royal Pay Warrant. They joined up very often at short notice, and had to leave their practices, which, in most cases, had gone to ruin. Therefore they were practically dependent upon their pay. While their pay was the same as that of the regular officer, the pay of the latter was based on the assumption that after twenty years' service he qualified for a pension of £365. There was no pension for the Territorial officer. He contrasted these conditions with that of an officer holding a temporary commission; his pay worked out, roughly, at £500 a year, and at the end of his contract he could leave the service and draw his gratuity, whereas a Territorial officer could not leave until the end of the war. He considered that there was a genuine grievance among the medical officers in the R.A.M.C. Territorial, and that something ought to be done to help that branch of the service.

Mr. Macpherson, the Under Secretary for War, in a general reply to the discussion, announced that Lord Derby had appointed a Committee to inquire into anomalies of promotion, not only in the Territorial Force, but in the New Armies. Mr. Churchill had accepted the chairmanship, and the other members of the committee were Lieutenant-General Sir Francis Davies, Colonel Lord Burnham, Lieutenant-Colonel G. F. Stanley, Colonel R. F. Riley, and Mr. R. H. Moore. Lieutenant-General Sir Francis Davies, M.P., would be military secretary, and Lieutenant-Colonel Stanley would act as secretary. The terms of reference were as follows:

> To inquire into the system of promotion in the new armies and the territorial forces, having special regard to anomalies which may have arisen as follows:
>
> 1. Promotion at home as compared with the expeditionary force. Promotion in different battalions. Reduction in rank on being wounded or invalided and having to work up again to former acting rank.
>
> 2. To inquire into the conditions under which officers holding temporary commissions are given permanent commissions in the regular army.
>
> 3. The position of reserve of officers.
>
> 4. To inquire how far any recommendations of the Committee should be made retrospective.

Mr. Macpherson added, in reply to a question, that he believed the reference included the reserve of officers, and he had no doubt that the points raised by Major Wheler, so far as the R.A.M.C. was concerned, were included in the terms of reference.

The Classification of Army Recruits by Medical Boards.

In the Commons, on March 1st, in Supply on the Army Estimates, Mr. Herbert Nield criticized the action of medical boards in classifying men for the army, citing a number of cases brought under his notice in which it was alleged grievous errors had been made. Mr. Snowden, who followed, quoted other cases. Mr. Snowden, besides complaining of mistakes by medical men, raised the question of the calling up of men who had, during the period of this war, been rejected on medical grounds. He believed that it was wasteful, and he appealed to Mr. Macpherson to take up the whole subject seriously. Mr. Macpherson, in reply, said he thought it not unlikely that the instances of errors mentioned by the previous speakers had occurred. In a comparatively short time a million and a half men had been medically examined. It would have been exceedingly surprising if out of such a very large number of cases some mistakes had not been made. A first class consultant, after his life's work, could not look back and say that his diagnoses and prognoses had been absolutely accurate in 100 per cent. of his cases; he might say that he had partially or completely failed to the extent of 1 per cent., and 1 per cent. on a million and a half was 15,000 cases. It might safely be said that the number of mistakes made had not been greater than that. The recruiting medical boards, on the whole, had done extraordinarily well; they were in the main composed of civilian practitioners belonging to the Territorial Force and the Special Reserve. He had examined the constitution of sixty-three medical boards, and found that the proportion of civilian to military doctors was as 2 to 1, and the proportion would have been higher but that it was considered necessary to have a medical man of military experience as president of the board. He repudiated warmly an insinuation by Mr. Pringle that doctors had been acting under secret instructions from the War Office; at the head of the boards was Colonel James Galloway, senior physician to Charing Cross Hospital. In recent statistics he found that in the time covered by the opening period of this year in a total of 2,000 men only 13 broke down in training. That was not a high percentage when the different classes from which the men were drawn and the differences in their training were

considered. Mr. Macpherson promised to make inquiries into all the cases submitted to him that evening, but he could not undertake to do anything more.

Disabled Soldiers and Sailors.

In the course of his speech on March 6th explaining the new scheme of pensions for soldiers and sailors Mr. Barnes eulogized a number of agencies, including St. Dunstan's for men blinded in the war, under the care of Sir Arthur Pearson; the Star and Garter, which, under the direction of Sir Frederick Treves, is for the benefit of paralytics; the hospital at Rochampton for limbless men—the limbs being, of course, paid for by the Government: the hospital for orthopaedic cases at St. Helens; Scottish agency in Glasgow dealing with limbless men which has collected about 150,000: the English and Scottish Red Cross Soldiers' and Sailors' Aid, and the Soldiers' Help Society.

A Committee had been appointed to deal with the case of totally disabled men who require institutional treatment. Sir A. Griffith-Boscawen was chairman, Sir Walter Lawrence represented the War Office, Mr. Cyril Jackson the Statutory Committee, and Mr. Arthur Stanley the Red Cross Society. Sir Harry Haward would give financial advice. The Committee would be responsible to the Ministry of Pensions. The services of Sir John Collie had been secured for neurasthenics, of Dr. Fox Symonds for epileptics, of Dr. Hubert Bond for paraplegics, and of Dr. Hartley for tuberculosis. It was intended, as far as possible, to provide institutional treatment for all totally disabled men, and for this purpose to take advantage of the help and experience of the Red Cross Society, which was already managing some twelve or fourteen military hospitals for the War Office. The Red Cross Society was receiving a certain standard sum to cover maintenance. It was proposed to put about 100 neurasthenics in Golder's Green, diluting them with about 20 orthopaedic convalescent cases. The new Committee was also providing a place at Chalfont St. Giles for epileptics, but there was delay owing to difficulty in getting material.

Mr. Barnes said that it had been urged that the army should keep men wounded or disabled until they were absolutely cured or pronounced incurable. At one time he himself believed that that was the right thing to do, and it could not be accomplished. After consultation with Lord Derby and other Ministers an agreement had been reached under three heads: (1) That the War Office should undertake to keep a man in the appropriate military hospital as an in-patient as long as there was accommodation for him, or could be made for him, and to treat him as an in patient by manual and other curative methods: (2) that if a man had been invalided as no longer fit to be a soldier, the army should keep him another three weeks, giving facilities to the Local Committee's representative to see the man and the hospital authorities, so that arrangements might be made for subsequent treatment, either as an in-patient or as an out-patient elsewhere; (3) as soon as a man was invalided a card was made out indicating the sort of treatment the man needed after he left, and a duplicate card was sent to the District Committee of the locality in which the man intended to reside. Incidentally the War Office agreed that when a man left a hospital as an in patient it would treat him as an out-patient in the district to which he was going, and if necessary would provide special treatment where that could not be covered by the ordinary doctor. Thus the State would pay for special treatment, and the expenditure would come upon the army votes. This scheme did not apply to the navy. Mr. Barnes afterwards explained in detail the provisions of the new Warrant, of which a summary was given in this JOURNAL last week.

Sir A. Griffith-Boscawen, in replying to a number of questions raised in the debate, said that he was glad that the proposal that a man certified as requiring further treatment should lose half his pension if he refused to undergo it had been generally supported by the House. Where a severe surgical operation was advised the penalty would not be imposed. In the great majority of cases, however, no surgical operation would be necessary, but merely gradual treatment by machines, massage, whirlpool baths, and so on. With regard to training it was not proposed that a man should be fined if he refused to undergo it because the value of training in any case was often a matter of opinion. The draft of a new warrant for officers was being considered.

Criminal Law Amendment Bill.

In Grand Committee.

Consideration of the Criminal Law Amendment Bill in Grand Committee began on March 6th. Mr. J. W. Wilson presided, and there was a large attendance of members out of a roll of seventy-eight. The Home Secretary (Sir George Cave), the Lord Advocate (Mr. Clive, K.C.), the Under Secretary for the Home Department (Mr. Brace), and the Parliamentary Secretary to the Local Government Board (Mr. Hayes Fisher) were present. The Home Secretary had charge of the bill. Its text fills six pages, and already the notices of amendment cover twenty-four pages.

A motion by Mr. Joseph King to postpone consideration of the first clause (which provides for the punishment of acts of indecency with girls under 16 years of age) led to a statement by the Home Secretary as to his attitude in the conduct of the bill. Mr. King had remarked that some of the clauses were extremely contentious, and he hoped that Sir George Cave would say quite early what course the Government intended to take.

The Home Secretary replied that he fully recognized that this was a very grave and important bill, but all felt that there was ground for some action by Parliament. The Government wished to meet any comment in a fair way. He thought there was some reason for delay in taking this clause, and he agreed to its postponement.

Mr. King next moved the postponement of Clause II—to make penal sexual intercourse by a person suffering from venereal disease; but the Home Secretary objected, and on a division it was decided by 47 votes to 7 that the clause should be taken. In the course of discussion on amendments, however, the Home Secretary intimated his intention of withdrawing the third paragraph of this clause—the paragraph which provides that where any person was convicted of any of the offences mentioned in the schedule of the measure, the Court might, if they thought fit, for the purpose of ascertaining whether the person was suffering from venereal disease in a communicable form, order the person to submit to such medical examination and test as might be requisite for the purpose. He believed there was good reason for inserting that clause in the bill, but he thought he would not be wise to press in war time such a proposal when strong opposition was offered.

There was a lengthy discussion afterwards on the question of wilful or negligent communication of the disease. The Home Secretary acknowledged that the offences would in many cases be difficult to prove, and Mr. Burns drew attention to cases of non-sexual transmission.

The Committee has arranged to sit twice a week, on Tuesdays and Thursdays. Ladies constituted most of the public on Tuesday; some thirty or forty were present. They included prominent social workers in London.

Venereal Disease.

The bill introduced by Lord Rhondda in the House of Lords on March 6th is entitled "An Act to prevent the treatment of venereal disease otherwise than by duly qualified medical practitioners, and to control the supply of remedies therefor; and for other matters connected therewith." It consists of three clauses. The second clause directs that the Act shall operate in any area to which it is applied by the Local Government Board in England and Wales, Scotland, and Ireland respectively. The operative clause is as follows:

Prevention of the Treatment of Venereal Disease or the Supply of Remedies therefor, otherwise than by Duly Qualified Persons.—1. (1) In any area in which this Act is in operation a person shall not, unless he is a duly qualified medical practitioner, for reward either direct or indirect, treat any person for venereal disease or prescribe any remedy therefor, or give any advice in connection with the treatment thereof, whether the advice is given to the person to be treated or to any other person.

(2) In any area in which this Act is in operation, a person shall not sell, offer for sale, supply, offer to supply, or dispense any drug or medicinal or other preparation as a remedy for venereal disease, unless the remedy is dispensed on and in accordance with the written prescription of a duly qualified medical practitioner, and is supplied for the use of the person for whom the remedy has been prescribed: Provided that nothing in this section shall affect—

(*a*) The sale or supply of any such drug or preparation by, or to, a duly qualified medical practitioner; or

(*b*) The wholesale sale or supply of any such drug or preparation.

(3) If any person acts in contravention of any of the pro-isions of this section, he shall be liable on conviction on ndictment to imprisonment, with or without hard labour, for a erm not exceeding two years, or on summary conviction to a ne not exceeding one hundred pounds, or to imprisonment ith or without hard labour for a term not exceeding six onths.

(4) In this Act the expression "venereal disease" means philis, gonorrhoea, or soft chancre, or any disease of the enito-urinary organs which may reasonably be suspected to e venereal disease.

The New Circular as to Vaccination.—Mr. Snowden asked Mr. ayes Fisher what was the cause of the circular sent out by ne Local Government Board making regulations for medical fficers of health to vaccinate small-pox contacts. Mr. Hayes isher replied that the reason for the regulations was that the ocal Government Board was advised that it was desirable that rther facilities should be provided for securing on the occur-ence of any case of small-pox the prompt vaccination and re-accination of persons who had come in contact with the nfection. Cases of small-pox were now being reported from ifferent parts of Europe, and it was of special importance at ne present time to diminish the risk of an outbreak of this isease. The Board stated in the circular sent out with the egulations that in their view a fee of 2s. 6d. should be paid for ach vaccination. This fee would be paid by the local authority mploying the medical officer of health to perform the vaccina-on. The order was made under Section 130 of the Public ealth Act, 1875.

The Supply of Spirits to Hospitals.—Sir G. Touche asked hether the application of the restrictions governing the with-rawal of spirits from bond was resulting in hardship in the ase of hospitals, both military and civil, through the inability f retailers to supply the small quantities of brandy necessary or consumption. Sir G. Touche suggested that this occurred ecause the hospitals could not show an average, as their needs aried according to the nature of the cases under treatment. n reply Mr. Baldwin (Junior Lord) said that no representations ad been made to the Board of Customs by the hospitals as to the ffect upon them of the present restrictions, but that inquiry as being made into the case of one hospital mentioned by ir G. Touche.

Bonesetters.—Mr. Bliss inquired whether "Corporal A. B.," ho was lamed at the front, was examined by a board of seven octors, discharged from the army and granted a pension, was, fter treatment by Mr. Barker, restored to activity and strength, nd was now liable to serve with the army again. Mr. Mac-herson replied that in the absence of particulars as to the an's name and unit he was unable to inquire into the ircumstances of the case. In reply to Mr. Richard Lambert, ho asked whether, if the need for further assistance from the edical profession existed, the Army Medical Department ould relax the rule depriving them of the services of recog-ized experts such as Mr. Barker and doctors holding a medical egree, subject to such precautions as might be considered ecessary, Mr. Macpherson said: The War Office is in constant ouch with the representatives of the medical profession; duly ualified American doctors are being employed. Replying to r. Whitty, Mr. Macpherson said that if particulars were fur-ished he would have inquiry made as to whether five officers f the 7th Oxford, now at Salonica, "were enabled to serve their ountry only after receiving manipulative treatment after all ther forms of treatment had failed."

Army Medical Department.—Replying to Mr. Yeo, who asked hether the Army Medical Department now had all the medical ssistance it required, and, if so, why appeals were being made or more doctors, Mr. Macpherson replied: Yes, sir, the Army edical Department is receiving the fullest assistance from the edical profession and scientific organizations. The system f reliefs for medical men who have completed one year equires that they shall be relieved by those who have not yet erved.

The Registration of Pharmacists.—In regard to the question hether the Privy Council would make representations to the harmaceutical Society to secure the registration in this ountry of pharmacists with foreign diplomas, Sir George Cave eferred Mr. MacVeagh to a reply given to Sir W. J. Collins ast week. No representation had been received as to any hortage of pharmacists for army work. The matter would ave to be dealt with, but the Home Secretary could not romise at present to introduce legislation.

THE birth-rate in Bavaria has shown a sharp decline uring the war. In 1913 it was 20.7 per 1,000, and in 1915 nly 15.8. The number of infants dying in Berlin in the ummer of 1916 was much smaller than in the previous ummer. In July, 1916, there were 210 deaths among nfants under one year, whereas the corresponding figure or July, 1915, was as high as 410. It is thought that the ool weather in 1916 partly accounts for the smaller number f deaths, but as the number of births was lower in July, 916, than in July, 1915, the returns are to a certain extent allacious.

THE WAR.

ABDOMINAL WOUNDS.

DRS. HANS BURCKHARDT and F. LANDOIS have reported the results of their observations on 297 cases of abdominal gunshot wounds treated in a Feldlazarett.[1] The difficulties of operation in these cases were in a great degree dependent upon the complicated anatomical conditions present. Their anatomical observations were based on 174 examinations (*in vivo* and *post mortem*), and from a consideration of these they divided abdominal wounds into two primary classes—"dangerous" and "relatively harmless." Dangerous wounds included those in which wound of a hollow organ, or of a solid organ or large vessel, was present, infection constituting the danger in the former, haemorrhage in the latter. Relatively harmless wounds included those of the abdominal wall with or without wound of the peritoneum, the viscera being uninjured. Dangerous wounds were further subdivided according to the degree in which the peritoneum was involved. Thus, an organ might be injured through a peritoneal perforation, or extraperitoneally, or through the intact peritoneum. Of the last-named variety, which was very uncommon, two instances were met with. In one the bullet fractured the left ilium; at the operation the peritoneum was found to be intact, but there was commencing general peritonitis starting from a small perforation of the ileum. In the second case a large and deep grenade wound of the flank was present, and the patient died the next day; there were small perforations of the lowest part of the ileum and ascending colon, with severe haemorrhage and peritonitis. In extraperitoneal dangerous wounds, where the organs affected were the colon, bladder, rectum, and kidneys, the danger of fatal peritonitis was absent, and there remained only that of cellulitis; moreover, when haemorrhage occurred there was more prospect of its spontaneous arrest, and, if external, less difficulty in its treatment.

Of relatively harmless wounds, some—such as tangential wounds of the peritoneum with apertures of entry and exit in the skin—had little significance. Tangential wounds in which the peritoneal cavity was exposed externally were not to be regarded as dangerous. Further, undoubted cases occurred in which the bullet had passed through the peritoneal cavity without wounding the intestine.

Stomach.

In perforating wounds of the stomach the two apertures were situated in the anterior wall or in the posterior, or one in each; or there might be a single wound from tangential injury. If the posterior wall were perforated, the extravasation occurred into the small sac and not into the general peritoneal cavity. Tangential wounds near the great curvature were a frequent cause of severe haemorrhage, but haemorrhage into the cavity of the stomach in any considerable quantity was uncommon; only one case of haematemesis was met with. On account of the slight infectivity of the stomach contents these injuries had a fair prognosis if operated on. Spontaneous healing could occur, if the stomach were empty at the time of wounding. In one case the aperture opened into a large abscess: in a second, it was closed by adhesions of the stomach to the under surface of the liver. In both cases the defect resembled a chronic ulcer.

Small Intestine.

It was found that the number of apertures in the ileum varied from one to thirteen and was greater in wounds through the middle of the abdomen. The apertures were usually in pairs and near together; at times, however, an aperture was found at a distance from the rest. A single tangential wound could not generally be recognized as such and a second aperture should always be carefully sought for. Perforations of the small bowel were in most instances easily detected, but where the mesentery had been wounded and the bowel perforated tangentially between its layers, it was possible to overlook the perforation. The amount of faecal extravasation was at times small, and varied with the size of the wound and the distension of the bowel. In only one case, in which

[1] Bruns's *Kriegschir.*, Heft 25, p. 61, *Beitr. z. klin. Chir.*, Bd. 103.

general peritonitis was absent, was there an encapsuled abscess around the perforation, which was small. In larger apertures the mucous membrane became prolapsed, but not so as to hinder the passage of faeces; on the other hand, it excluded all possibility of spontaneous healing. Wounds of the mesentery were a frequent cause of serious haemorrhage.

Large Intestine.

The gravest wounds of the abdomen, apart from severe haemorrhages, were those of the large intestine. On account of the marked infectivity of its contents, the authors consider wounds of the colon incapable of cure by operation if the extravasation of faecal matter was considerable. In the rare cases where large wounds had been operated on with success the extravasation had been slight; with small wounds it was not unusual to find extravasation almost absent. The apertures, as many as six in one case, were mostly easy to detect, although somewhat more difficult when retroperitoneal. Great difficulty arose in wounds of the transverse mesocolon, a possibly large perforation in the bowel being hidden by the gastro-colic omentum; and in such cases a haematoma or inflammatory discoloration of the tissues, such as generally served to indicate retroperitoneal wounds of the ascending and descending colon, was generally absent. Equally difficult were tangential wounds of the retroperitoneal surface of the colon, where the bullet track disappeared behind the bowel. A large wound might be entirely unsuspected, and it should never be forgotten that not only the calibre of the bowel, but also the position of its retroperitoneal portion, varied greatly from time to time. Purely retroperitoneal wounds resulted in fistulae or abscesses, which could be dealt with surgically; but when the bullet in its further course opened the peritoneum, possibly at some distance from the bowel, infection of the track and peritonitis resulted, followed by a virulent retroperitoneal cellulitis often associated with gangrene of the bowel. A small wound of the colon might be closed spontaneously by a fold of omentum, but after a temporary limitation of the peritonitis complicated and unmanageable abscesses or a general chronic peritonitis usually arose, and death occurred from gradual exhaustion. No case of unquestionable spontaneous healing of an intraperitoneal wound of the colon was met with. Severe haemorrhage frequently followed wounds of the transverse or sigmoid mesocolon.

Of seven cases of extraperitoneal wound of the rectum one died from gas gangrene, the remainder recovered without primary operation, but four of them with faecal fistulae.

Liver.

In wounds of the liver there was a tendency to extensive laceration around the bullet track and for the bullet to become lodged. Severe and uncontrollable haemorrhage, however, did not necessarily arise provided no large vessel had been opened. Even with extensive lacerations spontaneous arrest of haemorrhage might occur. In cases where the liver was wounded by a bullet passing through the thorax the haemorrhage took place into the pleural cavity and not into the abdomen, so that the absence of blood from the abdomen was not in all cases a proof that severe haemorrhage from the liver had not occurred. Though the lacerated tissues of the liver would seem to furnish a favourable soil for infection, only two cases of acute hepatitis were met with; where suppuration occurred it was usually of later onset. Late abscesses depending on infected liver sequestra were never observed.

Kidney.

Ruptures of the kidney from contusion were especially liable to be followed by infection, in which the prospects of spontaneous healing were small.

Bladder.

The bladder wounds observed were mostly small and caused by bullets; the apertures were two in number, or single from tangential wound or lodgement of the bullet. Extensive lacerations due to the explosive action on the distended bladder of wounds inflicted at close quarters were not met with. Where two apertures were present they might be either intraperitoneal or extraperitoneal; generally one aperture was intraperitoneal, the other extraperitoneal. With small wounds extravasation of urine into the peritoneal cavity often occurred only when the bladder was full. In several cases the urine was discharged through the external wound, and in two of these healing resulted. When extravasation took place into the peritoneum peritonitis was almost inevitable, the following case being quite exceptional. The aperture of entry was at the coccyx, that of exit below the umbilicus; from the latter much bleeding occurred, and subsequently a discharge of urine, most of which was passed in this way instead of through the catheter; obviously the wounds of the bladder must have been both extraperitoneal and intraperitoneal. Symptoms of peritonitis occurred early, but subsided; the rectum also was perforated. The condition of the patient at the time of the report was good. Wounds in the bladder were often difficult to find; a small wound would be seen in the peritoneum, while that in the bladder could only be detected by dissecting off the serous layer. The gravity of wounds of the neck of the bladder lay in the impossibility of using the catheter. In such cases the urine might be discharged externally if the wound were sufficiently large; otherwise death resulted from urinary phlegmon.

Prolapse.

Prolapse of an organ occurred externally through wound of the abdominal wall, or internally into the pleural cavity in tangential wounds of the vault of the diaphragm. The former were not in themselves fatal provided operation were not delayed; especially favourable were those cases in which the aperture in the abdominal wall had arisen from tangential injury. Where the injury had been more direct the prolapse was usually associated with lacerations of the abdominal viscera; such injuries were of the gravest type.

Peritonitis.

Peritoneal symptoms were absent in wounds limited to the abdominal wall, and in those rare instances in which the peritoneum had been perforated without wound of an organ. Generally, too, they were absent in retroperitoneal wounds; and although symptoms simulating those of peritonitis might occur early in the case, they rapidly subsided. The symptoms of perforation of the bowel were those of commencing peritonitis, and the severer the wound the earlier these appeared. In small wounds of the duodenum or empty stomach they might be slight and late in appearing, and in those of the small bowel the symptoms might be slight at first, but were, as a rule, distinct after three hours. As regards the colon, the onset was rapid even with small perforations.

Rigidity and tenderness on deep pressure, as signs of peritonitis, were always bilateral, and, if established with certainty, indicated commencing peritonitis. Neurasthenia only and the nervous effects produced by grenade and mine wounds could give rise to any doubt, and in these cases the whole body was usually tender. On the other hand, bilateral contusions of the thorax were at times accompanied by all the symptoms of peritonitis.

Vomiting was a symptom of slight value early in the case, for it occurred frequently in severe wounds of all kinds and was not uncommon in abdominal haemorrhage. It was of much greater diagnostic value when it occurred in increasing severity after the lapse of a few hours. A rapid and feeble pulse might depend on shock or severe haemorrhage, as well as on commencing peritonitis. Great thirst was almost a constant symptom. But in all cases in which the diagnosis was at all doubtful the authors considered that the most important symptom was the general appearance of the patient, and especially the facial expression. The relaxed features, deeply sunken eyes, and half-open mouth, the ill-defined anxiety, and costal breathing, frequently led to a correct diagnosis in doubtful cases.

Operation.

General rules as to the choice of cases for operation it was impossible to lay down, but the authors' practice was to operate within eight to twelve hours after wounding, when the signs of perforation of a hollow organ were present, or in severe haemorrhage. In cases of haemorrhage without perforation of a hollow organ, in which the pulse was fairly good, the operation was delayed; if the pulse were feeble, operation was performed. In times of great congestion operation was not undertaken in

ases of prolapse (except in the tangential wounds of the bdominal wall before referred to), in cases of severe aemorrhage with probable perforation of the bowel, nor cases where the intensity of the peritoneal symptoms dicated a severe infection probably from wound of the olon.

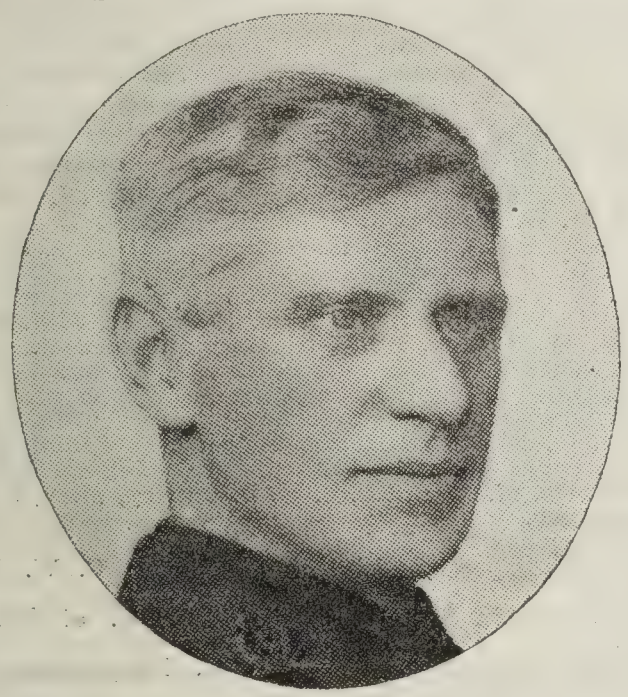
CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN J. E. MILNE, D.S.O., R.A.M.C.(T.F.).

Captain Joseph Ellis Milne, D.S.O., R.A.M.C.(T.F.), as been reported as killed in action, aged 48. He was he youngest son of Captain James Milne, shipmaster, nd was not married. He was educated at Aberdeen, here he graduated M.A. in 1888, M.B. and C.M. with onours in 1891, and M.D. with honours in 1894. After short period in Liverpool he returned to Aberdeen, nd was in practice there till he took a commission s lieutenant in the First Highland Casualty Clearing tation on April 25th, 1915, being promoted to captain n completion of a year's service. After a period of ervice with the Casualty Clearing Station he became edical officer to one of the battalions of the King's iverpool Regiment (Liverpool Irish). A tribute paid



CAPTAIN J. E. MILNE.

(Photograph by MacMahon, Aberdeen and Strathpeffer.)

o him by a personal friend in the *Aberdeen Daily Journal* says that he threw himself with zest into he life of the battalion, and that when it was in rest billets he organized football teams, learnt to know very man, and set his heart on taking care of their ealth so that there should be no unnecessary wastage. The respect he had earned from senior officers ensured hat any representation from him that a company required rest was always accepted. He had had special xperiences of strains and injuries of the limbs on the ootball field at Pittodrie, and this knowledge came in useful in the trenches, where such accidents may easily happen on a slippery duckboard. When the battalion went into action he was always with it; the call of duty o him was plain and he never spared himself. The bravery he displayed in the battle of the Somme was recognized by the award of the D.S.O. in October, 1916, nd he was again mentioned in Sir Douglas Haig's new ear's dispatch.

Professor JOHN MARNOCH, C.V.O., writes: As an old classellow of Dr. J. Ellis Milne, who was killed in action in France on February 22nd, I have been asked to write a few words of appreciation. The most outstanding feature of his university career was his earnestness and extraordinary capacity for work. Morning, noon, and night, with very rare intervals for recreation, he laboured to master his profession, and was rewarded by obtaining his degree with honours. Soon after graduation he settled down in Aberdeen, and by his untiring industry and kindly nature acquired a very large practice. Although he did not mix much with his medical brethren, mainly through lack of time, his relations with them were always of the best. Anything unprofessional was entirely foreign to him. When a call was made for men in Aberdeen to form a casualty clearing station Milne at once offered his services. He felt that when so many were called upon to make sacrifices he ought to do his part. It was no surprise, however, to those of us who knew him when we heard that he remained only a short time with the unit he went out with. His ardent and eager nature compelled him to get into the thick of things, and he became medical officer to a battalion. From many sources I have heard of his heroic work in the trenches among the men. No consideration of personal danger ever deterred him from going out to succour them in an attack. To onlookers his life seemed a charmed one, so frequently did he escape when escape seemed impossible. At last, however, he fell, and he fell, as I am sure he would have wished, doing his duty. The news of his death has caused many a pang of regret among his medical colleagues in Aberdeen. He will ever be remembered by them for his brave self-sacrifice.

Died on Service.

COLONEL W. HALLARAN, A.M.S.

Colonel William Hallaran, Army Medical Service, Assistant Director of Medical Services, Jabalpur and Jhansi Brigades, died at Jabalpur on January 23rd. He was educated at Trinity College, Dublin, where he graduated as M.B. and B.Ch. in 1884, and entered the R.A.M.C. as surgeon on July 27th, 1887, becoming major on July 28th, 1899, lieutenant-colonel on March 1st, 1912, and colonel on March 1st, 1915. He served in the Burmese campaigns in 1887–89, medal with clasp; in the Chin-Lushai expedition on the north-east frontier of India in 1889-90, clasp; and in the South African war in 1899–1901, when he took part in the relief of Kimberley, in the actions of Paardeberg and Driefontein, and in the operations in the Orange River Colony and in Cape Colony, gaining the Queen's medal with four clasps.

DR. LAURA E. FORSTER.

Dr. Laura Elizabeth Forster, who died recently on the Galician front from heart failure following influenza, received her medical education at Berne and London. She took the degree of M.D.Berne and the State diploma of Switzerland in 1894, and the diploma of the Conjoint Board in Scotland in the following year. She was a Fellow of the Royal Society of Medicine and a member of the Association of Registered Medical Women. Prior to the war she was in practice in Notting Hill, London. She had been actively engaged at Petrograd and Erzerum. From there she went to Staroe Chilnoe, and later to the Russian front in Galicia, where after three weeks' work at the 52nd Epidemic Hospital at Zaleschiki for soldiers attached to the 7th Army, she contracted influenza which proved fatal.

DEATHS AMONG SONS OF MEDICAL MEN.

Goulden, Alan Edmund, Private, Royal Fusiliers, aged 19, killed in action during an advance on February 17th, was the second son of Captain and Mrs. Goulden, R.A.M.C.T., of Stockport. He was educated at Stockport Grammar School and Epworth College, Rhyl. He enlisted in the Public School Battalion of the Royal Fusiliers in March, 1915, went to the front in April, 1916, and had served throughout the offensive on the Somme. His company commander speaks of him as "a very gallant soldier." His elder brother, Second Lieutenant Donald Goulden, is an inmate of Whitworth Street Military Hospital, recovering from serious wounds received in June last.

Innes, Edward Cosmo, Private, Canadians, youngest son of Dr. Innes, of Port Credit, Ontario, Canada, formerly of Matlock Bath, Derbyshire, killed by shell fire on October 22nd, 1916, aged 23.

Richardson, Bernard Guy, Able Seaman, Royal Naval Division, youngest son of Dr. Charles Richardson, of Leeds, killed in action recently, aged 33. Before the war he was a solicitor in London.

West, Neville, Captain Berkshire Regiment, second son of Captain C. J. West, R.A.M.C., of Newbury, killed on February 16th, aged 22. He was educated at Marlborough and at the United Services College, Windsor, and entered the army from Sandhurst on January 24th, 1914, becoming lieutenant on November 15th, 1914. He was mentioned in dispatches, and gained the Military Cross in May, 1915.

MEDICAL STUDENTS.

Dobson, James Robinson, Second Lieutenant Royal Irish Fusiliers, who died of wounds on February 19th, was the only son of Mr. William Dobson, Mohill, co. Leitrim. He entered the School of Physic, Trinity College, Dublin, in 1907, and when war broke out was studying medicine at Edinburgh. He enlisted in the Royal Scots Regiment, and served with this

regiment abroad (in France) until February, 1916, when he received a commission in the Royal Irish Fusiliers.

Smith, Ernest Frederick William, was a first year medical student in the School of Physic, Trinity College, Dublin. When war broke out he at once volunteered for active service and received a commission in the Leinster Regiment in September, 1914. He is reported as having died of wounds in January, 1917.

HONOURS.

A SUPPLEMENT to the *London Gazette*, dated March 3rd, contains a list of honours conferred for meritorious service in the field. The following medical officers are the recipients of the honours indicated:

To be Companion of the Distinguished Service Order.

Temporary Captain Charles Owen Donovan, M.B., R.A.M.C., attached North Lancashire Regiment.

For conspicuous gallantry and devotion to duty. He displayed courage of a very high order over a period of forty-eight hours in attending to a large number of wounded of his own and other units in a shallow muddy trench which was continually subjected to heavy fire. On another occasion he dressed several wounded officers in the open. He was severely wounded.

Military Cross.

Temporary Captain George Noel Braham, R.A.M.C.

For conspicuous gallantry and devotion to duty. He with four others worked continuously under intense fire and succeeded in rescuing several wounded men from an advanced dressing station, which was untenable. He set a fine example of courage and determination throughout.

Temporary Captain John Crawford, R.A.M.C.

For conspicuous gallantry and devotion to duty. He took a party of stretcher-bearers to the position and proceeded to attend to the wounded under heavy fire. He set a fine example of courage and coolness throughout.

Temporary Captain John Ferguson, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He displayed great courage and determination in tending the wounded under the most intense hostile fire. Later, although himself wounded, he remained at his post until all the wounded men had been dressed.

Captain Alaister Fraser Lee, M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty in attending to a very large number of wounded under continuous heavy shell fire. He was thrown down and wounded by the explosion of a shell, but continued to perform his duties in the most gallant manner.

Captain Charles Kingsley Parkinson, A.A.M.C.

For conspicuous gallantry and devotion to duty. He brought several wounded stretcher-bearers into the dressing-station under very heavy fire, thereby undoubtedly saving many lives. He set a splendid example of courage and determination throughout.

Temporary Captain William Douglas Reid, M.B., R.A.M.C., attached Manchester Regiment.

For conspicuous gallantry and devotion to duty. He displayed great courage and skill in tending the wounded under heavy fire. Later, although himself wounded, he continued to dress the wounded of all units. He has previously done fine work.

Captain David Christopher Vey, R.A.M.C.(S.R.), attached East Lancashire Regiment.

For conspicuous gallantry and devotion to duty. He attended to the wounded in an open trench under very heavy fire. Later, he assisted to bring in many wounded men from the advanced trenches. He set a splendid example of courage and determination throughout.

Captain Cyril James Berkeley Way, R.A.M.C.(S.R.).

For conspicuous gallantry and devotion to duty. He repeatedly led his bearers through intense enemy barrages. He personally rescued several wounded men from shell holes under machine-gun fire.

The Military Cross has also been conferred upon the Rev. Richard William Dugdale, Temporary Chaplain, for assistance rendered to the wounded, and also to Private H. J. Sipthorp, R.A.M.C., for gallantry and devotion to duty.

The following correction is published of the announcement in the *London Gazette* of February 13th recording the award of a bar to the Military Cross:

For Temporary Captain William Kenneth Mackenzie, M.C., M.B., R.A.M.C., read Temporary Captain Kenneth William Mackenzie, M.C., M.B., R.A.M.C.

COMMENDED FOR SERVICES.

The following medical officers are included in the long list of names brought to the notice of the Secretary of State for War for valuable services rendered in connexion with the war; they all belong to the A.M.S. or R.A.M.C. unless otherwise indicated:

Fleet Surgeon F. Bradshaw, R.N. (ret.).

Surgeon Generals: W. G. A. Bedford, C.B., C.M.G., W. G. Birrell, J. C. Culling, W. J. Fawcett, C.B. (ret. pay), R. W. Ford, C.B., D.S.O., Sir T. J. Gallwey, K.C.M.G., C.B., H. G. Hathaway, C.B., F. J. Jencken, M.B.

Colonels: G. G. Adams, J. M. Beamish, de B. Birch, C.B., V.D., W. H. Bull, V.D., E. A. Burnside, E. Butt, W. Coates, C.B., A. E. J. Croly, T. F. Dewar, C. E. Faunce, R. H. Forman, P. B. Giles, C.B., F.R.C.S., St. J. C. Gore, C.B., J. Griffiths, S. S. Hoyland, R. Jennings, W. G. King, I.M.S., W. Kinnear, T. J. R. Lucas, C.B., W. A. May, C.B., C. P. Oliver, A. Peterkin (ret. pay), W. A. Quayle, I.M.S. (ret.), J. R. I. Raywood, A. F. Russell, C.M.G., M.B. (ret. pay), J. V. W. Rutherford, M.B., V.D., T.F.Res., R. J. S. Simpson, O. Todd.

Honorary Colonel C. J. Bond, F.R.C.S.

Surgeon-Colonel J. Aikman, M.D., P.M.O. Royal Guernsey Militia.

Brevet Colonel W. Hind, M.D., F.R.C.S.

Temporary Colonel H. H. Tooth.

Lieutenant-Colonel (temporary Colonel) P. C. Burgess.

Lieutenant-Colonels: J. B. Anderson, C. Averill, T. D. G Barry, I.M.S., J. Battersby (ret. pay), R. A. Bolam, R. F Bond, H. H. Brown, M.B., J. B. W. Buchanan (ret.), J. P. Bush C.M.G., R. Caldwell, F.R.C.S., A. Callam, E. M. Callender, H Charlesworth, C.M.G. (ret.), C. P. Childe, F.R.C.S., M. A. T Collie, M.B., I.M.S. (ret. pay), A. Connell, F.R.C.S., M. F Corkery, D. G. Crawford, I.M.S. (ret. pay), A. Dodd, D. F Evans, N. Faichnie, E. H. Fenwick, D. F. Franklin, F.R.C.S (ret pay), R. S. R. Fuhr, D.S.O., A. B. Gemmel, T. Gowans M.B., P. B. Haig, M.B., R. H. Hall, T. W. O'H. Hamilton C.M.G., L. K. Harrison, M.B., W. F. Haslam, H. P. Hawkins T. H. Haydon, A. G. Kay (ret. pay), J. R. Kaye, J. Kearney M.D. (ret. pay), F. S. Lambert, R. V. Lane (ret. pay), F. S Le Quesne, V.C., J. Lewtas, I.M.S. (ret. pay), H. Littlewood C. W. Magrath, J. Maconachie, F.R.C.S. (ret. pay), C. W. S Magrath, F. Marsh, F.R.C.S., W. J. Maurice, E. F. Maynard R. R. H. Moore, A. E. Morris, R. E. R. Morse (ret. list), Si S. F. Murphy, F. P. Nichols, M.B., J. E. Nicholson (ret. pay) M. D. O'Connell, M.D. (ret.), J. Oldfield, D. C. L. Orton, E. M Pilcher (Brevet Colonel), M.B., F.R.C.S., P. J. Probyn, D.S.O. M.B., G. S. A. Ranking, M.D., W. S. P. Ricketts, I.M.S. (ret.) W. M. Roocroft (honorary Surgeon-Colonel, temporary Colonel) J. V. Salvage, M.D. (ret. pay), J. C. Smith, I.M.S. (ret. pay) W. H. Steele (ret. pay), L. W. Swabey, C. J. W. Tatham (ret.) C. W. Thiele (ret. pay), H. Thompson, I.M.S. (ret. pay) J. Tidbury, W. Turner (ret. pay), H. W. Webber, S. White C. W. H. Whitestone, M. J. Whitty (ret. pay), G. Wilson (ret pay), T. B. Winter, G. S. Woodhead.

Surgeon-Lieutenant-Colonels: P. B. Bentlif, Medical Corps Jersey Militia; W. R. Crooke-Lawless (late C. Guards).

Brevet Lieutenant-Colonel J. S. Bostock, M.B.

Temporary Lieutenant-Colonels: F. W. Ellis, M.D., F.R.C.S. T. H. Gibbon, W. L. W. Marshall, G. E. Miles, R. J. Morris M.D., S. Mort, W. J. N. Vincent, A. S. Woodwark, J. F Woodyatt, W. M. D. Wrangham.

Majors: J. A. Anderson, R. Y. Anderson, E. U. Bartholomew G. Biggs, C. Bramhall, A. J. Chambers (ret.), J. J. Cox, C. W Duggan, M. W. Falkner, J. C. Ferness (S.R.), C. E. P. Fowler W. M. Gabriel, E. Gray, R. W. W. Henry, M.D., J. K. Jamieson M.B., F. W. Lamballe, M.B., H. A. Leebody, J. D. Moir (Res of Off.), E. H. Myddelton-Gavey, E. H. Myles (ret. pay), P. S O'Reilly, D. W. Patterson, M.B., D. J. Penney, J. H. H. Piric M.D., E. W. Siberry, W. V. Sinclair, H. Stott, D. Wallace C.M.G., G. W. Watson, M.D., F.R.C.P., A. Wilson.

Surgeon-Major R. E. Lauder, Hampshire Regiment.

Temporary Majors: A. H. Carter, T. M. Carter (Lt.-Col. T.F Res.), E. G. Coward, M.B., S. Fleming, D. Gillespie, M.D. A. G. P. Gipps, J. Hall-Edwards, N. S. Manning, F.R.C.S.I. H. J. Roberts, M.D., F.R.C.S., H. J. Shirley, M.D., F.R.C.S. G. H. Spencer.

Temporary honorary Major C. H. Miller.

Captains (temporary Lieutenant-Colonels): C. W. Eames W. Lister.

Surgeon-Captain R. A. Bostock (ret.), Res. of Off. Scot Guards.

Captains (temporary Majors): A. C. Farquharson, M.D. T. B. Wolstenholme, M.B.

Captains: E. G. Annis, A. Baxter, J. A. Bennett, F. W Broderick, W. B. Cosens, C. M. Drew, W. M. Holmes A. McGillivray, H. J. McGrigor (Res. of Off.), H. J. Pechell M. W. Ruthven (S.R.), J. E. Turle, C. W. Wirgman.

Temporary Captains: A. Abrahams, M.D., R. Buchanan E. P. G. Causton, C. C. de B. Daly, F. J. P. Davies, J. G Duncanson, J. Ewing, E. R. Fothergill, H. D. Gillies, F Hernaman-Johnson, D. J. McLeish, J. M. MacMillan, H. T Mant, G. Muir, M.B., R. R. K. Paton, M.B., H. R. Sedgwick J. S. Stewart, J. Taylor, A. Trower, T. G. Wakeling, H. H Weekes, J. R. Williamson, W. H. Wishart, L. D. Woods.

Quartermasters and Honorary Majors: J. H. W. Beach A. Clapshaw, H. Copping, B. Goater, F. W. Hall.

Quartermasters and Honorary Captains: W. Duncan, G. H Painton, J. Wilson.

Quartermasters and Honorary Lieutenants: W. Culver W. Goodly, W. Hicks, E. Janes, Mathews, C. J. Rogers, D Stout, A. G. Tod.

The list also includes the names of 76 non-commissioned officers and men of the R.A.M.C.

Union of South Africa.

Lieutenant-Colonels: S. McGrigor, T. S. Murcell, and E. N Thornton (S.A.M.C.).

Majors: M. G. Pearson and A. V. St. Leger (S.A.M.C.).

Captain G. W. S. Robertson (S.A.M.C.).

The name of one non-commissioned officer of the African Medical Corps is mentioned in the list.

Commonwealth of Australia.

Colonel (temporary Surgeon-General) R. H. J. Fetherston.

The names of one warrant officer and three staff sergeants of the A.A.M.C. are included in the list.

Dominion of Canada.

Colonels: G. S. Rennie (C.A.M.S.), J. W. Bridges, L. Drum and W. A. Scott (C.A.M.C.).

Lieutenant-Colonels: J. D. Brousseau, W. S. Buell, I. H Cameron, G. Chambers, J. D. Courtenay, F. G. Finley, D. W McPherson, F. H. Mewburn, and W. L. Watt (C.A.M.C.).

ors: L. D. M. Baxter, F. C. Bell, R. Bowie, D. A. Clarke, Doherty, L. E. W. Irving, A. W. Macpherson, J. C. ins, C. H. Reason, C. K. Russell, S. A. Smith, T. A. ey, R. Wilson, and C. A. Young (C.A.M.C.).
tains: M. H. Allen, A. W. Bagnall, C. A. Barager, B. M. y, G. Boutheillier, F. B. Bowman, J. R. Goodall, G. C. A. J. Lomas, D. W. McGaffin, W. J. MacKenzie, H. C. reau, E. A. Neff, H. Orr, R. W. Thomas, E. L. Warner, . H. Williamson (C.A.M.C.).
rtermasters and Honorary Captains J. J. Cawthra and rkpatrick (C.A.M.C.).
list also includes the names of 59 non-commissioned rs and men of the C.A.M.C.

Ceylon.

jor D. Rockwood, Ceylon Volunteer Medical Corps.

China.

geon-Major G. D. R. Black, Hong Kong Volunteer Corps.

Malta.

geon-Majors A. E. Mifsud, R. Randon, and R. Vella, of the l Horse Artillery; Surgeon-Major R. Samut, of the King's Malta Regiment of Militia; and Lieutenant-Colonel R. P. t, F.R.C.S., of the British Red Cross and Order of St. John.

Dominion of New Zealand.

onel W. H. Parkes, C.M.G. (N.Z.M.C.).
utenant-Colonel B. Myers (N.Z.M.C.).
jors (temporary Lieutenant-Colonels): L. E. Barnett, T. and D. S. Wylie (N.Z.M.C.).
tains: T. McKibbin and H. Short (N.Z.M.C.).
e sergeant-major of the New Zealand Medical Corps is also ioned in the list.

COMMENDATION OF NURSES.

ong list of matrons, sisters, and nurses has been brought ne notice of the Secretary of State for War for valuable ces rendered in connexion with the war.

England and Wales.

number of lunatics (pauper, criminal, and private) whose accommodation the London County Council was onsible on January 1st, 1917, was 19,791, as compared 20,902 on January 1st, 1916, and the total number of tics, including those in the Metropolitan Asylums d's institutions, in workhouses, and with relatives and ds, was 26,987 as compared with 28,261 a year earlier. ng the last two years the total decrease has been 5.

LIVERPOOL ROYAL INFIRMARY.

ne annual meeting of the Liverpool Royal Infirmary held on March 2nd, under the presidency of Mr. h Brocklebank. The annual report for 1916, pre- ed by Mr. Wade Deacon, chairman of the committee, d that the number of in-patients admitted during 1916 4,198, as compared with 4,328 in 1915. The out- nts numbered 25,752 in 1916, as against 26,078 in . These figures include soldiers and sailors for whom 34 19s. 6d. was paid by the Government. As was to xpected, the cost of maintenance increased consider- ; it amounted to £23,880, exceeding by £2,101 that nded during 1915. This increase was largely due to the of provisions, which was £1,394 more in 1916 than in . It is gratifying to note that the ordinary receipts £20,528, showing an actual increase of £1,420 over e in 1915. The annual subscriptions had increased by over those received in 1915. Lastly, the debit nce had been reduced and the debt to the bank was 78 17s. The committee had taken in hand the Food troller's rationing scheme and was doing its best to ain with the limits. The infirmary authorities had n the necessary steps to co-operate with the civic ority in carrying out the regulations of the Local ernment Board, July, 1916, for the effective treatment venereal diseases. In spite of the war many special s and donations had been received during the year. Some of the medical staff and many nurses engaged in war work abroad and at home. An nt need is a new nurses' home, and its erection be undertaken as soon as the country is at peace. regards the medical staff one change required more passing notice. Mr. Thomas H. Bickerton had ten- d his resignation of the post of ophthalmic surgeon, ch he had held since 1887. During the thirty years ce of this office the department for diseases of the eye been systematically developed. Excluding the depart- ment for diseases of women it may be said that the other special departments were instituted after the eye department, and the satisfactory development of that department paved the way for the completion of the Royal Infirmary as a teaching institution. A unanimous resolution of thanks was passed to Mr. Bickerton for his services, and in appreciation thereof he was appointed consulting ophthalmic surgeon to the Royal Infirmary.

QUASI-JUDICIAL OBITER DICTA.

It is a pity that magistrates and coroners when acting in their official capacity do not confine themselves to the facts before them, instead of indulging in statements sometimes in the nature of generalities which it would be difficult to substantiate, but to which a degree of quasi-judicial authority they do not inherently possess is given by the surroundings. The stipendiary magistrate at Merthyr, the other day, in hearing a case of alleged breach of the Control Board (Liquor) Order in which a certificate from a doctor was produced, purporting to show that whisky found on the girl accused was required by her mother for medicinal purposes, said that doctors were much too ready to accommodate patients with certificates after an event. This was a sweeping statement which seems to have gone far beyond any evidence arising in the case, and we submit ought not to have been made. Another example was afforded by some remarks made by the coroner for East Denbighshire, as reported in the *Wrexham Advertiser* on February 17th. An inquest was held with regard to the death of a child, and the *post-mortem* examination showed that it was due to tuberculosis, the lungs being full of tubercle, but that the death had been accelerated by neglect. It was a case, therefore, in which medical treatment could do little or nothing. The doctor who went to the house in response to a call is reported to have refused to do anything because he had not been paid for professional services rendered three years ago. He pointed out that the child was seriously ill and told the mother to call in another doctor; but no very vigorous steps were taken to obtain the services of another practitioner, and the child died. The coroner correctly said that medical practitioners could not be expected to continue time after time to attend patients without payment, but he went on to make the statement that the Royal College of Physicians held it to be the duty of a physician, if he was called to a person seriously and dangerously ill, to render such skill and aid as lay in his power, even if he had no reason to expect that he would be paid for his services. The jury do not seem to have taken any notice of this statement, and, so far as we are aware, the College has not made any such general statement as the coroner attributed to it. It is the humane custom of members of the medical profession to give their services where they can be of any avail in cases of emergency, but it is not a legal obligation, and this particular case does not appear to have been one of emergency in which medical treatment could have effected anything.

FOOD CONTROL IN POOR LAW INSTITUTIONS.

The President of the Local Government Board has addressed a letter to boards of guardians directing them to revise existing dietary tables, so that they shall allow for an average consumption of flour, meat, and sugar which shall not be in excess of the Food Controller's scale. The revision, which is to be made after the advice of the medical officer has been obtained, is to come into force not later than March 31st. It is stated that it would be possible for the guardians to make a selection from the lists of rations contained in Part II of Schedule A of the Poor Law Institutions Order, which would lead to the consumption of smaller quantities of flour, meat, and sugar than those specified by the Food Controller; but it is recognized that a dietary so constructed would be unduly monotonous, and a list of alternative articles which may be substituted for flour, meat and sugar respectively is appended to the circular. For 1 lb. of bread or ¾ lb. flour, ¾ lb. barley, oatmeal, rice, sago, tapioca, maize meal (cornflour, etc.), or 5 oz. butter, margarine, or fat, may be substituted, but these alternative articles must not be used to replace more than three-fourths of the present daily allowance of bread. For 1 lb. of meat (uncooked without bone) 5 oz. of cheese, or 8 oz. of dry beans, lentils, or peas, may be substituted, but such substitutes must not

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

replace more than one-half of the meat rations prescribed for the minimum number of meat dinners. The use of onions or other flavouring materials is authorized. For ¼ lb. sugar 1 lb. treacle, syrup, or honey may be substituted. In the case of children the guardians are directed to consult the medical officer with regard to the extent to which suitable equivalents can be substituted for bread, the allowances of which are often in excess of the Food Controller's scale. The medical officer is solely responsible for the sick and infants, but the guardians are advised to draw his attention to the desirability of effecting any economies compatible with the needs of the sick. The circular concludes by pointing out that the requirements of the Food Controller apply to Poor Law officers in the same manner as to other members of the public. The adjustment is a matter for arrangement between the guardians and their officers, and Lord Rhondda expresses his confidence that the officers will raise no difficulty as regards any alterations necessary in their rations.

Scotland.

CURATIVE WORKSHOPS.

ON March 2nd King Manoel of Portugal, as representative of the British Red Cross Society, paid a private visit to the orthopaedic department of the 1st Scottish General Hospital at Oldmill, near Aberdeen. He was accompanied by Colonel Robert Jones, C.B., and Major Harold Stiles. The King and Colonel Jones expressed great satisfaction with the work being done in the carpenters', blacksmiths', shoemakers', and trawl-net making workshops. A sum of £3,000 has already been collected for the department, but it is expected that for its full equipment a further sum of £2,000 will be required.

CHILD WELFARE IN EDINBURGH.

Last July a very complete scheme of organization for child welfare in Edinburgh was prepared by Dr. Williamson, M.O.H. It was described in the JOURNAL at the time (July 15th, p. 79), but was found to be too large to be carried out in the present time of stress. A modified scheme, approved by the Public Health Committee a couple of months ago, has now received the general approval of the town council. The cost has been reduced from £6.000 to £4,500, and a smaller number of dispensaries have been included. The present scheme arranges for two main centres with two superintendent nurses, and ten nurses. The hospitals included in the scheme are the Royal Hospital for Sick Children, the Royal Maternity Hospital, the Deaconesses Hospital, and the Hospice in High Street; and three dispensaries—the Cowgate, the New Town, and the Gorgie. The cost of day nurseries is put down at £100, of kindergartens at £250, and of play centres at £100. Mr. Young, the convener, said that all the medical authorities concerned with the care of mothers and children heartily approved of the general outline of the scheme. It would involve the institutions concerned in extra work, which would have to be recognized by grants of money, but in many cases the extra work would fall on the senior consulting physicians and surgeons in the city, and would be done without any recognition. The proposal was merely to meet the actual out-of-pocket expenses for medicine, machinery, and the use of the premises. The committee was assured of the voluntary co-operation very largely of the medical men and medical women concerned in the working out of the scheme. The committee asked for the general approval of the town council so that it might proceed to settle the details. Before it could be put into operation the approval of the Local Government Board would be necessary, when 50 per cent. of the expenditure would be met from a Treasury grant.

At the annual meeting of the Edinburgh Day Nurseries' Association on March 1st, when Dr. T. G. Nasmyth was in the chair, it was reported that there had been 16,829 attendances as compared with 12,782 in 1915. Only children of mothers who had to go out to work were received. In moving the adoption of the report, Dr. Maxwell Williamson said that but for the nurseries these young children would either have been locked up in the house while their mothers were absent at work, or would have been handed over to neighbour women, themselv probably with too many children in proportion to th house space. The birth-rate was going down in an alarmi manner, while the decline in the death-rate of you children was by no means satisfactory. Referring to t city child welfare scheme he said that preventive mea such as kindergartens, open-air playgrounds, and d nurseries, had been put in the forefront, and he hoped th each church would undertake to establish one or other.

Ireland.

THE LOCAL GOVERNMENT BOARD AND POOR LAW MEDICAL OFFICERS.

THE Local Government Board (Ireland) has written to t Dunshaughlin Board of Guardians refusing to sanction war bonus granted by the guardians to their Poor La medical officers. The Board stated that in the ci service the system of war bonuses was designed to app to officers with less than £3 a week, and does n therefore apply to medical officers whose income excee that sum, and who might reasonably be expected to be their shares in the burthens of the present time. T Board stated further that the Dunshaughlin Poor La medical officers are in receipt of salaries on improv graded scales.

The decision of the Local Government Board has caus much disappointment and dissatisfaction among Irish Po Law medical officers. Their salaries in ordinary times d not cover the working expenses of their very extensi districts, in which more than half the population is treat free under the Medical Charities Acts. The improvemе under the graded scale of salaries referred to by the Loc Government Board is only nominal. In many cases t adoption of a graded scale of salaries means an immedia increase to each Poor Law medical officer only of 7s. 6d week, followed, after every three or five years of approv service, by an increase of 2s. a week, until a maximum reached of £150 or £160 a year. For this salary Po Law medical officers have to discharge the duties in d pensary areas of twelve to fifteen miles square, and most of these districts there is very frequently lit private practice with which they can hope to supplеme their official salaries.

The Local Government Board has written also to t Waterford Board of Guardians regarding the appointme of Dr. V. J. White as temporary medical officer of t Waterford No. 1 Dispensary District during the illness Dr. Kelleher at the proposed fee of £1 1s. a day. T Local Government Board stated that it considered th £4 4s. a week would afford Dr. White reasonable remuner tion for his services, and suggested that the guardia should press Dr. White to accept payment at that ra Before the war £4 4s. was a very moderate remunerati for such a large and populous dispensary district the Waterford No. 1, and now that money is not equal half its old purchasing value, it is impossible for a medic officer to discharge efficiently his onerous duties at the o rate of remuneration. Since the Local Governme Board is impotent to compel boards of guardians to gi adequate remuneration to their Poor Law medical office it ought the more freely sanction the reasonable remuner tion offered by those boards of guardians who realize th medical work cannot be efficiently done without paying remuneration that has some direct relation to the prese enormous cost of living.

INFANT AID SOCIETY.

The report presented to the annual meeting of t Infant Aid Society stated that during the year 19 3,760 cases were reported to the committee, the volunta visitors paid 13,576 visits, and to alleviate the distre arising from the increased cost of living milk, brea clothing, dinner, and coal tickets were distributed to t value of £516. The milk alone cost £438. The articl of clothing distributed amounted to 1,874. The socie acknowledged the generous co-operation of the Temp Street, Coombe, and Holles Street Hospitals. The deat rate among the infants under the supervision of t visitors had declined considerably.

Correspondence.

THE OLDEST AGE OF PARTURITION.

SIR,—I wish to establish, if possible, as a fact whether there is or is not a case of "a woman aged 48 or over having a living or viable child," recorded *on evidence other than the mere ipsa dixit* of the woman as to her age. Might I enlist the assistance of your readers to enable me to settle the point by reporting to me any cases within their knowledge?

I am of course aware that there are a good many reported on the evidence of the mere statement of the woman that she was 48 or older; but, as the Registration of Births Act is now over fifty years old, it should be possible to get the date of parturition and the date of the mother's birth both officially recorded, and it is cases of this nature I am anxious to obtain for a forthcoming edition of Taylor's *Medical Jurisprudence*.—I am, etc.,

London, W., March 2nd. FRED. J. SMITH.

THE PROPHYLAXIS OF VENEREAL DISEASES.

SIR,—There are two occasional concomitants of illicit sexual intercourse, one pathological, the other physiological, but both feared. One is venereal disease, the other pregnancy. The male sex is exempt from the possibility of the one (pregnancy) and can also to a considerable extent be protected from the other (venereal disease), while the female is liable to the one, commits a crime if she attempts to obviate the consequences of her moral "slip" by abortion, and cannot adequately secure any prophylaxis as regards disease. Evidently this presses hard on the woman. Still, if it were possible to prevent venereal disease in men who expose themselves to it women would also escape the vicious circle.

In every contagious disease, even if prophylaxis is possible, medical men aim at reducing the number of possible contacts. M. is vaccinated, but that is not sufficient reason for permitting him to visit a small-pox hospital unless required to do so by duty. N. has received antityphoid inoculation, but should avoid unboiled tainted water. The analogy is imperfect but suggestive. One difference is that in the above cases prophylaxis should have produced temporary immunity. In venereal prophylaxis there is nothing of the kind. It is more analogous to the effort of the surgeon to sterilize with antiseptics a surface previously exposed to infection, or to a surgeon performing tracheotomy for diphtheria who has some mucus coughed into his eye, and completes the operation, then washes, and attempts to disinfect his eye.

Can prophylactic remedies for venereal diseases be applied all round, and upon all occasions? Given the conditions, say, of a ship arriving at port with a zealous medical officer and suitable medicines, it would appear possible to instruct the crew and to prevent disease in a large proportion. But if by such occasional prophylaxis a habit of sexual indulgence is fostered, are not contacts multiplied and social conditions produced which make for increased disease?

Then, too, there is the civil population; who undertakes their prophylactic treatment? How about the shame-faced lads led astray after an extra glass by sirens and opportunities? Who will safeguard these against disease?

I agree with Lieutenant Colonel Cathcart that "physiological law is transgressed by solitary vice, by prostitution, by checks to conception," and the list of sexual transgressions might be lengthened out, and includes marital excesses. The moral law is physiological law.—I am, etc.,

March 1st. A. NEVE, F.R.C.S.E.

SIR,—1. Prostitution is not at the present time a crime at common law. The statute law on the subject is all recent, and is directed against the keepers of disorderly houses, offenders against public decency, procurers, and such like, not against prostitutes, or those who frequent them. (In some jurisdictions it has been a crime—for example, in the ancient "court Christian," and may be so again.)

2. Mr. Elliot's unfortunate allusion to the supposed trusteeship of the medical profession for the public is nonsense in equity. Let him, or any one else, read Underhill's *Trusts and Trustees*. A trustee is merely the legal owner of the legal estate in property, and is bound to hand over to his *cestui que trust*, or beneficiary, the whole of the rents, profits, and interest produced by the property, and at the expiration of the trust the *corpus*, or property itself; for the beneficiary is, and always has been, the equitable owner of the equitable estate. To say that medical men have no real interest in their long and slowly-learnt knowledge, and are mere channel pipes to convey it to Mr. Elliot and the public is nonsense, and shows how dangerous it is to use legal metaphors—if you know no law.

3. Surely the prophylaxis of syphilis can be put in a syllogism and left there. (1) *Major premiss:* Prevention is better than cure. (2) *Minor:* It is our duty to cure syphilis. (3) Much more, therefore, is it our duty to prevent it, and no religious person who recalls the part taken by his Master in curing disease will care to deny this conclusion.

I do not sign my name, being quite unknown to fame, but I have taken Honours in Theology and M.B.Oxon., and I am also a member of the Bar.—I am, etc.,

A MEDICO-LEGAL D.P.H.

SIR,—Your columns in the course of the last three or four weeks have contained something in the nature of a symposium on the above subject, and it is evident that interest in the matter is not confined to the exclusively medical standpoint. I shall be grateful if you can grant space for a few further remarks suggested to me by some of the statements that have been made.

Mr. Hugh Elliot's interesting letter of February 5th has already received direct notice by yourself of one point raised by him, but I should like to say that Mr. Elliot translated my letter too freely when he said that my argument amounts in effects to this: "We are in a position to furnish you with a simple formula which will protect you effectively against the infection of syphilis. But, if you do that sort of thing we are not sure that you don't deserve to get syphilis; we know, indeed, that men and women will continue to do that sort of thing; very well, they shall continue to have syphilis." I am not of these opinions, and my letter contained no such reasonings.

From his letter of February 5th, followed by that of February 18th, it would seem that Mr. Elliot believes that the medical profession is in possession of a simple, effective, and infallible formula against the infection of syphilis, and he waxes indignant at the thought that the public should not immediately have the benefit of this. I am not aware that the profession does possess such a certain preventive of syphilitic infection, and I am quite sure that scientific demonstration in the laboratory of the existence of such a specific remedy is no guarantee that its general use by the public on the lines so urgently called for by Mr. Elliot would be effectual. Alcoholic intoxication can be eliminated from the laboratory or hospital clinic, but if Sir Bryan Donkin and Mr. Elliot leave alcohol out of their scheme of scientific prophylaxis they will be disappointed in the results.

In his second letter Mr. Elliot offers some reflections and speculations on mediaeval moralists, the belief in a hell, etc., and it is interesting to find that, though he thinks their mediaeval doctrines were barbarous, and is not sure about the existence of a hell, he has no doubt about the existence of a twentieth century devil, who, like Satan of old, goeth about seeking whom he may devour.

While I am in full sympathy with Mr. Elliot in his consuming desire to see the curse of syphilis and other venereal diseases abated and abolished, I think he is mistaken in his selection and limitation of the means to be employed, and the law of continuity in human experience and progress deters me from looking for a sudden and complete transformation such as he seems to think possible. It seems to me that we shall not be rid of this evil in a day or generation, and medical science alone will not accomplish the work.

I regret I have not seen a fuller report of Dr. Otto May's remarks on the occasion of Dr. Macalister's lecture than appeared in your columns of February 10th, but from that report I am unable to agree with Sir Bryan Donkin when he says that Dr. Otto May urged that the question of prevention was a purely medical one. Dr. Otto May is

reported to have said that he acknowledged that education was a most important factor in preventive treatment. Does Sir Bryan Donkin himself still maintain that the subject is essentially and exclusively medical? Will he not admit the importance of such social and legislative measures as are comprehended in the appeal for temperance, the need for better housing, the control and segregation of the mentally deficient, and the recent Criminal Law Amendment Bill introduced by the Home Secretary, into all of which the moral factor enters?

I should like to state my adherence to the view stated by Mr. C. W. Cathcart, and to urge that we should, as medical men, consider this matter on broad lines and take long views, while employing to the uttermost all that medical science provides us with in the way of preventive and curative treatment.—I am, etc.,

Inverness, Feb. 27th. T. C. MACKENZIE.

SIR,—In an article under this heading (BRITISH MEDICAL JOURNAL, February 10th) it is stated that "the question which is most exercising the medical profession at the present time" is whether a medical man should "tell an inquirer how he may expose himself to infection without risk, or with greatly diminished risk, of contracting it." Now, although a medical man cannot tell any one how to expose himself without risk, he can tell him how to diminish risk. And I venture to suggest that any medical man who may be in doubt would probably not find it very difficult to answer your question if he would simply ask himself this question:

If any man by any chance be exposed to infection of any kind, is it better for the common weal that he should become infected or that he should escape infection?—I am, etc.,

London, W., March 3rd. ARTHUR COOPER.

THE EFFECTS OF CINEMATOGRAPH DISPLAYS UPON THE EYES OF CHILDREN.

SIR,—It is not that the cinema displays cause actual loss of vision, so much as the fact that the glare, flicker, and unhygienic surroundings are bad for one's eyes and cause fatigue—a point on which Mr. Harman is insistent. A child, or adult, with slight or no symptoms of eyestrain under good conditions, may develop headaches, blurred vision and other symptoms of eyestrain at a cinema, if they have some small error of refraction. Such errors, which may have been latent as regards symptoms, now cause fatigue, with the result that the child may not be able to pass a standard test till such effects have worn off. A person in good health and not bodily fatigued may have normal vision with a small error of refraction; if he is tired or in ill health, the same error may only allow him to get two-thirds or a half of full vision under the same conditions of lighting. Environment undoubtedly plays a part in rendering errors of refraction evident to the patient, although I must admit that, when in practice in the country, I saw agricultural labourers who were short-sighted, in spite of the fact that they used their eyes little for near work; the refractive errors I found were the same as one finds in town. Recently I saw a girl of 7 with six dioptres of myopia. She was in perfect health bodily, and her parents were emmetropic. She had only just commenced school and lived in the outskirts of London under the best circumstances, so that her error could not be accounted for either on the grounds of heredity or environment.—I am, etc.,

London, W., March 6th. SYDNEY TIBBLES.

SIR,—My thanks are due to Dr. J. A. Wilson for drawing attention to an omission in my paper of February 17th which left the meaning intended to be conveyed obscure.

The clinic at which the school children under observation attend is held at the Belgrave Hospital for Children; it has been under my personal supervision for the past fifteen years. It is situated in a good quarter of London, the housing is good, there is no overcrowding; the parents of the children are of the artisan class, they feed and clothe their children well. Cleanliness is above the standard of London school children, and that standard is becoming progressively higher with the continued action of school medical inspection, nursing supervision, and cleansing. The health of the children has not deteriorated during the war.

During the last three years it has been noticed that an increasing number of children attend the clinic for defective vision whose eyes, on objective examination, are found to be normal. In earlier years the number of such cases was small by comparison. Inquiry on the school side shows no change in the standard of vision demanded. No plausible explanation of the occurrence could be found other than a growing indulgence in attendance at the cinematograph halls, which abound in the district. Inquiry shows that, during the winter months especially, parents secure a peaceful half-holiday for themselves by giving coppers to their children and dispatching them to the cinematograph hall. Cause and effect may be difficult or impossible to prove, but the connexion is suggestive.—I am, etc.,

London, W., March 3rd. N. BISHOP HARMAN.

Obituary.

THOMAS SEYMOUR TUKE, M.A., M.B., B.CH.OXON.,

RESIDENT PHYSICIAN AT CHISWICK HOUSE; LECTURER AND CLINICAL INSTRUCTOR ON INSANITY TO ST. GEORGE'S HOSPITAL.

WE regret to announce the death, on February 23rd, after a short attack of pneumonia, of Thomas Seymour Tuke, resident physician at Chiswick House, Chiswick, and lecturer and clinical instructor on insanity to St. George's Hospital. Born in 1856, he was descended from a medical family, his grandfather being Dr. John Conolly of Hanwell, and his father Dr. Harrington Tuke of the Manor House, Chiswick. He was educated at St. Paul's School under Dr. Kynaston, and went with a scholarship to Brasenose College, Oxford, where he graduated B.A. in due course. He received his medical training at St. George's and the London Hospitals, becoming M.R.C.S. in 1885. He graduated M.A., M.B., B.Ch.Oxon. in 1890.

For some time he assisted his father at the Manor House, Chiswick, and on the latter's decease he joined his brother in partnership in carrying on the institution. The asylum was moved to Chiswick House in 1894, and he was co-licensee and resident physician there until his death. Chiswick House was the "villa" of the Earl of Burlington. It is surrounded by spacious and beautiful grounds, and was a ducal and at one time a royal residence.

Dr. Tuke was a member of the British Medical Association, and in 1900 was president of its Thames Valley Branch. He was a Fellow of the Royal Society of Medicine, and of the Medical Society of London, and a member of the Harveian and West London Medico-Chirurgical Societies. He contributed papers on the subject of insanity and its treatment to various medical journals. He was lecturer and clinical instructor on insanity at and a governor of St. George's Hospital, and regularly held clinical classes at the Hanwell Asylum.

In 1890 he married the second daughter of the late Dr. Graily Hewitt, and two children were born to them. His daughter survives him, but he had the great sorrow of losing his only son, who, on leaving University College, Oxford, took a commission in the Northumberland Fusiliers, and was killed in action near Ypres early in the war.

Dr. Tuke was fond of all outdoor sports; he was a good horseman, and in holiday seasons he delighted to hunt on Exmoor. He was an excellent cricketer, a member of the M.C.C. and Incogniti Clubs, and frequently played in the cricket matches at Chiswick House. He joined the Volunteer Emergency Corps on its formation; in the Chiswick corps, now the 4th Battalion of the Middlesex Volunteer Regiment, he became a sergeant, and took the keenest interest in promoting the well-being and efficiency of the corps. He was an excellent marksman.

For fourteen years he was churchwarden of Chiswick Parish Church, holding the office at the time of his death. And here again he threw himself whole-heartedly into his duties. His life was marked by a singular cheerfulness and sympathy. He had the gift of so entering into the personality of those with whom he came in contact, rich and poor alike, that they trusted him and loved him. Always courteous, always patient, always generous, always loyal and affectionate to his friends, his character is best summed up as that of a Christian gentleman.

SIR GEORGE H. SAVAGE, M.D., F.R.C.P., writes: Dr. Seymour Tuke, after leaving Oxford, became a student of

St. George's Hospital and the London. He took the surgical and medical degrees at Oxford, and joined his brother at the Manor House, Chiswick, and later moved with him to Chiswick House, Chiswick, where he became ex licensee and resident physician. Dr. Tuke was the son of a leading alienist physician, and was the grandson of Dr. John Conolly, who introduced into England the humane "non-restraint" system at Hanwell in 1839.

He was from his earliest years impressed with the need of personal rather than drug treatment of the insane. He also felt that to understand the insane you must have a great amount of personal communication with them, and that ordinary nursing homes, or lay homes, in which there was no one with special experience would lead to the old scandals, and the detention of incurable patients in unsuitable homes.

He did but little medical writing, but he was a sound and able adviser in cases of mental disorder, and was quite alive to advancing knowledge and treatment. His personal tact with patients led to their looking upon him as a trusted friend even more than a doctor. Kind sympathy and tact were ever at the command of sufferers, and his loss will be widely felt.

P. S. A. writes: By the death of Dr. T. Seymour Tuke Freemasonry has lost a truly good and faithful "Brother." He was initiated into the craft in the "Apollo Lodge" in his Oxford days, and was one of the founders of the "Cavendish Lodge," No. 2620, in 1896. He worthily filled the various offices of that Lodge, and in 1904 became its Worshipful Master, carrying out the duties of the chair in a most exemplary manner. In 1900 he joined the Cavendish Chapter, becoming its first Principal in 1909. He was also a founder and Past Master of the Cheselden and Gunnersbury Lodge, equally endearing himself to the Brethren by his charming personality, his conscientious and able work. His numerous Masonic friends will ever deplore his loss.

HORACE BENGE DOBELL, M.D.St.And.,

CONSULTING PHYSICIAN, ROYAL HOSPITAL FOR DISEASES OF THE CHEST.

DR. HORACE BENGE DOBELL died at his residence, Parkstone Heights, Dorset, on February 22nd, in his 90th year. At his death he was the senior member of the Royal College of Physicians, London, and consulting Physician to the Royal Hospital for Diseases of the Chest.

He was the third child of Mr. John Dobell, and younger brother of Sydney Dobell, the poet. He was a representative of an ancient Sussex family which formerly had its seat at Streate-place. He was born in the City of London on January 1st, 1828, and received his early education at home. In 1842 he was articled as a pupil to the late Mr. Edward Ficker, F.R.C.S., a well known Cheltenham surgeon.

In 1845 he entered St. Bartholomew's Hospital, and early took a great interest in the Abernethian Society. In one paper he distinguished and named the affection "post-nasal catarrh," and in another discussed the class of medical literature most needed at that time, which, after its publication in the *Medical Gazette* of 1851, attracted much attention. He gained prizes in surgery and forensic medicine and the Bentley prize. He took the diploma of M.R.C.S. in 1849, at the age of 21, and after a short period in general practice he graduated M.D.St. Andrews in 1856, and became a member of the Royal College of Physicians in the same year. He was an indefatigable writer and inventor. In 1857 he devised an instrument for the microscopical examination of the blood, and in the following year published a book on physical diagnosis of diseases of the chest, which materially aided in the appreciation of the connexion between physical science and structural changes. He was elected physician to the Royal Hospital for Diseases of the Chest in 1859, and in 1861 delivered a course of lectures there on germs and vestiges of disease afterwards published in a book. Among his most successful books were those on *Diet and Regimen in Sickness and Health*, first published in 1864, which reached a seventh edition in 1882, and his book on tuberculosis, a second edition of which appeared two months after the first.

In 1863 Dr. Dobell wrote on the use of predigestive foods in wasting disease in the form of pancreatized fat, afterwards called "pancreatic emulsion." The idea of submitting foods to the influence of the digestive juices was satisfactorily carried into practice by him in the form of this pancreatized fat at the Royal Hospital for Diseases of the Chest, and further elaborated in a series of papers in the *Lancet* in 1864, 1865, 1866, and subsequently.

The year 1869 saw the appearance of the first volume of Dr. Dobell's *Reports on the Progress of Practical and Scientific Medicine in Different Parts of the World*, which was followed by a second volume in 1870. This work consisted of a series of original and independent reports by local practitioners of repute on the existing condition and recent progress of all parts of the healing art in every division of the globe. In 1872 he published a book on the heart in which he called attention to two facts of clinical importance—first, the connexion between certain throat symptoms and diseases of the heart, and, secondly, gave an explanation of clubbing of the finger ends. In 1875—the year in which he resigned the office of physician to the Royal Hospital for Diseases of the Chest—he began the publication of reports on diseases of the chest and continued them for two years. In 1878 appeared his book on *Loss of Weight, Blood Spitting, and Lung Disease*, which Sir Thomas Watson described as a storehouse of instruction. It embodied such parts of his earlier publications on tuberculosis as he wished to reproduce. It was a minute and laborious study of phthisis from the clinical standpoint, and a second edition was called for in 1880.

In 1880 Dr. Dobell, who was well acquainted with the healthful nature of the climate of Bournemouth, proposed to the local practitioners that they should establish there a system of medical treatment essentially similar to that known in Auvergne under the name of the Mont Dore cure, and submitting his reasons for thinking that the system might be carried on at Bournemouth even more successfully than at Mont Dore. Under the direction of a public company established to carry out Dr. Dobell's suggestions, a palatial building was completed from his plans and with his advice in 1885 and started in full working order. There can be no doubt that the system of treatment carried out at the Mont Dore of Bournemouth, combining, as it does, under singularly favourable conditions, most potent and approved therapeutic measures, places at the command of the medical profession a most complete combination of the resources of enlightened modern medical treatment.

In 1882 the death of their second daughter induced Dr. and Mrs. Dobell to leave London and to settle in Bournemouth where Dr. Dobell practised as a consulting physician for many years. Among his patients during this period was Robert Louis Stevenson. After settling in Bournemouth, Dr. Dobell published two works—one a treatise, illustrated by his own pencil, on the medical aspects of Bournemouth and its surroundings, the other on *Asthma: its Nature and Treatment*.

In 1892 he retired and built for himself a lovely mansion on the high lands at Parkstone commanding magnificent views of Poole Harbour, Swanage, Purbeck Hills, and the English Channel. Here he resided in strict retirement until his death.

In 1849 Dr. Dobell married Elizabeth Mary Fordham of Odsey House, Cambs., who died in 1908. There were three daughters, two of whom survive. His family are long lived, and he is survived by five brothers and sisters, and was in full possession of all his faculties to the day of his death.

WIDESPREAD sorrow has been caused by the unexpected death, on February 3rd, of DR. ROBERT BRUCE, of Milford-on-Sea, Hampshire. He was educated at the City of London School and St. Bartholomew's Hospital; he took the diploma of L.S.A. in 1875, that of M.R.C.S.Eng. in 1876, and that of D.P.H.Camb. in 1881. After serving for a time as house-surgeon to the Borough Hospital, Birkenhead, he succeeded his father in practice in Old Street, St. Luke's, and continued to practice there and in Finsbury—becoming district surgeon to the City of London Lying-in Hospital—until 1890, when, for the benefit of his wife's health, he removed to Milford. During the twenty-six years of his practice there he showed great interest in public works. It was on his initiative that the cottage hospital was built by the late Mr. Talbot Agar. He was one of the chief promoters of the public water supply; was a founder of the village club, and an indefatigable honorary secretary of the horticultural association. He

was surgeon in charge of the troops at Hurst Castle, and the arduous work he did in that capacity since the war began is believed to have overstrained his powers.

The Services.

INDIAN MEDICAL SERVICE.

ACCELERATED PROMOTION.

PENDING the resumption of normal conditions, the following rules will govern the claims of officers of the Indian Medical Service to accelerated promotion:

1. Officers who prior to the declaration of the war qualified in part for accelerated promotion, but owing to the war have not been able to qualify fully, and those who at the commencemen of the war were on study leave and were recalled to duty before completing their study leave, shall receive accelerated promotion with all its attendant advantages, that is, as regards pay and position.

2. In the case of all other officers, the period within which they are required to qualify for accelerated promotion (that is, while in the rank of Captain or within four years of their promotion to the rank of Major) shall be extended by a period equivalent to the duration of the war. Officers qualifying within the latter period shall receive exactly the same concessions as if they had qualified within the prescribed time.

Universities and Colleges.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

A COURSE of lectures on psychology in relation to the war will be given on Wednesdays, at 5.30 p.m., during the second term by Drs. Scripture and Ernest Jones, and in the third term by Professor Percy Nunn and Mr. C. Burt, M.A.

MILITARY EDUCATION COMMITTEE.

The Military Education Committee of the University of London, in presenting its eighth annual report, states that new and important duties had been assigned to it in regard to the supply of officers for the army. During the training year ending September 30th, 1916, the number of cadets was 2,077, as compared with 2,209 in the previous year; of these, 740 were medical, 101 medical cadets received commissions, and of the 256 infantry cadets who received commissions 25 were medical students. The medical unit was encamped for its annual training during the summer vacation at the R.A.M.C. training centre at Codford, Salisbury Plain, 7 officers and 333 cadets attended, and the training was carried out with companies of the regular R.A.M.C. The King has written a letter expressing his gratification at the fine record of service rendered by the University of London Officers' Training Corps during the war, and added that as Colonel in-Chief of the Officers' Training Corps he had noticed with pleasure the smart and soldierly bearing of the officers and men on parade when a guard of honour was furnished by the University of London contingent at the opening of the School of Oriental Studies.

Medical News.

DR. H. M. FERNANDO has been appointed an unofficial member of the Legislative Council of Ceylon.

AT the instance of the Charity Organization Society, Dr. F. N. K. Menzies, principal assistant medical officer, London County Council, will give an address on the prevention of consumption, at the invi ation of Lady Glenconner, at 34, Queen Anne's Gate, S.W., on March 21st, at 3.30 p.m.

A READING from Sir Ronald Ross's poems will take place on March 23rd, at 3 p.m., at the house of Sir William Lever on Hampstead Heath. Sir Herbert Warren, professor of poetry at Oxford, will preside, and among the readings will be some from a suite of war verses now being published in the *Poetry Review*.

AT the twelfth annual meeting of the Association for Promoting the Training and Supply of Midwives, when Dr. A. P Luff, Major R.A.M.C.(T.) will preside, Dr. George Reid, county medical officer, Staffordshire, will give a short address on midwifery and Government subsidies. The meeting, by kind permission of Mrs. Luff, will be held at 9, Queen Anne Street, W., on Thursday, March 22nd, at 3.30 p.m.

THE Child Study Society has arranged a course of lectures on Thursdays in March on vocational education. The first lecture was given on March 8th. A discussion on welfare work with young employees will be held on Thursday, April 19th. Particulars can be obtained from the Honorary Secretary at the Royal Sanitary Institute, 90, Buckingham Palace Road.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS

PUDIC NERVE ANAESTHESIA.

WE are now able to refer some correspondents who made inquiries about writings on pudic nerve anaesthesia to the *Journal of the American Medical Association*, August 6th, 1910, p. 544.

GOLDEN SYRUP.

M.D.—According to Hutchison (*Food and the Principles of Dietetics*, fourth edition, 1916), treacle, molasses, and golden syrup are produced as by-products in the manufacture of crystallized sugar. Their syrupy consistency is in part due to the fact that the impurities which they contain prevent the cane sugar from crystallizing, and partly to their being fairly rich in uncrystallizable fruit sugar. The quantities of cane sugar in molasses, treacle, and golden syrup respectively are 47.0, 32.5, and 39.0, and of fruit sugar 20.4, 37.2, and 33.0. The presence of starch glucose in golden syrup is, we understand, considered to constitute adulteration.

LATIN ON THE MEDICAL CURRICULUM ABROAD.

A TEACHER.—A baccalaureate course of secondary instruction in addition to a certificate covering the study of physics, chemistry, and biology, issued by the faculty of science, constitutes the basis of medical education in France. The reforms of 1902 established complete equality in the baccalaureate course as respects classics, science, modern languages, and mathematics. A four years primary course constitutes the uniform basis; seven years of secondary instruction follow, divided into two parts, extending respectively over four and three years. In the former the student may choose between the classics, with or without Greek, and a modern course largely scientific; in the second he may take one of four groups—the classical languages, Latin and modern languages, Latin and science, modern languages and science. History, geography, and mathematics are included in all the groups. The German programme allows the student to choose between classics and modern subjects. The requirements for admission to and graduation at colleges holding membership in the Association of American Medical Colleges include one foreign language in addition to English, mathematics and history. Among elective subjects, in addition to further work in English language and literature, are additional foreign languages, among which Latin is named, with German, Italian, French, Spanish, or Greek, as alternatives.

LETTERS, NOTES, ETC.

WASTE OF MEDICAL TIME AT ASSIZES.

A POLICE SURGEON writes: Can nothing be done to induce the judges at assizes and high court trials to give preference to those cases in which medical men appear as witnesses? The last assizes court I attended I had to leave my work and travel to the county town, some sixteen miles away, each day from the Monday to the Friday. I had to moon about the court each day in case the order of hearing the cases was rearranged. It was only late on the afternoon of the Friday that my case was taken. The Thursday and half of Friday was occupied by a discussion as to which of two accused men had stolen a horse and cart. I think that at a time like this a little more consideration might be shown for hard-worked general practitioners in this matter.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

HE EFFECTS OF HIGH EXPLOSIVES ON THE EAR.*

BY

J. GORDON WILSON, M.A., M.B., C.M.EDIN.,

PROFESSOR OF OTOLOGY, NORTH-WESTERN UNIVERSITY, CHICAGO; CAPTAIN C.A.M.C.

ON HEARING.

HIS title is to be preferred to "deafness due to shell nock" for several reasons. The word "shock" has a varied significance. To the neurologist it conveys many ideas; thus von Monakow distinguishes several varieties of nock—surgical shock, psychical shock, apoplectic shock, ommotio cerebri, diaschisis. Even in its best recognized orm, surgical shock, the physiological mechanism which as been interfered with to produce the symptoms is nknown. The title chosen will, I hope, do away with uch ambiguity.

In considering deafness due to high explosive, one nould, as far as possible, dismiss from the mind preonceived ideas. Not only should one avoid the term shock," but also one should avoid as far as possible ne terms "hysteria" and "neurasthenia." To get some dea of what has happened the subject ought to be onsidered with an open and a critical mind.

THE RELATION OF THE EAR TO PRESSURE.

The organ we call the ear, like all peripheral organs, is mechanism adapted to transform one form of external nergy into nerve impulses. There are two separate and istinct mechanisms in the internal ear, one concerned vith hearing, one concerned with equilibrium. Each of hese mechanisms is adjusted and made sensitive to register oinute pressures and transform them into nerve impulses. The nerve impulses are carried to the central nervous ystem to be there interpreted and utilized. In hearing, ir vibrations (varying, say, from thirty-two double vibraions per second up to several thousand double vibrations er second) in various combinations are transmitted normally through the external auditory meatus to the drum membrane, which is finely swung to catch them. The vibrations are then transmitted through the ossicles and the middle ear to the cochlea, where they are transformed into nerve impulses. Nerve impulses may also be set up in the cochlea by vibrations through bone. The nerve impulses are conveyed along the cochlear nerve and acoustic path to the temporal lobe, where they enter in one definite bundle to be again redistributed to various parts of the cerebrum. The route from the periphery to the cortex is not one long undivided path. To put it roughly, there is not one telephone wire from the ear to the receiving and interpreting station in the cortex. The path is broken at various synapses or junctions or telephone exchanges. At these synapses connexion is made with other nerve paths, and communication can be and is established with other physiological systems. The significance of this I shall refer to later.

The other pressure mechanism in the internal ear is a system of canals containing fluid, a manometer, so designed as to register and signal to the central nervous system movements of the head. This mechanism is adjusted to indicate very small varying pressures. The information so obtained, together with information received from other sources (the eyes, joints, etc.), enables the muscular mechanism to adapt itself rapidly to varying alterations of our centre of gravity—for instance, to maintain the erect posture during movements of the head.

There are certain limits of pressure normal to these two mechanisms. Pressure beyond the normal produces disturbances which are pathological. Disturbances of hearing may cause hyperacusis, hypoacusis, or total deafness. Disturbance of the canalicular system produce disturbances of equilibrium—for instance, vertigo and nystagmus.

The effect of the high explosive is a great compression, amounting in some cases to ten tons to the square yard (10,000 kilos per square metre), followed by an equally great decompression.[1] The rôle played by each of these I do not intend to discuss.

The effect of the explosion can be best expressed by referring to a few typical cases. Cases of gradual diminution of perception of sound from long exposure to gunfire do not come within this paper. We are here concerned chiefly with the results of one severe concussion, followed by total or diminished loss of hearing. In some of the cases a previous concussion may have damaged the hearing, and the second made it worse, or resulted in total loss.

Classification of Cases.

The cases that are admitted to the hospital suffering from "nerve deafness due to shell concussion" can be divided into three groups:

1. Those with nerve deafness.
2. Those who have had nerve deafness of a varying degree, and who have still the fixed idea that they cannot hear.
3. Malingerers. Some undoubtedly have had shell concussion which has affected the hearing, but have now recovered; others are malingerers pure and simple.

It is a difficult matter to separate the second from the third. Experience, the general condition of the patient, his answers to the test questions, largely aid one. The following may be given as an example of Group 2.

Pte. De S. Severely wounded in head by bullet on May 28th, 1916; unconscious for several hours; when recovered consciousness was deaf in right ear. Admitted October 1st because of deafness. Has a depression (5.2 cm. by 1.5 cm.) in the right parietal bone near interparietal suture through which pulsation of brain can be seen. Right membrana tympani slightly retracted, otherwise normal; no hearing for voice or forks. Left membrana tympani normal; hearing for voice and forks normal. No paralyses, no anaesthesia, no astereognosis, no tremor, no Romberg.

Eyes.—Movements normal; fields normal; fundi normal; vision in both $\frac{6}{6}$.

October 6th.—Caloric test (cold) to right ear; immediately after heard voices in right at room length (7 yards); whisper 20 inches.

It is with the first group that this paper is concerned. To the second group belong those cases that yield to suggestion or recover hearing rapidly, often completely, after excitement or intense stimulation. To discuss the third group and how the malingerer can be detected is outside the limits of this paper.

NERVE DEAFNESS.

The cases of nerve deafness (Group 1) which have come under observation, may roughly be divided as follows:

I. Cases of nerve deafness associated with damage to the conducting mechanism.

II. Cases of nerve deafness without any visible or demonstrable lesion in the conducting mechanism when they came under observation. This does not preclude the occurrence of a demonstrable lesion at the time of the concussion; in fact, the history of many of these cases shows that this did occur.

III. Cases of nerve deafness in which there has been destruction of the cochlea and of the semicircular canals or their nerves.

In each of the first two groups the loss may be partial or total; the third always causes total loss.

It may be said in passing that the otologist has well recognized tests at his disposal which enable him to differentiate injury to the conducting mechanism from injury to the nerve mechanism. There is, however, great difficulty in saying how much of the loss is due to one, how much is due to the other.

The cases of disturbance of hearing following exposure to high explosives seen by me in West Cliff during the last two months date their onset back anywhere from eleven months to two months. We are only now receiving cases of more recent date. The average time from the date of the injury of those now under review is about three months. All have been under treatment since the injury, many in the care of competent otologists.

The symptoms associated with loss of hearing from high explosives fall within that group of nerve diseases called traumatic neuroses. In many of our cases there is a recognizable physical trauma in the head or elsewhere received during a period of mental excitement. It is well recognized that "traumatic neuroses" are specially apt to occur under such conditions. The symptoms are varied and complex. There are present, for instance, exaggeration of tendon reflexes, tremors, vasomotor disturbance, sweatings, lethargy, sleeplessness, and headaches. There

* Read before the Medical Society of the C.A.M.C. at Shorncliffe, October, 1916.

is unsteady equilibrium with vertigo. There is a concentric narrowing of the field of vision. In many of our cases fields of anaesthesia were present. In two of our cases of total deafness there was complete anaesthesia and loss of thermal sense. In one with total loss in one ear and great diminution in the other there was anaesthesia on one half of the body and hyperaesthesia on the other. Speaking generally, one may say that there are here included some symptoms which are frequently grouped under the term "hysteria," others under the term "neurasthenia." According to Dejerine, in traumatic hystero-neurasthenia the patients pretty often have hyperacusis with subjective sounds as in neurasthenia; in other cases it is auditory acuity that is diminished, sometimes on both sides, sometimes on one only, as in hysteria.[2]

Method of Examination.

The following case sheet is filled in on the first examination:

WEST CLIFF CANADIAN EYE AND EAR HOSPITAL,

Folkestone, ..., 1917.

Name ..... Reg. No. ..... Unit .....
Age ..... Previous occupation .....
Complaint ..... Previous condition .....
History of present illness .....
Alcohol ..... Tobacco .....
Nose ..... Nasopharynx .....

	Right Ear.	Left Ear.
M.T.		
Tube		
Forks:		
32 dv.		
64 dv.		
128 dv.		
C 256		
C 2		
C 3		
C 4		
Whistle		
Monochord		
	Rinne ..... Weber	Rinne .....
	Schwabach ..... (C or C^1)	Schwabach .....
Conversation Voice		
Whisper		
Romberg		
Equilibrium in Right Foot		Equilibrium in Left Foot
Bending Forward		Bending Backward
Finger to Finger		Finger to Nose
Pointing Left Hand	up	down
Pointing Right Hand	up	down
Ataxia		Tremor
Reflexes		Nystagmus
Caloric Reaction		Rotation Reaction
Vertigo		
Diagnosis		

We have examined and treated over 80 cases of nerve deafness due to high explosives; examined as many more supposed cases. We have had three cases of total (bilateral) deafness to voices, forks, and loud noises. Of these three, after treatment, one, Pte. K., could hear in the right ear conversational voice at 18 in. before being sent to Moore Barracks because of mental hyperexcitability. The other two are now under treatment. One, Pte. H., who had complete anæsthesia and no thermal sense, can hear conversation voice through a speaking tube. The other, Pte. P., who had a gunshot wound in the region of the left temporal lobe, the R.M.T. completely destroyed, with otorrhoea, and the L.M.T. atrophic and adhesions in middle ear, can distinguish notes from a resonator along a tube to the ear, and "Tipperary" and the "Maple Leaf" when he stands close to the piano. Of the others, usually with marked deficiency on one side and total deafness on the other, with caloric reaction still present on the totally deaf side, all have improved, remarkably so in the ear with the deficient hearing.

The cases here given are selected to show the variety of cases, and not to emphasize the results. The complete results will be published later.

Sergt. L. Previous to enlistment ears normal. In France from January, 1915. On June 2nd, 1916, was hit with shrapnel, which pierced his helmet over the frontal bone, and buried; scalp bruised, bone not fractured. Not unconscious; dazed, not vertigo; no nausea; totally deaf in the left, some dullness in the right; refused to be invalided till laid off with "influenza" ten days later. Seen September 6th. R.M.T. normal; L.M.T. perforation and otorrhoea. Hearing for conversational voice, R.E., 3 yards; L.E., 0. All forks heard by right ear, none by left, though faint over mastoid. Few symptoms of traumatic neurosis. Left caloric easily obtained. Sent to the C.C.A.C. on October 10th with this report: R.M.T. normal, L.M.T. small perforation, no discharge. Hearing for conversational voice, right ear 7 yards; left ear 1 yard (with noise apparatus in right), whisper close to ear.

Pte. H. Previous to enlistment ears normal. In France nine months. On June 28th, 1916, received shrapnel wound on left side of head and blown up. Unconscious for several hours; left ear bleeding, followed by suppuration for a few days. Admitted September 15th, 1916. R.M.T. thickened and retracted; L.M.T. congested, hammer not seen; conversational voice, right ear, two yards; voice and forks in left, *nil*; violent headaches, great tremor, slight vertigo. October 17th: Sent to C.C.A.C., with this report: R.M.T. retracted; L.M.T. slight middle catarrh; conversational voice, right ear normal, whisper 24 in.; left ear 7 yards, whisper 15 in.

Pte. C. H. Previous to enlistment ears normal. In France four and a half months. On June 13th, 1916, shell burst about 5 ft. away on right. Slight shrapnel wounds over left eye; not knocked down, not unconscious; heard and felt loud crack in right ear; rotation vertigo; no vomiting. Helped back to doctor's dug-out and sent to Boulogne. Totally deaf in right ear, some deficiency in left. Admitted October 1st, 1916. R.M.T. retracted and perforated; L.M.T. retracted. Hearing for voice and forks, right ear, *nil*; left ear, voice 7 yards, all forks. Right caloric easily obtained. October 15th: Hears voice in right ear with noise apparatus in left; easily fatigued; sweats freely during treatment. October 20th: Sent to the C.C.A.C. with this report: Right ear, drum membrane retracted, small recently healed scar, also small perforation; no discharge; hearing for conversational voice 8 in. with noise apparatus in left. Left ear, drum membrane retracted; hearing normal for voice and whisper; tremor less marked.

Lieut. S. Previous condition of ears normal. In France three weeks. On June 3rd, 1916, blown up by bursting of shell; unconscious for twenty-four hours. No ear haemorrhage; no discharge; no vomiting; vertigo not marked. Efficiency of hearing in right ear, totally deaf in left. Seen September 15th, 1916. Hears all forks and voice at 3 yards in the right; in left total deafness to forks and voice. R.M.T. displaced by adhesions; L.M.T., adhesions and marked atrophy of posterior half. Hyperaesthesia on right half of body, anaesthesia on left; concentric limitation of the fields of vision. On October 24th, 1916, sent to the C.C.A.C. with the following report: Conversational voice, in the right ear over 7 yards; in the left ear (with noise apparatus in the right) 10 in.

Gunner R. Previous to enlisting, defective hearing in left ear sufficient to exclude him from Australian Government telephone service. On July 30th struck by shell on left arm and back; blown up. Does not remember anything for three days (unconscious?), then rotation vertigo; great nausea; deaf in both ears. Hearing came back in left ear in twelve days without treatment. Admitted September 14th, 1916. Right membrane normal; no hearing for voice or forks. Left membrane normal, hearing for voice 2 yards. Severe vertigo at times. October 12th, 1916: Sent to the C.C.A.C., with this report: Conversation voice, in right ear 20 in.; in left ear 5 yards. Recommend that he be sent to convalescent home.

Pte. H. No previous ear trouble. On June 18th, 1916, after two months in France, "blown over parapet"; unconscious for some hours; totally deaf in both ears. Admitted September 4th, 1916. Right membrane congested; left congested and retracted. Totally deaf in both ears to voice, forks, and all sounds. Can distinguish and differentiate C^1 and C^2 on right mastoid by summation of stimuli. Mentally clear and intelligent. Bilateral anaesthesia; no thermal sense for heat and cold. Deficient senses of position for elbow, wrists, and fingers. Easily fatigued; irritable; if eyes are closed drops off to sleep. Taste accurate but weak; concentric limitation of vision. Vertigo; staggers if eyes are shut. Frequently complains of tingling and itching in the ears. (N.B.—This is a frequent complaint in these cases.) September 4th, 1916: Gets notes on the piano by right ear, and all forks over right mastoid. Galton whistle at right ear feels like the prick of a needle. (N.B.—Because of the tendency to rapid fatigue, treatment at first was confined to right ear.) October 4th, 1916: Hears all forks over mastoid in both ears; and in right from resonator 16 in. away connected to his ear by a tube. Sings tunefully and rhythmically. October 20th, 1916: Hears in right ear short sentences by the aid of a speaking tube, and through resonator in left. Caloric in left gives reaction with 4 oz. of water at 66° F. Still under treatment.

When the caloric and rotation tests give no reaction in a totally deaf ear no treatment is persevered in. We may give one example:

Pte. S. No previous ear trouble. On June 2nd, 1916, was buried by shell fire; dug out unconscious and remained so for four hours; then deaf in left ear, with severe vertigo and vomiting. If he attempted to sit up had rotation vertigo and fell over. Severe headaches. Admitted August 20th, 1916. Totally deaf in left ear to forks and voice; vertigo on stooping or turning, with nausea. Not able, because of his condition, to test caloric. Right ear, hearing normal. Headaches less. September 10th, 1916: No hearing in right ear. Vertigo less. Caloric in left gives no reaction. Rotation gives a duration from right stimulation about half of that of left stimulation. Drum membrane normal, tube open. Diagnosis: Destruction of left internal ear.

Pathology.

The pathology of nerve deafness from high explosives is unknown. Mr. Sydney Scott of London has reported a case in which, after a bullet wound fracturing the vertex of the skull, with no paralysis but great bilateral though

not total deafness, the *post-mortem* examination showed intact tympanic membrane, no injury to stapes, or annular ligament, or membrana secundaria; no haemorrhage into the labyrinth; blood clot in both middle ears; no fracture of the base.[3]

Various explanations of the causation of traumatic neurosis, based on pathological findings, have been offered. For instance, changes in the small cranial blood vessels, changes in the myeline sheaths, small haemorrhages, air emboli following decompression as a result of high explosives, etc.; finally, as morbid anatomy throws so little light on the subject, it is suggested that we have here molecular changes in the nerve and nerve cell.[4] It will be a great injustice to the thousands who suffer from this malady, as well as a great loss to science, if something be not attempted at this time to enlighten us on the pathological changes present. Rational treatment demands information; and rational treatment, not haphazard empiricism, ought to be given to those suffering from these distressing symptoms.

Basis of Treatment.

The treatment is founded on the following anatomical and physiological basis:

1. At the synapses there is structural discontinuity of the nerves.

2. The results produced by impulses travelling in a nerve depend on the way the fibre ends and not on any difference in the impulses themselves. "Impulses produced in the optic nerve by light are identical with those produced in the auditory nerve by sound." "The difference recognized by the organism must be due to analysers in the central nervous system."[5]

3. At the synapses different physiological systems come into touch with each other, and so co-ordinate action in diverse systems is possible.

4. At the synapses there is always a spread of the nerve impulse, and the greater the impulse the greater the spread.

With this basis we are working in the following hypothesis:

As a result of the high explosive with enormous and sudden increase of pressure in the ear, there occurs a dissolution of the permanent auditory pathway, and a spread of the nerve impulse into other adjacent paths. The auditory stimulus no longer reaches its goal and deafness results. Such a dissolution may occur at one or at all the synapses. It may not be complete, and a maximal stimulus may be still able to get through.

To re-establish connexion two things have to be done: (1) To connect up the permanent part, and (2) to stop dissipation; but dissipation is like a bad habit, the longer it has been going on the worse it is to break.

To help, we have the fact that habit and association of activity facilitate transmission of impulses. Nerve impulses tend to pass over an accustomed and long-established path, so the most favourable cases are those in which complete dissolution has not occurred. The most unfavourable are those where there has been complete dissolution and total deafness to tuning-fork, voice, and noise, no matter the intensity or pitch. It may be that this dissipation of the nerve impulses will help to account for the associated nervous phenomena.

Treatment.

In the totally deaf, either in the one or both ears, the method pursued is briefly as follows:

1. Tuning-forks are applied: (*a*) To the bone (for example, mastoid); or (*b*) through resonators, attached to the ear by tube; (*c*) through the air. In our worst cases the time given to (*a*), (*b*), or (*c*) varies with the amount of deafness.

2. The voice is used: (*a*) Through resonators with tube in ear; (*b*) through speaking tubes; (*c*) without any aid.

3. Each period of treatment is very short, for fatigue is rapidly produced. Thus we may have headaches, vertigo, sweatings, etc., and occasionally pain is complained of, if the treatment be too long.

4. As soon as possible carefully graduated physical exercises are given. In exercise the two essentials are short duration and no bending. The treatment (except the drill) is given twice a day in the worst cases; it ought to be given twice in all. In the worst cases, when it is difficult to pass from bone to resonator, we use the piano. We find that at each successive stage we have to use summation of stimuli; thus, not only must the fork on the resonator be kept up for some time, but with the voice we have to repeat the word, but even then there is a marked delay before the response comes. In the later stages the delay is still present. There it appears to be not so much that he does not hear, but that he hesitates to attach the word to the sound, for, if asked what he thinks it is, he frequently answers correctly.

5. As early as possible we ascertain if the semicircular canals are acting, because when there is reaction to the caloric or rotation tests in totally deaf cases we feel justified in continuing treatment for some time.

SUMMARY.

1. The normal stimulus (musical notes or voice) is an adequate stimulus for the nerve and is the best stimulus. Electricity is contraindicated and likely to do harm since it so easily produces vertigo.

2. In the totally deaf, bone conduction is perceived before air conduction. It is essential to differentiate vibrations from musical notes.

3. In these cases summation of stimuli plays an important part in the perception of sound.

4. There is a marked diminution of the duration of hearing along the whole series of forks, both through bone and air. This corresponds and exists *pari passu* with concentric limitation of the fields of vision. Often both improve together. Frequently the field of vision is more retracted on the side having the greater deficiency of hearing.

5. If the conducting mechanism is damaged or destroyed it not only takes longer to get improvement but complete recovery cannot be expected.

6. Prognosis is good as a rule, especially in cases where there is no trauma demonstrable in the peripheral organ, no history of aural vertigo, and a normal caloric reaction. The most noteworthy exception met with so far is damage to the seventh nerve. In these cases hearing returns but slowly, and, so far as we have observed, not perfectly, even with a normal drum membrane, little if any signs of middle-ear inflammation, and a caloric reaction present.

7. As a result of the concussion due to high explosives there is frequently a trauma demonstrable in the ear. This may be accompanied by neurosis (traumatic neurosis), especially headaches and vertigo. The perception of sound is diminished over the whole normal range; the diminution may be so great as to totally abolish perception of sound. I have not seen a case yet associated with tone islands. What I do find is a diminution all along the scale both for bone and air conduction.

8. As the deafness diminishes there may persist for a long time an inability to grasp intelligently what is said or to retain the memory of it. Thus a word may have to be repeated two or three times before the patient gets it; or, if he be asked to repeat two or three numbers given consecutively, he will repeat the last one; he knows that there were others but did not get them.

REFERENCES.

[1] Mott, Lettsomian Lectures, *Trans. Roy. Soc. Med.*, 1916, vol. xxxix, p. 172. [2] Dejerine, *Sémiologie des affections du système nerveux*. Paris, 1914, p. 1123. [3] *Proc. Roy. Soc. Med.*, Otological Section, March, 1916, p. 29. [4] See Mott, loc. cit. [5] Bayliss, *Principles of General Physiology*, pp. 387, 512, 513.

RESULTS OF SCOPOLAMINE-MORPHINE TREATMENT DURING LABOUR IN 150 CONSECUTIVE CASES.

BY

W. OSBORNE GREENWOOD, M.B., B.S.LOND.

THE majority of the cases in the present series were conducted at a private maternity nursing home; the remainder at the patients' own homes. I have no experience of this treatment in hospital wards where other patients were present. But from the observations of others it would appear that the results obtained in such wards are not the best; there would seem to be no added risks to mother or infant, but the condition aimed at, namely, complete amnesia, is not attained nearly so often. Thus, Gauss's percentage of complete amnesia is 86, a great many of the cases having been treated in hospital wards. Sir J. Halliday Croom tells me that his hospital cases are not

infrequently failures, but that he never has a failure in private cases.

Of the present series only two cases failed to respond and showed no amnesia. These were patients at their own homes in cottages, were both multiparae, were first seen when the external os was fully dilated, the subsequent course of labour was relatively rapid, and the value of suitable environment was not appreciated or could not be obtained. Five other cases remember the final passing of the head over the perineum or the expulsion of the placenta, but affirm that it was only a knowledge of something occurring during parturition and was not a recollection of "pain." This gives 98.66 per cent. of successful cases of amnesia, and the results in this respect coincide very closely with those of Sir Halliday Croom. For the attainment of these results I am convinced that not only is a nursing home necessary, but a thoroughly trained and competent staff is no less essential.

Another vital necessity is the constant attendance of the accoucheur, not only that neither mother nor infant runs any risk, but because the response by different patients is so variable. It has been my experience that while some patients may be kept in an ideal condition of amnesia by a repetition of the scopolamine in from two to three hours or even longer, others will need the same dosage every hour or hour and a half. In a general way a rapid labour needs a more frequent dosage, but this is by no means invariably the case. Elements of failure are introduced unless the accoucheur is present from the first dose to the completion of labour. A routine dosage cannot be established. Constant exercise of the accoucheur's judgement as to repetition of scopolamine is of paramount importance.

The time required to induce amnesia is very variable. In one case it was complete in twenty minutes, and in five others it was induced in half an hour. On the other hand, I have had two cases in which amnesia was not attained until four hours after the first injection.

Of the 150 cases, 106 were primiparae and 44 were multiparae, that is, 70.66 were primiparae. The ages of the primiparae ranged from 17 to 49. The multiparae included two with their ninth child. Of these cases four were breech presentations, two were transverse presentations; one was almost a typical brow presentation, the actual presenting part being about an inch posterior to the brow; the remaining cases were vertex, in only two of which was the occiput posterior. In three of the mothers there were mitral lesions; in three there was very marked albuminuria—one was in my own practice, the two others were sent to me by other medical men. One of these was a patient aged 49 years. Oedema was general and pronounced, and the patient was therefore kept in bed on arrival until labour began. I saw her at 3 a.m., and gave her the first injection (scopolamine and morphine) at 3.20 a.m. The os uteri was then the size of a shilling. At 8 a.m. the os was fully dilated, and at 9.30 a.m. a living female child was born with no signs whatever of oligopnoea; there was not the slightest hesitation in breathing, though the umbilical cord was twice round the neck. The perineum was very oedematous, and ruptured severely almost on the first pressure of the head. It was sutured, and healed by first intention. The child weighed over 8 lb., and is now 4 months old and well. The other two cases with marked albuminuria also had oedema; each had a living child, one being now 6 months old, the other 16 months.

There were three cases of *post-partum* haemorrhage; all were multiparae, and all had had severe *post-partum* haemorrhage before (one of them with the last two children). It would seem, therefore, to be unjust to attribute the haemorrhage in these cases to the drugs. In all the haemorrhage was quickly controlled by manipulation and the use of pituitrin. One other case had had haemorrhage with a previous child, but although it was certainly in excess of normal during this last parturition it never became really serious. One of the cases had the rare condition of premature detachment of the placenta, and this was responsible for one of the infant mortalities. The placenta could not be felt on vaginal examination, although it possibly encroached on the danger zone.

In the present series of cases there has been no maternal death; of the infants three have died (all stillborn). I may incidentally remark that there has been no infant fatality in my cases since the completion of the 150 cases. This gives an infant mortality of 2 per cent., as against the usual average of 2.25 to 2.5 per cent. in general midwifery practice. Even if these fatalities were due to scopolamine-morphine, neither the maternal nor the infant mortality is as high as the general average. The three deaths were as follows:

1. The case of premature detachment of the placenta mentioned above.
2. A breech presentation which was originally transverse and was turned; the head and both arms were extended, and it was impossible to reach them.
3. A difficult forceps extraction with cerebral or medullary haemorrhage.

As far as I can judge, scopolamine-morphine had not the slightest influence on these three fatalities.

It may be interesting to mention here three other cases of more than ordinary difficulty:

1. The second transverse presentation referred to above occurred in a patient with a flattened pelvis. When the first injection was given the os was three-fourths dilated. Chloroform was also immediately administered, and by combined internal and external version the child was turned to a vertex presentation and the membranes ruptured. Chloroform was then stopped and the injections proceeded with; eight were given altogether in fifteen and a half hours. Uterine contractions remained vigorous the whole time, but, as at the end of fourteen and three quarter hours the head had not yet fully engaged the pelvic brim, I decided on the high forceps operation. The child was extracted with difficulty. It was very vigorous and showed no signs whatever of oligopnoea.
2. A case of flattened pelvis and a beaked symphysis pubis, the beak projecting backwards. The child was extracted with forceps after an anxious consideration as to whether Caesarean section might not be necessary. The head was kept to the left as much as possible and the perineum incised to the left of the median raphe. The patient had been under treatment ten hours, and the child was born living and well.
3. A small round pelvis with a R.O.P. presentation. The patient was under scopolamine-morphine eighteen hours. The occiput was rotated forwards, but tended to return until it was finally rotated forwards at the vulva and passed under the symphysis pubis. The head was very much moulded; the child weighed 8½ lb., was quite healthy, and had no trace of oligopnoea.

Effects on the Child: Oligopnoea.

As, perhaps, no symptom has given rise to so much misgiving as oligopnoea I propose to set out my experience of it. If the treatment is administered as it should be (with the admittedly attendant watchfulness it demands) there is no need whatever for so deep a grade as to produce "blue babies." A slight degree of oligopnoea is certainly not uncommon, though its incidence diminishes with the increased experience of the operator. Marked and persistent cyanosis points to an error of technique or of judgement.

The slight oligopnoea to which I have referred is characterized by the following features: An initial cry at the moment of expulsion, immediately followed by a marked quietude which may persist even for an hour; if the respiration is altered at all it is a little slower and perhaps a little shallower; heart beats continue vigorous and normal in every respect; the child simply seems lazy or tired.

Of the 150 cases under consideration, 23 (15.33 per cent.) showed this slight oligopnoea. But of these 23 cases, three had a second small dose (gr. $\frac{1}{12}$) of morphine—a practice I have long since abandoned. Omitting these three cases we get 13.33 per cent. of slight oligopnoea. Early in 1916 I used eutocine (the detoxicated morphine of Lauret) in four cases with very small doses of scopolamine; in each of these cases the infant was slightly oligopnoeic, and this certainly suggests more than a coincidence, especially as the only three cases where a second dose of morphine was given showed the same tendency. Of the above 23 cases, therefore, 16 were treated exactly as is my present procedure. This gives a slight oligopnoea in 10.66 per cent.

The average time the above 23 cases were under treatment was 6 hours 39 minutes; omitting the three cases in which morphine was given twice and the four cases in which eutocine was used, the remaining 16 were under treatment 4 hours 45 minutes. This, I am convinced, contains the whole philosophy of oligopnoea; if it is to be avoided altogether, morphine should certainly not be given late in labour; or, if given, the morphine should be proportionately diminished in dose. The average length of time during which the cases in my series presenting no oligopnoea were under treatment was 7 hours 35 minutes. The cases in which the infants were at all oligopnoeic, it

will be seen, were the cases of short duration. This clearly indicates that oligopnoea is due mainly, if not entirely, to the morphine. I am not suggesting that this slight degree of oligopnoea is critical, for I have intentionally refrained from interference, though prepared to resort to artificial respiration if necessary, but the condition of the infants was never alarming. Only in two cases have I resorted to artificial respiration—one a difficult forceps extraction, and the other a case in which the cord was three times round the neck of the infant. Both cases recovered.

Effect on the Mother.

I have made it a constant practice to begin this treatment early, often as soon as labour had definitely begun. In a few of the cases there appeared to be slight retardation of the uterine contractions after the initial dose, but after it only. My experience has been that after the second and subsequent doses the contractions have become normal, and in not a few cases really severe. I feel justified in saying this has probably quickly regained the little time that may have been lost, and therefore labour on the whole has not been retarded. Possibly, in the few cases where an initial delay appeared to occur, there was present some slight idiosyncrasy to morphine.

Perhaps the most striking after-effect on the mother is the remarkable absence of exhaustion and shock. After a labour lasting twenty-four to forty-eight hours or more the patient will often sleep a few hours, and on awaking be astonished that labour is over, and have such a feeling of well-being that she cannot realize anything has occurred.

So long as complete amnesia, and not analgesia, is aimed at and maintained, I have no hesitation in saying my experince proves that there is no risk either to mother or infant. If pushed to the slightly further stage of analgesia the risk may be grave; but as the margin between amnesia and analgesia is small, the necessity for constant watchfulness by the obstetrician is all the more emphasized.

The influence on the pulse is interesting. In 11⅔ per cent. of the above 150 cases the pulse-rate was increased; in 36 per cent. it remained the same; in the remaining 52⅓ per cent. it was diminished. In all the cases except two the character of the pulse was at least as good as at the onset of labour; usually it was improved. The two exceptions were cases complicated by influenza and an acute attack of cholelithiasis respectively.

While my next observation may not be of any particular technical interest, it is certainly of some moment from a national point of view at the present time. In this series of 150 cases I have certain knowledge that in nine the parents had resolutely refused to entertain the idea of a child. Hearing of the scopolamine-morphine treatment, they decided the time was ripe to embark upon the responsibilities of parentage. The result is an increase of 6 per cent. in the birth-rate in this series. This figure three times covers the infant mortality at birth in the 150 cases, and is rather significant.

THE INTRAVENOUS INJECTION OF EUSOL IN THE TREATMENT OF GENERAL SEPSIS,

AS ILLUSTRATED BY TWO CASES OF SEPTIC OTITIC THROMBOSIS OF THE SIGMOID SINUS.

BY

J. S. FRASER, M.B., F.R.C.S.E.,

ASSISTANT SURGEON;

ANDREW CAMPBELL, M.B., AND E. D. D. DICKSON,

CLINICAL ASSISTANTS,

EAR AND THROAT DEPARTMENT, ROYAL INFIRMARY, EDINBURGH.

(From the Ear and Throat Department, Royal Infirmary, Edinburgh, under the charge of A. Logan Turner, M.D., F.R.C.S.E., F.R.S.E.)

THE method of treating generalized sepsis by the injection of the blood with a solution of hypochlorous acid in the form of eusol was introduced by Lorrain Smith, Ritchie, and Rettie, who described the recovery under this form of treatment of a case of grave puerperal septicaemia.[1] They pointed out that the most probable interpretation of the result was that the hypochlorous acid destroyed toxin circulating in the blood, and that there was no evidence that the eusol injected acted as a bactericide.

The following two cases illustrate the application of the method to the generalized sepsis which follows otitic thrombosis of the sigmoid sinus. They are examples of somewhat different types of sepsis. In the first, after the operation there was, apart from a patch of pleurisy, no sign of the development of secondary foci of infection. The symptoms of blood sepsis were, however, very marked, and the patient had passed into a desperate condition; the treatment by eusol injection was applied at this stage. In the second case a large focus of sepsis developed in the right ilium. The injection of eusol produced only temporary benefit. When this focus was drained, however, the patient recovered.

It may be concluded that the presence of a large septic focus is a condition which cannot be alleviated by intravenous injection of eusol. To neutralize toxin in the blood, even by repeated injections of eusol, is insufficient to control the toxaemia in such a condition, because the local focus still remains active, and continually adds new toxin to the circulation. The contrast between these cases furnishes a suggestion as to the type of septic infection in which eusol injection is of value.

CASE I.

R. W., male, aged 6 years, was first seen on October 8th, 1910, suffering from chronic discharge from the right ear. The right external meatus contained pus and a polypus. The boy was sent to the ward for admission, but, as he cried, his mother refused to leave him. He was brought back six years later (April 7th, 1916) complaining of pain in the right ear of three weeks' duration. He had had a rigor when the pain began, and now suffered from pain in the neck, frontal headache, drowsiness, and mild delirium. There was no history of recent vomiting or giddiness.

On admission the temperature was 99° F., the pulse 100, and the respirations 24. The boy looked frightened, restless, and kept his head flexed; the tongue was moist but slightly furred. There was still a polypus in the right meatus and tenderness was present on pressure one inch behind the right mastoid.

Functional examination of the cochlear apparatus showed that the right ear was quite deaf (complete deafness with the noise apparatus in the good ear). Examination of the vestibular apparatus showed complete loss of reaction, but there was no abnormal nystagmus and no loss of balancing. This pointed to an old destruction of the inner ear.

First Operation.

On the evening of admission the temperature rose to 102.4°, and on the following day the first operation was performed (J. S. F.). The mastoid cortex showed two large holes through which cholesteatoma protruded, but there was no subperiosteal abscess. In removing the mastoid cortex the sigmoid sinus, which was exposed in the posterior part of the greatly enlarged mastoid cavity, was injured in the region of the upper knee and bled freely. After controlling this haemorrhage the radical operation was completed—the malleus and incus being absent. It was now seen that the lateral semicircular canal had been opened by the cholesteatoma. Accordingly the labyrinth operation (Neumann) was performed. The sigmoid sinus was not further investigated at this time. The operation cavity was packed with iodoform worsted and the wound left open.

The boy had a good night; no rigor or vomiting. The head on April 8th was still tucked forward. At 8 p.m. the temperature rose to 104.4° F.

On April 10th blood was taken from an arm vein for culture. The report received later stated that a Gram-positive staphylococcus and a Gram-negative bacillus were present. On lumbar puncture the fluid spurted out under great pressure, but was quite clear, and a report received later stated that there was no excess of cells and no organisms on culture.

Second Operation.

As the patient's general condition was unsatisfactory and the temperature swinging, the lateral sinus was exposed in a backward direction until healthy wall was reached. The jugular bulb end of the sinus was also further exposed. The anterior wall was slit up and a partly organized clot found. Free bleeding was obtained from the upper end, which was occluded by packing. Towards the bulb apparently healthy red clot was reached.

On April 11th he felt better, and the temperature was 98°, but next day it rose at 4 p.m. to 103°, and at 8 p.m. to 105° F.

Third Operation.

On April 13th the right internal jugular vein was exposed and found to be clotted down to the junction with the common facial. The vein was divided between ligatures and the upper end opened and stitched to the skin. Both mastoid and neck wounds were left open. On April 15th his condition was fairly satisfactory. The jugular bulb was washed through from mastoid wound to neck.

On April 18th and 19th the evening temperature was elevated, and on April 20th it reached 104° F. The wounds showed no

reaction. On April 21st, under a general anaesthetic, blood was again removed for culture, and the presence of a Gram-positive streptococcus, a Gram-negative bacillus, and a Gram-negative diplococcus reported.

An attempt was now made to inject eusol in the usual way into a vein, but, owing to the collapsed state of the veins, the procedure failed. It was noted that whenever iodine was applied to the skin over the cubital, cephenous, or external jugular veins these vessels at once disappeared. In the evening the temperature rose to 102.2°.

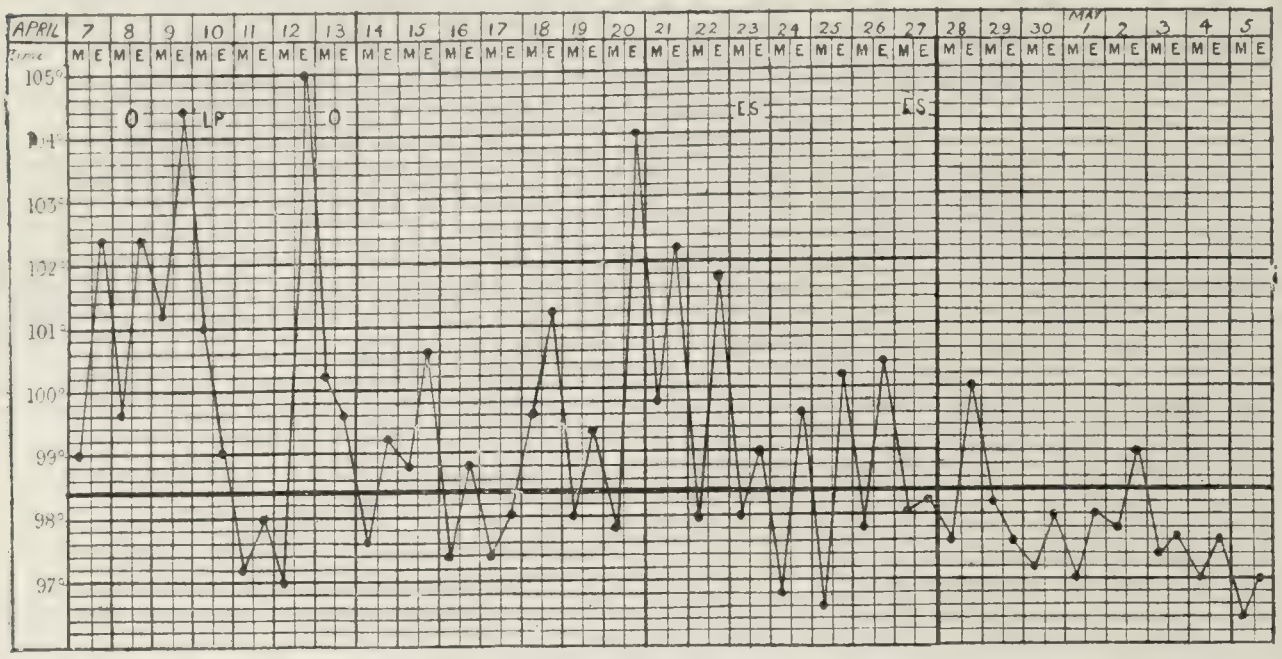


CHART 1.—R. W. O. = Operation. L.P. = Lumbar puncture. E.S. = Intravenous injection of eusol and saline. On April 7th, urotropin gr. v was given four-hourly.

On April 23rd the temperature was still elevated and the patient apparently in a dying condition. As a last resort the median cephalic vein was cut down on and 60 c.cm. of eusol and lukewarm saline solution (equal parts) were injected by Dr. Campbell. Next day the patient looked better; the tongue was clean and moist and he had a good appetite. On April 27th it was noted that since the injection of eusol the evening temperature had not been so high as formerly, but had risen each night a little higher than on the preceding evening (see Chart). Accordingly, a second injection of eusol was given by Dr. Campbell after an arm vein had been exposed under general anaesthesia. On May 3rd it was noted that there had been satisfactory progress for the last five days, but on May 5th the boy complained of slight pain at the left base, and the exploring needle withdrew a little serous fluid which contained a Gram-positive diplococcus and a Gram-negative bacillus. On May 9th a second puncture of the left pleural cavity showed that the fluid had been absorbed.

On May 15th a plastic operation to close the wound behind the left ear was performed; the neck wound had now been healed for some time.

The case illustrates the danger of refusing operation when chronic middle-ear suppuration is associated with cholesteatoma and aural polypus. The onset, six years later, of septic thrombosis of the sigmoid sinus was typical—earache, shivering, and stoppage of purulent discharge.

The cessation of the discharge appears to us to have been due to the toxic condition of the patient and the consequent want of reaction, and not, as is usually supposed, to any obstruction to the outflow. It was obvious from the history, functional examination, and conditions found at operation that the right labyrinth had been destroyed for some considerable time. The free bleeding from the sigmoid sinus at the first operation led to regrettable delay in the opening up of this vessel. Further, as subsequent events proved, it would have been better if the jugular vein had also been ligatured at the same time. Lumbar puncture revealed the presence of benignant serous meningitis, which was no doubt associated with the condition of the sinus and of the dura mater of the posterior cranial fossa. It was obvious at the second operation that the sinus thrombosis must have existed for some time. In spite of the clearing out of the sigmoid sinus and the jugular ligature, the patient on April 23rd appeared to be in a dying condition. The improvement following the first intravenous injection of eusol was very marked, while after the second injection recovery was rapid and was only interrupted for a day or two by a slight attack of pleurisy (infarct?).

CASE II.

J. M., male, aged 16 years, was admitted on January 25th, 1916, suffering from discharge from the right ear of three years' duration. For the last five days he had had pain in the right ear and right side of the head, and had suffered from shivering and vomiting. The temperature on admission was 98° F., and the pulse 72. The patient looked ill, and the tongue was furred though moist.

Examination showed pus in the right external meatus, with marked mastoid tenderness. Owing to narrowing of the meatus the drumhead could not be seen. Functional examination revealed middle-ear deafness on the right side, with a normal vestibular apparatus. In the afternoon the temperature rose to 101.6°, and the pulse was feeble and irregular.

First Operation.

On operating at 5.30 p.m. the mastoid cortex was found normal, while the antrum contained granulation tissue. The attic and aditus showed cholesteatoma, and the incus was absent. The labyrinth wall was healthy. On removing the bone in a backward direction from the antrum, a large perisinus abscess was evacuated (*Staphylococcus aureus* on culture). The sigmoid sinus was freely exposed, and granulations noted on its anterior wall. The sinus was painted with iodine and slit up. Free bleeding was obtained from the torcular end, but not from the bulb end. (Cultures from the clot yielded (1) *Staphylococcus aureus;* (2) a Gram-positive streptococcus; (3) a Gram-positive diplobacillus.) As the clot in the region of the bulb appeared to be healthy, the internal jugular vein was not ligatured. The wound was left open. At the end of the operation a blood culture was made, and the report received later showed that *Staphylococcus aureus* was present.

He had a bad night, and next day complained of frontal headache. At 4 p.m. the temperature rose to 102°. Lumbar puncture showed that the cerebro-spinal fluid was not under tension. The fluid, however, did not reduce Fehling's solution, while direct films showed a few Gram-positive cocci. No growth was obtained on culture.

On January 28th he complained of pain at the base of the right lung and in the right hip. A needle was inserted through the pleura, but no fluid was withdrawn. On January 30th he felt sick and complained of backache and of double vision. As he was very nervous the wound was dressed under a general anaesthetic; it looked inactive, and the sinus wall was sloughy. Free bleeding was obtained from the upper end of the sinus on removal of the plug.

Second Operation.

On January 31st the temperature rose to 102° at 10 a.m. The internal jugular vein was ligatured after tying off the common facial. A clot was removed from the upper end of the vein, which on culture yielded *Staphylococcus aureus* along with streptococci.

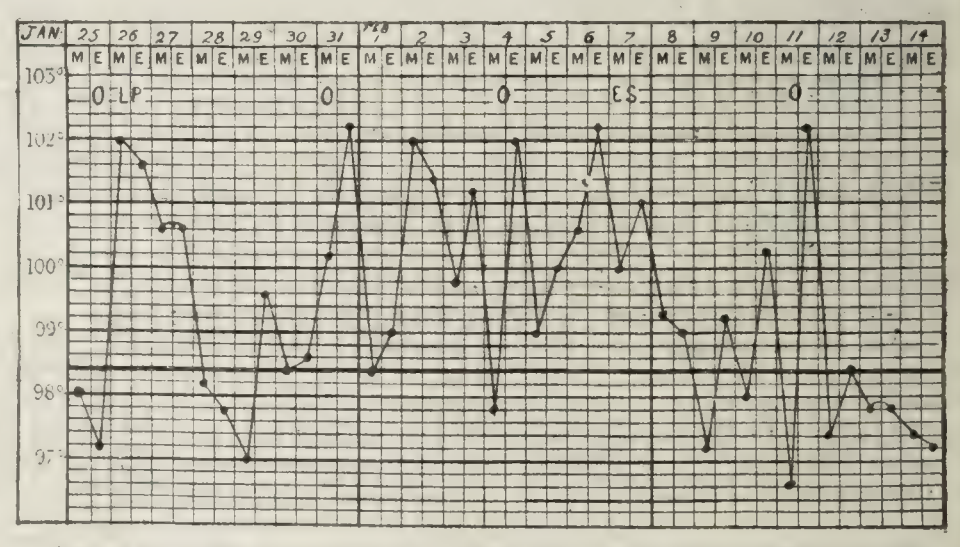


CHART 2.—J. M. O. = Operation. L.P. = Lumbar puncture. E.S. = Intravenous injection of eusol and saline. On January 26th, urotropin gr. x. four-hourly. On February 10th, champagne 3 ij four-hourly; calcium lactate gr. v four-hourly.

On February 2nd it was noted that the patient had a characteristic "sweetish" septic smell. He still complained of pain in the right hip, and the right ilium was very tender. The movements of the hip-joint were free. The temperature on this morning was 102° F. The patient was examined by Mr.

Struthers, who found no redness, swelling, or fluctuation in the region of the hip, and advised against interference at that time.

On February 4th it was noted that the temperature was still rising each evening. Fluctuation was evident over the right ilium, and an incision evacuated pus which on culture yielded the *Staphylococcus aureus*. A drainage tube was inserted. Pus was daily evacuated on washing through the jugular bulb. The temperature continued to swing, and the patient still complained of pain in the right hip.

On February 7th he complained of pain in the right knee. Professor Lorrain Smith was consulted regarding the intravenous injection of eusol, and at 5 p.m. blood was withdrawn from an arm vein, and thereafter 50 c.cm. of eusol and normal saline were injected. (On culture the blood yielded a Gram-positive staphylococcus and a Gram-positive bacillus.)

Third Operation.

On February 11th it was noted that the temperature was still swinging, that the wounds showed little reaction, and the patient still complained of severe pain in the right hip, and kept the right hip and knee joints flexed. Mr. Struthers made an incision over the right ilium, and exposed the bone freely. When the gouge was inserted pus oozed out of the bone. The ilium was accordingly pierced, and a free flow of pus obtained from a large abscess between the anterior surface of the ilium and the iliacus muscle. The hole in the bone was enlarged, and the abscess cavity washed out with eusol. Two drainage tubes were inserted, and thereafter the cavity was syringed out with eusol twice daily.

On February 15th the temperature was normal, the wounds granulating well, and the patient could keep his right leg extended. Next day he vomited in the morning, and was rather drowsy. The optic discs were examined by Dr. Traquair, who found great congestion of the veins and oedema.

On February 25th it was noted that the temperature continued normal, that drowsiness had passed off, that the neck and hip wounds were closing rapidly, and that the general condition was satisfactory.

Fourth Operation.

On March 27th the wound behind the right ear was closed, and the patient was dismissed on April 15th with all wounds healed, except for a small opening behind the right ear.

The patient was a feeble, badly nourished boy. The case was one of extradural perisinus abscess, with secondary thrombosis of the sigmoid sinus. The chief infecting organism appears to have been the *Staphylococcus aureus*. As events showed, it would have been better had the jugular vein been ligatured and divided at the first operation; but the question "when to ligature the jugular" has not yet been finally decided.

The presence of bacteriaemia was not known at the time of the first operation, which was performed shortly after admission. Symptoms of metastasis in the right ilium developed two days after operation, but the condition was not definitely diagnosed till some days later. The fact that the metastasis occurred in bone is what we should expect considering the nature of the infecting organism (staphylococcus). As far as we know, no satisfactory explanation has been given for the fact that in staphylococcic pyaemia metastases occur in the bones, whereas in streptococcal pyaemia of otitic origin they occur in the lung—pleuropneumonia and empyema. It has been suggested that small emboli may pass through the pulmonary capillaries, whereas large ones are arrested there. Further, the bone marrow may be a *locus minoris resistentiae* for the staphylococcus. In view of the condition of the right ilium, it was only to be expected that ligature of the jugular vein and intravenous injection of eusol should fail to stop the disease process. It was only when a large hole was made in the ilium and the abscess evacuated that the patient began to improve. Recovery was interrupted for a day or two by an attack of cerebral oedema, the origin of which is somewhat difficult to explain in view of the time which had elapsed between the complete blockage of the sigmoid sinus and the onset of the drowsy condition associated with oedema of the optic discs. Choked disc is commoner in sinus thrombosis than in temporo-sphenoidal or cerebellar abscess. Ruttin attributes the condition of the discs to engorgement of the cavernous sinus due to blockage of the superior and inferior petrosal sinuses following obstruction of the sigmoid sinus and jugular bulb respectively.

If the superior longitudinal and straight sinuses always divided into equal branches at the torcular, it is probable that little disturbance would arise from thrombosis of one sigmoid sinus or ligature of one internal jugular vein. Ruedinger, however, has shown that the blood from the superior longitudinal sinus as a rule flows mainly into the right lateral sinus, which, in most cases, is larger than the left. The straight sinus at times becomes continuous with the left lateral sinus, but as a rule it divides—the smaller branch going to the right lateral sinus and the larger to the left. Thrombosis of one lateral sinus or ligature of one internal jugular vein (right or left respectively) may thus interfere with the venous return from (1) the surface of the brain in cases in which the superior longitudinal sinus becomes continuous with the right lateral sinus; or (2) the deeper parts of the brain when the straight sinus becomes continuous with the left lateral sinus. Linser has shown that ligature of the right internal jugular vein in cases where it is much larger than the left may produce fatal cerebral oedema.

[The writers wish to express their best thanks to Professor Lorrain Smith and Dr. Theodore Rettie for their advice and assistance with regard to the intravenous injection of eusol; to Miss Mabel Fitzgerald for her careful investigation of the bacteriology of these two cases; and to Dr. Logan Turner for his kind permission to record the histories of the patients.]

REFERENCE.
[1] BRITISH MEDICAL JOURNAL, November 13th, 1915.

ACUTE HAEMORRHAGIC PANCREATITIS: LAPAROTOMY: RECOVERY.

BY
G. W. KILNER CROSLAND, D.S.O., M.R.C.S., L.R.C.P.,
SURGEON, HUDDERSFIELD INFIRMARY.

CONSIDERING the gravity of this disease, the difficulty in diagnosing it before operation, and its high mortality, the following account of a case which recovered under surgical treatment may be of interest.

R. L., millworker, female, was sent to the Huddersfield Royal Infirmary by Dr. Brown, suffering from an acute abdominal catastrophe, thought to be a perforation of an ulcer of the stomach.

Previous History.

Her general health had been fairly good, with the exception of dyspeptic symptoms, from which she had suffered since early life, "bilious attacks" and the rising of sour fluid into the mouth being frequent. Lately these symptoms had not been so marked, and for months before the present illness she had been free from them until two or three days ago, when she had an attack which caused her to stay in bed for a day. She had always been a hard worker, and stated that tea and toast had been a great element in her meals. She was in the hospital in the summer with a small tuberculous abscess in the neck.

History of Present Illness.

On November 10th, 1916 (the day before admission), while at work in the mill, she was lifting a basket, and in the act of stooping felt "the blood rush to her head," and a hard swelling rise up in the body. To ease herself she undid her corsets; there was a little pain and she felt unwell, and decided to go home. Her fellow workers state that she looked very ill. On the way home she vomited several times, and had severe pain in the back between the shoulders; on reaching home she was so ill and weak that she could not stand; her sensations were mixed, and she could scarcely describe them; she had "a burning all over," and an inclination to cry out. The next morning she again felt "something rise up inside her," the pain increased, and became localized in the pit of the stomach, and the abdomen felt tense and swollen.

Condition on Admission.

Pulse 160, temperature 98.8°. She looked extremely ill and was in great distress; the abdomen was acutely distended (especially above the umbilicus), rigid, and tender. The breathing was entirely thoracic; she complained of pain in the epigastric region. She was retching a little, and there was tetany in both arms, increasing in spasms every few minutes.

She presented the picture of a very acute abdominal catastrophe, and a provisional diagnosis of a perforated ulcer of the stomach was made and immediate laparotomy decided upon.

Operation.

Within an hour of admission she was anaesthetized and the abdomen opened by an incision above the umbilicus. On opening the peritoneum, a quantity of blood-stained fluid escaped, and a very greatly distended stomach presented through the wound; there was obviously no perforation in it. It was so much distended that, in order to save time and to prevent damage in returning it, I punctured with a large trocar; it collapsed, the distension being due entirely to gas. The small hole was closed with an encircling suture and the stomach easily returned to the abdominal cavity. On further examination, fat necrosis was seen in the great omentum and the transverse mesocolon. The pancreas was enlarged and there were extensive haemorrhages in this region and in the transverse mesocolon extending to the large intestine; the

mesocolon was oedematous. The gall bladder was atrophied to a fibrous cord and apparently contained some calculi. The peritoneal cavity contained a fair quantity of blood-stained fluid; so far as could be made out, the rest of the abdominal organs were normal. The whole condition looked hopeless, and, as the patient was seemingly at the point of death, I rapidly closed the wound in the endeavour to get her off the operation table alive.

She was removed to the ward, placed in the Fowler position, and rectal salines given. For about a week her condition was most distressing, the pain and abdominal distension being very acute; the restlessness and pain were so severe that I was compelled, against my almost invariable practice in abdominal cases, to keep her under morphine. The bowels, in consequence, did not act until the fourth day, in spite of the free administration of calomel, magnesium sulphate, and turpentine enemata; eserine was given with, I think, good results.

About the tenth day diarrhoea became troublesome; this was relieved by bismuth. After this her convalescence was uneventful, and she left the hospital on December 5th.

Owing to the urgency of the case and the necessity for immediate operation, a specimen of the urine was not obtained, but the urine passed immediately after operation contained a small quantity of sugar, which soon disappeared.

I saw the patient a few days ago, three months after operation, walking briskly in the street and looking the picture of health; she tells me that she feels quite well, but still has the dyspeptic symptoms, and the sour rising in the throat which she had previous to operation.

Though the diagnosis was incorrect and the operation consisted only of a rapid laparotomy and puncture of the stomach, the patient recovered; whether this was *post* or *propter hoc* one cannot say, but she certainly was the most ill patient, both before and after operation, that I have ever seen recover.

I have to thank Mrs. Somerville for her assistance at the operation and for the after-treatment, and Mr. Bradford for the notes on the case.

APPENDICITIS CONSEQUENT ON ACUTE PHARYNGITIS.

By CHARLES BENNETT, M.B.,

WESTERN INFIRMARY, AND ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW.

THE case described below possesses features which, although not of a new type, are, in my opinion, noteworthy. Reliable statistics of appendicitis are not too numerous, and the need for them in order to trace the disease to its sources is undisputed. By the findings in this case, both at the operation and at the subsequent histological examination, I am convinced that it is an example of infection of the appendix from a distant infective condition, namely, acute inflammation of the fauces and pharynx, and that the infection was conveyed by the blood stream. Although this cause is recognized in general terms throughout the literature yet, judging from the number of detailed cases on record, instances of it are either uncommon or have for the most part escaped observation.

G. R., female, aged 25, who was admitted to the Western Infirmary, Glasgow, on January 3rd, 1917, gave the following history: On December 30th, 1916, she began to suffer from a catarrhal cold accompanied by "sore throat." On December 31st pain commenced in the abdomen. At first this was felt in the epigastrium, but that same evening it settled in the right iliac fossa, whence it occasionally radiated to the umbilicus. There was no vomiting. Her condition remained thus until her admission to hospital, when, in the absence of the visiting surgeon, Major Duncan Macartney, I was called to see her.

Her general appearance suggested more a thoracic than an abdominal condition. The face was deeply flushed, respirations were rapid, and there was considerable restlessness. Temperature was 102° F., and the pulse rate about 140. Examination of the chest proved negative. The tongue was white with pink spots, while the fauces and pharynx appeared intensely inflamed. The tonsils were not enlarged. There was marked rigidity of the right rectus muscle of the abdomen and tenderness was general over this cavity, but most complained of in the right iliac region.

I opened the abdomen by the gridiron method. The terminal twelve inches of ileum, the caecum, appendix, and a part of the ascending colon were of a deep red colour, while the bowel proximal and distal to these parts was normal in appearance. The redness seemed to map out exactly the distribution of the ileo-colic branch of the superior mesenteric artery. The pelvic organs were normal.

The appendix, which was only slightly swollen, and in which a good lumen could be felt, was removed, and the abdomen closed.

As I expected, the temperature did not immediately settle, but swung irregularly until the fourth day, and about this time also the throat condition subsided. She was dismissed well on January 17th.

As all the circumstances suggested to me that inflammation of the appendix had commenced in a plane nearer peritoneum than mucosa, the organ was sent to Dr. G. Haswell Wilson, acting clinical pathologist to the infirmary, for histological examination. In his report, after referring to evidence of previous inflammatory mischief, he says: "The serous covering and the meso-appendix are intensely inflamed, and show early purulent infiltration."

The formation of pus in this plane with comparatively normal coats nearer the lumen is significant.

Dr. Wilson states that in his opinion the histological evidence supports my view that the infection came from a distance, and the throat condition was a possible causative precursor.

Of course no general conclusion can be drawn from one or a very few cases; and despite the evidence of the source in this instance it seems to me improbable that more than a small proportion of cases can be due to a similar cause. On the other hand, the possibility of such a cause is already admitted by many, and a cause affecting even a small proportion is not to be set aside. Personally I believe that when the etiology of appendicitis has been determined we shall find no one universal cause, but rather that the cases resolve themselves into a number of groups with a definite cause for each.

I am aware that the possibility of appendicitis being caused by infection carried through the blood stream is denied by a few observers. Perhaps the most dogmatic of statements lately made on this head is by Klotz,[1] of Ottawa, who says:

> In recent years some authors have claimed that appendicitis is the outcome of a blood distribution of bacteria gaining entrance to the body tissues at some distance from the appendix. The tonsil has been spoken of as the portal of entry. A study of human appendicitis can give no support to this theory. It is rare to find a metastatic abscess of the appendix, and the character of this lesion is vastly different from clinical appendicitis.

Nevertheless, I am satisfied that my case was of metastatic nature. The signs and symptoms were precisely those of acute appendicitis. Even though there was also infection of the bowel in the immediate neighbourhood, the appendix was the focus of danger, and claimed principal attention.

REFERENCE.

[1] *Canadian Medical Association Journal*, December, 1916.

A NOTE ON THE USE OF B.I.P. AFTER BONE-GRAFTING.

By CAPTAIN H. S. BRANDER, R.A.M.C.

THE technique of the operation of bone-grafting rendered necessary by the character of wounds caused by modern projectiles requires careful consideration owing to the fact that the cicatricial tissue is often extensive and the blood supply consequently poor. As the scar tissue must be undermined in order to expose the end of the bone which is to be grafted, and the risk of relighting infection in a wound which has been healed for months avoided, I venture to record my experience with the use of "Bipp" following a bone-grafting operation. This I do because, in my opinion, the strictest aseptic precautions *alone* are not always sufficient.

Corpl. B. P., R.A.M.C., aged 26 years, wounded by shrapnel at the Lancashire landing, Gallipoli, on July 11th, 1915, was transferred to a military hospital in this country on July 27th, 1915. He had a compound fracture of the left radius. A skiagram showed that the bone was fractured in two places—about the junction of the middle and upper thirds and at the junction of the lower and middle thirds. From the history of the case it is evident that there had been much purulent discharge from the wound due to necrosed bone. The sequestrum was removed on October 13th, 1915, and the wound healed about eight weeks afterwards. The patient was discharged from the army on June 8th, 1916, as medically unfit.

As a Chelsea pensioner he applied for treatment at the War Hospital, Keighley, and was admitted under my care on November 13th, 1916. On the externo-anterior aspect of the left forearm there was a healed scar 4 in. by 2½ in., very

adherent to underlying structures. There was marked wrist-drop and apparently considerable loss of muscular tissue. The proximal and distal ends of the radial fracture could be readily felt at about a distance of two inches from each other. This was well seen also in the skiagram.

Employing strict aseptic precautions, I operated on November 26th. I took the graft from the tibia, and followed Albee's technique throughout, except that I used a Hey's saw instead of a motor-driven circular saw. A long curved incision was made on the front of the forearm, well away from the scar. This was completely undermined, and found to be adherent to the fractured ends of the radius, most of the muscular tissue in the proximity of the fracture having been destroyed either at the time of the wound or by subsequent sloughing. On completion of the operation the forearm was put up on a splint midway between pronation and supination.

At the end of a week I dressed the wound for the first time and found that, although the skin incision had healed by first intention, part of the original scar tissue about the size of a five shilling piece had sloughed, exposing about an inch of the graft. My first impression was that the operation was doomed to failure. Employing very strict technique, according to Rutherford Morison's method, however, I applied "Bipp"[1] to the sloughing surface, and renewed the "Bipp" every ten days, with the result that the skin wound had healed nine weeks after operation, and the union of the graft to radius was strong. The skiagram showed the graft in excellent position.

The use of "Bipp" after this bone-grafting operation was suggested to me by the excellent results I had by it in compound comminuted fractures, hernia cerebri, etc.

In this connexion I wish to take the opportunity of thanking Lieutenant-Colonel Sir Berkeley Moynihan for advising and encouraging me—on one of his official visits of inspection at this hospital—to persevere with "Bipp" in the treatment of troublesome comminuted fractures. Also Lieutenant-Colonel Robert Jones for the opportunity he gave me of seeing a bone-grafting operation at the Military Orthopaedic Hospital, London.

A CASE OF GAS GANGRENE ASSOCIATED WITH B. OEDEMATIENS.

BY E. J. DALYELL, M.B.

[From the Bacteriological Laboratory, Hôpital Auxiliare 301 (Scottish Women's Hospital), France.]

THE following paper gives an account of a case of gas gangrene associated with *B. oedematiens* (Weinberg), some notes on anaërobic infections observed in routine examination of wounds.

J., a French soldier, aged 23, was wounded on September 14th, at 4.30 p.m., at Maurecourt, by shell fragment in the left thigh. The first dressing was applied soon afterwards, and the wound was dressed daily until admission to the Scottish Women's Hospital at 1 p.m. on September 17th, when the temperature was 100.4° and the pulse 90. The face showed a yellowish pallor but the general condition was good. High up on the inner side of the left thigh was a perforating subcutaneous wound, and the skin between the wounds of entrance and exit was gangrenous; a purulent discharge present was slightly offensive, and there was slight crepitation in the neighbourhood of the wound, and localized swelling of the thigh above the wound. The *x*-ray report was to the effect that there was no fracture of the femur and no foreign body in the limb. The bacteriological report was that films of the purulent discharge showed streptococcus, *B. perfringens*, and other sporing anaërobes.

First Operation.

On September 17th, at 7 p.m., under chloroform, the gangrenous skin between the wounds was excised, the muscles below were found to be gangrenous and crepitant, and portions of the sartorius and adductor longus muscles were cut away; a piece of *capote* was removed. The wound was dressed with chlorinated soda, and continuous irrigation with Carrel's solution arranged.

September 19th: Wound looking clean; temperature 101°, pulse good; patient still very yellow.

September 20th (evening): Patient sleepless and complaining of pain in leg; some swelling of muscles present in the wound; tissues above wound swollen, but no general swelling of thigh or of abdomen; pulse weak and rapid.

Second Operation.

On September 21st, at 9 a.m., the patient was very much collapsed, the wound offensive, the temperature 98°, and the pulse 120. Muscles gangrenous and gaseous; swelling extending up to Poupart's ligament due to firm gelatinous exudate in and between muscles. Slight amount of swelling present on abdominal wall. Leg amputated above wound. Artery normal, but gangrene noted in muscles superficial and internal to artery. The patient did not rally after operation and died at 1 p.m. The temperature throughout the illness was not higher than 101° F.

[1] The formula given for "Bipp" by Mr Rutherford Morison (*Lancet*, 1916, vol. ii, p. 268) is bismuth subnitrate, 1 oz. by weight; iodoform, 2 oz. by weight; liquid paraffin sufficient to make a thick paste.

Bacteriological Examination.

A portion of gangrenous muscle, removed on September 21st, was firm, oedematous, and foul smelling. Fragments of muscle fibre and some serous exudate from the mass of muscle were inoculated into three broth tubes containing pieces of coagulated egg-white. The tubes, which were at a temperature of 100° C. when inoculated, were kept at 100° C. for one minute, three minutes, and five minutes respectively, and then rapidly cooled. From each heated broth tube a series of five deep agar tubes was inoculated by introducing five drops of heated emulsion into the first tube, mixing well and conveying five drops of the mixture to the second tube, then inoculating the third tube from the second, and so on.

In twenty-four hours the series of tubes inoculated from emulsions heated for one minute and three minutes showed aërobic organisms present and numerous colonies of anaërobes. These were not further investigated. The third series, inoculated with material heated for five minutes, showed in the first and second tubes a scanty growth of colonies of one type only, and the remaining tubes were sterile. The unfamiliar appearance of these colonies suggested further investigation, and in process of identifying them the following observations were made.

I. *Cultural Characters.*

Attempted subcultures from agar shake culture into *glucose broth* and *egg-white broth* failed altogether in the ordinary Bulloch jar anaërobic apparatus, but succeeded under conditions of more strict anaërobiosis (as described later) and showed peculiar appearances. In thirty-six hours growth was visible as clear fine flocculent masses throughout the liquid; in forty-eight hours the fluid had cleared and the culture had settled in a fine cloud at the bottom of the tube. The cloud diminished in size and became more opaque, and in four days was reduced to a fine granular deposit at the bottom of a tube of clear liquid. A faint fetid smell was present in broth cultures after thirty-six hours.

The corresponding microscopical examination showed that the growth in thirty-six hours consisted of auto-agglutinated masses of rather long, non-motile, Gram-positive rods, the majority of which were curved or bent, with few straight forms; later cultures showed loss of Gram-fast property in many of the organisms and the appearance of numerous spores, large, oval, and sub-terminal; still later the granular deposit at the bottom of the tubes consisted of spores detached from the rods which were present only as faintly staining fragments.

On *serum agar* a scanty surface growth was present of flat, clear colonies with finely lobulated borders. In *deep glucose agar* there appeared after thirty-six hours small white colonies with opaque centre and irregular clear border; under the low power of the microscope could be noted the varying opacity of the colony from centre to edge, and the finely filamentous margin. Gas formation was scanty or absent altogether.

Stained specimens from deep agar colonies showed Gram-positive bacilli, often with irregular Gram-negative patches in their length. Straight forms were rare, and individual bacilli were curved, bent, twisted, or coiled, irregular in outline and variable in length.

In *alkaline meat medium* (prepared according to M. Robertson's[1] formula) after five days' anaërobic incubation, there was abundant acid and gas production, without putrefactive change or digestion of the medium. *Spores* were readily produced in this medium and stained with great difficulty, after prolonged heating by the Ziehl-Neelson method.

These observations, and the character of the case from which it was obtained, suggested that the organism was identical with the *B. oedematiens* described by Weinberg and Séguin,[2] and isolated by them from similar cases in 1915.

II. *Inoculation Experiments.*

A serum test was therefore made with guinea-pigs, using for the purpose anti-*oedematiens* horse serum, prepared by Dr. Weinberg, and kindly supplied by him from the Pasteur Institute.

A thirty-six-hour unheated culture of the organism in bouillon was used, and the injections were made deeply into the thigh muscles of guinea-pigs A, B, C, and D. A received an injection of 2 c.cm. of culture; B an injection of 1 c.cm. of culture; C received an injection of 1 c.cm. of culture + ½ c.cm. of anti-*oedematiens* horse serum; D received 1 c.cm. of culture + ½ c.cm. "anti-*Vibrion septique*" horse serum (Weinberg).

The doses for C and D were mixed with the respective serums and allowed to stand at room temperature for thirty minutes before injection.

A showed severe illness and considerable swelling of the thigh in four hours, and died within twelve hours.
B, Thigh very much swollen in six hours; the animal died during the night.
C showed no effects whatever of inoculation.
D, Thigh very much swollen in six hours; the animal died during the night.

The conclusion drawn was that ¼ c.cm. of anti-*oedematiens* serum mixed with 1 c.cm. of culture thirty minutes before injection had prevented the infection of the animal.

The *post-mortem* appearances in A, B, and D were identical. At the site of inoculation the thigh muscles were dark, haemorrhagic, slightly fetid, and gangrenous, and were separated from the skin by a dense gelatinous blood-stained oedema. A similar oedema, but clear and not blood stained, spread from the thigh over the abdomen and thorax. When incised, the oedema was sufficiently firm to remain solid, without any outflowing of fluid or alteration in consistency. A minute quantity of gas bubbles was present at the spreading edge of the oedema and in the depths of the gangrenous muscle, but very small in amount compared with the oedema produced. Close to the site of inoculation and in the gangrenous muscle the curved Gram-positive sporing bacilli were present, but in preparations made from the oedema at a distance from the wound they were rarely detected.

In all the features of morphology, cultural character, auto-agglutination, and serum tests, the organism conformed to the description given by Weinberg and Séguin of *B. oedematiens*.[3] Cultures were sent to Dr. Weinberg at the Pasteur Institute for examination, and were pronounced by him to be identical with the *B. oedematiens* of Weinberg and Séguin.

During September a similar organism was observed in five other cases, but was not isolated in pure culture. The difficulty in isolating the bacillus is associated with the necessity for a very strict anaërobiosis, which can be effectively provided by the following method employed at the Pasteur Institute for anaërobic cultivation in fluid media. The test tube containing fluid medium is inoculated and is then heated above the level of the fluid and drawn out into a thin neck. The mouth of the tube is unaltered, and the cotton-wool plug is pushed down towards the constriction and the tube attached to a pump and exhausted. During the process of exhaustion gentle heating of the fluid drives out all air dissolved in the liquid, and the tube is then sealed by Bunsen flame at the constricted neck, and is ready for incubation.

Clinically *B. oedematiens* appears to be associated with a specially severe form of gas gangrene, characterized by acute general intoxication and extensive spreading solid oedema, with little gas formation other than that due to associated organisms in the neighbourhood of the wound. It is probable that a close search under conditions of satisfactory anaërobiosis would demonstrate its presence in many cases of gas gangrene.

REFERENCES
[1] *Journ. of Path. and Bact.*, 1916, vol. xx, p. 327. [2] *Comptes rendus de Soc. de Biol.*, 1915, T. 78, p. 507. [3] Loc cit.

NOTES ON SOME RECENT CASES OF DYSENTERY.

By F. H. EDGEWORTH, M.D., D.Sc., M.A.,
PROFESSOR OF MEDICINE, BRISTOL UNIVERSITY; PHYSICIAN TO THE BRISTOL ROYAL INFIRMARY; MAJOR R.A.M.C.(T.).

DURING the months of December, 1916, and January, 1917, a good many convalescent cases of dysentery were admitted from France to the 2nd Southern General Hospital, and of these eighty have been under my care. All these cases were transferred with a diagnosis of "dysentery," and with many of them short accounts of the phenomena which occurred overseas were also sent. From these and the histories given by the men themselves the phenomena appear to have been fairly uniform in character. There was a sudden onset of the frequent passage of blood and mucus per rectum, with tenesmus, frequently preceded for a few hours and generally accompanied by abdominal pain and tenderness. This gradually lessened under treatment, and in most cases subsided in about a fortnight. The disease, with very few exceptions, appears to have occurred in the Somme district, and the eighty cases came from sixty-five separate units.

Examination of the blood by Professor Walker Hall for agglutinins of typhoid, paratyphoid A, and paratyphoid B gave the following results:

Class I. Agglutinins for all three diseases were present in 46 cases = 57.5 per cent.
,, II. Agglutinins for typhoid only were present in 23 cases = 28.7 per cent.
,, III. Agglutinins for typhoid and paratyphoid A were present in 6 cases = 7.5 per cent.
,, IV. Agglutinins for typhoid and paratyphoid B were present in 4 cases = 5 per cent.
,, V. No agglutinins for these diseases in one case = 1.2 per cent.

Of the 23 men in Class II, 9 were inoculated in 1914 or 1915; the remaining 14 were inoculated in 1916, and of these 8 quite definitely with T.A.B.; of the 6 men in Class III, all had quite definitely been inoculated with T.A.B. in 1916.

Of the 4 men in Class IV, 3 had been inoculated with T., and only one with T.A.B.

The man with no agglutinins in his blood stated that he had not been inoculated.

These facts show that agglutinins for paratyphoid A and B disappear from the blood much more quickly than do those for typhoid, and in some cases within a year.

Three of the four men in Class IV, who were inoculated with T. only, must have become infected with paratyphoid B during their service. This conclusion would throw doubt on a supposition that in the case of the six men in Class III agglutinins for paratyphoid B had disappeared from the blood, whilst those for paratyphoid A persisted. It is equally probable that in the case of these men agglutinins for both A and B disappeared from the blood and that they had subsequently suffered from an infection with paratyphoid A

It follows from the above that of eighty men who were invalided with dysentery, three had previously been infected with paratyphoid B, and possibly six with paratyphoid A. Questions were asked of these men, but all declared that they had had good health previous to suffering from dysentery.

Many men are transferred to England with a diagnosis of P.U.O. (pyrexia of unknown origin), and bring with them temperature charts showing a simple fever of from seven to ten days. Some of these show agglutinins for typhoid and paratyphoid A or paratyphoid B in the blood, and have been inoculated previous to 1916. It is therefore probable that as in the case of typhoid, paratyphoid A and B may be of all degrees of severity, varying from a malady which escapes attention, through cases of short fevers with no distinctive signs, to the easily recognized typical diseases.

Although no carriers of paratyphoid A or B have been detected among these cases of dysentery, or among those of P.U.O., this was always a possibility, and was guarded against by examination of faeces and blood.

Direct or indirect evidence of the cause of the dysentery was found in fourteen cases = 17 per cent. In three cases *Amoeba histolytica* was found—none of these had served abroad, except in France. In eleven cases the cause was bacillary—in three *B. dysenteriae* (Flexner) was found at the 2nd Southern General Hospital, although the blood showed no agglutinins for this organism; in four cases *B. dysenteriae* (Flexner) was stated to have been present in France, and in one of these the blood showed agglutinins for this organism at the 2nd Southern General Hospital; in one case *B. dysenteriae* (Flexner and Shiga), in another *B. dysenteriae* (Y), and in another agglutinins for *B. dysenteriae* (Y) were found in France.

These results show that agglutinins are not necessarily present in the blood in cases of infection by these dysentery-causing organisms, so that their absence does not negative a bacillary cause. Further, they suggest that antidysenteric serum might be used with good effects in the majority of these cases in the early stages.

The occurrence of these cases—both amoebic and bacillary—in France is probably to be explained in the transference there from the East of men who were undetected carriers. Thus six out of the eighty men had served at the Dardanelles, and of these four had been invalided thence with dysentery.

These convalescent cases after arrival in England showed but little trace of their previous illness. Most had

lost a stone or so in weight and were weak. Very few had any diarrhoea, and in those in which it did occur bismuth carbonate in teaspoonful doses was most useful. In this there was a marked contrast to the cases of amoebic dysentery in 1915, where a chronic or relapsing diarrhoea was a common feature. I found lactic acid fermented milk acted very well in these cases of post-dysenteric diarrhoea without any specific pathogenic organisms in the stools. *Amoeba histolytica* disappeared from the stools of the three cases of amoebic dysentery after ten days' administration of bismuth and emetine iodide. Each dose was preceded, half an hour before, by ten drops of chlorodyne. This was found to prevent nausea and vomiting.

Most men complained of constant pain in the back and bones of the legs, in some for a time so severe as to prevent sleep. This pain was unaccompanied by abnormal physical signs. There were no cases of arthritis in these cases from France.

Quite half the men had some tachycardia, with a rate of from 80 to 110. It gradually subsided with rest in bed. Digitalis slowed the rate to normal in many of these in a most marked way.

One man had incontinence of urine, with *Streptococcus faecalis* and *B. coli* in the urine. This cleared up on administration of hexamine.

The above evidence suggests the following conclusions There are a large number of men serving in France—possibly a third of the number—who are unprotected against paratyphoid A and B, either by inoculation having taken place previous to 1916 or owing to disappearance of agglutinins for these diseases. These men are liable to become infected. It is advisable that inoculation or reinoculation with A and B be done once a year.

The importance of a pure water supply, where this is possible is emphasized by the occurrence of dysentery, both amoebic and bacillary, in France. Such cases are likely to increase in numbers during the coming summer.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE TREATMENT OF PUERPERAL SEPSIS BY THE CARREL-DAKIN METHOD.

DURING my period of service in France I was much impressed by the success attained in the treatment of large septic wounds by the Carrel-Dakin method, and it occurred to me that a similar kind of treatment would probably be useful in many cases of puerperal sepsis. A tube or tubes of suitable length could be introduced into the uterine cavity, and once they were in position it would only be necessary for the nurse to undo the clips, and inject an appropriate quantity of Dakin's solution every hour or two hours. The only disturbance of the patient would be that required for the introduction of the tubes. The subsequent treatment could then proceed with the minimum of discomfort to the patient and without any manipulation of the uterus.

I am convinced that in this method we have the possibility of a great advance in the treatment of a condition which has hitherto baffled medical and surgical resources.

JOHN CAMPBELL, M.D., F.R.C.S.Eng.,
Surgeon to the Samaritan Hospital for Women, Belfast; late Surgeon to No. 5 British Red Cross Hospital, B.E.F., France.

TREATMENT OF INFANTILE CEREBRAL DIPLEGIA.

THE fundamental fact of the symptomatology of this disease is the spasticity of the muscle. From this condition it follows that any attempt of the person to perform an act results in excessive muscular contraction. Normally the act of attention is followed by mild contractions of the muscles of the face; in this disease it is followed by excessive contractions that produce the familiar staring mask-like appearance. In walking, moving the arms, or in speaking every muscle is thrown into violent contraction. To control these excessive contractions and keep them from being utterly irregular certain muscles must be trained to counteract each of the overacting ones—that is, the co-ordinating centres of the nervous system (taxic centres) are to be trained to counteract the irregular effects of spasticity. If by "hypertonia" we indicate the spasticity itself, then "anatonia" may be used to designate the efforts of the nervous system to control the spasticity. Up to the present time all the methods designed to teach these people to walk and control their arms have consisted in exercises in which they are taught to try hard to control the jerkiness of the movements.

This disease may be conveniently studied in its effects on speech. Inscriptions of speech made by a recording apparatus show that all the sounds are over-enunciated, that the tone from the larynx is almost absolutely monotonous, that the breath is held under great pressure, etc. The work on speech has suggested a method of treatment that has proved highly successful. In this disease any effort of will of normal strength is followed by muscular contractions of abnormal force; therefore it follows that milder muscular contractions may be obtained by weaker acts of will. The patient should be trained to speak and act gently, as if he did not care to make any effort at all. The result is a weaker muscular action. In a very short time he learns to restrain his impulses, as if he meant to speak in a "don't care" manner. The result becomes normal speech. The same method is extended to walking and the use of the arms. "Try not to try" is the instruction. In every act the patient carefully refrains from any mental effort, and the spastic muscles are aroused only by weak impulses. Special co-ordinating exercises are unnecessary; are, in fact, injurious. The patient learns to walk and speak by special training in graceful, easy, and relaxed movements under skilful care. The results by this method are quick and permanent.

London, W. E. W. SCRIPTURE, M.D.

SCIRRHOUS CANCER OF THE OVARY AT THE AGE OF 15.

ON January 2nd, 1917, in consultation with Dr. Percy Elliott, of Walthamstow, I saw a young lady with a solid abdominal tumour. She was 15 years of age, was menstruating regularly and as usual. Six days before I saw her she had complained of rather severe pain in the lower abdomen and back, but more especially in the back, and pain with a more or less constant feeling of sickness, and occasional attacks of sickness, had been troublesome symptoms ever since. When Dr. Elliott saw her he detected an abdominal swelling in the hypogastrium, and to eliminate the question of a distended bladder he very advisedly passed a catheter. When I saw her the tumour, which extended from the pelvis to within an inch of the umbilicus, was pushing the anterior abdominal wall slightly forward. It was central in position, fairly regular in outline, and everywhere hard. Both flanks were resonant. On rectal examination a portion of the swelling was felt in the right pelvis.

The patient herself—being a mere child—was unable to throw any light upon the question as to how long the growth had probably existed as an abdominal swelling.

The growth, when removed by me four days after I first saw her, was a solid tumour of the left ovary. It was of the size of an average male adult head. The pedicle was extra thick and extra vascular. The right ovary appeared quite healthy, and was consequently not disturbed.

Dr. Trevor Davies, who examined the tumour microscopically, pronounced it scirrhus.

London, W. JAMES OLIVER, M.D., F.R.S.Edin.

CASE OF QUINTUPLETS.

MRS. C., aged 39, when I first saw her on January 4th, 1917, was complaining of shortness of breath, persistent vomiting, a lump rising and falling in her throat which was choking her, and pain of a dull gnawing character in her side.

History.—She was eight months pregnant, had suffered a good deal the whole time with vomiting, was very nervous, and slept badly. She had no piles, but complained of her feet being swollen more than usual. She had seven children, all living; no miscarriages. Her previous confinements had been all quite normal, of an average duration of five to six hours. No previous twins or triplets.

Family History.—She was one of a family of eight; one sister had had twins once, no other multiple pregnancies. Her husband was one of a family of six, no multiple pregnancies.

On examination the abdomen was very large, distended, and quite hard all over. I could detect nothing on palpation. Tachycardia was present, and a slight systolic murmur. She was unable to lie flat on her back due to the dyspnoea, and had to sleep in a semi-recumbent position, propped up with pillows. There was oedema of the legs and feet. She was treated with gastric sedatives and potassium bromide.

Labour began on February 1st about 8 or 9 p.m. I was summoned about 2 a.m. I found the os three parts dilated and a bag of waters presenting. I ruptured, and at 2.30 a.m. the first child was born—a male (presentation left occipito-anterior). After a pause of about five minutes the uterine contractions started again, and a second bag of waters was found presenting; on rupturing it a second cephalic presentation was found (left occipito-anterior) again. The second child was delivered at 2.40. This delivery was followed by quiescence for about twenty minutes; uterine contractions then started again, a third bag of waters was found presenting, and on rupture a podalic presentation was found. Delivery took place in about twenty minutes at 3.20 a.m. After an interval of only a few minutes uterine contractions again started, another bag of waters presented, and on rupturing it a left occipito-anterior presentation was found; the delivery took place in a few minutes, the birth occurring at 3.30 a.m. After another few minutes' interval uterine contractions again started, another bag of waters presented very high up in the pelvis; on rupturing, a cephalic lie was made out. Delivery took place very rapidly, the child being born at 3.48.

After an interval of about a quarter of an hour slight uterine contractions were again felt, when the placenta was expressed without any difficulty; it was found to be one large placental mass with five separate sacs.

The sex of the first four children was male; the last was a female; they were all alive at birth, and lived for varying periods from one and a half hours up to twenty-eight hours. The children were fully developed, about 8 to 12 in. in length. I unfortunately had no opportunity of weighing them.

The amount of liquor amnii was enormous, over three-quarters of a bucketful.

The mother had quite a normal puerperium; there was no tendency to excessive haemorrhage.

Horden. W. MARTIN, L.S.A.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

BRISTOL ROYAL INFIRMARY.

A CASE OF ALKAPTONURIA.

(By F. K. HAYMAN, M.B., B.S.)

THE patient, a girl about 8 years old, was admitted to the infirmary on account of tuberculous glands in the neck about January 25th. She was weakly looking, and the mother said that she had always been delicate, though she had had no serious illnesses except the usual childish ailments.

The urine when passed was clear, and normal in colour, of specific gravity 1012, slightly acid, reduced Fehling's solution, and immediately turned dark brown on adding caustic soda or strong nitric acid. It gave no reaction for blood or albumin, and no sugar was found by other tests. On keeping, the specimen turned dark brown in a few hours, and became progressively darker for two or three days. It did not in this time undergo any putrefactive changes, but remained almost odourless.

The child's mother states that she had noticed the change of colour in the urine, but she says that it is not constantly present. She has had it from birth, for about one or two weeks at a time, at intervals of about two or three months. She states that there is no trace of the condition in the other children, but that her mother and one of her sisters had it. There is no consanguinity in the parents, or, as far as I can find out, in the family at all. There is no sign of any discoloration of any of the ligamentous or cartilaginous structures in the body.

Reports of Societies.

DIAGNOSIS IN DYSPEPSIA.

AT a meeting of the Harveian Society, when Dr. AMAND ROUTH was in the chair, Dr. ROBERT HUTCHISON read a paper on diagnosis in dyspepsia, which he defined as a disturbance of digestion caused by organic disease or functional disorder of the stomach. Owing to the widespread nervous connexions of the stomach and its close relations to other organs in the abdomen, dyspepsia was apt to be simulated by disease elsewhere than in the stomach itself. Among such conditions in which vomiting was chiefly the deceptive symptom were pregnancy, uraemia, pulmonary tuberculosis, obstruction in the urinary passages (uro-kinetic dyspepsia) or colon, cerebral tumour, gastric crises of tabes, migraine, movable kidney, nervous or hysterical vomiting, and, possibly, vicarious menstruation. Gastric pain might be simulated by gall stones, angina pectoris, and angina abdominalis, mucous colitis, and chronic appendicitis. Extra-abdominal causes had also to be thought of—for example, pleurisy, spinal caries, myalgia, and herniae. Finally, air swallowing (eructatio nervosa) was often mistaken for the flatulence of dyspepsia.

Having eliminated the possibility of simulation it had next to be determined whether the symptoms were due to organic disease in the stomach or to perversion of its functions. If the patient complained of severe pain, or if there were much wasting, or if vomiting were a prominent symptom, the presumption was in favour of organic disease and of the necessity for surgical treatment.

The organic diseases which had to be differentiated were (1) ulcer, characterized especially by pain coming on at a definite interval after food; (2) carcinoma, in which pain was more constant, and wasting and loss of appetite prominent features; (3) stenosis of the pylorus and hour-glass stomach, in both of which vomiting was pronounced; and (4) gastritis. The differential diagnosis of these by symptoms, physical signs, and the use of special methods such as test meals and *x* rays, was considered; and Dr. Hutchison then pointed out that midway between the organic diseases and functional disorders of the stomach were two conditions which partook to some extent of the character of both: (1) The painful dyspepsia of young women, variously known as gastralgia, acute ulcer, gastric erosions, haemorrhagic gastralgia, and gastrotaxis; and (2) gastroptosis. The diagnostic features of these were described, and it was pointed out that they were not cases for surgical treatment. If cases of simulation and of organic disease were eliminated it might be concluded that the case was one of functional dyspepsia. Further differentiation depended upon classification.

Various classifications of functional dyspepsia had been suggested. On an etiological basis the cases might be divided according to their supposed cause—for example: (1) Those due to physical causes, such as fatigue, unsuitable diet, defective chewing, and so on; (2) mental causes, such as overwork; and (3) moral causes, such as worry and depressing emotions. This classification, though unsatisfactory, was of some use in radical treatment; or a purely symptomatic division might be adopted into "flatulent," "acid," and other types. Such a basis, though often used, was apt to lead to unsatisfactory and rule-of-thumb therapeutics. The most scientific plan was to divide cases according to the nature of the disorder of function present. The physiological functions of the stomach were three—(1) secretory, (2) motor, (3) sensory, and any of these might theoretically be disordered in the direction either of excess or defect. Secretory disorders were hyperchlorhydria and achylia, motor disorders atony and hypertony, and sensory affections (theoretical) hyperaesthesia and anaesthesia. These disorders might also occur in various combinations with one another or along with organic disease. The differential diagnosis of these functional affections was then considered in detail.

Reviews.

MEDICAL DISEASES OF THE WAR.

A BRIEF but very practical and up-to-date account of the *Medical Diseases of the War*[1] has recently been written by Temporary Major A. F. HURST, M.D., R.A.M.C. Major Hurst has had the opportunity of studying these diseases successively in London, Lemnos, and Salonica. His first chapter deals with the functional nervous disorders that have been so common among the combatants. Then follows an account of the various forms of dysentery that have been met with—the amoebic, the bacillary, the flagellate, and the ciliate—with a note on the treatment of diarrhoea during epidemics of dysentery. Not a few cases of chronic or recurrent dysentery have occurred in officers and men convalescing or stationed in this country after a primary infection contracted abroad, whether of the amoebic or the bacillary variety. Major Hurst gives a very full account of the diagnosis and treatment of these varieties of dysentery which should be of great practical service to medical men called up to treat such cases. It is considered that in amoebic dysentery emetine is the drug indicated; while bacillary dysentery calls for the exhibition of antidysenteric serum, with sodium sulphate as an aperient and tannic acid (4 gr. to the ounce) as an astringent enema. In any case of dysentery, it is needless to add, the diet must be bland for at least two months after the symptoms have disappeared.

Other chapters are given to amoebic inflammations of the liver, trench fevers, paratyphoid fever, epidemic jaundice (few of the cases being instances of spirochaetal (Weil's) disease), beri-beri, soldier's heart, war nephritis, and gas poisoning. Major Hurst has had access to much of the recent literature of these subjects in several languages, and his pages are full of facts and sound practical comments.

The book is most interesting reading, and may be warmly recommended to the attention of all medical practitioners and students who are directly concerned with the subjects with which it deals. We look forward with interest to future editions of the work.

PHARMACOLOGY AND THERAPEUTICS.

THE second edition of Professor H. C. WOOD's textbook of *Pharmacology and Therapeutics*,[2] a book for American students and practitioners of medicine, gives a plain and pedestrian account of the subject well suited to the requirements of those for whom it has been written. Professor Wood classifies drugs into six main departments, according as they affect secretion, the nervous system, the circulation, the alimentary tract, metabolic processes, or the causes of disease; his last two chapters are devoted to miscellaneous drugs that have not found a place elsewhere, according as they are either extraneous remedies or drugs of minor importance. Such a classification as this illustrates admirably the impossibility of discussing drugs in any rational or scientific order, an impossibility that seems to have been realized by all writers of pharmacological and therapeutic textbooks, and due to the variety of the actions displayed by so many drugs when administered either in different doses or to different individuals. Without going at all deeply into the chemistry or physiological action of the drugs with which he deals, Dr. Wood gives a simple and straightforward summary of the subject, such as will appeal to practical people. It may be added that many of the misprints that appeared in the first edition of his book persist uncorrected in the second.

In his massive work on *Diagnostic and Therapeutic Technic*[3] Dr. MORROW has endeavoured to bring together and arrange in a manner easily accessible for reference a large number of the manipulative and instrumental procedures employed in diagnosis and treatment. The volume accordingly contains a great deal of useful information on subjects dealt with, as a rule, only in special volumes written by a number of specialists in each of the domains of medicine and surgery covered by Dr. Morrow. His twenty-two chapters deal with the technique of such different subjects as anaesthetization, transfusion, the injection of drugs, exploratory punctures, aspiration, diseases of the organs of special sense, and the mechanical procedures required in the diagnosis and treatment of diseases of the alimentary tract and the urino-genital apparatus. Numerous line drawings, for the most part somewhat diagrammatic, have been introduced to make the text plainer, and these may be said to perform their functions excellently. The second edition has been enlarged and brought up to date. It should be of considerable service to students of medicine who wish to learn how to do things for themselves, and to the many medical practitioners who have no specialists at hand to whom the cases requiring these rather special lines of treatment may be referred.

Professor H. A. HARE'S *Textbook of Practical Therapeutics*[4] is a general account of treatment and regimen that has run to sixteen editions in the last six-and-twenty years. This fact alone may be taken as a guarantee of the character possessed by the book in America, the land of its birth. It is divided into four parts: The first of these is devoted to general therapeutical considerations. The second, occupying more than half the text, contains details of all the drugs that the practitioner is likely to use, arranged in alphabetical order; in the case of the more important drugs special paragraphs are given to the physiological action, therapeutics, and administration, and the symptoms and treatment of cases of drug poisoning receive adequate treatment also. The third part describes remedial measures other than drugs, and the feeding of the sick. Part four, occupying nearly 300 pages, contains an alphabetical list of the chief diseases and their treatment. The book contains a number of illustrations, and may be said to cover a large amount of ground in a satisfactory manner. It may be recommended to the attention of general practitioners of medicine in search of a textbook of treatment that is sound, but not unduly scientific or profound.

Dr. GOLDSBROUGH'S *First Principles in Therapeutics*[5] contains an amplification of four lectures delivered at the London Homoeopathic Hospital. In the first it is argued that treatment should depend upon the prognosis, and not upon the diagnosis of the disease from which the patient is suffering. The second lecture contains an account of the subordinate order of principles upon which homoeopathic treatment should be based, such as hygienic principles, reflective attitudes, empiricism, and the like. The third contains a schedule for case taking; the fourth describes how to prosecute the search for choice of a suitable medicine. Dr. Goldsbrough writes with a fluent pen, and treats his readers to a good deal of philosophy and abstract ratiocination, idealism, and psychology. To what extent therapeutics are advanced thereby is a matter that the reader must determine for himself.

BIO-MORALITY.

THE author of *Evolution by Co-operation*, a work reviewed in these columns in the issue of March 25th, 1914, has returned to the charge in a volume entitled *Symbiogenesis*,[6] the object of which is to reinforce his conception of evolution as an uplifting process with a strong bio-moral sanction behind it. In his view, permanence and survival in the organic world are determined by useful work, the production of social values by the successful organism, which in its relations to other organisms combines the functions of

[1] *Medical Diseases of the War.* By A. F. Hurst, M.A., M.D.Oxon., F.R.C.P., temp. Major, R.A.M.C. London: E. Arnold. 1917. (Demy 8vo, pp. 151; 9 charts. 6s. net.)

[2] *Pharmacology and Therapeutics, for Students and Practitioners of Medicine.* By H. C. Wood, Jr., M.D. Second edition. Philadelphia and London: J. B. Lippincott Co. 1916. (Med. 8vo, pp. 462; 28 figures. 18s. net.)

[3] *Diagnostic and Therapeutic Technic.* By A. S. Morrow, A.B., M.D. Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1915. (Roy. 8vo, pp. 852; 860 figures. 21s. net.)

[4] *A Textbook of Practical Therapeutics; with Special Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis.* By H. A. Hare, M.D., B.Sc. Sixteenth edition, thoroughly revised and largely rewritten. London: H. Kimpton. 1917. (Med. 8vo, pp. 1009; 7 plates, 149 figures. 25s. net.)

[5] *First Principles in Therapeutics.* By G. F. Goldsbrough, M.D. London: John Bale, Sons, and Danielsson, Ltd. 1916. (Demy 8vo, pp. 138. 7s. 6d. net.)

[6] *Symbiogenesis: The Universal Law of Progressive Evolution.* By H. Reinheimer. London: Knapp, Drewett and Sons, Ltd. 1915. (Demy 8vo, pp. 448. 10s. 6d. net.)

an industrious artisan and a thriving trader. Favourable variations are such as promote mutuality between species, and are the natural reward of that type of nutrition which the author denominates "cross-feeding." Predaceous or "in-feeding" species are on the downward path, which leads through obligate parasitism to degeneration and extinction. These conclusions are the same as the author has advocated in former works, but the present volume is more ambitious in scope and more abstract in method. It is in our opinion a justifiable demand that some positive standard of biological value shall replace the Darwinian criterion of fitness—mere "survival." But the author's glorification of the strenuous life and of economic utility hardly strikes us as finally adequate. The events of the last few decades have demonstrated with tragic force the possibility of employing industry and trade as means towards aggression and spoliation. If the attempt to set up commercial utility as the criterion of biological status were to succeed, the best that could be said for it would be that it was an improvement upon undefined "adaptability," or, on the Spencerian alternative "complexity." That there is a moral factor in evolution is an attractive and, we are disposed to agree, a sound proposition; we are by no means convinced that it is of so simple and obvious a nature as the author of *Symbiogenesis* would persuade us. In the human sphere it is not always the highest types which are the most blameless or innocuous, nor does it appear to be so in the organic. It is, however, astonishing that the survival value of innocuous habits *plus* utility to other species almost completely escaped the notice of the nineteenth century evolutionists, and the author of the present work, in common with Kropotkin and others, has done good service in insisting upon this neglected factor of the problem. His book displays literary ability and considerable ingenuity in the utilization of recent discoveries and hypotheses in various departments of biological and pathological research. There is, however, a tendency to prolixity and irrelevance, which makes the reader's task somewhat arduous; and some of the arguments are very far-fetched. Moreover, it seems hardly fair to assume a knowledge of Latin, French, German, and Italian, as is done by the interpolation of innumerable untranslated quotations. A word of praise is due to the invariable urbanity permeating a book which is nothing if not controversial.

A BOOK OF SORROW.

THERE is a luxury in grief, and it may be right to "give sorrow words," because "the grief that does not speak whispers the o'er-fraught heart, and bids it break," but at first sight of *The Book of Sorrow*,[7] by ANDREW MACPHAIL, the question arises whether grief may not be too voluble. The use of the book for a little shows that the suspicion was unworthy, and that there is nothing within it which is not the true expression of the mood or emotion of the writer. Many and varied are the moods of the several writers, and it needed no assurance in the preface to make it certain that these pieces were assembled and placed in order during many years of peace, and are published for the comfort of many in these terrible years—such comfort, at any rate, as may come from the knowledge that others have had the same bitter experience. While the sorrow is new the personal sense of physical loss is uppermost:—

> When some beloved voice that was to you
> Both sound and sweetness, faileth suddenly,
> And silence, against which you dare not cry,
> Aches round you like a strong disease and new—
> What hope? What help?

Thus Mrs. Browning; and for the next or a later phase, when the mind begins half consciously to seek comfort in illusion, may we not quote Andrew Macphail himself?

> Beloved, Spring is come! Do you not hear
> The strong South wind's deep breathing in the trees? . . .
> Nor yet the bird notes rising high and clear
> Above the merry whistling of the breeze?
> Will you not answer, if I join with these
> My cry of longing and of love most dear?

And so presently Captain Andrew Macphail from C.A.M.C. billets in Flanders leads us by devious ways to "Resignation," the section to which he boldly prefixes Milton's "Nothing is here for tears, nothing to wail." A hard saying.

A book is this to buy and keep by one, and to buy again and give away, if only to make the sorrower of to-day realize how many have walked the same road in these last three centuries.

[7] *The Book of Sorrow.* By A. Macphail. Oxford University Press: H. Milford. 1916. (Cr. 8vo, pp. 512. 6s. net.)

NOTES ON BOOKS.

WE have recently received a copy of the second edition[8] of the American translation of NONNE'S book on syphilis of the nervous system, translated from the third German edition dated 1915. The nineteen chapters of the work cover the ground well and are written with care and knowledge. Following a general account of the etiology and pathology of the subject come chapters on cerebral and basal syphilitic meningitis, after which are discussed syphilitic neuroses and psychoses, paralytic dementia, syphilis of the spinal cord and membranes, syphilis of the nerves, and hereditary syphilis. In his chapter on the so-called Wassermann reaction Dr. Nonne disingenuously avoids mention of the work of the Belgians Bordet and Gengou, who were the first to discover, study, and establish the essential principle of the test. It will be remembered that Dr. Stephens has recently proposed to rename this reaction "the compluetic reaction," in view of the fact that it depends upon the occurrence of complement-fixation in luetic disease. Dr. Nonne's last two chapters deal with the prophylaxis and salvarsan treatment of syphilis. There is nothing in the book to show that the treatment of syphilitic German soldiers during the war has been anything of a problem to the medical authorities of the German army, possibly because the author had no information on the subject when he was preparing this edition for publication. The translator has produced a readable version of the original, although the purist will not unreasonably object to such words as "gummi" for the plural of gumma (page 21), "excesses in Bacco"—a phrase which might leave the open-minded reader in doubt as to whether excess in smoking or in drinking were being impugned (page 12); on page 361 the names "Vidal" and "Ravant" should be "Widal" and "Ravaut," and "xantochromia" on page 364 should be "xanthochromia."

Dr. MAUDE GLASGOW'S *Life and Law*[9] is a fairly complete but popularly written account of the physiology of sex, intended, we presume, for the instruction of parents and teachers, as it could hardly be considered suitable reading for young people. The later chapters deal with venereal diseases and the problems arising out of prostitution, and the authoress takes a strong stand against what she calls "reglementation," on the grounds that it "implies the upholding of the double standard of morality and gives the industry a certain standing in the community." The book is ably written and embodies a great deal of useful information.

Professor BOYD'S little book, *With a Field Ambulance at Ypres*,[10] is a diary taking the form of letters sent home to friends from time to time. Here the reader will find set out in well-chosen terms an impression of modern warfare as it strikes an orderly and reflective mind trained in the arts of peace. These pages, we read in the preface, were in most cases written within twenty-four hours of the events described, and so contain a record of simple facts and the thoughts to which these facts gave rise. Indirectly, yet with great clearness, the author reveals the waste and the savagery of war, contrasting it with the many natural beauties of the scenery round Ypres as the two principles—life and destruction—continually present themselves to his eye and recall the apt quotation to his mind. The illustrations have been chosen to exhibit the desolation of war, and are well reproduced. The only fault we have to find with the book, in fact, is that it is too short.

[8] *Syphilis and the Nervous System: for Practitioners, Neurologists, and Syphilologists.* By Dr. Max Nonne. Authorized translation from the second revised and enlarged German edition by C. R. Ball, B.A., M.D.; second American edition, revised. Philadelphia and London: J. B. Lippincott Company. 1916. (Med. 8vo, pp. 474; 98 figures. 18s. net.)

[9] *Life and Law: The Development and Exercise of the Sex Function. Together with a Study of the Effect of certain Natural and Human Laws, and a Consideration of the Hygiene of Sex.* By Maude Glasgow, M.D. New York and London: G. P. Putnam's Sons. 1914. (Cr. 8vo, pp. 205. 5s. net.)

[10] *With a Field Ambulance at Ypres: Being Letters Written March 7th to August 15th, 1915.* By W. Boyd, Professor of Pathology, University of Manitoba. Toronto: The Musson Book Co., Ltd. 1917. (Cr. 8vo, pp. 110; illustrated. 1 dollar.)

MEDICINAL AND DIETETIC PREPARATIONS.

Vaccines and Tuberculins.

MESSRS. DUNCAN, FLOCKHART AND CO., Edinburgh (Holyrood Road) and London (155, Farringdon Road), are prepared to supply vaccines and tuberculins made by the scientific staff of the laboratory of the Royal College of Physicians of Edinburgh under the direction of Professor Ritchie. The work has been undertaken by this research laboratory from a sense of patriotic duty, and if one of the results of the failure of German supplies is to bring it about that preparations of such highly specialized products shall in the future be in the hands of responsible medical bodies and not prepared commercially or privately, any temporary inconvenience that may have been suffered will have its compensating advantages. Messrs. Duncan, Flockhart and Co. issue a small pamphlet containing some very judicious observations on the general subject of vaccines, distinguishing prophylactic and therapeutic. Among the former is a triple antityphoid vaccine against typhoid and paratyphoid A and B, also a typhoid, paratyphoid, cholera vaccine. There is a considerable list of therapeutic vaccines, and it is stated that the preparation of autogenous vaccines is undertaken by the scientific staff of the laboratory of the Royal College of Physicians. The tuberculins prepared in the same laboratory include the types usually employed. The conditions under which these vaccines and tuberculins are supplied to the profession seem to us to be as good as could be devised, and combine the guarantee of one of the leading scientific laboratories in Great Britain with the facilities for distribution possessed by a well-known and respected firm.

MEDICAL AND SURGICAL APPLIANCES.

An Abdominal Protector.

DR. JOHN CAMPBELL, surgeon to the Samaritan Hospital for Women, Belfast, writes to draw attention to an abdominal protector designed by Lady Adair of Longhanmore, Dunadry, co. Antrim. It is made of flannel, and intended to give protection from chill to the abdominal and lumbar parts of the body. It is 36 in. long and 12 in. wide at the waist, but narrower where it passes between the thighs. The manner of adjusting the protector is by means of a waist-band of tape at the top with running ends, one of which is passed through two loops on the flannel band, and finally tied to the other running end. This admits of the band being unfastened when necessary without falling off the body.

COCAINE AND UNREGISTERED DENTISTS.

THE regulations made last July forbidding the sale of cocaine except to authorized persons, or its possession by other than authorized persons, were made in consequence of representations made by the Commissioner of Police at the prompting of the General Officer Commanding the London District as to the prevalence of the use of cocaine by soldiers in the London area. A preparation of cocaine was defined in the regulations as any admixture containing 0.1 per cent. (one part in 1,000) of the drug.

As a result of an outcry by unregistered dentists a temporary permit was issued under which unregistered practitioners were able to purchase cocaine preparations not exceeding 1 per cent. strength, and the period for which this permit was to apply has been extended, so that it is still in operation.

In November the then Home Secretary appointed a committee of five persons to consider the authorizations granted for the use of cocaine in dentistry, and to advise whether or not they should be continued or modified, and if continued, in what cases and with what conditions. The Committee has now reported. The Majority Report is signed by the chairman (Sir Charles Hobhouse), Mr. Stanley Baldwin, M.P., Mr. James O'Grady, M.P., and Judge Ruegg, K.C. It proposes that "persons practising *bona fide* as unregistered dental practitioners and who can so satisfy their local authority should be entitled to apply for registration for right to purchase preparations of cocaine containing not more than 1 per cent., such authorization to be granted by the county or borough council of the locality in which their business is situated, any refusal to register such persons being subject to an appeal to the Home Secretary." It recommends that such preparations of cocaine should be procurable only from registered chemists or persons, or firms, licensed for the purpose by the Home Secretary, and should be so purchasable without reference to the local authority by any registered dentist or by a member of a dental association the conditions of membership of which have been approved by the Home Secretary.

The majority of the Committee are moved to make these recommendations, apparently, for two reasons—first of all, that to prohibit unregistered dental practitioners from using cocaine would be inconvenient to them, since they have not the requisite skill in the use of novocain; and, secondly, that the majority of the Committee do not agree with the Commissioner of Police and the General Officer Commanding the London District that there is evidence "to show that there is any serious or, perhaps, even noticeable prevalence of the cocaine habit amongst the civilian or military population of Great Britain."

It is not surprising that Professor Bayliss, the fifth member of the Committee, finds himself unable to sign a report so full of contradictions and irrelevances. The majority gravely state that they do not consider novocain "quite so effective an anaesthetic for pulp operations as cocaine," and therefore think the use of cocaine should not be prohibited. Professor Bayliss, whose opinion on such a point is of infinitely more value, states that he is convinced that the use of cocaine is not necessary for any dental operation, and that its place can be taken by novocain without inflicting any hardship on the dentist. Unregistered dentists seem to have laid great stress on the alleged necessity of adding adrenalin to the novocain solution, and it would appear that in some cases more was added than was necessary; but, as Professor Bayliss points out, it is impossible to exclude the probability that the injurious results were due rather to the septic state of the mouth, and that no local anaesthetic whatever ought to have been used. Professor Bayliss criticizes the arrangements under which members of societies of unregistered dentists recognized by the Home Secretary would be enabled to obtain cocaine. According to the Majority Report there are 13,000 persons engaged in the practice of dentistry, of whom only 5,000 are registered; as a matter of fact, the number at the end of 1915 was 5,453, but this inaccuracy is rather typical of the report, which goes on to state that 1,600 of the remainder are members of the Incorporated Dental Society, a body to which the Home Secretary is now advised to give official recognition. Professor Bayliss points out that it is not a difficult matter to become a member of this society, and that it would be a mistake to give official recognition to unregistered dentists when the scarcity of qualified practitioners would be more effectively met by raising the status of the dental profession as a whole. There remain, as alleged by the Majority Report, 6,500 other practitioners of dentistry unregistered and non-members of the Incorporated Dental Society, and for these the special machinery mentioned is proposed. Professor Bayliss expresses the opinion that the complicated machinery devised—namely, the grant by local authorities of special permits to unregistered dentists not members of the Dental Society—must result in a mode of procedure likely to leave undesirable loopholes. While recognizing that the recommendations would place some difficulties in the way of obtaining cocaine, Professor Bayliss advises that they are unnecessary, and would cause waste of time and expense. His conclusion from the evidence and facts is that since the sale of cocaine is attended with serious risks to the community, and is unnecessary in dentistry, there is no reason to interfere with the operation of the regulation, and that therefore the permit issued to unregistered dentists to obtain preparations of cocaine should not be continued.

The manner in which the whole question has been handled does not reflect much credit on the business methods of the Home Office; it seems to have had a good inspiration at the beginning, and to have regretted it ever since. We believe that no one who has any real knowledge of the matter entertains any doubt as to the exceeding danger of the cocaine habit; it is easily acquired, it is destructive of mind and character, and it is even more difficult to get rid of than the morphine habit. It would seem to be well worth while, therefore, even at the cost of some inconvenience to unregistered dentists who have not learnt how to use novocain, to repress the sale of cocaine sternly. Certainly the report of the majority of the Home Office Committee affords no adequate reason for further relaxation of the regulations.

British Medical Journal.

SATURDAY, MARCH 17TH, 1917.

HERBERT SPENCER.

VERY great men looked up to Herbert Spencer during his lifetime: very little men have depreciated him since he died. Mr. Hugh Elliot has produced a monograph[1] that neither unduly exalts nor unduly depreciates the man who was perhaps the greatest figure in the Victorian age, and his book will be for a very long time the classical and standard estimation of Herbert Spencer. Like most of those who worshipped Spencer during his lifetime as an almost supernatural intelligence, Mr. Elliot has now lowered him to the rank of mortal man; but unlike very many whose appreciation of Spencer has undergone a similar change, Mr. Elliot has not swung violently to the opposite extreme of undue depreciation, or if he did so, has now recovered his balance, and sets before us a remarkably just, impartial, and discerning estimate of the great philosopher. For Spencer was unquestionably a great philosopher. It is the fashion now to depreciate him, and every ass takes the satisfaction of a kick at the dead lion; but the very shoes with which their hoofs are shod were forged in Spencer's works. As Mr. Elliot well says, many of his principles have come to be taken as part of common knowledge, and from being highly original suggestions have degenerated into platitudes. They are become a very part of the intellectual air we breathe, and their origin is forgotten: to many of the younger generation it is unknown.

Everyone now takes evolution for granted, and the whole vast fabric of the natural sciences is founded on this theory. Nor is its reign confined to the natural sciences. Mind, both the mind of individuals and the collective mind of societies and of the race, is subject to the law. All social institutions, as well as society itself, are regarded, not only as progressing, but as progressing in obedience to fixed laws, which it is our study to discover. The whole universe, and every part and factor in it, are evolving or dissolving. All this we take for granted. It is the base from which we start. It underlies the whole of our speculations and biasses all our observations. And the hypothesis of evolution in a coherent and practicable form we owe entirely to Herbert Spencer. As has been said, we all take it for granted, and do not trouble about its origin, but if its origin were questioned, it would be attributed by ninety-nine men out of a hundred to Darwin. But Darwin not only did not devise the hypothesis of evolution: he never even subscribed to it. Darwin's mind was primarily inductive. No man was ever more fertile in hypotheses; but to him a hypothesis was of value only as a possible explanation of facts already observed, and was instantly tested by the application of facts to it, and discarded if the facts did not suit. Spencer's hypotheses were suggested by the slenderest hint of a fact, and were never used to explain that fact alone. They were always of wide embrace, and were intended as general explanations of multitudes of facts. They were not so much tested by facts as supported and corroborated by facts, and facts that conflicted with them were ignored and made no impression on his mind. What Darwin discovered and placed on an indefeasible basis is the origin of species. His discoveries and his speculations never transcended the bounds of biology. Spencer took all knowledge for his province, and applied the doctrine of evolution to facts of every order, from the formation of the universe as a whole to the formation of a nerve or a religion. Moreover, Spencer's theory of general evolution was published seven years before Darwin's *Origin of Species*, and thus Spencer's title to the origination of evolution as a practicable working hypothesis is quite beyond all doubt or question, though, of course, vague adumbrations of it have been frequent from the time of Lucretius.

A prophet is not without honour save in his own country, among his own kin, and in his own house. The Englishman mistrusts and detests a general principle, and still more mistrusts and detests a deductive argument; and Spencer's life was passed in formulating general principles and founding deductive arguments upon them. In consequence he was less valued in his own country than in any other. The intellectual classes in America idolized him, and when he was in pecuniary straits raised a considerable sum and invested it, unknown to him, in his name. When he died, the *Times* attacked him with an asperity that was almost virulent: in Italy the Chamber of Deputies adjourned in honour of his memory. In books of science, and even in books on philosophy, his name is rarely mentioned now, and his works are rarely cited; but this is not because they are forgotten, nor because they exert no influence. It is because the whole of science and philosophy is so penetrated with them that they are become commonplaces, and their origin is in a fair way to be forgotten—is, in fact, unknown to the younger generation who have been suckled and weaned upon them.

Mr. Elliot summarizes Spencer's writings, and summarizes them extremely well, interspersing his summaries with very acute criticisms. It is no disparagement of his summaries to say that they have the defect of all summaries; that is to say, that they will be more useful as reminders to those who are already familiar with Spencer's works than as instruction to those who are not. Whatever may be the case with potted meats and potted plays, potted philosophy is scarcely nutritious. Mr. Elliot's account is, however, valuable to students of Spencer, since it gives a more general and comprehensive view of his doctrines than is easily attainable from a study of his works, in which even a thorough knowledge of each part is consistent with a defective grasp of the whole.

The most interesting chapter in Mr. Elliot's book is undoubtedly that on Spencer's character. Truly Mr. Elliot extenuates nothing, but neither does he set down aught in malice. His estimate of Spencer's character is indeed penetrating, but it is not unfair. Spencer, like other men, had the defects of his qualities. He had an "immensely strong individual personality"; and as for many years he gained few adherents, and the doctrines that he held and preached with passionate devotion made little progress, he grew soured and egotistic; and his egotism was unchecked by the mollifying influence of social intercourse, for which his health unfitted him. He was so passionately devoted to his own doctrines that they absorbed nearly all his interest, and his only interests beyond them were in novel reading and music; and the novel reading was not so much an interest as a pastime, for

[1] *Herbert Spencer.* By Hugh Elliot. Makers of the Nineteenth Century. Edited by B. Williams. London: Constable and Co. 1917. (Med. 8vo, pp. 336; frontispiece. 6s. net.)

his health did not allow him to work more than three or four hours a day, and the rest of his time was spent in idleness. It is remarkable that the greatest philosopher and the greatest man of science of the last century, the two men who have between them revolutionized the very framework of our knowledge, were both of them restricted by ill health to working only three or four hours a day. How Spencer accumulated his encyclopaedic knowledge is a marvel, for he was a dilettante reader, read little but novels, and never read through any other kind of book. In an age when German philosophy was almost universally looked upon with awe—chiefly, it is true, on the principle *omne ignotum pro magnifico*—he was the only man of eminence who despised it, and publicly declared his contempt.

An honester man than Spencer never lived, nor a more independent. Though he prized his philosophy above everything on earth, and was several times on the point of closing his work for want of means, yet he repeatedly refused financial assistance. In speech he was honest to the verge of incivility, and sometimes beyond it. In the Savile Club there is a legend, which Mr. Elliot does not mention, that upon Spencer being beaten at billiards by a very good player, he addressed his antagonist thus: "To play billiards well implies an accurate estimate of angles and distances, and great power of co-ordinating movements; but to play billiards as well as you do implies a misspent youth."

Spencer's literary style is lucid, and he was vain of it, as he was of several other personal characteristics; but even that of his best days is scarcely worthy of the eulogium that Mr. Elliot bestows upon it. It is lucid, it is true, but it is monotonous, it is destitute of humour, and it is disfigured by a plethora of inversion. It is scarcely too much to say that Spencer never wrote a straightforward sentence if he could possibly introduce an inversion, and some of his inversions are hideous monstrosities. In other respects we find nothing to cavil at and much to admire in Mr. Elliot's analysis. It is to be hoped that this excellent monograph will inaugurate a new fluctuation in that rhythmical progress of opinion that, as Mr. Elliot reminds us, Spencer described. He has been too long and far too much depreciated; it is time that his extraordinary powers of generalization and deduction and his strength and uprightness of character should again receive an appreciation more proportioned to their worth. Unlike as they are in the main, Spencer closely resembled in some respects Dr. Johnson. Like Johnson, he carried independence and resentment of assistance almost to excess; like Johnson, he was constitutionally idle man, and, in spite of his dislike of work, achieved a colossal amount of it; like Johnson, he was uncompromising in the expression of his opinions; and, like Johnson, he carried almost to nicking excess his adherence to truth. Being human, he had weaknesses, but e'en his failings leaned to Virtue's side; and it may most truly be said of him as Dr. Johnson said of a much lesser man, "Let not the faults of Herbert Spencer be remembered: he was a very great man."

INFANT MORTALITY IN THE SLUMS.

THE results of a very elaborate inquiry into the relation of infantile mortality to mortality in subsequent life were presented by Dr. John Brownlee, Director of Statistics, Medical Research Committee, to the Royal Statistical Society on February 20th. The report embodies a vast amount of skilful reasoning, founded on the study of statistics, but it is for the most part more interesting than conclusive. Infantile mortality is greatly affected by the incidence of epidemics, occurring with a certain periodicity over longer or shorter terms of years, and it would seem that each epidemic disease is to some extent governed by laws of its own, but these points do not appear to have been taken into consideration by statisticians in the past.

The saving of infant life has been somewhat overprominent in the programme of the would-be social worker of late years. Dr. Brownlee does not appear to have much faith in the usefulness of the "fashionable fad for ladies of position and others, who either have no children themselves or have had their children brought up by strangers in their houses, to start societies and raise funds from the public with a view to popularize and extend some specious form of quackery." He considers that their efforts are only too likely to increase the number of the unfit, and to delay the progress of the really essential remedy, recognized and recommended by medical officers of health all over the country, which is the wholesale abolition of slums and slum life in general. The saving of infant life, if that life has to be lived under conditions which are not compatible with health, is a doubtful advantage to the community. Practical evidence has shown that the longer a child remains in slum life the less chance has it of enjoying sound health as an adult. Removal of a slum child into the country at the age of 3 results in a better expectation of future health and longevity than if such removal is postponed until 7 years of age. Dr. Brownlee emphasizes the dictum that healthy human life is not possible under the conditions usually prevalent in slums.. Hence the futility of half-measures by way of district visitation and attempts at the better education of mothers in the management of their children.

Such attempts undoubtedly lead to temporary improvement in death-rate statistics, but such amelioration is apt to lead local authorities into a position of complacent stagnation as regards their plain and obvious duty to put an end to the evil which all recognize. The paramount need for proper training of the youth of the country, physically and mentally, for the exercise of useful citizenship in the future is now very obvious to every one. The perpetuation of the race of slum children ought to be resisted by every means that local authority in large towns can exercise.

Slum areas cannot be cleared until accommodation for their inhabitants can be provided in country places within reasonable distance of the parents' work. The efforts of the child welfare societies, to which Dr. Brownlee attaches so little importance, might well be directed towards the provision of accommodation in healthy surroundings for the little ones whose health is beginning to be adversely affected by unhealthy environment. The Children's Country Holiday movement has done much in the way of temporary relief to the failing health of the slum child, but a far more radical movement is called for if such health is to be maintained. Country holidays may be extended indefinitely, and combined with education. By their means the boys and girls of the future might be converted into young men and women physically fitted to undertake life's work, with far greater prospect of success for themselves and usefulness to the community than is possible for them under present conditions.

Public funds devoted to the physical improvement of the coming generation may be counted as well spent.

THE CONFERENCE SUMMONED BY THE DIRECTOR-GENERAL OF NATIONAL SERVICE.

THE conference called by the Director-General of National Service to consider the organization of the medical profession with a view to meeting the needs of the military and civil population in existing circumstances was opened on March 14th. Sir Donald MacAlister, President of the General Medical Council, presided, and all the representatives summoned to the conference were present—namely, Dr. Norman Walker, Dr. J. C. McVail, and Dr. John Adams, representing the Scottish Medical Service Emergency Committee; Dr. T. Jenner Verrall, Mr. E. B. Turner, Dr. Buttar, and Dr. Richmond, representing the Central Medical War Committee; Sir Rickman Godlee and Dr. Frederick Taylor, representing the Committee of Reference. The secretaries of these committees—namely, Mr. T. H. Graham, of the Scottish Medical Service Emergency Committee; Dr. Cox and Mr. Bishop Harman, Secretaries of the Central Medical War Committee, and Mr. Hallett, of the Committee of Reference, were in attendance. The conference was also attended by Sir William Babtie, V.C., K.C.M.G., representing the War Office; by Sir Arthur Newsholme and Mr. Stutchbury, representing the Local Government Board in England, and by Sir Robert Morant and Mr. Smith Whitaker, representing the Insurance Commissioners. The conference did not conclude the important business brought before it, and met again on March 15th. Should the conference decide to advise the Director-General of National Service that compulsory powers must be obtained, there can, we think, be no doubt that legislation will be necessary. We believe that, from a preliminary consideration of the position, the Government departments particularly interested have come to the conclusion that such legislation will be required.

THE CONSCRIPTION OF DENTISTS.

THE British Dental Association is taking steps to obtain the information and statistics necessary for the organization of the dental profession for any national work that it may be called upon to do. It is, we believe, estimated that the number of registered dentists of military age is over 2,000 and that about 1,000 are already serving either in the Royal Army Medical Corps as dental surgeons to the navy or army, or as combatants. The total number of names on the *Dentists' Register* for 1916 was 5,453, and it is generally held that the number of dentists is insufficient to meet the needs of the civil population. A further depletion of their ranks must, therefore, be a serious matter, and from the fact that the Executive Committee of the British Dental Association is making representations to the Director-General of National Service with regard to the risks attending any further diminution in the number of dentists available for the civil population, we assume that Mr. Chamberlain's appeal has still further complicated matters. We hope that he will be able to give favourable consideration to the representations made to him, for the great value of the services of skilled dentists to the civil community is now very generally understood. These services are important for the prevention of disease in adults, and to safeguard the growth and development of children. With regard to the calling up of dentists under the Military Service Acts, no one can, we think, have any doubt that it is waste of power to employ members of a very skilled calling, needed for the preservation of the health of soldiers and civilians alike, as ordinary combatants. There are therefore two questions—first, whether any more qualified dentists should be called up, and secondly, whether any who have been or may be called up should be employed as ordinary combatants. We feel sure that the answer to the second question is in the negative. With regard to the first, the matter presents practical administrative difficulties. It has been suggested that Central Dental Committee should be appointed to work co-operation with the Central Medical War Committe it could do so in respect of obtaining information a making representations to the army authorities, but t powers of the professional committees with respect to t hearing of appeals for exemption are limited by statut they would have no power to determine appeals f exemption from military service except in the case those dentists who hold also medical diplomas. It wou however, be possible for the Army Council to issue instruction to local tribunals to give special attention representations made to tribunals by dentists, to the eff that the calling up of the individual would be detrimen to the public welfare, and it would, we imagine, be co petent for the British Dent. Association to advise a one of its members, and to assist him in the presentati of his case.

MILITARY PENSIONS.

THE statement made by the Minister of Pensions March 6th as to the new scheme of pensions for soldi and sailors, and the discussion which followed, left a g many matters in doubt, but it would appear that the m principle upon which pensions are to be awarded in t country is that the man should receive a minimum pens according to his rank and the degree of any physi impairment, and also allowances for his children. If t minimum pension be insufficient to enable him to l approximately according to his pre-war standard he may given an alternative pension based on his pre-war earnin and means are provided for bringing pressure to bear him to undergo treatment and training when consider to be for his good. In cases of slight permanent inj gratuities in place of pensions are to be awarded, also in the case of soldiers discharged for medical fitness not due to military service. If a man declines undergo treatment medically certified to be in his inter the half of any pension for which he would otherwise eligible may be withheld, but while pensions at tempor rates must be given until a man's disablement has reac its final condition, a permanent pension then awar cannot be altered to his disadvantage. The characteris ally British part about the scheme is the provision t the pension may be based on the man's pre-war earnin The French system ignores any such consideration, a is based on a line of reasoning which may be su marized as follows: The first proposition is that men taken into the army as soldiers are normal m that all normal men have the same wage-earning capac and that they all have also the same right to change t method of wage earning as often as they please. T leads to the first conclusion, which is that the amount any compensation for an injury received in the servic the State must be proportional to the amount by wh such injury would diminish the wage-earning power o normal individual whatever occupation that indivi may choose to follow. It is held, therefore, that a m who was formerly a tailor and has lost a toe is entitle compensation even though such loss does not inter with his work, because before he was a soldier he c have taken up, if he chose, some job in which a per foot was a necessity. The next proposition is that compensation must be proportional to the duration as as the extent of the loss of working power. But, ex in a very limited number of cases, no surgeon or c mittee of surgeons can tell to what extent a given in will be permanent. Consequently, except in cases wh a man has undergone an amputation or suffered s equally obvious and irremediable loss of working po a pension is not at once awarded, but a prescribed co of inquiry is followed. The man is sent to an institu where his defect is treated; bent limbs, for insta are straightened as far as possible, and stiff jo

ade limber. When the authorities of the insti-tion report that they can do no more, the amount working disability represented by the remaining fect is carefully assessed and recorded and the an is given a corresponding allowance. At the d of two years his condition is compared with the iginal record, and the allowance is diminished or in-eased according as the defect has varied in either direc-on. Subsequently he is re-examined again every two ars, and if at the fifth two-yearly examination the defect considered still to represent a loss of working capacity, e allowance is converted into a permanent pension. The timate of incapacity throughout is the wage-earning pacity of a normal man free to pursue any occupation pleases, or simply to amuse himself if he has private eans. The advantages claimed for the system are that allows of the same amount of money being spread in the ng run over a larger number of persons than can be done any direct pension system. It allows, too, of assistance ing given to men whose actual working capacity may not diminished, but who, nevertheless, suffer pecuniarily rough their injury. Take, for instance, a young fellow an office who has had compound fracture of the leg. rmerly he always used to walk home from his job, now finds that once or twice a week he has to take an nibus because he cannot walk as fast as formerly. Or same young man used to play tennis or row; he can so no longer, and he has to get his exercise and amuse-nts in some more expensive way. There is no doubt at it is impossible to foretell to what degree many, if t most, defects will be permanent. A man, for instance, o served in South Africa, was shot in the foot, and arded a pension. At first he was very lame, but for ars has been able to walk, run, and dance as well and long as any man of his age.

INFLUENCE OF THE DRESSING ON THE ANAËROBIC FLORA OF WOUNDS.

E War Office Committee on Tetanus, of which Surgeon-neral Sir David Bruce, C.B., F.R.S., is chairman, has ued a memorandum to hospital pathologists, asking m to give their assistance in the investigation of the luence of antiseptic and other dressings on the anaërobic a of wounds. The Committee desires to obtain general dence as to the persistence of anaërobic bacteria in unds, and of the effect of various methods of wound ssing on their persistence. It is believed that if a ficient number of pathologists would make routine ervations for a short time upon two or three wounds h much useful evidence would be forthcoming, and t its value would be increased if all the examina-ns were made according to the same routine. In ry case the type of dressing in use would be ed, and the presence or absence of spore-forming anisms determined by making direct films of wound charges and anaërobic meat broth cultivations. It suggested that a sample of wound discharge should taken at intervals of four days immediately after dressings are removed for the purpose of wound et. Pus should be taken with a sterile swab sterile pipette, and emulsified if necessary with .cm. of sterile broth. From the emulsion or pus a affin meat tube would be inoculated, and a film and in made by the Gram and carbol-fuchsin method. The at broth would be examined by means of Gram-carbol-hsin films and hanging drop preparations at the end of y-eight hours, and subsequently at intervals of four s for three weeks. The points to be noted are the sence or absence of spore-forming organisms, the e of sporulation, and the changes in the meat medium. se points and the method of preparing the paraffin t tube are set out in the memorandum, which, together h a form of report, can, we understand, be obtained from Surgeon-General Sir David Bruce, C.B., F.R.S., Royal Army Medical College, Grosvenor Road, S.W.

TETANUS RELAPSE AFTER A TRIVIAL OPERATION.

AN instructive case showing the risks which in certain circumstances may attend even trivial operations has recently been reported to the War Office Committee on Tetanus by Dr. Stanley Barnes of Birmingham. A man wounded in both arms and both legs by shell fire early last summer developed generalized tetanus. He was treated energetically with serum, and, after a very severe illness, recovered. When he was first able to get out of bed, during October, he was greatly emaciated and weighed only 4½ st. He was sent to a hospital in the suburbs to recuperate and for treatment of some of the wounds. They all healed, but towards the end of February one of the many subcutaneous fragments of shell in the right thigh was giving pain, and the medical officer under whose care he then was froze the skin, made an incision, and removed a bit of metal three-eighths of an inch long. Within twenty-four hours the patient was in the throes of a severe attack of local tetanus, which for a week kept the whole of the right lower extremity in tonic spasm. Relapse of this kind, particularly when the wounds have all been completely healed for four months, must be unusual, but the case provides a warning against doing even trivial operations which are apparently aseptic without giving a preliminary dose of antitetanus serum.

SMALLER JOURNALS.

THE public has become familiar during the last few days with smaller newspapers, and has had other evidence that the restriction on the imports of paper and paper-making material is being enforced. The Prime Minister stated on February 23rd that the quantity of paper and pulp imported in 1914 was 1,800,000 tons, and in 1916 1,200,000 tons, but that the quantity was to be reduced in 1917 to 640,000 tons; all the paper used in this country for periodical publications is either imported or made from imported materials, so that the restriction of imports means an exactly corresponding decrease in the amount of paper available. It is not a question of price, but of quantity available. Newspapers and other periodical publications have therefore no alternative but to reduce the amount of paper they use. Some papers have been able to effect part of the necessary reduction by stopping the supply of copies to newsagents "on sale or return." There is very little scope for any economy of this kind in the case of the BRITISH MEDICAL JOURNAL, though anything that can be done will be done. It appears that no relaxation of the general rule as to the restriction of the quantity of paper will be made in favour of scientific journals, though, as in the case of this JOURNAL, they may render important services to the army and the nation. The only means of meeting the situation, therefore, is by diminishing the number of pages printed weekly. A very considerable reduction had already been effected since the war began, but it has now become necessary to continue the process, and the number of pages in this issue has accordingly been diminished as compared with recent issues. It is fully anticipated that this policy will have to be carried much further in the immediate future, and that it must affect the advertisement columns so soon as the necessary adjustments can be made. We are therefore bound to appeal to those who may think of honouring us by offering contributions for publication to bear this fundamental fact in mind. The desire is to make the JOURNAL as fully representative of medical opinion as circumstances permit, but this end can only be attained if every one will write as succinctly as possible, for redundances and repetitions must result in the exclusion either of the writer's own or some other contribution. Occasion has also been taken to make a small alteration in the manner of publication of the

SUPPLEMENT. Before the war it was stitched separately and inserted loose in the centre of the JOURNAL. When the difficulties created by the war began to be felt—and they arose at a very early stage—it was stitched into the centre. This plan presented many inconveniences and disadvantages; it was, in particular, disadvantageous to the interest that might be taken in the SUPPLEMENT, owing, among other reasons, to the fact that its table of contents was not in a prominent position. To get over this difficulty and to give greater elasticity, in view of the reduced number of pages for the whole issue, the SUPPLEMENT will for the present be published at the end of the JOURNAL, where its table of contents will be more conspicuous.

Medical Notes in Parliament.

Criminal Law Amendment Bill.

CLAUSE II of the Criminal Law Amendment Bill was again under consideration at the sitting of the Grand Committee on March 8th. Mr. J. W. Wilson presided. The Home Secretary (Sir George Cave) was in charge of the bill.

The clause provides that any person who is suffering from venereal disease in a communicable form shall not have sexual intercourse with any other person, nor wilfully communicate such disease by any other means, nor solicit or invite any other person to have such intercourse.

A brief discussion took place on an amendment by Mr. Rawlinson to add the words, "But shall forthwith consult a duly qualified medical practitioner either at a hospital, or otherwise, and shall take reasonable precautions to prevent the communication of such disease to other people." Mr. Hayes Fisher (Secretary to the Local Government Board) urged that the amendment should not be pressed. The policy, he thought, should be one of inducement, not of punishment, and with that object the Local Government Board was setting up places all over the country where persons could be treated gratuitously and secretly. If failure to consult a duly qualified practitioner were made a criminal offence, it would stifle the action of the Board. Sir W. Collins also expressed himself in favour of the educative and not the punishment policy. Mr. Rawlinson's amendment was negatived without a division.

Mr. Joseph King next proposed an amendment of the first subsection (which sets forth the terms of conviction), his wish being to secure that cases under the measure should not be triable by a court of summary jurisdiction. His view was that they should go before an experienced judge and a jury. The amendment was negatived without a division, but incidentally Mr. Burns expressed the opinion that whatever the tribunal, there should be greater secrecy in dealing with these cases. He suggested that the precedent afforded by the Children's Act might be extended. The Home Secretary, after mentioning that the right which an accused person had of electing to be tried summarily would be lost if the amendment were adopted, remarked that every court to-day had the inherent right to clear the court. That right was properly very sparingly used, but when cases of an undesirable character were about to be heard, an intimation to persons, advising them to leave the court, was usually effective.

It was agreed, on the motion of Sir George Radford, to insert an amendment providing that no person should be convicted under this section upon the evidence of one witness unless such witness were corroborated in some material particular.

A lengthy discussion ensued on the remaining portion of the section, which sets forth that a person may make a good defence if that person proves that he or she had reasonable grounds to believe that he or she was free from venereal disease at the time the alleged offence was committed. Four members had on the paper an amendment to insert after the word "disease" the words, "in a communicable form," and this was moved by Sir J. D. Rees. The Lord Advocate (Mr. J. A. Clyde) advised that the amendment should not be adopted, on the ground that it would increase the difficulty of securing conviction, as a person might say that he (or she) knew he had the disea but did not know that it was in a communicable for Sir W. Collins said that without the qualification t position was awkward, for the disease might be prova by blood tests to exist, and yet it might not be "i communicable form." In the end the amendment v adopted.

Subsection 3, "Where any person is convicted of any the offences mentioned in the schedule of the Act, court may, if they think fit, for the purpose of asc taining whether that person is suffering from venei disease in a communicable form, order that person submit to such medical examination and tests as may reasonable for the purpose," was omitted on the motion the Home Secretary.

The bill was again taken in Committee on March 14 when Clause II was again under review.

Mr. Aneurin Williams made a fresh proposal for detention of convicted persons known to be suffering fr venereal disease. He moved that where a prisoner c victed of any offence under the schedule was certified the medical officer of the prison to be suffering from disease in a communicable form, he or she should be tained in hospital until cured. Sir Frederick Banb suggested the amendment should read in its clos words "until the disease is no longer in a communica form," and thus altered it was briskly discussed. strongest speech against it was made by Mr. John Bu who said he had peculiar qualification for speaking on subject, as he had been President of the Local Governn Board and had been in prison on more than one occas He knew that the Local Government Board had no po to detain persons. As for prison experience, he could suppose the case of a man who had taken a little m liquor than was good for him, and having assaulte policeman had got a month's hard labour; and t it was found he was suffering from disease. Th was no other person for whom poor people had s an affection and loyalty as for the prison doc and it would be most regrettable if, in cases s as he had mentioned, that relation were broken. was because the relation was human, medical, ne bourly that prisoners trusted the doctor. If the po proposed to be given to the doctor were imposed u him, that confidence would slowly but surely dimi Mr. Burns also objected to the amendment becaus would be class legislation. A greater number of cases of disease occurred amongst the middle and up classes. It was the poor that mostly went to pr Why should the poor be detained, while the well-dre went free?

The amendment was rejected by 36 votes to 11.

Mr. Glyn-Jones afterwards moved the omission of section 6—the definition section—which said: "The pression, 'venereal disease,' means syphilis, gonorrh or soft chancre, or any disease of the genito-urinary or which may reasonably be suspected to be venereal dise His objection was to the vague concluding words, other members had down amendments to omit them. Home Secretary said these words came from the R Commission's report but he was willing to drop them. did not agree the section should be omitted; the v that could be said against it thus reduced was that definition was unnecessary. In the end the section retained, venereal disease being thus defined as "syp gonorrhoea, and soft chancre."

Mr. Glyn-Jones had down another amendment, to vide that a prosecution for an offence under this se (as to sexual intercourse by a person suffering from ven disease) should not be instituted in England or Ire without the consent of the law officers of the Crown. urged that some safeguard against malicious or b mailing prosecutions was necessary. It was not en that a magistrate should dismiss a case, saying th person charged was innocent. The mischief was when the person was charged and publicity was give the charge. The amendment was opposed by the H Secretary and his predecessor, Mr. Herbert Sam Commander Wedgwood agreed that the amendment m add to the difficulty of securing convictions, but urged the immediate point was to avoid making law which w be used for blackmailing. Mr. Rawlinson supported amendment, remarking on the danger that when di proceedings were pending criminal proceedings migh

instituted by one party to prejudice the other, as this section would apply to communication between married persons. Other members having spoken, the amendment was withdrawn, the Home Secretary undertaking to introduce a safeguarding amendment later in the bill, or on report.

A short debate ensued on the clause as amended. Mr. Joseph King having moved its rejection, several members urged that the proposal for medical examination having been abandoned its character was materially altered, and that the creation of this offence of communication might prejudice the work of free treatment now being undertaken by the Local Government Board, as it might make persons more reluctant to disclose that they had the disease. The Home Secretary, however, believed that the clause would prove valuable, and one member held that in making persons more careful it would tend to cause them to accept free treatment from the local authorities.

On a division the clause was retained by 27 votes to 11.

The Treatment of Venereal Disease.

In the House of Lords, on March 8th, Lord Rhondda, President of the Local Government Board, moved the second reading of the bill to prevent the treatment of venereal disease otherwise than by duly qualified medical practitioners. The text of the operative clause was printed last week (p. 342).

Lord Rhondda said that the proposals were largely, if not mainly, based upon the conclusions reached by the Royal Commission. He recalled the opinions expressed by the Commission that 10 per cent. of the population were affected, and that the continued existence of unqualified practitioners was one of the principal hindrances to the eradication of the disease. While not claiming that the bill was a watertight measure, as very possibly its provisions might be evaded by unscrupulous persons, Lord Rhondda thought it would mark a very considerable advance. Many resolutions approving of the steps the Local Government Board was taking had been received from medical societies and from local bodies. The intention was that the bill should be applied to areas in which provision had been made by the local authorities for the gratuitous treatment of the disease. County councils and borough councils had already submitted schemes for districts covering a population in England and Wales of 23½ millions out of a total population of 36 millions approximately, and schemes covering a population of 16 millions had been approved. Therefore in all that area the practical difficulties which the Commission had in mind had been removed. In nearly half the country already there was provision for free diagnosis and treatment by qualified persons. He hoped that the bill would be regarded as of a non-controversial character. No doubt it would press a little hardly on chemists and druggists, but he had every confidence that the pharmaceutical body as a whole would offer no opposition. It would no doubt interfere to some extent with the livelihood of herbalists; but after listening to a deputation very attentively he saw no reason whatever to change his view that the Government ought to stand firmly for the suppression of all unqualified practice. He had approached the question of compulsory notification with a perfectly open mind and had concluded that, without closing the door to some modified form of compulsory notification later on, the action now being taken by local authorities should be given a fair trial; it would be prejudiced if compulsory notification were instituted now. Medical opinion, too, was overwhelmingly against compulsory notification. In conclusion, Lord Rhondda said that if the present bill were passed through the House of Lords, the intention of the Government was that, after it reached the Commons, it should be referred to the same Committee which was now considering the Criminal Law Amendment Bill.

Lord Sydenham said that abundant evidence had been given before the Royal Commission to prove that the treatment of venereal disease by quacks and the resort to quack medicines had been disastrous. The result of quack treatment was that there was delay and the disease became generalized. Unqualified persons, from want of knowledge, would also sometimes diagnose an ailment as the disease where it did not exist, and an immense amount of mental suffering was thus caused. The Commission did not like at the time it reported to recommend legislation for the suppression of quacks, feeling that this ought to come when free and ample treatment was provided for all classes. The bill would be a considerable step in the direction in which they ought to move without delay.

The only other speaker was Lord Gainford—until recently Mr. J. A. Pease—who said that when he was President of the Board of Education his attention was called to the tragic suffering of many children through the wrongdoing of their parents. He believed that this bill would do something to prevent the sins of the fathers descending upon their children, and he gave it support. The bill was then read a second time. On Tuesday the bill was taken in Committee in the Lords. No alterations were made and the proceedings lasted only a few minutes.

Medical Students and Military Service.—On March 13th, Mr. Hancock asked Mr. Macpherson: (1) Whether having regard to the shortage of fully qualified physicians and surgeons after the war, and the consequent menace to the civil population, care will be taken that medical students will not be compelled to enlist in His Majesty's Forces until they finish their course of study or before reaching the age of 19; and (2) whether Army Council Order No. 863 has been withdrawn, and, if so, when; whether medical students under 19 years of age, undergoing training in colleges and hospitals, can be permitted to continue their studies in accordance with the Regulation laid down in the Army Council Order provided that they join an Officers' Training Corps or some other recognized army auxiliary; whether consideration will be given to the fact that parents have embarked upon an expensive course of training for their sons under the impression that Army Council Order No. 863 would be observed; and will instructions be issued to recruiting officers and tribunals that, representation being made by responsible heads of colleges and hospitals as to the bona fides of students, and that they are members of an Officers' Training Corps or similar body, calling-up notices should be suspended until the age of 19 years is attained, in view of the fact that the military training in Cadet and Officers' Training Corps are quite equal in value and strenuousness to that given to recruits in the army. Mr. Macpherson, in a written answer, stated that the instructions had been amended. No member of an Officers' Training Corps who produced a certificate from the officer commanding the contingent that he was recommended to join an officer cadet unit was called up until he was 18½ years. Medical students were not called up if they were within twenty-four months of their medical degree or licence, provided they were enrolled in an Officers' Training Corps; if they were not called within this period, they were not called to the colours if, being under 31, they are classified lower than B1.

Allowances for Families of Officers of Junior Rank.—In the Commons on March 13th Mr. Forster (Financial Secretary to the Treasury) said that Treasury authority had now been obtained for a scheme whereby officers in the army under the rank of major, or of equivalent rank in the navy, might, under certain conditions, obtain a maintenance allowance from public funds for their children. These allowances would be made by the Military Service Civil Liabilities Committee, and would be supplementary to the grants already being made in respect of rent, rates, insurance and interest on mortgage. The present allowance of £104 might be increased by any amount which could be given for maintenance allowance. Application for grants must be made on the prescribed forms which would be obtainable from the army and navy agents, and from the Civil Liabilities Committee. Colonel Yate asked whether there was any allowance for the wives of junior officers, and dependent mothers and other dependants. Mr. Forster replied: Not in the form of these allowances, which are confined to households where there were children. Mr. Billing asked whether there were not many young officers whose obligations made their positions worse than those of privates. Mr. Forster replied that the arrangement just mentioned was intended to obviate that hardship; the Civil Liabilities Committee was already working a scheme whereby assistance was given to officers in respect of rent, rates, insurance, and interest on mortgage. Mr. Forster added, in reply to Colonel McCalmont and Mr. Faber, that these allowances could be given only on application, but steps were being taken to call the attention of officers to the opportunity. The wish was to make the machinery as simple as possible. Officers at home would have to apply for their children. In cases of officers abroad applications might be made by the wives or guardians of the children.

The Re-examination of Attested Men.—In reply to Mr. MacCallum Scott, Mr. Macpherson said that it was intended to modify the present instructions with regard to attested men rejected on re-examination, and to issue a new form of medical classification certificate.

THE WAR.

OPEN PNEUMOTHORAX.

PRIMARY SUTURE OF THE LUNG.

DR. F. LANDOIS, Oberarzt in a Reserve-Feldlazarett, writing on wounds of the thorax,[1] recommends primary suture of the lung in cases of open pneumothorax, but states that the operation could only be carried out in stationary warfare and in a well-equipped hospital. He had adopted the method in 9 cases, 2 of which were almost hopeless from wounds in the abdomen and spine. Of the remaining 7 cases, 5 recovered. A simple pressure apparatus constructed on the Auer-Melzer principle proved a most useful accessory, but was not available in the first few cases. A pressure of 8 to 10 mm. of mercury was employed. After excising the edges of the wound in the thorax, the ends of the fractured ribs were nipped off and the wound enlarged so as to admit the hand within the thorax. It was important not to make the aperture unnecessarily large, for subsequent closure of the wound was rendered more difficult thereby and the respiratory mechanism was interfered with. The lung was then drawn out with a volsella, the wound in it sutured with fine silk, and the lung surface fixed to the edges of the wound by sutures. The sutures were passed deeply into the substance of the wounded lung, but separate suturing of the pleura was unnecessary. As a rule no difficulty was experienced in closing the wound; in one case, however, the infarcted lung tissue was so friable that the edges of the wound could not be readily approximated, and at the *post-mortem* examination the pleura contained blood which had escaped from small lacerations at the site of the stitches. In war it was always desirable to reckon on the occurrence of a secondary empyema, although this was not constant. It was therefore important, even in small wounds where the aperture in the thorax could be closed without difficulty, to fix the lung to the site of the wound, and thus obviate a total empyema should suppuration occur. In most cases, however, owing to the large size of the aperture in the thorax, this had to be closed by the lung itself by means of silk sutures passed through the lung tissue and the musculature around the opening. It was further important that the sutured wound in the lung should be fixed in the opening in the thorax, so that a possible suppuration of the lung might be readily dealt with. Should this arise, rib resection became necessary, but should not be undertaken until adhesions had formed—that is to say, about ten to fourteen days from the first operation.

Open pneumothorax without wound of the lung resulted chiefly from tangential wounds. If the track were long several ribs were usually fractured, and extensive infarction of the lung might occur. The latter circumstance added greatly to the gravity of the case. Of the two cases of this group, extensive infarction was present in one; the sutures in the lung tore through, the pneumothorax recurred, and haemorrhage occurred into the pleura with fatal result. The second case was fatal from injuries in other parts of the body.

Open pneumothorax with wound of the lung occurred in five cases, which were treated by suture of the wound and circular fixation of the lung to the aperture in the thorax. In one the external aperture was too large to be closed by the lung alone, and a tampon, around which the intercostal musculature was sutured, was successfully used to complete the closure. In three of the cases empyema resulted, necessitating subsequent rib resection. These three cases recovered; the fourth case was cured without any complication; the fifth was fatal from putrid necrosis of the muscles and subjacent lung tissue, cutting through of the sutures, and recurrence of the open pneumothorax.

Open pneumothorax associated with wound of the diaphragm and an abdominal organ should be treated by transdiaphragmatic laparotomy, when that is practicable. The principle of this operation was to shut off the pleural cavity as quickly as possible from the danger of infection from the peritoneum. The operation, which was best done under pressure narcosis, consisted in fixing the lung within the edge of the aperture in the thorax, enlarging the wound in the diaphragm by an incision in the direction of its fibres, and fixing the wound circularly to the thorax wound, the pleura being by this means shut off. The abdomen could then be dealt with without fear of infecting the pleura. In a case of this kind, in which the right vault of the diaphragm and liver were wounded, an empyema followed the operation; this was treated by rib resection, and the patient recovered. Where the lung was fixed by old adhesions to the parietal and diaphragmatic pleura, transdiaphragmatic laparotomy was not practicable.

[1] Bruns's *Kriegschir.*, Heft 15, p. 111.

IMMEDIATE CLOSURE.

Dr. K. Hanusa, Stabsarzt in a Feldlazarett, recommended immediate closure of the wound in cases of open pneumothorax.[2] In 9 of the 11 cases so treated there was haemoptysis, which was taken to be evidence that the lung was wounded; 6 of the cases were perforating wounds and in five the projectile was retained. The following technique was adopted: Immediately on receiving the case the edges of the wound were excised, and fragments of bone removed; interrupted sutures were then passed through all the layers of the tissue, as far as that was possible, and the wound closed till no further issue of blood or air took place. The operation was performed under light local anaesthesia with ethyl chloride. The beneficial effects of the operation manifested themselves in the course of a few hours; the breathing became quieter, the pulse full and stronger, and the cyanosis disappeared.

The dangers which appeared to be associated with immediate closure of the wound were infection, haemorrhage from the lung, and hypertension-pneumothorax.

Infection in the line of the sutures occurred in six cases; necrotic patches appeared in the skin or superficial abscesses in the soft parts, but healing of the pleura and of the overlying muscular tissue was in no degree interfered with. As regards infection of the lung, the author's experience led him to believe that resistance to infection was possessed in greater degree by that organ than by other tissues. For, while extensive incisions for progressive infection were frequently necessary in wounds of the limbs, lung wounds received in the same battle healed in two to three weeks. Moreover, the haemothorax, which is always associated with wound of the lung, had been frequently aspirated and was always found to be sterile. It did occasionally happen, however, that a late abscess developed after several weeks' freedom from fever. Infection of a haemothorax—that is to say, formation of an empyema—was of less frequent occurrence than might be theoretically anticipated, and, as compared with grenade wounds of other parts, this was a striking fact. In 30 cases of haemothorax rib resection for empyema was called for in 4 cases only; of the 11 cases of open pneumothorax treated by immediate closure of the wound, empyema occurred in one. This was a grenade wound of the lower part of the thorax on the right side, with wound of the lung; the apertures of entry and exit were not more than 12 cm. apart, and there was a small haemothorax; bleeding from the wound commenced on the fifth day; on the fourteenth day after suturing the wound, by which time the lung had become redistended and adhesions had formed, a small empyema appeared.

As regards haemorrhage from the lung, it had been recently recommended that the wound in open pneumothorax should be enlarged in order to examine the surface of the lung and close any wound found. Hanusa considered that when the original wound was too large for immediate closure this practice was to be commended, and always adopted it; but when it was remembered that the patients had survived a rough transport before reaching the Feldlazarett—often as much as eight hours after wounding—it was clear that closure of the wound would suffice for the arrest of haemorrhage in most cases. The indication for suture of a wound in the lung was the behaviour of the pulse. A bad pulse at first did not indicate suture, but if after closure of the wound the signs of haemorrhage persisted, the indication was present. The late haemorrhage from the lung described by some surgeons as occurring from eight to ten days after wounding, and due to softening of the lung tissue, had not been observed; nor did hypertension-pneumothorax occur in any of the cases; the air in the pleural sac was rapidly absorbed, and with appropriate respiratory exercises the lung rapidly re-expanded. Hanusa

[2] Bruns's *Kriegschir.*, Heft 29, p. 749.

ept his cases under observation for three to four weeks on ie average, and all did well. He had one case of late neumothorax, arising sixteen days after wounding. A enade wound of the size of a shilling was present over ie middle of the right scapula; below this was a large ea of dullness with absence of breath sounds, and spiratory movements were diminished on that side; ere were marked cyanosis, dyspnoea, and haemoptysis. ater, bronchial breathing was audible above the dull area the right base. On the sixteenth day sero-sanguinolent id and air were discharged from the wound, associated ith severe cyanosis and dyspnoea. The wound was osed with sutures, the dyspnoea and cyanosis rapidly bsiding. Recovery was uninterrupted.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

Surgeon Probationer G. P. Walker, R.N.V.R.

The casualty list published on March 5th reports the ath of Surgeon Probationer Gordon Patrick Walker, .N.V.R., killed in action. Presumably he was a member the complement of the destroyer recently reported to ve been lost with all hands in the North Sea on arch 1st, by striking a mine. He was the younger rviving son of Mr. John Walker, of Glasgow, and was years old. He attended the medical classes at Ander-n's College and St. Mungo's College, gained the class edal for chemistry and physics at the former, and passed s examination in anatomy with distinction. On receiv-g his commission as surgeon probationer he went to aslar Hospital for a two months' course, and was after-ards appointed to a destroyer. His elder brother was lled at Loos in September, 1915.

ARMY.

Died of Wounds.

Captain H. Barr, R.A.M.C.

Captain Hugh Barr, R.A.M.C., died of wounds at Salonica February 21st, aged 35. He was the son of Mr. Hugh arr, of Paisley, and was educated at Glasgow University, here he graduated M.B., Ch.B. in 1905, afterwards study-g at King's College, London, and at Hamburg; and king the D.P.H. of the London Colleges in 1909. After ding the posts of house-surgeon of South Shields In-mary, and of medical officer of the Brook Fever Hospital, oolwich, he went to New Zealand, where he was in actice at Alexandra, Otago. He returned home in 1915, d took a temporary commission as lieutenant in the A.M.C., being promoted to captain on completion of a ar's service. His cousin, Temporary Captain George ett Barr, R.A.M.C., also of Paisley, died in France in arch, 1916.

Died on Service.

Sydney D. Rowland, M.A.Camb., M.R.C.S., L.R.C.P., Major R.A.M.C.

We regret to announce the death, on March 6th in rance, from cerebro-spinal fever, of Major Sydney Don-le Rowland, R.A.M.C., M.R.C.S., a bacteriologist at the ster Institute.

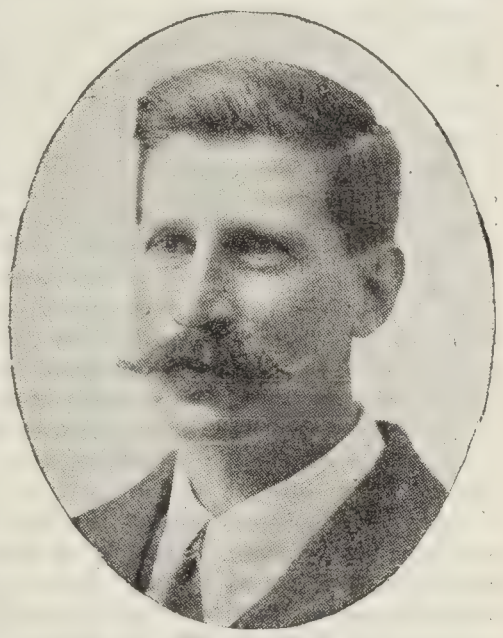
Sydney Rowland was the son of the Rev. W. J. Rowland, d was born in 1872. He was educated at Berkhamsted ammar School, whence he proceeded in 1889 to Cam-idge with a science scholarship at Downing College. Cambridge he took the first and second parts of the tural Science Tripos, and was for a short time assistant monstrator in the Physiological School under Professor chael Foster. Whilst at Cambridge he was a prominent ember of the Cambridge Natural History Society, and metime its president. At this time he was keenly erested in almost every department of natural science d also in philosophy. As a mutual friend who was his ntemporary has expressed to me, he was a real amateur science in the best sense of that word.

After leaving Cambridge he came to London and com-ted his medical studies at St. Bartholomew's Hospital. don't think the clinical side of medicine ever appealed him, and much of his time was spent in studying the velopment of knowledge of *x* rays, which had just been scovered, and their application to medicine. He was o obliged to devote much of his energy to gaining sub-tence. He qualified in 1897, but finding by experiment that the examiners for the Cambridge M.B. would not accept knowledge of physiology and general science in lieu of that of midwifery, he never graduated in medicine at his university.

After qualification he had an assorted career for a couple of years, during which he held a minor post on the editorial staff of the British Medical Journal, of which his uncle, the late Ernest Hart, was editor, and also practised as an *x*-ray specialist. Neither of these ventures was entirely successful. Rowland, although a good and interesting conversationalist, was singularly devoid of any literary faculty, and it was impossible for one of his nature and unbusinesslike habits to remain at his rooms and await the advent of patients.

At the end of 1898, however, he received an appointment which was to his taste—namely, that of assistant bacteriologist at the Lister (then Jenner) Institute under the late Dr. MacFadyean, and he remained a member of its staff until his death. Henceforth he was able to devote the whole of his time to scientific investigation. The Lister Institute appointment was in many ways particularly suitable, as it involved little or no routine teaching or other duties.

In addition to possessing a sound knowledge of engineering principles, Rowland was an extraordinarily good mechanic, and never happier than when devising technical means for attacking some problem or making the apparatus to be used in the investigation. His skill in both directions was always at the service of his colleagues, and most of us are under great obligations to him in this respect. This peculiarity of his dominated his whole scientific career. As a matter of fact, he was unduly interested in devising techniques and in overcoming technical difficulties, and once these fundamental obstacles were overcome his interest in the actual work of the investigation was liable to be less keen.



Major Sydney D. Rowland.

Whilst at Cambridge he became a good microscopist, and subsequently he devoted much time to the study of the microscope and the development of his skill in its use. He ultimately acquired a command of microscopical technique which was equalled by few British pathologists. It is characteristic that his first scientific paper should have dealt with the structure of bacteria—a difficult subject, requiring the utmost resources of the optical apparatus at that time existing. Unfortunately this paper became almost buried, as it was published in the *Transactions* of the Jenner Institute, which had only a very limited circulation. To the same publication he also contributed a description of a simple apparatus for pulverizing tubercle bacilli.

In 1899 Rowland was engaged with MacFadyean and Morris in an investigation upon the fermentative properties of yeast-juice free from living cells, which Buchner had recently discovered produced alcohol from sugar. In the following year he and his colleague Hedin discovered that the cell juices of organs, and particularly the spleen, contained proteolytic enzymes. The technical difficulties of these researches devolved upon Rowland. About this time Dewar had, by help of his vacuum flask, shown how liquid air could be handled in large quantity. MacFadyean having ascertained that microbes were not killed at the temperature of liquid air, a temperature at which all chemical processes must be reduced to a minimum, it occurred to MacFadyean and Rowland that grinding bacteria at this low temperature might yield an antigen, the injection of which would lead to the production of a curative serum for diseases such as typhoid. The idea was worthy of extensive trial. Rowland was again engaged in

conquering the technical difficulties inherent in this research. His efforts were successful, but unfortunately, although many facts of academic importance were brought to light during the lengthy research, the main object of the attempt was not achieved.

In 1905 Rowland was seconded to work upon the Commission for the Investigation of Plague in India, and proceeded to Bombay early in the year. During two years he took an active part in the labours of the Commission, which were directed to the study of the means of spread of bubonic plague; they established the dependence of the human epidemic upon the rat epizootic, and the rat-flea as the essential go-between from rat to man. On his return to this country Rowland was engaged in an investigation primarily with a view to the improvement of methods of prophylactic inoculation against plague, and, during the years 1909 to 1914 published a number of papers on this subject in the *Journal of Hygiene*. The importance of these papers is not confined to their bearing on plague prevention; they concern equally the whole subject of vaccination against bacterial diseases, and are the most thorough and quantitative researches in this domain of immunology.

He had just about completed this investigation when war broke out. He at once volunteered his services, obtained a commission as lieutenant in the R.A.M.C., and in October, 1914, was sent to France in charge of No. 1 Mobile Laboratory. To the equipment of this he had devoted much ingenuity, and it served as a model for others subsequently sent out by the War Office. No. 1 Mobile Laboratory was attached to General Head Quarters, and for many months Rowland was occupied with general pathology and the discovery of typhoid carriers among the troops. The following year he was promoted to the rank of major, and in co-operation with the civil authorities and the Friends' Red Cross Unit, organized and carried out a house-to-house search for typhoid carriers among the civil population of the area of British operations.

In February, 1916, he proceeded to No. 26 General Hospital to take part in a comparative study of the various methods employed in the treatment of septic wounds. This inquiry was frequently interrupted by duties of more immediate importance, and it was whilst engaged in discovering carriers of the meningococcus that he contracted the disease himself.

Sydney Rowland was a cheery, erratic creature, with a vivid zest in life. He had a fine imagination, towards which he was not always sufficiently critical. He was courageous, impulsive, sensitive, generous to a fault, withal casual and thoughtless; but, in view of his many sterling qualities, his friends willingly put up with any shortcomings. He was a charming companion, and much beloved by those who knew him well. Especially he endeared himself to all those who had to work under him. He was a great favourite with children, and among those who will miss him most will be the many young people of his acquaintance.

C. J. M.

CAPTAIN G. S. HUSBAND, D.S.O., I.M.S.

In the casualty list published on March 6th was announced the death on service of Captain George Staunton Husband, D.S.O., I.M.S. He was born on November 17th, 1879, educated at Edinburgh University, where he graduated M.B., Ch.B. in 1904, entered the I.M.S. as lieutenant on February 2nd, 1907, and was promoted to captain on February 2nd, 1910. On August 8th, 1911, he was appointed medical officer of the 9th Bhopal Infantry. Before the war he was officiating in civil employ in the gaol department in the Punjab, and on November 29th, 1914, was posted to act as medical officer of the 69th Punjabis. Throughout the present war he had been serving in various theatres of war, and received the D.S.O. on June 3rd, 1916.

LIEUTENANT J. J. HARTY, R.A.M.C.

Lieutenant Jas. Johnson Harty, who died on March 5th, aged 37, was a native of Cork, and received his medical education at Queen's College, Cork. He took the diplomas of L.R.C.P. and S.I. in 1902, and that of F.R.C.S.I. in 1912. After practising in partnership with Dr. Crossley of Burnley, he succeeded Dr. Robertson at Colne about four years ago. He was honorary medical officer of the Colne Cottage Hospital, and a member of the Burnley Division of the British Medical Association. Dr. Harty took a temporary commission in the R.A.M.C. in September last and commenced his duties at Sheffield. He was selected for service in Mesopotamia, but illness prevented his going there. He had not been in good health for some time prior to his death.

Lieutenant-Colonel F. W. Hewitson, Canadian A.M.C.
Major H. Jones, Canadian A.M.C.

Wounded.

Surgeon F. G. E. Hill, R.N.
Captain A. P. Bluett, M.C., R.A.M.C. (temporary).
Captain C. O'Brien, R.A.M.C (temporary).
Captain E. A. Sanbrook, A.A.M.C.
Lieutenant A. Y. Dabgolkar, I.M.S.
Lieutenant D. P. Thomas, R.A.M.C. (temporary).

Erratum.

In the casualty list published on February 22nd the name of Lieutenant W. J. Pearson, R.A.M.C., was included in the list of wounded (BRITISH MEDICAL JOURNAL, March 3rd). On March 10th it was announced that Lieutenant W. J. Pearson was an officer, not of the R.A.M.C., but of the Royal Flying Corps.

NOTES.

HONOURS.

A SPECIAL supplement to the *London Gazette* issued on March 12th announces a further list of awards to officers and men for gallantry and devotion to duty in the field. The following medical officers are included: Temporary Captain Allen Coulter Hancock, M.C., R.A.M.C., receives a bar to the Military Cross; and Temporary Lieutenant George Cleverdon Hartley, M.C., R.A.M.C., attached to the East Surrey Regiment, receives the Military Cross.

FOREIGN DECORATIONS AND MEDALS.

A number of decorations and medals have been awarded by the allied powers to members of the British forces for distinguished services rendered during the course of the campaign, and the King has given unrestricted permission in such cases to wear the decorations. The following medical officers are among the recipients:

By the King of Serbia.

Order of Saint Sava: Major Herbert St. Maur Carter, D.S.O., M.B., R.A.M.C. (3rd Class); Captain Ryder Percival Nash, R.A.M.C. (5th Class).

Distinguished Service Medal: Temporary Captain Rainsford Heaton, R.A.M.C.

By the King of Montenegro.

Silver Medal for Bravery: Temporary Captain Donald Orr Riddell, D.S.O., M.B., R.A.M.C.

By H. H. the Sultan of Egypt.

Order of the Nile, 3rd Class: Colonel James Fallon, A.M.S.

England and Wales.

THE report presented to the recent annual meeting of the Metropolitan Emergency Surgical Aid Corps stated that the rotas had been summoned twelve times, including a call to the scene of the explosion on January 19th, when 103 members responded to the call, of whom 53 were sent to the scene of the disaster. A naval section consisting of 12 chief surgeons, 43 surgeons, and 13 anaesthetists to assist naval surgeons to deal with wounded brought to any port in the United Kingdom, had been in existence nearly a year and was ready to answer any call the Admiralty might make. The corps now consisted of 238 members, and were distributed as follows: Naval Section 68, Military Section (Home Forces) 62, Metropolitan Police Section 108. Each section was equipped with a supply of all necessary appliances, and had at its disposal a fleet of motor cars, while the London General Omnibus Company kindly lent motor omnibuses and the Great Eastern Railway Company ran special trains when necessary. The metropolitan police had installed a private telephone wire at the head quarters of the corps, 1, Whitehall Street, W., and the War Office had provided an all-night attendant to receive and transmit calls.

he Council of the Royal Society of Medicine has adopted esolution in favour of legislation for the purpose of lering it a penal offence for any person other than egistered medical practitioner to treat or advise con- ning the treatment of venereal diseases, or to sell, ply, or dispense drugs as a remedy for these diseases ss the said drugs are supplied on the prescription of a stered medical practitioner, and only for the exclusive of the person for whom the said prescription was nded.

IEDICAL TREATMENT OF LONDON SCHOOL CHILDREN.

t the meeting of the Lond n County Council on ch 6th it was announced that medical and dental tment would be provided for school children on the s of 134,956 cases during the year now beginning; this l would comprise 26.400 eye cases, 12,980 ear, nose, and at cases, 2,026 ringworm cases, 25,790 minor ailments, 67,760 dental cases. At the end of 1916 the provision ally made was for the treatment of 115,990 cases at y-eight centres, and the attendance on the whole was sfactory. The number of cases treated in the throat artments had, however, been below the number pro- d for, and it was proposed to reduce accommodation his treatment at certain centres. Owing to the addi- al number of cases of other kinds five additional assis- organizers will be appointed as and when required. total cost of the medical and dental treatment in the t annual estimates for 1917–18 was £40,555, as com- d with £37,400 for 1916–17. The increase is made he assumption that certain of the new centres which e been sanctioned by the Board of Education but not established owing to the difficulty of acquiring suitable nises, would be opened in the course of the year. The ncil also accepted a proposal that it should co-operate the Borough of St. Marylebone Health Society in the nization of a dental centre for the treatment of lren under school age. An agreement is to be entered with the society for the treatment of 1,540 cases a ar.

Scotland.

FESSOR ALEXANDER GIBSON, M.B., F.R.C.S., Sir Donald Alister, M.D., Mr. A. Ernest Maylard, M.B., Dr. Henry old Scott, and Dr. John Tait are among those recently ed Fellows of the Royal Society of Edinburgh.

r. James Taylor, lecture table assistant to the pro- r in the chemistry department at Marischal College, deen, was presented with a cheque for £70 and a bly inscribed silver salver, on March 9th, to com- orate his retirement after forty years' service. Pro- r Soddy, in making the presentation, spoke of the rable work Mr. Taylor had done, and said that the subscribed by graduates, chiefly of the medical and ice faculties and the staff and students of the uni- ty, expressed their appreciation of it. Mr. Taylor owledged the presentation in a few suitable words.

rish councils in the Highlands and Islands seem to to go rather far afield to find medical officers. A cor- ondent has sent us a copy of the Allahabad *Pioneer* anuary 31st, in which the president N.R. Medical ciation advertised that a medical practitioner was ired for one of the Orkney Islands. The duties, it said, were very light, and there was a promise of a y of £300 a year and a free house. It is a far cry Allahabad to ultima Thule, and before undertaking journey it would be well for the applicant to make sure that he will find the duties congenial as well as .

ajor William Haig, M.B., R.A.M.C.T., attached Black Watch, who recently received the D.S.O., was public meeting at Crieff, where he practised, presented an address from the inhabitants enclosed in a silver et of old Celtic design. On the centre panel was an ription and on either side the crests of the Black ch and of Major Haig. Lieutenant Colonel Wyllie of 5th Black Watch, who was present, paid a tribute to r Haig's skill as a medical man, his sound common e, and his invariable cheerfulness. He believed that wonderfully small amount of sickness in the army, which was one of the marvels of the war, was largely due to men like Dr. Haig, who were in charge of the regimental work.

Ireland.

THE Local Government Board has recently refused to sanction the appointment of men eligible for military service to be in one instance medical officer of a dispensary district and in another locumtenent. It has also refused to sanction a war bonus of £50 each granted by the Oldcastle Board of Guardians to its three medical officers.

DANGER OF SMALL-POX.

Sir Joseph McGrath, Registrar of the National University of Ireland, in moving the adoption of the report at the annual general meeting of the Royal Dublin Society, referred to the lecture delivered before the society a short time ago by Professor McWeeney, M.D., in the course of which attention was drawn to the risk of an outbreak of small-pox in Ireland. During the decade 1831 to 1840 the number of deaths from the disease in Ireland was 58,000. In the following decade the number had fallen to 38,000, and it came tumbling down in succeeding decades, coinci- dent with the spread of the practice of vaccination, until 1907, when it entirely disappeared; and from that date to the present day there had been no death from small-pox in Ireland. That was a satisfactory state of affairs, but, unfortunately, both in Great Britain and in Ireland, owing to various loopholes in the law as to vaccination, a large proportion of the population was at the present time unvaccinated. The proportion of successfully vaccinated children, which in 1905 was 82 per cent., in 1913 was 61 per cent. This meant, as Professor McWeeney said, that should small-pox be introduced into Ireland—a by no means improbable contingency—the disease would find an abundance of totally unprotected individuals. It would thus gain in virulence and ultimately attack persons insufficiently protected by their primary vaccination. A dreadful calamity might thus ensue. Small-pox in its mild form was often difficult to recognize, and might readily be imported in the person of a prisoner of war. An outbreak of small-pox was stated to have recently taken place in Rhenish Prussia, and Sir Joseph said that he was informed that there had been several serious out- breaks of small-pox in other parts of Germany; in view of that it was of the utmost importance that Professor McWeeney's warning should have widespread publicity.

Correspondence.

GUNSHOT WOUNDS OF THE ABDOMEN.

SIR,—The very admirable articles on the above subject in the last issue of the JOURNAL have called to my mind the surgical procedures which were in vogue some centuries ago, and which are set forth in the first work published in the English language on gunshot wounds.

The *Treatise of Gunshot*, by Thomas Gale, was written in London in 1586. It opens with an ambitious poem by John Field, chirurgion, and devotes much space to prove that "gun-powder is not venimous, neither the shot of such hotnesse as is able to warme the flesh, much lesse to make an askar." As to "wounds with shot made in the third ventricle or bellie," Master Gale writes as follows:

> If the shot have pearced through the bellie, and have wounded either the stomacke, liver, splene, kidneis, intestines, bladder, or anie of the greate veines or arteries, then there is no hope of life to be looked for. But if the shot have pearced the bellie, and yet not wounded anie of the forenamed members, then the shot being taken out, there is some hope of recoverie. Therefore you shall labour to get out the shot, placing the patient upon the wound, and roll him from part to part, provoking thereby the shot to come to the orifice of the wound, then with a probe made apt and convenient for the same use, take out the shot.

It will be noticed that the procedure here adopted is identical with that employed by a child in its endeavour

to get a penny out of a money-box—namely, by rocking the box to and fro and by using a bent wire.

If rolling the man about failed to bring the shot to the orifice of entry Master Gale advised that he should be left alone, on the grounds that "there is great perill in long searching" and that "the aire doth alter the inwarde partes." He further gives this experience:

I my selfe serving at Muttrell, under the mightie and puissant Prince, Henrie the eight, about the yeare of Christ's incarnation 1544 had the experience of eleaven sundrie souldiours shot into the bodie, without pearcing of anie inward member, and I could not get out the shotte without greate difficultie and making incision, and therefore I letting the shotte remaine within the bodie, did perfectlie cure the patients and they lived long after without anie griefe.

According to the custom of the time, if any bowel protruded it was washed with red wine mixed with various septic substances before it was returned.

In the place of Dakin's solution Gale employed a mundificative or cleansing agent composed of oil of roses, turpentine, rosemary, "the herbe called horsetaile," wormwood, the lesser centaury, St. John's wort, plantain, and earth worms washed with wine.

Happy was the wounded "souldiour" who escaped the perils of the casualty clearing station in the days of Thomas Gale.—I am, etc.,

Richmond Park, March 11th. FREDERICK TREVES.

THE PROPHYLAXIS OF VENEREAL DISEASES.

SIR,—As my name has been mentioned by two of your correspondents in connexion with the discussion on Dr. C. J. Macalister's address at the Royal Institute of Public Health on January 31st, may I be allowed to reiterate the argument I used on that occasion?

That the connexion between immorality and venereal disease is not one of cause and effect is shown by the existence in other times and places of communities in which sexual vice was rampant and venereal disease non-existent. What applied to these communities applies also to individuals in our own community; apart altogether from the numerous cases of "innocent" infection, there is no close relation between an individual's standard of conduct and his (or her) freedom from venereal disease. As is well known, many ignorant and (comparatively) innocent youths contract disease the first and only time they "go wrong," whereas the libertine will often pursue his path with complete immunity to infection. This fact, that an act of immorality is not inevitably followed by disease, seems to me sufficient to refute the idea still so commonly encountered (implicitly if not explicitly), that these diseases play an ordained part in the punishment of wrongdoing.

But, it may be argued, granted that we abandon this conception of disease as a Divine vengeance, does there not remain the point that the fear of these diseases is a useful deterrent, and that their prevention would tend to encourage immorality? In reply to this, I should say, first, that I share the doubt, expressed by others, as to whether the fear of venereal disease is really sufficient to influence the conduct of many men and women. Since the outbreak of war I have given lectures to over 100,000 soldiers on this subject, and in attempting to encourage continence, I rely much more on other points than on the mere description of these diseases. Perhaps the chief value of such a description is that the hearers are less likely to neglect or conceal venereal disease, should they happen to contract it.

But even if the deterrent effect of the fear of disease be really great, is a "morality" thus dependent on a fear of physical consequences the type of morality aimed at by religious and ethical teachers? Surely not; the true sex-morality should be one based upon a proper conception of sex-relation and the spiritual (or ethical) advantages of self-control.

It is for these reasons that I advocate the prophylaxis of venereal disease as a legitimate branch of preventive medicine, to be pursued quite independently of possible effects on sex-conduct.

But, having said this, I am far from imagining that the spread of prophylactic knowledge throughout the civilian population would prove a decisive victory in the camp against venereal disease. I should regard it as a u advance, but equal or greater advances may be reasor expected from the educational campaign now in prog and especially from further diminution of alcoholi temperance, easily the most powerful ally of these dise The struggle against venereal disease is an arduous and surely it behoves us to neglect no weapon like help in securing victory.—I am, etc.,

London, N.W., March 12th. OTTO M

ROTATION OF THE LIVER ON ITS VERTIC AXIS.

SIR,—Mr. John Howell's valuable contribution to clinical history of "mobile liver" is of almost interest to the physician and to the surgeon. Owing unyielding attachment to the diaphragm and to the by means of the inferior vena cava, the liver ca wander far; it can only swing from that central suspen so far as its ligaments will stretch, either forwards slightly to the left or in rare instances backwards a the right. We are informed by Professor Arthur that the considerable rotation witnessed in this ca peculiar to the female sex (is this perhaps partly d the greater relative horizontal measurement of the fe liver?), and that it may be regarded as the result extreme prolapse. Mr. Howell's lucid description doe specify any descent either of the anterior edge or o posterior border (below which the lower half of the k could be felt). This suggests for the production o form of displacement a mechanism *à deux temps*: a liminary prolapse, to be followed by a steady upwards and to the right. But we are left witho explanation for the remarkable failure of all effor bring back the liver into its normal situation. It have been caused by adhesions at the back. If not, perhaps simply due to the supine posture keepin thick end of the liver tightly wedged in its dorsal pos

I venture this suggestion for what it may be Possibly in this and in similar conditions the left decubitus might sufficiently ease the right costal a enable the bulky right lobe to be raised into its ax site.—I am, etc.,

London, W., March 3rd. WILLIAM EW

THE OLDEST AGE OF PARTURITION.

SIR,—The following case may interest Dr. Fre Smith (March 10th, p. 349). Mrs. C. was born o 17th, 1865, married at 18, first child born whe was 19; she has had eleven children. I have att her in all but the first, the last child was bo December 16th, 1915, the mother being 50 years 7 months old. The baby is alive and well.—I am, et

Hitchin, March 12th. JAMES H. GILBERT

Universities and Colleges.

UNIVERSITY OF OXFORD.

LESLIE PEARCE GOULD, M.A., M.Ch., of Christ Church, (son of Sir Alfred Pearce Gould), has been elected Ra Travelling Fellow for the years 1917–20.

ROYAL COLLEGE OF SURGEONS OF ENGLAN

AN ordinary Council was held on March 8th, when Sir W Cheyne, President, was in the chair.

Licence in Dental Surgery.

Diplomas were granted to eleven candidates found qu at the recent examination.

Central Midwives Board.

The Council recorded their high appreciation of Mr. G Bird's services as the representative of the College on the Board during the past eight years. (Mr. Golding successor is not yet appointed.)

General Medical Council.

A vote of thanks was recorded by the Council to Sir Morris for his services during thirteen years as a Represe of the College on the General Medical Council. Mr. Waring was appointed in Sir Henry Morris's stead for th five years.

Obituary.

THE death of Dr. JOHN MORTIMER has caused widespread regret in Exeter. He had been in ill health for several years and recently had suffered very frequent attacks of angina pectoris, in one of which he died on March 9th, at the age of 61. He was the fourth son of Mr. William Mortimer, stockbroker, of Exeter. He was educated privately at Dawlish, and after matriculating at the University of London entered the medical faculty of University College. He took the diploma of M.R.C.S.Eng. in 1876 and graduated M.B.Lond. in the following year. He never seemed to seek academic distinctions, but there was always about him as a student an air of quiet efficiency, which remained with him through life, and was one of the secrets of the conspicuous success he attained in practice. After acting as a house-surgeon to the West London Hospital and resident medical officer to the South Staffordshire Hospital, he returned to his native city between thirty and forty years ago, and entered into partnership with Mr. Alfred Steele Perkins. Although he held the appointment of consulting surgeon to the Exeter Dispensary, he was throughout his life a general practitioner who combined with a shrewd knowledge of mankind a keenness of intellect which enabled him quickly to make himself acquainted with all new doctrines in medicine, and a well-balanced judgement to appraise their value. He early attained a commanding position, and for many years enjoyed the leading family practice in Exeter. Tactful, charitable, and tolerant, he could be sympathetic or severe as occasion required. He was for a number of years medical officer to the Devon County Prison, and on several occasions his capacity and judgement were severely tried while holding that office. He was also examining medical officer to the Devon Constabulary and medical attendant to the head quarters staff. He married some eleven years ago, and his widow and one child, a daughter, survive to mourn a loss in which many friends far and wide will deeply sympathize with them.

IT is with deep regret that we record the sudden death, on February 27th, of Dr. R. B. SMYTH, Medical Superintendent of County Asylums, Gloucester, at the early age of 45. He came of an old Ulster family, and his father and surviving brother, who are also members of the medical profession, are at present in practice in Belfast. He was educated at Uppingham and Trinity College, Dublin, and graduated M.A., M.B., B.Ch., B.A.O. in 1893. In the following year he became clinical assistant at St. Luke's Hospital, and in 1895 was appointed assistant medical officer at the Gloucester County Asylum, becoming superintendent of that institution on the death of Dr. Henley in 1908. From the outset he won the entire confidence of his committee; his affection for his patients and the extraordinary interest he took in their individual welfare were at all times predominant. Dr. Smyth was a keen follower of all kinds of outdoor sport. A steady batsman and a good captain, he did much for cricket in the asylum; he also in his younger days played regularly for the Gloucester City team. He was a good game shot and fly fisherman and a lover of dogs; at one time he was a breeder and exhibitor of Irish terriers, and on several occasions was the holder of the Irish Terrier Cup. He was a member of the British Medical and Medico-Psychological Associations. The funeral took place in Belfast; a short memorial service attended by members of the committee and staff was previously held in the asylum chapel. He leaves behind many to mourn his loss, and not least important among them are those amongst whom he lived so many years—his colleagues, his staff, and patients.

THE death of Dr. C. FRED. POLLOCK removes a familiar and genial figure from the ranks of Glasgow west-end practitioners. His loss will be deeply felt by a wide circle of old patients and old friends. His patients appreciated his professional skill and the tireless interest which he took in their welfare, and were comforted by his cheerful and reassuring manner. He was the son of the Rev. John Pollock, M.A., and was born at Baldernock in 1854. He received his early education in Glasgow Academy under Dr. Donald Morrison, and studied medicine in the university of Glasgow, where he graduated M.B., C.M. in 1880 and M.D. in 1882, and took the F.R.C.S.Edin. in 1884. He was also a Fellow of the Royal Society, Edinburgh. His medical appointments were—ophthalmic surgeon to the Royal Hospital for Sick Children, Glasgow, and the Central Dispensary, Glasgow; assistant physician City of Glasgow Fever Hospital; assistant to professor of physiology, Glasgow University; and assistant to pathologist, Glasgow Western Infirmary. In 1886 he published a book on *The Normal and Pathological Histology of the Human Eye and Eyelids*; in 1889 a work on *Leprosy as a Cause of Blindness*; and in 1885–6 *Aids to Ophthalmology*. Dr. Pollock was a well-read man, with a broad outlook on life. He was an enthusiastic and very proficient photographer and an excellent botanist. A skilful physician and a warm-hearted friend—his memory will be kept green in the hearts of those who knew him well.

DR. THOMAS BOOTH BRIERLEY, of Tattenhall, Cheshire, died on January 28th at the advanced age of 84. He was the son of the late Dr. T. B. Brierley and received his medical education at Queen's College, Birmingham, taking the diplomas of M.R.C.S.Eng. and L.S.A. in 1853; afterwards he held the post of assistant house-surgeon to the Queen's Hospital, Birmingham. He succeeded his father in practice at Tattenhall sixty-two years ago and had practised there ever since. He was for many years district medical officer and public vaccinator of the Tarvin Union. In August, 1910, he was appointed a Justice of the Peace for Cheshire and was a regular attendant at the petty sessional courts at Broxton. Dr. Brierley, who was well known and highly esteemed in Cheshire, did not adopt the motor-car habit, but attended to his practice with horses and on foot. He was a member of the Chester Division of the British Medical Association and was very active up to the time of his death; he seldom missed walking fifteen miles a day.

DR. W. GOODALL-COPESTAKE, who died on February 12th, was the youngest son of Mr. T. Goodall-Copestake of Kirk Langley, where he was born in 1836. After being educated at Repton School he was apprenticed to a doctor in the country, and after passing the matriculation examination of the University of London continued his medical studies at St. George's Hospital. He took the diploma of M.R.C.S. Eng. in 1858 and that of L.S.A. in the following year. After serving as house surgeon to the Derbyshire Royal Infirmary he joined the late Dr. Samuel Evans of Derby. Unfortunately he contracted an attack of typhoid fever, which invalided him for two years, and on returning from a voyage to Egypt he started practice in Duffield Road, Derby, where he continued his work until his retirement in 1909. He was formerly a member of Derby Choral Union, and for many years acted as honorary secretary to the Derby Orchestral Union; despite the numerous calls upon his time he cultivated his excellent musical talent, and was an expert performer on stringed instruments and a good vocalist. He was a member of the Derby Division of the British Medical Association.

DEPUTY SURGEON-GENERAL BENJAMIN WILLIAMSON, Madras Medical Service (retired), died at Durley, Camberley, on February 21st, aged 83. He was born on January 14th, 1834, the son of Dr. B. Williamson, and was educated at Marischal College, Aberdeen, where he took the degree of M.B. in 1854. Immediately afterwards he joined the army as an acting assistant surgeon and served throughout the Crimean war, being present at the battle of Inkerman and the siege of Sebastopol. After the war, he entered the I.M.S. as assistant surgeon on February 20th, 1856, becoming surgeon on February 20th, 1868, surgeon-major on July 1st, 1873, and brigade surgeon on January 1st, 1883; he retired, with a step of honorary rank, on January 27th, 1884. Dr. Williamson was the last survivor of the small number of officers of the I.M.S., some five-and-twenty, who had served in the Crimean war. There are at least eight retired officers of the Army Medical Department still living who served in that war.

Medical News.

COUNT GIAN GIACOMO DELLA SOMAGLIA, President of the Italian Red Cross, has been created a Senator of the Kingdom of Italy.

DR. A. L. J. MILLARD, physician to the Beaujon Hospital, Paris, who died recently, bequeathed nearly £30,000 for charitable and philanthropic purposes, mostly concerning the welfare of children.

IN view of the value of the rabbit as food, the Vice-Chancellor of the University of London has given instructions that it shall not be used in practical examinations in zoology for science students or in general biology for medical students during the period of the war.

CAPTAIN S. R. DOUGLAS, I.M.S. (retired), contributed to the last meeting of the Zoological Society of London an account of the results of an experimental investigation of the migration of woodcock breeding in the west of Ireland, showing that there had been an increase in the number so breeding.

THE report of Mr. J. W. Ogilvey, honorary secretary of the microscopical section of the Young Men's Christian Association, shows that the work in military camps and hospitals has been developed during the last quarter of 1916; seventy-three exhibitions were held and twenty-two lectures given. The subjects treated covered a very wide field, and included demonstrations of bacteria and spirochaetes.

THE first general meeting of the Medical Women's Federation is to be held at the house of the Medical Society of London, 11, Chandos Street, W., on Friday next, March 23rd, at 3 p.m. After a statement as to the history, aims, and objects for which the federation has been made, a resolution will be submitted expressing approval of the project; officers will be elected, and suggestions as to an annual medical meeting discussed.

AT the meeting of the Section of Balneology and Climatology of the Royal Society of Medicine on March 8th Dr. Fortescue Fox showed a number of mensuration instruments used at the Red Cross Clinic for the clinical treatment of disabled officers. They included protractors and arthrometers from the Grand Palais Hospital in Paris, as well as Professor Amar's arthrodynamometer and his cheirograph for measuring feeble pressure of paralysed hands. The exhibit also included goniometers and a torsion-meter designed at the clinic for measuring pronation and supination. Dr. Sonntag, medical officer to the clinic, exhibited an ergograph designed for estimating and recording the strength of muscular movements. Manipulation baths, which for the whole body can be used at about blood heat, or for single limbs at a much higher temperature (112° to 118° F.), were also described as useful in increasing the mobility of muscles and joints and improving their nutrition.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

LETTERS, NOTES, ETC.

THE PROPHYLAXIS OF VENEREAL DISEASES.

DR. JOHN R. GILLESPIE (Belfast) writes: Mr. Hugh Elliot, in his latest letter (BRITISH MEDICAL JOURNAL, February 24th, p. 280), appears to indicate his belief that the doctrine of punishment of the impenitent in a future life has been recently "exploded." That the doctrine was exploded almost 3,000 years ago is evident from Psalm xiv, 1: "The fool hath said in his heart, there is no God."

GAS GANGRENE.

DR. W. G. STEVENS (Renfrew) writes: Surgeon-General Sir G. H. Makins, K.C.M.G., C.B., in his Hunterian Oration reported in the BRITISH MEDICAL JOURNAL of February 17th, says that the "hospital gangrene" seen in the wars of the early part of last century did not in any way resemble the "gas gangrene" of to-day. In this connexion a few sentences from a report of a case in civil life, copied from *The Quarterly Periscope of Practical Medicine*, published October, 1827, seem interesting at the present time:

"Joseph Sparks, aged 15, was admitted April 16th, 1827, to St. George's Hospital, under the care of Mr. Brodie, for compound fracture of both bones of the left leg, occasioned by jumping over a ditch; the bones were broken at about the middle. . . . The limb was put up in junks and union of the external wound attempted. . . . On the 18th complained of severe pain. . . . On the 20th mortification had appeared, extending downwards to the foot and upwards to the knee. . . . Before proceeding to amputate, it was remarked that there was an emphysematous crepitation in the thigh. . . . At 4 p.m. the limb was removed a little below the trochanters. . . . He bore the operation well, and on its completion the anxiety of the countenance subsided remarkably. On waking at 8 o'clock in the morning of the 21st the jaw was seen to be locked, the tetanus became fully marked, and at 10 p.m. the poor boy died."

SUBCUTANEOUS EMPHYSEMA DURING LABOUR.

MAJOR J. PHILLIPS, R.A.M.C. (Bradford) writes: From time to time cases of subcutaneous emphysema during labour are recorded, and as in that described by Dr. Milne (BRITISH MEDICAL JOURNAL, February 24th, p. 262) it is invariably assumed that the rupture is thoracic. When I was house-surgeon at Leicester Infirmary in 1899 I saw two or three cases of surgical emphysema due to injury in the neighbourhood of the lacrymal sac. The rapidity with which in these cases surgical emphysema spread all over the face and neck when the patient used a handkerchief was very striking. In every case of emphysema occurring during labour in which the mode of onset is described the eyelids (usually one eyelid) is first affected, as in Dr. Milne's case. Surely it is easier to account for the condition by presuming that the thin mucous lining of the lacrymal sac has "gone pop" and permitted air to be forced into the subcutaneous tissues by forceful expulsive efforts from the nasopharynx than that the air has found its way up from the thorax to make itself evident first in the eyelids.

DR. L. J. H. OLDMEADOWS (Dartford) writes: When up country in Tasmania about twenty-three years ago I was called to a shepherd's wife in labour (primipara). She was aged about 20, apparently sound in every respect, and exceptionally well developed; she was much exhausted, had been in labour quite twenty-four hours; the head was presenting and well down through the brim of pelvis; pains were regular and strong. I had waited for about two hours when, after a strong pain, she cried out she could not see, and I found the whole of her neck and face, extending on to her chest, on the right side, was puffed up with a crackling emphysematous swelling; both the eyes, as the emphysema soon spread, were completely closed, and her features became unrecognizable; the emphysema spread down to the abdomen. I had no instruments with me, and I punctured the head of the child with scissors, when it was quickly expelled. The child was exceptionally large and well developed, weighing, I should say, quite 10 lb. I bandaged as well as I could the emphysematous parts of the chest for support, and left the woman pretty comfortable. I saw her next day. The emphysema had greatly decreased, and her general condition was good. I left the district the following day, and did not see the woman again. Having come to England I wrote about ten years afterwards, and found out the woman made a perfect recovery, had had four children since, no recurrence of the emphysema, and was in perfect health. She had no previous history of tubercle of the lung. I cannot account for the occurrence of this emphysema, which appeared to be due to a rupture of a bronchial tube or portion of the lung itself into the mediastinum.

HOLIDAYS ON HOME SERVICE.

BATTALION M.O. writes with reference to one of the points raised by "Bristol" in a letter published March 3rd, p. 313: Leave, while on home service, consists of five days a year, very grudgingly given. At the age of 49, if sick, I should not be allowed to go as convalescent for a single day to my own home. The relief for a sick medical officer is the sanitary officer, who is naturally not enthusiastic at piling your work on to his own. The morning work is a push against time, while the afternoon is very light—inoculations perhaps, at all events, no strain. If you are so much as two minutes late for morning sick, a message may come from the C.O.: "I must request you to be punctual on your parade." You are cut off from your family as completely as though in Salonica. I had seven months in Malta, and the sensation of being right away from them is no greater there than here.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Memorandum

UPON

SURGICAL SHOCK AND SOME ALLIED CONDITIONS.

ISSUED BY

THE MEDICAL RESEARCH COMMITTEE

(February 27th, 1917).

THE phenomenon of oligaemia—or reduction of the volume of the blood in effective circulation—has figured prominently in the theories of surgical and traumatic shock (due, in the main, to American investigators) which have been current during recent years. There is no need to emphasize the importance at the present time of this condition, or that of the acute circulatory failure, similar to this in so many respects, which characterizes some of the graver forms of infection and toxaemia. Information has reached the Medical Research Committee concerning some separate experimental inquiries into these conditions which are at present in progress on behalf of the Committee, and which promise to throw light on the production, by causes which have so little immediately obvious connexion with one another, of these groups of symptoms having so many points in common.

It appears to the Committee most desirable that clinical observations, bearing on the importance of the different suggested factors in the genesis of shock and allied conditions, should proceed concurrently with the further experimental investigations. They have, therefore, with the consent and aid of the investigators concerned—to whom they are greatly indebted—prepared the following preliminary notes for circulation among those having opportunity for clinical observation, and they have ventured to add some suggestions for the practical application of the results already gained, which seem to them worthy of attention and trial.

I.

H. H. Dale and P. P. Laidlaw, whose primary object was a closer analysis of the shock-like phenomena produced by injection of various protein and bacterial poisons, of the sensitizing antigen into an anaphylactic animal, etc., resumed, in the first instance, their examination of the action of the base β iminazolylethylamine ("histamine"), the shock-like action of which they described some years ago. Taking readings of the haemoglobin value of the arterial blood with Haldane's haemoglobinometer, or of the percentage volume of corpuscles in the blood with a haematocrit, they find that the profound fall of blood pressure produced by this substance is accompanied by a striking concentration of the blood, amounting in some cases to a loss of one-half the original volume of plasma in about five minutes. The liver appears to be the organ most actively concerned in this reduction of the plasma volume; but it is not exclusively responsible, for the phenomenon occurs, though less regularly, when the drug is injected after exclusion of all the abdominal viscera. The concentration is apparently effected not merely by loss of water and diffusible constituents, but by the passage into the tissues and lymph spaces of all the plasma constituents, since the protein content of the plasma does not rise in proportion to the reduction of volume.

If an animal, moribund from this type of shock, is opened, it is found that the heart is executing muscular beats of moderate vigour, although the arteries are pulseless. The veins are not distended, and the great veins fill only very slowly from the periphery if clamped. A large part of the blood, in fact, has disappeared from effective circulation, and the weakness of the heart-beat is due to defective inflow from the veins.

The condition cannot wholly be explained by the loss of plasma volume above described, for Dale and Laidlaw have several cases on record in which the drug produced a "shock" of some severity, with the general signs of oligaemia as above described, but with no loss of plasma, as measured by concentration of corpuscles, or a loss so small as to be quite inadequate to explain the effect. They further regard a loss of tone of the smaller arteries as insufficient to account for the extreme circulatory depression (the still incomplete evidence points rather to these being *constricted* in these circumstances), and provisionally attribute the shock in the first instance to a widening of the whole capillary area in the viscera and the musculature. The active contractility of the capillaries has been frequently described, and important evidence of its existence in man has just been provided by Cotton, Slade, and Lewis (*Heart*, 1917). Dale and Laidlaw suppose that, under the action of the poison, the capillary tone is lost, so that, the blood from the arteries being diffused and stagnant among the slack capillary channels, the quantity of blood reaching the veins is inadequate for the filling of the heart. The cardiac output falls in consequence to a very low level.

An attempt will be made to test by direct experiment this hypothesis of circulatory stagnation as the result of general loss of tone of the capillaries. About the main fact—that there is a depletion of the macroscopic vessels both on the arterial and venous sides—there can be no room for doubt; and it will be obvious how this deficiency of blood volume, relative to the total capacity of the system, will be aggravated by the direct reduction of the blood volume, owing to loss of plasma into the tissue spaces which usually accompanies it. The already sluggish circulation will be further impeded by the increase of the viscosity of the blood, mainly due to the increase in the proportion of corpuscles to plasma. This change of viscosity has been directly observed by Trevan (*vide infra*). The slowness of the capillary circulation, again, through the muscles and other tissues needing a plentiful supply of oxygen, will lead to defective oxidation, with resulting acidity, and so to a further tendency for passage of water by osmosis from the blood, as suggested by Henderson. Lastly, the fall of arterial pressure, owing to defective filling of the chambers of the heart, and the increased viscosity of the blood, will so reduce the rate of the coronary circulation as eventually to interfere with the nutrition and oxygenation of the heart muscle itself. It will be seen, therefore, that when once the described condition is established, a series of "vicious circles" is set up.

The determination of the change of plasma volume from haemoglobinometer readings may be illustrated by an example. From a cat (under ether) an initial sample of arterial blood gave a haemoglobinometer reading of 80 per cent. When the profound shock produced by intravenous injection of 10 mg. of the biphosphate of histamine (about 3 mg. of the base) had fully developed—that is, about seven minutes after the injection—a second arterial sample gave a haemoglobinometer reading of 120 per cent. In order to translate these values into relative volumes of corpuscles and plasma, we must know the initial ratio of these volumes, and assume a constancy of haemoglobin content in the corpuscles. The haematocrit showed that the corpuscles originally occupied one-third, and the plasma two-thirds of the blood volume, which is a normal ratio for a cat. The rise of the haemoglobinometer reading from 80 to 120 per cent. must be taken to indicate an increase in the proportional volume of corpuscles in the same ratio. So that the percentage of corpuscles has risen from 33.3 to $33.3 \times \frac{120}{80} = 50$. If the volume of corpuscles has remained constant, this change of proportion indicates a fall of plasma volume from 66.6 to 50 per cent. In other words, the plasma, which originally occupied twice as great a volume as the corpuscles, now occupies a volume equal to that of the corpuscles, so that one-half of the plasma has disappeared from the circulation. A haematocrit determination on the second sample actually showed the corpuscles and plasma occupying equal volumes, so that the assumption of a practically constant haemoglobin content in the corpuscles was justified. The only means, other than the loss of one-half of the plasma, by which such a change could be effected, would be a *doubling* of the number of red corpuscles in circulation, and it does not seem credible that this could occur in the course of a few minutes. It should be noted, further, that the arterial blood, on which the readings were made, represents a mixture of all the blood reaching the heart from the different organs. Blood taken from the portal vein, when the shock-like condition has been produced, shows an even greater concentration than that from the arteries; and even this portal blood contains an undue proportion of blood from those of the capillaries in the

splanchnic area in which the circulation is still relatively effective. It must be supposed that in many the vanishing arterial pressure is no longer able to maintain a circulation, so that the blood in them is stationary and its concentration extreme.

Being impressed with the similarity of such a condition to surgical "shock," Dale and Laidlaw have made a short series of attempts to produce such a shock in anaesthetized cats by prolonged manipulation of the abdominal viscera, which, as Mann and others have pointed out, is the only method by which a traumatic shock can be produced in Carnivora. In two cases profound shock, with no tendency to spontaneous recovery, was obtained, and in both these such a rise of haemoglobin value was observed, concurrently with the onset of the shock, as to indicate a serious depletion of the plasma volume. In others a less profound shock was obtained, with a tendency to spontaneous recovery when the abdominal wound was closed and the animal left to itself under the anaesthetic; in these no significant change in the haemoglobin value was observed. In these cases, also, the manipulated bowels became conspicuously reddened and ultimately bluish in appearance, but the blood pressure could be temporarily driven almost to its original high level by compressing the whole mass of intestinal coils and so driving the blood out of their capillaries into the general circulation. In these cases, therefore, such shock as was obtained seemed to be due purely to stasis in the abdominal capillaries, as previously described by Mann.

Meanwhile, Captain Marshall, R.A.M.C., had commenced a series of observations in France on the haemoglobin content of the blood in the different classes of case met with in a casualty clearing station. The Committee understand that among Captain Marshall's observations are some on shock which support the view that loss of plasma into the tissues is an important factor in the condition.

II.

β iminazolylethylamine (histamine) was chosen by Dale and Laidlaw for this investigation as a pure substance, producing effects of the kind under investigation in exact dosage. Effects of the same general type are produced by many products of protein digestion, bacterial products, etc. Among such effects, those due to the so-called toxaemia of gas gangrene are of special importance at present. The resemblance between the symptoms of this condition and those of surgical shock, or of a severe haemorrhage, has frequently been described.

An investigation is now being carried out by H. H. Dale and J. McIntosh into the symptoms presented by animals dying after a local infection of the limb muscles by organisms of the gas gangrene group, isolated from material obtained from fatal human cases. The onset of a fatal shock-like condition in such experiments has again been found to be associated with a progressive rise in the corpuscular content of the blood pointing to a steady loss of plasma. It may be pointed out that such an effect was perhaps to be expected. The capillaries in the tissues surrounding the infected muscle are so affected that an enormous local outpouring of plasma occurs. Whether the general symptoms are due to passage of the infecting organisms into the general circulation, or to the absorption through the lymph channels of toxic products of the local breakdown of muscle, effects on the general vascular endothelium of a similar kind, though much less in degree than those produced by the concentrated local action, might be expected. A general loss of capillary tone and a morbid increase of permeability of capillary walls might therefore be expected to result from absorption into the general circulation of the fluids from the infected area. The evidence as yet available confirms this expectation, and suggests that there is a fundamental similarity of origin, underlying the similarity of symptoms, between the toxaemia of gas gangrene and other shock-like conditions. It must be remembered, however, that failure of the heart from any cause will be attended by some degree of blood concentration, if the process is sufficiently gradual. More work is needed before the significance of the phenomenon in these cases can be estimated with confidence.

III.

Concurrently with the foregoing investigations, F. A. Bainbridge and J. W. Trevan have been conducting an investigation into the genesis of shock by other means, and the same factor of concentration of the blood has presented itself in their observations. Their experiments hitherto have been mainly concerned with the effects on the portal and systematic venous pressures, and on the general distribution of blood in the circulation produced by repeated injections or by long-continued slow infusion of adrenalin. The inquiry was suggested by the fact, demonstrated by Elliott, Cannon, and others, that extreme emotion or severe pain, which are factors in some cases of shock, are accompanied by an outpouring of adrenalin from the suprarenal glands. Bainbridge and Trevan have injected adrenalin slowly into a systemic vein in anaesthetized dogs for twenty minutes or longer, at a rate sufficient to maintain the arterial pressure at a supranormal level comparable with that attained during moderate stimulation of a sensory nerve. During the injection the portal pressure rose to and remained at a high level, while the systemic venous pressure was not significantly altered, or even fell slightly. Meanwhile readings with the haemoglobinometer and the haematocrit showed a steady decrease in the volume of the blood plasma relatively to that of the corpuscles. In one case the haemoglobin value rose from an initial 95 per cent. to 129 per cent. Such a relative increase of corpuscular content would involve a large increase in the viscosity of the whole blood; an actual determination showed an increase of viscosity in the proportion of 6.8 to 9.1.

When the injection of adrenalin was stopped, the arterial pressure rapidly fell to a low level while the portal pressure remained high, and the animal passed into a condition of shock, with feeble pulse and shallow respiration. The relation of the portal and systemic venous pressures indicated an obstruction of some kind to the flow of blood through the liver. This was made further evident, in the later stages of the effect, by the striking turgidity of the liver itself. If the flow of lymph from the thoracic duct was recorded, it was observed to undergo a striking acceleration, as the obstruction in the liver developed in consequence of the infusion of adrenalin. The nature of this obstruction is not yet clear, and will be the subject of further investigation. Its effect, especially after the cessation of the inflow of adrenalin has allowed a dilatation of the splanchnic arterioles, is a collection of a large part of the blood in the congested splanchnic area. When to this is added the steady loss of fluid from the blood by exudation into the tissues, it will be seen that the final result, as regards the activity of the heart and the general circulation, will be closely similar to that described above in connexion with Dale and Laidlaw's experiments. The failure of the output of the heart from defective venous inflow, due to reduction of the volume of blood in effective circulation, leads to a profound collapse of the arterial pressure; the loss of plasma into the tissues not only aggravates this defect of volume, but, by increasing the viscosity of the blood, further retards such flow through the capillaries as the low arterial pressure could otherwise maintain; and this retardation yet further checks the venous inflow to the heart. The blood travels very slowly round the body under such conditions, and the supply of oxygen to all the tissues becomes inadequate. This inadequacy is accentuated by defective oxygenation of the arterial blood, which remains dusky in colour even with artificial respiration.

IV. *Some Practical Suggestions and Inquiries.*

(A) The point of most novel interest emerging from the above notes is the importance which the different sets of workers attribute to loss of plasma into the tissue spaces, as a factor in the production of the circulatory failure. The presence of such a factor was suggested by Henderson, Mann, and others, but its extent and significance have hitherto been rather vaguely indicated. Such loss of fluid from the blood, causing both deficient volume and excessive viscosity, has for some time been clinically recognized as an essential factor in the collapse occurring in conditions like those of cholera and bacillary dysentery, in which the fluid is lost through more obvious channels.

It is here suggested that clinical observation on changes in plasma volume in traumatic shock, post-operative shock, and the toxaemia of gas gangrene may yield valuable information. The only instruments clinically

applicable to the detection of such changes are the haemoglobinometer and the haematocrit. It will be evident that the interpretation of such observations will be a more complicated matter than that of results obtained under the controlled conditions of experiment; for an estimate of the plasma volume by these methods depends on the assumption that the volume and haemoglobin content of the red corpuscles remains constant. It cannot, for example, be expected that a loss of plasma occurring in shock consequent on an extensive wound, with much haemorrhage, will be accompanied by an absolutely high haemoglobin value or haematocrit reading. Again, in a protracted case of toxaemia from gas gangrene, the observation will be vitiated by the probability that, though plasma may be draining from the vessels into the tissue spaces, a coincident destruction of red corpuscles is taking place. It is hoped, however, that a careful selection of suitable cases for observation, and attention rather to change of the corpuscular content, as shown in a series of observations at short intervals, than to the absolute initial value, will enable information to be obtained as to the significance of this factor. It may be suggested that cases of traumatic shock without serious haemorrhage, of post-operative shock, of intestinal obstruction, of extensive burning, of anaphylactic shock, and of the rapid, fulminating type of toxaemia from gas gangrene, are likely to give relatively uncomplicated data for this purpose.

(B) The experimental results suggest that the removal of blood from effective circulation may be brought about in more than one way. It would be of interest to know whether different types of shock can be clinically recognized; in particular, whether a type with circulatory obstruction in the liver, as shown by swelling of this organ and congestion of the portal vein and its tributaries, can be differentiated from a type without this feature; and, if so, whether the nature of the primary cause of the shock has any relation to the type produced.

(C) *Prevention.*—If shock is, indeed, due to oligaemia, its many points of similarity to the collapse produced by a dangerous haemorrhage need no explanation. It will further be obvious that an antecedent haemorrhage, insufficient in itself to produce collapse, may be an important factor in the subsequent onset of shock, in so far as this condition is due to defective volume, apart from increased viscosity of the blood. The normal reaction to a simple haemorrhage, of sufficient severity to diminish the output of the heart and lower the blood pressure, consists in the abstraction of fluid from the tissues until the volume of the blood is again adequate to maintain the cardiac output. Dale and Laidlaw find that a similar dilution of the blood normally accompanies, and tends to correct, a fall of pressure due to arterial dilatation. In shock, according to the indications of the experiments already described, this restorative reaction fails completely and fluid continues to pass from the blood, though the arterial pressure has fallen to a very low level. It will be evident, therefore, that, when shock is already imminent, a relatively small haemorrhage may have a serious influence in determining its onset. Any other causes tending to diminish the blood volume, such as fatigue, exposure, or prolonged abstinence from food and water, may be expected to predispose to shock for a like reason. Mention should be made also of the possibility that measures preparatory to an operation in hospital, if they include free saline purgation and severe abstinence from food and water, may contribute to the danger. Cases for urgent operation must constantly present themselves to the military surgeon in which the antecedent conditions are those mentioned above as tending to depletion of the blood volume, and therefore predisposing to shock. A free supply of fluid, by infusion of physiological saline into the rectum or the subcutaneous tissues, as already used by many surgeons, may be expected to have a special preventive value in such cases. The indications, however, are that such measures, to have any value, must be begun before or early in the operation. When once the condition of shock has been developed, physiological saline, or Ringer's solution, even if injected intravenously in large volume, appears to have a very limited and temporary value; for the diluted plasma passes with increased rapidity through the slack and permeable walls of the capillaries, and the fluid leaves the circulation almost as quickly as it is run in.

(D) *Treatment.* Unfortunately, little can be said as yet as to the treatment of shock and allied conditions when once developed. Suggestions only can be made of measures which may be tested with possible advantage and without danger. It is hoped that further experiment may warrant more positive recommendations at a later stage. Pituitary extract causes a prolonged and general contraction of the arterioles, and thereby diminishes the total capacity of the circulatory system and mitigates the effect of deficient blood volume. The tendency of adrenalin to produce obstruction to the circulation through the liver, as described above, makes it probable that the use of this substance would, in some cases, eventually aggravate the condition which it was designed to cure; its action is, in any case, so fugitive as to be of little value. The action of pituitary extract is free from both these drawbacks; its value in some cases is already well recognized, and, with the ordinary measures for restoring and conserving the body temperature, needs no further mention.

The failure of injections of physiological saline in fully developed shock has already been mentioned. Experiments already made seem to indicate that better results might be obtained by the use of intravenous injections of hypertonic saline, the value of which in the treatment of cholera and bacillary dysentery is already familiar. Whether the action of these is entirely due to the passage of water into the vessels by osmosis, or in part to a restorative effect of the hypertonic solution on capillary tone, is not clear. In this connexion it may be recalled that calcium ions have been found to have a specific action in reducing abnormal permeability of capillaries (cf. Wright; also several papers from the Vienna school). It seems reasonable, therefore, to suggest that a fluid representing a concentrated Ringer solution should be used, rather than one in which only the proportion of sodium chloride is increased. The following formula might be tried:

Sodium chloride	2 grams
Potassium chloride	0.05 gram
Calcium chloride	0.05 ,,
Water...	100 c.cm.

and the value of increasing the relative calcium content beyond this proportion might cautiously be tested.

The deficient oxidation occurring in any condition of circulatory failure will lead to an abnormal acidity of the tissues, and thereby tend to raise the concentration and viscosity of the blood in the capillaries. Administration of alkalis should therefore help to relieve the condition, and injections of sodium bicarbonate, as recommended by Wright for the treatment of gas gangrene, should form a valuable addition to large injections of a hypertonic saline mixture. The limited solubility of calcium bicarbonate makes it advisable to give the bicarbonate solution as a separate injection. Hogan and Fischer recommend the following formula for an alkaline hypertonic saline:

Sodium chloride	28 grams
Sodium carbonate (crystalline)	20 ,,
Distilled water	2 litres

Bayliss recently drew attention to the importance of the factor of viscosity in solutions used to replace blood lost by haemorrhage. He considered that gum acacia was a suitable substance to add to saline for such purposes as imparting the requisite viscosity, and as being a colloid with a definite osmotic pressure. Hogan and Fischer, on different theoretical grounds, have recommended the addition of 2 per cent. of gelatine to a saline solution for intravenous infusion. It will be evident from what has been said above that the aim in treating shock should be to restore the volume of blood in effective circulation and at the same time to reduce the abnormal viscosity. While, therefore, a small addition of gum to the saline fluid used for injection may be valuable, the proportion of 7 per cent., suggested by Bayliss, as bringing the viscosity of the saline up to that of normal blood, would be unduly high. An addition of 2 or 3 per cent. of gum acacia to the saline solution above suggested might be tried; but it will be possible to make more definite recommendations when there has been time for experiment with solutions of different formulae.

The defective oxygenation of even the arterial blood, in experimental shock as above described, suggests that inhalations of oxygen may have some value in these conditions.

MEDICINE IN MOROCCO.

BY

ARTHUR TACQUIN, M.D.,

BRUSSELS.

In the Middle Ages medicine, arts, and sciences had attained a high degree of splendour in Morocco. The town of Fez, capital of the empire, was considered to be the centre of civilization; the learned of the then known world met there to work in the great university, the library of which was renowned. It contained translations of the Greek authors, such as Galen, Hippocrates, Paul of Aegina, etc. Illustrious physicians such as Avenzoar (1161) and Averroes lectured there and were held in universal repute. Since then the sciences have remained stationary in Morocco, which has kept itself obstinately closed to all outside progress, so that the medicine of the natives is now only an echo of the medical art of the tenth century mingled with gross superstitious and other practices. At the great University of Fez which had thousands of students, no science, not even astronomy, held of old in such honour in the Mussulman world, is now taught. The only teaching is in theology, the interpretation of the Koran and Mussulman laws. Astrologers, soothsayers, and sorcerers teach the art of forecasting the future, casting horoscopes and seeking for buried treasure. The French Government would certainly do a useful work by raising from its ruins the celebrated University of Fez and establishing courses of lectures to be given by Algerian Arab professors. In this it would find a powerful means of civilization for the Moors, who still retain a great respect for the intellectual centre of Fez.

At the present day medicine is practised by native healers called *tabibs*, who are believed by the Moors to possess wonderful supernatural secrets for the cure of diseases, but they hold European doctors in high esteem. A certain number of these *tabibs* hold certificates and diplomas given to them at Fez by masters who have judged them to be sufficiently instructed. They then scatter through the country, going about from town to town, and installing themselves in the market place in tents, where they sit surrounded by strange drugs. Some of them have a little knowledge and can read, but the others are utterly ignorant. In general their treatment is harmless; there are some, however, bold enough to amputate, to do laparotomy, and to operate for cataract.

Minor Surgery.

The native doctors practise bleeding and wet cupping apply sutures in haemorrhage, and open abscesses. In wounds of the intestine caused by the use of the knife they have recourse to a curious method of suture. The lips of the intestinal wound are pinched by an ant called *Agrab terbioun*, whose abdomen is then cut away, the mandibles remaining closed (*Agrab* in Walloon means a clasp or clip). The actual cautery and bleeding as well as cupping are held in great honour. The *tabibs* know the use of splints and starched bandages for fractures. The fragments are reduced and massage has been employed from time immemorial. Ruptures are kept up by means of very ingenious bandages. Lastly, they practise urethral catheterism and perform circumcision. Their knowledge of dentistry is summed up in the extraction of teeth and the application of dressings in cases of caries. The obstetric art is in the hands of ignorant and dirty midwives. They do not know the use of forceps or the vaginal syringe. They do not intervene in any case of abnormal presentation.

Principal Affections.

The principal affections met with in Morocco are those commonly found in temperate regions; the diseases peculiar to the tropical zone are for the most part unknown. Cholera (*Coulera—Bau Guelib*) was unknown in Morocco before 1834. Since then there have been numerous epidemics, sometimes of terrible intensity; that of 1878, for instance, carried away nearly three millions of inhabitants. From remote antiquity Morocco has periodically been devastated by terrible epidemics of plague (*Bou Kebar—Taoun—Habouba* or *bubo*) which generally follow periods of famine. In 1237 cannibalism was practised. It was always from the East that the disease was imported, after pilgrimages to Mecca. The ravages among the people were great. In 1791 there died at Marakesh 50,000 out of 60,000 inhabitants, at Fez 55,000, at Rabat 20,000 out of 30,000, and in the other towns in the same proportion. In certain villages only four inhabitants were left out of 600. Terror reigned everywhere; the Arabs awaited death with the fatalism of Islam, and bought themselves grave clothes. Many of the towns of Morocco never recovered from this disaster; their ruins still exist. Typhus fever is always present endemically, giving rise periodically to epidemics. In the Morocco campaign the French troops suffered from the disease. Malaria is found to some extent throughout Morocco, in the towns of the coast, in the valleys, near marshes and stagnant waters (*Merdja*). Certain river valleys are uninhabitable, and the ruins of abandoned houses may be seen in them. Sporadic recrudescences occur, and the disease seems to have increased in intensity since the last wars with the French. Natives and Europeans are equally attacked.

Syphilis (*El Nouar—Meura—El-Kebir*) rages in Morocco, and it may be affirmed that most, if not all, Moors have, or have had, syphilis or come of syphilitic parents. They speak of it as if it were no more than having a cold.

Native prostitution is very widespread. Arab and Jewish public women are counted by the hundred in the smallest towns, and Spanish, French, and Algerian prostitutes swell the number. All the towns of the coast and the interior are frequented by troops of French singing women, who combine art with prostitution. New French brothels have been established in the principal towns, and clandestine prostitution grows daily more widespread, especially at Casablanca. Pederasty is a vice held in great honour among the Arabs. In the Moor syphilis seems to be attenuated, its manifestations being confined to the skin, the bones, and the eyes. Nervous phenomena are rare; it is exceptional to meet with tabes or general paralysis. This statement does not hold good for Europeans who contract syphilis from native women. The attenuated virus transported into a new and immune culture medium takes on an extremely active virulence, and manifests itself especially by nervous symptoms which rapidly become serious. Many European residents are attacked. Gonorrhoea is also very common among natives and Europeans. It is generally accompanied by complications involving the testicles, joints, and eyes. In European women metritis and salpingitis are very common.

Leprosy has been known in Morocco from remote antiquity. It has always been endemic there. Leper houses have always existed, and lepers were obliged to wear a special dress and to shake a clapper to warn the public of their presence. The number of stray dogs in Morocco is vast; most of them feed on carrion, and hydrophobia is frequent, even among Europeans. Fortunately, the Government has ordered hecatombs of dogs and has created a Pasteur Institute. Among the other diseases found in Morocco may be mentioned elephantiasis, itch, psoriasis, prurigo, small-pox, diphtheria, measles, tuberculosis in all its forms, gastro-intestinal affections, pulmonary diseases, rheumatism, eye diseases, abscess of the liver, and affections of the kidney.

Mental disorders are very common. Mad folk are venerated. They are looked upon as possessing supernatural powers and are consulted in many circumstances. It is not uncommon in towns to meet with lunatics of both sexes completely naked, walking about the streets in perfect liberty and respected by every one. Only if dangerous are they shut up in filthy prisons, ill nourished, and without medical treatment.

Although the Koran strictly forbids Mussulmans the use of fermented drinks, the Moors addict themselves more and more to alcohol, and since the establishment of the Protectorate the example of the European tends to generalize the use of strong drinks throughout the country. In all the towns European cafés are multiplying. There the natives see foreigners at table on the terraces sipping the *apéritif* and various liqueurs new to them. The native Jews have always made wine and alcohol, and alcoholism has always been widespread among them. They extract alcohol from grapes, dates, and even from the Indian fig. A large quantity of spirits is also imported from Europe. The use of strong drinks is very widespread among the

higher classes of Moors. The Arab women passionately love alcohol. Cases of delirium tremens are frequent as a consequence of drinking impure alcohol mixed with aniseed. The evil consequences of these habits in a race already syphilized can readily be understood. It is therefore to be hoped that the French Government will do what is needed to check the development of this vice in its new colony.

The use of opium is very widespread. It is taken in the form of pills; it is also smoked with *kif* (cannabis indica). But the hypodermic syringe has already made its appearance in Morocco. The great majority of natives, including many women, are devoted to smoking Indian hemp, a habit which brings them to a state of utter brutishness. Means must be found to uproot this habit, which has a very bad effect on the mental condition of the natives. Before the coming of the French the Moors smoked tobacco very little; now the use of the cigarette tends to become general.

Premature impotence is common in the Arab as a result of the excesses to which polygamy leads; therefore the Moors make an immoderate use of all the known aphrodisiacs, and of the strongest condiments. The European doctors are pestered by impotent people who ask of them remedies to cure the affection which they call *El beurd*—that is to say, cold. The Germans have imported immense quantities of preparations, among which is *Johimbine*, which is found in the possession of most Arabs. The native doctors sell preparations which they declare to be of sovereign efficacy. Unknown to their husbands the women mix drugs with their food, and the effects on the health of the master are often serious.

Native Therapeutics.

Native therapeutics rest on no scientific foundation. The substances chiefly used are senna, euphorbia, aloes, colocynth, ipecacuanha, croton, centaury, mint, lavender, thyme, saffron, cinnamon, ginger, aniseed, cumin, caraway, rue, camomile, gall-nut, castor oil, sarsaparilla, asafoetida, and rhubarb. Among substances belonging to the mineral kingdom may be mentioned alum, corrosive sublimate, mercury, copper sulphate, sal-ammoniac, nitre, arsenic, petrol, sea-salt, oxide of iron, etc. All these substances are used in the manufacture of complicated formulae, the origin of which goes back to the night of time—old recipes transmitted from generation to generation.

Organotherapy plays a large part in native therapeutics. Thus they employ the suprarenal bodies in the treatment of certain eye diseases. Bates of New York has obtained good results with suprarenal extract in the treatment of kerato-conjunctivitis and episcleritis. They treat hydrophobia by making the patient eat the liver of the rabid animal. The Aissaouas, in order to make themselves immune against the bite of poisonous serpents, swallow the venom and devour the reptiles raw. The researches of Calmette on snake poison are well known. Extracts of testicle are used in the treatment of impotence; it is the theory of Brown-Séquard. It is clear that these methods of organic therapeutics come from the school of ancient Greece, Hippocrates, and other old physicians. Among the organs most employed may be mentioned the liver, the heart, the lung, the spleen, osseous tissue, bone marrow, fat, hair of the head and other parts, testicle, ovary, penis, ova. These organs are taken from many animals—horse, cow, sheep, dog, goat, gazelle, hyena, hedgehog, snake, cock, boar, scorpion, pig, frog, swallow, mouse, etc. Human fat is much sought after. Among secretions used are: Urine, milk, bile, faeces, semen, virgin's saliva, menstrual blood, biliary and vesical calculi. When a man wishes to excite love in a woman he gives her without her knowledge his semen mixed with sugar to drink. When a woman wishes to make herself loved by a man she mixes with his food love philtres made by sorcerers or healers who draw a good revenue from them. Poisoning is frequent in Morocco. Arsenic is much used; it is the cup of "bad coffee." This is why when an Arab offers tea to his friends he prepares it before them and drinks the first cup himself.

Without knowing it, the Arab physicians often practise antisepsis when they use hot tar, boiling oil, resin, henna, copper sulphate, salt, etc. On the one hand, suppuration is rare in the Arab, and on the other the sun is the great antiseptic.

There are numerous mineral springs in Morocco; some were known in the time of the Romans, and the Arabs still make large use of them.

When the *tabibs* wish to perform a serious operation they give their patient hyoscyamus. Thieves also mix this with the food of their victims before robbing them. The native doctors also employ nutmeg—in circumcision, for instance. Lastly, the anaesthetic effect of hypnosis is well known.

In addition to all these remedies, there is a therapeutic arsenal of religious character—incantations, magic spells, prayers, talismans, amulets, verses of the Koran, magical objects, precious stones, rings, strings of beads, earth from Mecca, water from the Agar well, etc. Finally, there are the innumerable marabouts, dead or living, whose influence is regarded as sovereign for the cure of disease. There are numberless tombs of saints to which sick folk go to invoke the shade of the dead man. These mausoleums are often covered with ex-votos. There are also old sacred trees, stones, and even old guns, which are credited with the power of curing certain diseases. The Arab women frequently make pilgrimages, sometimes in search of a cure for illness, sometimes of a remedy for barrenness which is generally due to the impotence of the husband. The prayer of these women is often answered, as the pilgrimage is a pretext for passing several days in the company of a lover.

Hygiene.

The Arab has his own notion of hygiene, which is usually the opposite of ours. In his home he is much cleaner than the native Jew, whose filthiness is inconceivable. Most Arab towns are provided with drains and systems of water supply, but their condition is deplorable. All the dejecta and decomposing refuse remain in the obstructed drains where there is no fall of water. The drinking water conduits are open, and in many places women are seen washing their linen and men making their ablutions in them. The fountains used in common by beasts and human beings are polluted; the street waters run into the wells, while the liquid matters from the drains reach them by infiltration. All the springs in the interior are polluted. The women do their washing in the spring itself; sheepskins are washed in it, and the people who dwell down stream drink this contaminated water. Filth lies everywhere about the streets and accumulates in enormous heaps at the gates of towns, rising higher than the embattled walls; on the foul charnel heaps the bodies of horses, cows, mules, and other animals rot, and dogs and flies dispute the remains. The charnel heap of Fez was a nameless horror. I have seen domestic animals still alive among the fleshless carcasses, for the Arab leads his dying beast there in order not to have to carry its dead body. Millions of flies, after sucking the infected juices from the dead bodies, scatter themselves about the town, where they swarm over foodstuffs exposed for sale and invade the houses. The Sultan when he goes out is accompanied by official fly-hunters, who keep on shaking cloths to protect the face of the august emperor.

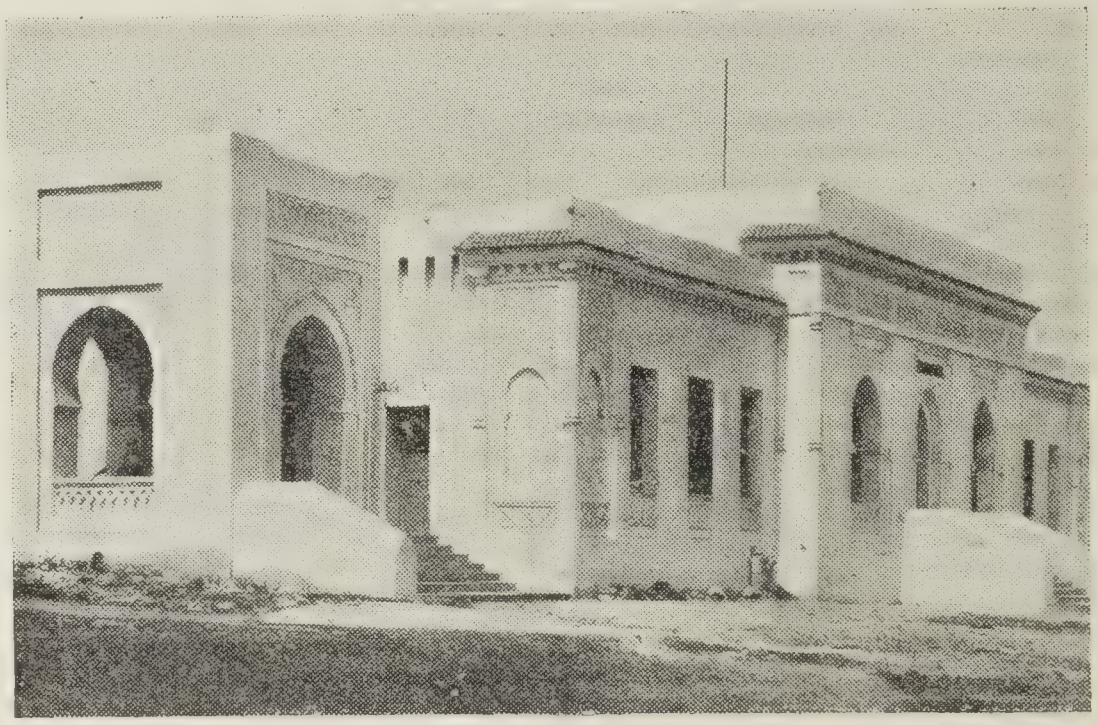
To sum up: the towns of Morocco are in general hotbeds of pestilence, their soil from time immemorial having been impregnated with all kinds of dejecta. The streets are narrow and winding, airless, crowded with people. In winter they are sewers, along which one can only go on horseback; in summer whirlwinds of dust arise to such an extent that at Marakesh, in the month of August, I have seen that dust as thick as a London fog. Moreover, the towns of Morocco are surrounded by high walls, which prevent the aëration of the streets. In short, these towns are uninhabitable by Europeans, and the French have built outside the towns superb dwellings, which are very healthy, and they have even constructed new towns, as at Marakesh.

The consuls and foreign settlers in Morocco have at all times made every effort to induce the Moorish authorities to take steps to remedy their sanitary conditions. In 1792 the consuls formed the *Junta de los consules* (Consular committee) at Tangier, which was the origin of the "maritime health council." The consuls were charged by the Sultan "to see to the safeguarding of the public health along the shore, and to take all steps to secure that object." The initiative of the consuls was, however, continually hampered by the ill-will or inertia of the

Moorish administrations. It marked some degree of progress for the coast towns, but the influence of the consuls did not make itself felt in the interior of the country, where the towns continued to be nameless sinks.

With the establishment of the French power in Morocco radical measures were at last applied. But the task was gigantic. On the one hand the French authorities have to struggle against ancient customs and prejudices and against the ill-will of the natives; local interests and susceptibilities had to be considered, and action taken gently and tactfully, for ancient customs could not be upset in a few days. There was, besides, religious sentiment to be considered and Mussulman fatalism to be fought against, for the native is convinced that all the epidemics and diseases which attack mankind are a manifestation of the will of Allah. Hence they are inclined to believe that measures of prophylaxis are opposed to the decrees of the Almighty.

In spite of all these difficulties the French authorities have already achieved immense progress, and, notwithstanding the war, important sanitation works are being pushed on with energy. Systems of drainage and water supply have been established in most of the towns; they are still defective, but the defects will be remedied. It has been necessary everywhere to remove enormous heaps of filth and to prevent the inhabitants from throwing their refuse into the street. Wide avenues have been opened in overcrowded and unhealthy quarters; squares, public gardens, and parks have been made and public fountains erected. The Jewish quarters have been as far as possible made sanitary. True European towns have been built outside the walls, as at Casablanca, Rabat, Marakesh, where the Guelliz quarter will prove a great development. New towns, completely European, such as Kenitra, have been founded. Improvement of ports is actively pushed on; a network of superb roads is in course of completion for use until railways are constructed. Fine public buildings, schools, hospitals, barracks, lazarettos, etc., are being built in all the towns. In short, under the impulse of French civilization Morocco is daily becoming transformed and metamorphosed to such a degree that travellers who return there after a long absence are startled, and in many places find themselves in a strange land.



New Hospital at Mazagan.

The scheme drawn up by the Protectorate Government is vast and well thought out. There is a "service of health and public assistance" with the following functions: Native assistance, general hygiene and prophylaxis, communal sanitary services, visitation of prisons and dispensaries for prostitutes, inspection of schools, judicial requisitions, future organization of the maritime sanitary service, special sanitary missions, assistance for Europeans in general. The "mobile medical formations" will undoubtedly render great service. The personnel of each consists of one or two doctors, two male nurses, and three drivers; and it is provided with six mules, one tent for consultations, one tent for the personnel, four panniers for medicines, six draw sheets, one dressing case, a miscellaneous assortment of drugs, three *chouaris* (large panniers carried by beasts of burden), six sets of harness. There is a centre at Rabat for the manufacture of antivariolous vaccine. There is also a Pasteur Institute for the treatment of persons attacked by hydrophobia.

The medical service of Morocco has decided on the creation of hospitals, lazarettos, isolation camps, shops for the supply of material and drugs, research laboratories, and lunatic asylums. There are already in most of the towns hospitals and medical dispensaries where natives receive gratuitous treatment. The hospital of Mazagan is a superb building, though it has defects from the practical medical point of view, since the architect's main idea seems to have been to erect a fine building. It would have been better to have built further outside the town, on the height overlooking the sea. Many indispensable things are still lacking, such as a radiographic apparatus, a completely equipped operating theatre, etc., and it is to be hoped that after the war the money necessary will be provided.

The native hospitals or dispensaries which exist in most of the towns of Morocco, principally on the coast, render invaluable service in the prophylaxis of syphilitic affections. In particular the numerous prostitutes who have now been placed under the supervision of the police are examined and treated there. Several of these dispensaries have medical women attached to the establishment. All natives who present themselves for consultation are treated.

The native hospital of Mogador is a model of its kind, and it has the merit of having been created with scanty means. The Arabs are fatalists, and to induce them to go into a hospital founded by "Christian dogs" it is necessary that they should receive a special welcome from persons who thoroughly understand their mentality and know their customs and particularly their language. The part of the head doctor is all-important and decides the reputation of the hospital among the Arabs. Dr. Bouveret, head of the Mogador hospital, speaks not only Arabic but the special dialect of the hillmen of the Atlas. He has succeeded in winning their confidence, and they come to the dispensary in large numbers, some of them from places many days' journey away. On admission the patient is bathed and disinfected; he is given clean clothes and is placed in an irreproachable bed, which is a novelty for him. He is taken care of by trained nurses, is supplied with abundant food, and accustomed as he is to the indifference and roughness of his co-religionists, finds all his needs gratuitously attended to. All diseases are treated at the dispensary and minor surgery is practised. It is particularly in antivenereal prophylaxis, which has to be carried out without delay, that the work of Dr. Bouveret is important, for he has been able without compulsion, which is always avoided, to induce prostitutes not only to submit themselves willingly to examination, but also to attend daily for an antiseptic vaginal injection. The happy effects of this rational treatment were soon seen among the men of the military garrison, where cases of syphilis have almost disappeared. When a woman is infected she is kept at the hospital and treated by the most modern methods. The very encouraging results obtained by Dr. Bouveret make enlargement of the hospital buildings necessary. The equipment needs to be considerably improved; there are also wanting indispensable things, such as a radiographic apparatus, a microscope, surgical instruments, operating table, etc.

Every day the Moorish natives feel more confidence in European methods of treatment, and when they have placed their trust in a doctor they never change. Therefore it is most necessary that the French authorities

should understand that the transference of doctors from one town to another when they were well known by a whole native *clientèle* greatly annoys patients. These moves, which are for the most part quite unnecessary, are calculated to hinder the spread of European medicine among the natives.

To sum up: The French Protectorate in Morocco has already made great progress in the sanitation of the new French colony, but much still remains to be done. It is quite competent to accomplish the considerable task which will be its work "after the war."

ON THE ORIGIN OF ELECTRIC CURRENTS LED OFF FROM THE HUMAN BODY, ESPECIALLY IN RELATION TO "NERVE-LEAKS."

BY W. M. BAYLISS, M.A., D.Sc., F.R.S.,
PROFESSOR OF GENERAL PHYSIOLOGY IN UNIVERSITY COLLEGE, LONDON.

DURING the last two or three years certain theories propounded by Mr. Arthur E. Baines have received considerable attention, and have been applied in practice by a number of medical men who have accepted these views. I propose to examine the scientific basis on which they are founded.

The basis of the system lies in the fact that, by leading off from different points of the body by means of silver electrodes, currents of various degrees of magnitude can be detected when the electrodes are connected to a very sensitive galvanometer of high resistance. In a case of shell shock, for example, a particular area of skin may give a large deflection compared with that normally obtained by holding the electrodes in the hands. This is called a "nerve-leak," and is interpreted as an escape of "neuro-electricity," or "nerve energy," from a place where the insulation of the nerve fibres has broken down, similarly to what happens in a submarine telegraph cable.

In the first place, we must remember that the animal body does not contain any metallic conductors; the conduction of an electric current is of a different kind from that in a wire. We must examine therefore the possible sources of potential difference, giving rise to currents, in such methods as those used by Mr. Baines.

The human body is a system of solids and liquids intermixed. The solids are, when dry, non-conductors, but become conductors when soaked with the solutions in which they are immersed. These liquids contain salts, and it is by means of the salts that the current is conveyed. Hence they were called by Faraday "electrolytes."

How is this done? When salts are dissolved in water they are split up into two or more atoms or molecular groups which have electrical charges of opposite sign. These products of dissociation are known as "ions," and the unit electrical charge carried by an ion is called an "electron." Electrons do not exist in such solutions free from the chemical atoms with which they are combined. In Mr. Baines's book, *Electropathology*, ions and electrons are said to be identical, and this fundamental error runs through the whole theory. Ions and not electrons are the source of electrical differences in the body and serve as the only means of conduction of electrical currents. This they do by their actual movement, conveying electricity much as a horse and cart carries stones. Being actual material existences and non volatile, they do not escape from the surface of the body to the air, as we are told that "nerve-leaks" do. Mr. Baines holds that electrolytic dissociation of salts in water is accompanied by an actual disintegration of the atoms themselves, by which free electrons are formed, as in the case of radium. No proof has ever been given that the salts actually present in the body do this. If it were so, the astonishing equivalence between the amount of energy supplied as food and that given out in various forms by the organism would not be obtained experimentally. This fact is one of the most significant results of modern physiology.

The body therefore is full of ions, but not of free electrons, and any explanation of electrical differences must be on this basis.

As a first step, let us see what happens when two places on the surface of such a moist conductor as the body is are led off by silver electrodes. We will suppose that the two places are at the same potential, and this is most easily obtained experimentally by taking a dilute solution of sodium chloride and immersing the electrodes in it. Now, unless the two electrodes are not only of the same metal, but also have their surfaces in precisely the same physical and chemical state, there will be found to be a potential difference between them. The exact origin of this potential difference would take too long to explain, and it is a somewhat difficult question, depending on the tendency of the ions of the electrode to pass into the solution or those of the solution to pass into the electrode; but in practice I have found it impossible to get two silver electrodes which are equipotential in salt solutions. I have taken the greatest care and spent much time in the attempt, but have never obtained less than 0.006 volt. This potential difference would give, with Mr. Baines's galvanometer through the ordinary dry skin, a deflection of just about the order of that regarded by him as the normal hand-to-hand effect. Since the deflection obtained by the use of such electrodes on the skin depends on the resistance of the circuit, if one of them be moved to a place where the skin is moist the deflection will be greater, and the greater deflection indicates no more than that the resistance is less. This is the first kind of "nerve-leak," and I would emphasize the fact that no test of the equipotentiality of the electrodes is made in Mr. Baines's practice. In any normal person it is quite easy to find areas where the skin is moist and to compare these with drier places, and it is an omission that so few tests for "nerve-leaks" have been made in normal cases.

The simple state of affairs just described, although always present, is, however, not the whole story. Since the source here is in the electrodes, it is plain that if they are reversed in position, so that the one previously on the right hand is changed to the left hand, and vice versa, the direction of the galvanometer deflection is unchanged, whereas if the galvanometer connexions are changed, without altering the position in the hands, the direction is reversed. This, indeed, is usually the case, but not always. In the latter case it is clear that there must be a source of potential difference in the skin itself, which overpowers that of the electrodes. This can only be investigated by the use of electrodes which do not themselves produce a potential difference when in contact with the skin; in other words, the so-called non-polarizable electrodes must be used. The contact with the skin is made by a salt solution similar to that of the tissues themselves. It is familiar to all physical chemists that such phenomena as those with which we are concerned can only be investigated by the use of such electrodes, but it is unnecessary to describe here the details of their construction. For the present purpose their more important property is that they can be made equipotential, or rather the one electrode has a potential exactly equal and opposite to that of the other, so that in use they give rise to no current. Mr. Baines gives a series of extraordinary objections to their use, based on his view of the importance of static charges and inductive capacity in phenomena of electro-physiology. I shall have occasion to discuss this point presently, and will merely refer here to the instructive photographs taken by Dr. Thomas Lewis with the string galvanometer, showing the distortions produced by metallic electrodes. They were published in the Proceedings of the Physiological Society in the *Journal of Physiology*, vol. 49, p. li.

The most obvious source of electrical changes in the skin is the activity of the sweat glands, long known to be accompanied by such effects. Moreover, Tarchanoff showed that all kinds of mental states produced localized activities of these glands. Shell shock and neurasthenic states are undoubtedly conditions of mental instability and easily induce activity of sweat glands. There may be also other sources of electrical changes in the skin in addition to this.

The explanation of electrical changes in cells is beyond the limit of this article; the most acceptable view is that they are due to the separation of the positive from the negative ions by the interposition of a membrane through which only one kind of the ions is able to pass. Thus we have a Helmholtz "double-layer," which can be best realized by the comparison of a field containing ewes and

lambs separated from another field by a fence through which only the lambs can pass. Just as the attraction between oppositely charged ions prevents either from leaving the membrane to any great distance, so the attraction of food and parental care prevents both the ewes and the lambs from wandering very far from each other, although on one side of the fence the lambs will be in the majority, on the other side the ewes.

At one time I was inclined to think that these areas of localized sweating might be connected in some way with Head's areas of referred pain, but further investigation showed that it was impossible to refer them to any definite lesions in the nerve centres.

We have, in any case, another kind of "nerve-leak" of a more distinctly physiological origin. It is, when metallic electrodes are used, associated with the first kind, and the result on the galvanometer is the algebraical sum of the two together. Without any further hypothesis, they are capable of accounting for all the results. But Mr. Baines holds that these results are to be explained by static charges and "inductive capacity." I have made numerous attempts to detect the production of currents by giving charges to insulated bodies connected by electrodes to the galvanometer and have failed altogether. Indeed, since the points led off must be equipotential whatever the magnitude of the charge given, it is difficult to see how currents could be produced. The charge, as Faraday showed, is situated on the surface and cannot affect processes going on in the interior of the body tissues. Static charge may, I hold, be rejected. What about "inductive capacity"? I found some difficulty in discovering how Mr. Baines imagines this to play a part. But, ultimately, it turned out to be this: The galvanometer deflection obtained from a patient is found to be very sensitive to the passing of electric trains, but, instead of looking for the cause in action upon the magnetic system, Mr. Baines attributes the deflection to currents induced in the human body which are being led off. This seems almost inconceivable in a skilled electrician, but no other evidence is given.

In Mr. Baines's theories there is a flow of what he calls "neuro-electricity" along nerves. This is stated to be a kind of ordinary electricity, so nearly the same that it passes as such around the coils of the galvanometer. If this be so, nerves, when cut and the ends placed in contact and insulated from the exterior, should conduct impulses, not of course giving rise to co-ordinate movements, but to movements of some kind. In point of fact, they do not, as is common knowledge. The source of this "neuro-electricity" is supposed to be the brain and by atomic disintegration. No proof of any kind is given, and, whatever may be the nature of the nerve impulse, it is certain that there is no continuous stream of energy, and all that we know points to its being connected with the concentration of certain ions at membranes.

I pass on to the method of treatment founded on the theory of neuro-electricity. This is the application of "dielectric oil," or similar preparation, which are supposed to act as insulators and thus stop the leaks. Not only are the nerve-leaks of shell shock cured, but also all inflammatory states, such as pneumonia and so forth. All living cells are stated to lose their "vitality" if deprived of their supply of nerve energy. That this is incorrect is shown in a striking way by the experiments of Clara Jacobson, who showed that wounds in a denervated limb heal quite as rapidly as those in a normal limb.

What is this "dielectric oil"? It is merely a good specimen of ordinary liquid paraffin; in fact, its insulating properties are rather inferior to those of a preparation which I obtained from Messrs. Hopkin and Williams. I have made a detailed investigation of the chemical and physical properties of various paraffins, but was unable to find any possessed by the "dielectric oil" beyond those of other commercial samples. More especially it is easy to show that it does not penetrate the skin. If it did so, the electrical resistance would rise. The electrical resistance does not change. Further, the dielectric oil loses the greater part of its insulating power by contact with salt solutions, as it must be in the skin and tissues.

There is no doubt that liquid paraffin is a pleasant dressing for raw wounds; it is protective, and to some extent excludes infection by micro-organisms. But it has no effect on the results of general infection.

In the attempt to explain the curative results obtained, apart from those obviously due to suggestion, it is necessary to bear in mind the great difficulty of avoiding the fallacy of concluding that a phenomenon which follows another in time is the direct result of the former one. Thus, when the temperature in pneumonia falls after the application of "dielectric" to the front of the chest, how do we know that the temperature would not have fallen without the dielectric? In any case, I cannot accept it as a proof of penetration *through* the chest that the bedclothes beneath the patient were found soaked with paraffin three hours after its application to the front of the chest. It is rather remarkable that, in Mr. Baines's list of the important properties of his "dielectric," that of low surface tension is omitted.

In conclusion, I might say that it would be unjust to blame those medical men who have adopted the theories of Mr. Baines. They deal with a very complex branch of physiological science, although it is not so complex as Mr. Baines would have it.

The net results of my investigations may be summed up thus:

1. Currents led off from various parts of the body by metallic electrodes are due to inequalities in the electrodes, together with differences in the activity of the skin glands.
2. Neither static charges nor induction plays any part.
3. "Nerve-leaks" are merely places where the skin is moist, and they give no indication of lesions in the nerve centres.
4. The view that "neuro-electricity" is generated in the brain and escapes from nerves owing to breakdown of insulation is devoid of evidence and contrary to the knowledge we possess of physiological processes.
5. My examination of Baines's "dielectric oil" leads me to conclude that it is ordinary liquid paraffin; that it does not pass through the skin and cannot reach any nerve or other internal tissue.
6. Treatment of open wounds by liquid paraffin has some justification in excluding air and perhaps bacterial infection. But it is not new. The results obtained have no relation to insulating properties, and the "dielectric" has no superiority in this respect over commercial samples.

OPERATIVE TREATMENT OF INJURY OF THE PERIPHERAL NERVES.

BY

J. RENFREW WHITE, M.B., F.R.C.S.,

TEMPORARY CAPTAIN R.A.M.C.

TYPICAL points of doubt and difficulty that present themselves to the surgeon in the treatment of cases of nerve injury may be grouped under the following heads: I, How soon after the reception of the nerve injury should an operation be performed? II, What are the indications for operation as derived from the study of the signs and symptoms? III, Points of difficulty and doubt as regards correct or best procedure and technique arising during the actual operation.

I.—THE INDICATIONS IN TIME FOR OPERATION.

All wounds caused by present-day projectiles, even those produced by rifle and machine-gun bullets that enter and emerge through tiny skin punctures, must be regarded as infected. The complication of a nerve injury by sepsis, or the involvement of a nerve trunk in a septic inflammatory process, appears to be fatal to that regeneration of nerve fibres which leads to and is the indispensable basis of the re-establishment of conductivity in the segment of the injured nerve and distal to it that clinically we designate "recovery." Neither the reason for this nor its pathological basis is far to seek; nowadays, when so many damaged nerves are being operated on, the former is again and again made clear by, and the latter exemplified in, the excessive production of scar tissue by the infective inflammatory process. This excess of scar tissue, with the different position or positions in which it finds itself produced, seems to act in different ways towards its one unfortunate end. These are as follows:

1. Scar tissue formed between the ends of a completely or incompletely anatomically divided nerve which have

retracted a variable distance, in this position acting effectively in preventing regeneration.

2. Scar tissue between the fibres or bundles of fibres of the nerve trunk, producing the typical spindle-shaped swellings of a localized interstitial neuritis. Here it may be the result of the organization of blood effused at the time of injury. This usually occurs in one or both of the ends of an anatomically divided nerve as well as in a damaged segment of a physiologically complete or incomplete lesion; or it may be the result of a slower and more gradual irritation and inflammation of the affected segment of the nerve.

3. When a segment has been more severely damaged by a projectile than a mere bruising, and yet not completely cut through, we may find the fibres and nervous structure of part or whole of its cross section replaced by scar tissue—complete or incomplete fibrosis of the nerve. At operation this part appears more opaque and of a smaller circumference, feels harder to the finger, and cuts harder to the knife than does normal nerve.

4. Scar tissue, whether organized blood clot, callus, or the usual fibrous product of infective inflammation, is very frequently found in considerable masses surrounding a segment of nerve. This affected portion itself may be the seat of no gross or macroscopic lesion except that in many cases the fibres will be degenerated. Indeed, it is often surprising how cleanly in the end it dissects out of such a mass. This scar tissue, either directly or possibly by interfering with the nutrition of the fibres, blocks conduction, often causes degeneration, and interferes with regeneration.

5. In some cases extraneural scar tissue is present not in the form of masses or bands from which the nerve dissects free, but in the form of perineural adhesions, strands of scar tissue which blend indissolubly with the perineurium. This seems to be the result of a septic cellulitis in the intermuscular plane in which the nerve lies. Such adhesions are often very numerous, extend over a considerable length of the nerve, and very effectively prevent, or at least render difficult, the process of nerve-stretching. In two cases, the most extreme instances of this form of perineuritis that the writer has noticed, the nerve itself having been cut through by a piece of shell, was in a state of subsiding acute inflammation—smaller in diameter than usual, red and congested, and with little trace of nerve bundles for a considerable distance up and down from the original lesion. Probably in these cases an acute septic neuritis, spreading up and down from the point of division, had accompanied the extraneural cellulitis. In another case the condition of perineural adhesions was complicated by complete fibrosis of the nerve, the posterior interosseous, well down to its point of distribution of motor fibres and up to and including the lower part of the musculo-spiral. Probably, also, this was the late result of such an acute spreading neuritis as we have just described. Probably, also, this combination of destructive fibrosis over a considerable length with extensive adhesions is the final pathological outcome in cases where sepsis follows an operation of resection and suture.

In most cases there is present a combination of several of these pathological conditions described. Any operation, then, on an injured nerve which is carried out through already infected tissues will only spread such mischievous processes up and down—up to what is normal and healthy nerve, and down to what is healthy though degenerated. Hence it becomes axiomatic that no operation should be performed on the nerve for the relief of paralysis, etc., in the presence in the tissues of micro-organisms. Even where the divided nerve presents itself in an open wound or is found during the course of an operation with other objective, steps taken to do more than suture temporarily the ends to prevent further retraction or remove any foreign body or piece of bone, etc., actually pressing on the nerve are contraindicated and unjustifiable.

How long, then, after the sound healing of the wound and disappearance of all scabs is it necessary that one should wait? It is well recognized that the mere healing of a wound gives no very dependable assurance, at any rate for some time, that micro-organisms are not latent in the tissues; especially is this true as regards the healing, which is often temporary, of sinuses due to the presence of foreign bodies or to caries and necrosis of bone. On the other hand, it is generally admitted that secondary suture of nerves should be carried out as soon as possible, and that the interval that elapses before it is performed has definite importance as regards the degree of success that may be expected as the result of the operation.

The question is one of considerable practical difficulty; it would seem that one must compromise between the two opposing desirables; but one may fairly safely conclude that there should be observed some definite relation between the "period of probation" of the healed wound considered desirable and decided on in each case, and (1) the depth and extent of the original wound, (2) the nature of the projectile that caused it, (3) the amount and character of the suppuration that ensued, (4) the length of the period of healing, (5) the presence in the tissues of further foreign bodies during this period, (6) the presence or absence originally of bony injury, necrosis, or caries.

There are very many cases of nerve injury where healing is almost indefinitely delayed and its period prolonged owing to original bony injury and infection—extensive or deep necrosis of bone, large cavities in bone, tunnels through bone with walls of necrosed or carious bone lined with septic granulations. In most of these direct operative interference for the cure of the nerve injury—unless this can be performed aseptically at a very safe distance—has to remain in abeyance for long periods, but treatment should be adopted as early as possible and made as radical as possible and as bold as is necessary for an early and rapid elimination of that factor in the injury which is responsible for the persistence of the suppurating track.

II.—THE INDICATIONS FOR OPERATION FROM CLINICAL SIGNS AND SYMPTOMS.

Complete Division.

Clinically, complete division may be either anatomical or physiological. This, however, is a difference that is not in the majority of cases diagnosable before operation. In some few cases—

(*a*) Where a previously recognized incomplete lesion has become clinically complete in the course of time;

(*b*) Where the clinical picture of "completeness" is associated with a palpable spindle, for example, in the case of the ulnar nerve behind the internal humeral condyle and where one can feel subcutaneously continuity between the spindle and the nerve trunk above and below;

(*c*) Where from the history of previous shooting pains or paraesthesiae which now have ceased—signs of incomplete division—one can deduce that the lesion has not been complete from the beginning;

(*d*) Where the track of the projectile is near, but obviously does not cross the path of the nerve—

the diagnosis of a physiologically complete division is possible. Although in the case of injury to the larger nerve trunks that fall into the groups (*a*) and (*c*) the condition may have been one of an imperfect or partial anatomical division, with a further later development of complete physiological division of the remaining anatomically intact part of the nerve trunk. In most cases, however, the diagnosis of complete physiological division cannot be carried so far.

How, then, should one treat a case presenting the picture of complete division, whether anatomical or physiological being unknown? If the lesion be an anatomical one, obviously the chance of spontaneous recovery is, to say the least, of the slenderest, if at all existent.

From a consideration of these points we would suggest, as a general guide, the following rules for the treatment of complete lesions.

When it is Not Known whether the Lesion be Anatomical or Physiological.

If it be unknown whether the lesion be anatomical or physiological, if there has been no sign of its becoming incomplete up to the end of the period of healing of the wound and of a further reasonable period of probation of the healed wound, operation should not be delayed, for one cannot be certain that the lesion is not anatomic, and if it be physiological, the lesion must be one in which spontaneous regression to recovery is unlikely.

When it is Known that the Lesion is Physiological.

If it be known that the lesion is physiological—that is, in all cases falling into groups (*a*), (*b*), (*c*), (*d*)—again operation should not be delayed beyond the periods of healing and probation, if during those periods the signs have not

regressed to clinical incompleteness; for in these cases what pathological conditions are conceivable that will, in their evil effects on regeneration and conductivity, be anything but stationary or progressive?

INCOMPLETE DIVISION.

Operative interference may be necessary and indicated in such cases for one or more of the following causes:

1. Where an incomplete lesion remains stationary after the wound has healed soundly and the disability remaining is serious or severe. Here, again, it would seem to be advisable to operate as early as possible for fear the lesion, incomplete though it be, is one in which there can be no chance of spontaneous regression and recovery.

2. Where an incomplete lesion is increasing in the severity of its clinical signs and the disability is serious from the beginning or becoming so.

3. Where after a nerve has recovered up to a certain point some serious disability remains.

The disability in these cases may be—

(*a*) *Motor.*—Paralysis of important muscles.

(*b*) *Sensory.*—Extensive protopathic loss in the foot or hand; extensive epicritic loss in the hand of a skilled manual worker.

In all these cases operation is all the more indicated, inasmuch as it is impossible to foretell the pathological condition present; it may be combined anatomic and physiological division, or severe fibrosis of a portion of the cross section of a nerve.

4. Because of persistent pain—for example, in causalgia—to give the patient relief; or for persistent hyperaesthesia or hyperalgesia which is severe and troublesome.

III.—DIFFICULTIES IN OPERATIVE TECHNIQUE AND PROCEDURE.

The chief objects to be aimed at in order to ensure an operation resulting in as complete a regeneration as possible—complete functional recovery depends as much on post-operative treatment as on operative—may be summed up as follows:

1. (*a*) Where the division is physiological, by the removal of such agents—for example, scar tissue—as are preventing physiological connexion or regeneration of fibres;

(*b*) Where the division is anatomical, by the procuring of sound physiological connexion between the two ends, by means of which normal fibres of the proximal end may grow into and along the paths of the degenerated fibres of the distal;

(*c*) Where the length of hopelessly damaged or destroyed nerve trunk is great, possibly by the procuring of physiological connexion between the degenerated paths of the distal end and the normal fibres of some neighbouring or conveniently situated nerve—

the object may be attained of laying the basis for regeneration and recovery of conductivity in the nerve trunk distal to the lesion.

2. The protection of the suture line from fibrous ingrowth and of the exposed length of the nerve from being surrounded by a further permanent mass of contracting or adherent scar tissue. This includes, of course, the observance of the most rigorous asepsis during the operation, and requires healing of the operation wound by first intention; and haemostasis as absolute as possible before closing the wound, as a collection of blood clot round or near the nerve not only constitutes an invitation to sepsis but is destined to become organized into fibrous tissue.

3. No further damage should be inflicted on the nerve by rough handling.

These conditions of success apply to all cases; the surgical methods of fulfilling them necessarily vary with the pathological and anatomical conditions of different cases, and in fulfilling them questions of doubt and difficulty arise in the case of all three.

1. THE PRODUCTION OF A BASIS OF PHYSIOLOGICAL CONNEXION FOR REGENERATION AND THE RE-ESTABLISHMENT OF CONDUCTIVITY.

A.—*Where the Division is Clinically Complete.*

1. Where the division is anatomical.

The two ends will be found usually considerably apart and surrounded by more or less scar tissue. The upper end is always bulbous to a greater or less extent; the lower often but not always so.

To cut down on the obvious point of injury of a nerve and expect so to find it is always, and especially in cases of anatomic division, to prolong the operation. It is best always to find normal, or at any rate recognizable, nerve trunk above and trace it toward its entrance into scar tissue; then similarly recognizable nerve below, and trace it upwards; and finally to dissect out the ends or intervening more damaged portion and ascertain the exact nature of the injury and the exact condition of the ends or damaged segment.

It is necessary, or at least very desirable, to excise bulbous ends, unless the spindles are slight, arguing a relatively small amount of interstitial fibrous tissue. These bulbous ends are usually in a condition of severe interstitial neuritis, and their fibres, even of the proximal end, "compressed from within," degenerated, if not many actually destroyed beyond hope of regeneration. It should be made a rule, then, as regards the proximal end, to pare it with a sharp scalpel until the fibres appear in white and definite bundles with no abnormal amount of cellular tissues between; in some cases, however, where the nerve immediately above the spindle or directly damaged and fibrosed segment has been caused to degenerate without the occurrence of interstitial fibrosis by such a removable pathological agent as bands or masses of scar tissue, it will be necessary to carry the section of the nerve no higher than such a point as shows degenerated bundles without interstitial scar tissue. When there is present a spindle on the distal end, it too, if at all marked, should be excised; in all cases this end should be cut until the bundles show definitely, consisting of degenerated fibres—which bundles are always more swollen, more transparent than are normal undegenerated ones, and of a curious bluish-grey "glassy" appearance. Of course the resection should be as conservative as possible and as is consistent with the getting ground for a good physiological connexion between the fibres of the two ends; at the same time, if not performed boldly enough and scar tissue or part of a partially or completely fibrous spindle left at either end, the chance of the occurrence of regeneration will be slight, if not altogether destroyed.

It is best to stretch a nerve to the maximum amount probably needed or desirable before the removal of the spindles; not only does the spindle give one a good hold of the nerve for this process, but any bruising or damage sustained by it during the stretching is immaterial because of its subsequent resection.

2. Where the division is physiological and the pathological condition one of interstitial fibrosis, the nerve being swollen or spindle-shaped in the affected area.

Here, again, probably the best chance will be given if the nerve is first stretched and the spindle excised until the upper cut end shows normal and the lower a degenerated but otherwise normal cross-section. It may be argued that regeneration and recovery might occur without this, but here the argument in favour of resection is similar to that raised in considering the question of operation in cases of palpable spindle with signs of complete lesion.

3. Where the division is physiological, the pathological condition being one of complete fibrosis of a whole segment of the nerve trunk.

In this case of course there can be no question as to the necessity, after nerve-stretching, of resection of the whole injured segment and of as much above and below the obvious gross limits of the fibrosis as is sufficient to show the appearances of the cross-section described as essential.

4. Where the division is physiological and due to strangulation by or involvement in scar tissue, callus, etc.

Freeing the nerve from all strangulating and tight bands or masses will be sufficient, provided that these be the only cause present of degeneration or failure of conductivity. This should be done most carefully all round the nerve and along as great a length as is affected even in the slightest degree. Some surgeons advise the injection of novocain and adrenalin into the nerve trunk in order, by causing the nerve to swell, to make more evident bands which might otherwise escape notice.

When the nerve is quite freed, careful examination both by sight and feeling should be made for the detection of any area or segment of fibrosis in the nerve itself. If when the nerve be freed a spindle be found, at once difficulties arise. Was the failure of conduction due to the extraneural or to the intraneural fibrous tissue, or to both? If to both, will freeing alone be sufficient, or should one resect the swollen segment as well? Should one be satisfied with freeing for the present and reserve the more radical resection for a later operation, if no recovery succeed the freeing? These and questions like these mentally assail the surgeon, and they have to be decided quickly. If the spindle be large and hard it will no doubt be best to excise it at once; if not marked in degree and with the appearance and feel more of normal nerve trunk the surgeon will probably be well advised to defer resection to such later period as may show that regeneration or re-establishment of conduction is not occurring; but there will remain many intermediate cases where the indications are obscure.

Cases which, when the nerve be freed, show other accompanying lesions of the nerve—for example, partial or complete fibrosis—must be treated as described in the sections dealing with such lesions.

5. When the division is physiological and the lesion adherent perineuritis.

In the cases where this lesion has been found in conjunction with a clinically complete division, there has also been anatomical division or complete fibrosis of a segment of the nerve, as well as a considerable length of nerve above and below in an inflammation which has been acute, subsiding, or has gone on to the stage of fibrous tissue formation. In such cases probably all hope of spontaneous regeneration in the portion the seat of this inflammation or fibrosis must be abandoned; on account of the length of nerve, then, that would require resection such cases will be suitable for nerve transplantation or anastomosis. Where, however, such a process of fibrosis or destructive neuritis and perineuritis has descended the nerve so as to involve its important motor branches, direct operative devices all fail, and resort must be had to such indirect ones as are detailed concerning hopeless cases.

6. Where there is combined anatomical and physiological division, the physiological part of the lesion consisting of a spindle.

Resection of the whole thickness of the nerve will most probably be indicated. This condition is most likely to occur in the case of the great sciatic nerve.

7. Where there is combined anatomical and physiological division, the latter part consisting of fibrosis of the nerve.

Resection of the whole is absolutely indicated.

8. Where there is combined anatomical and physiological division, the latter part of the lesion being constriction or strangulation.

Freeing the one part with resection of the ends of the other is indicated. This lesion occurs most commonly in the case of the great sciatic nerve; fortunately the two portions of this nerve are often separate—if not they are always easily separable—up into the pelvis, so that the part anatomically divided can be stretched, resected, and sutured independently of the part with physiological division.

B.—*Where the Division is Clinically Incomplete and Operative Interference is Desirable.*

1. Where the division is physiological and the lesion a spindle.

Resection and suture will be indicated in most cases.

2. Where the division is physiological and the lesion strangulation by scar tissue, etc.

Freeing alone is indicated.

3. Where part only of the cross-section or thickness of the nerve trunk for a greater or less extent is replaced by fibrous tissue.

These cases are of great difficulty, and if they occur unexpectedly—as they are very liable to do—may puzzle the surgeon very much. There would appear to be three different courses: (1) Leave the nerve alone; (2) resect the whole affected segment and resuture; (3) resect merely that portion that is fibrous, and after stretching split the nerve longitudinally, both up and down, and suture the upper cut portion to the lower.

As a general rule, it would seem right to adopt the first course where the loss—motor, sensory, trophic, etc.—is neither very extensive nor very important compared to the further loss that would result from complete resection; the second course, where the further loss risked and added would be slight in degree and relatively unimportant in nature and position compared to that already existing; the third course could then be adopted in cases clinically intermediate as regards these points between these extremes. In many cases, however, it is and will be very difficult to know which of these three procedures to adopt.

4. Where the lesion is merely perineural adhesions.

These should be freed as far as possible and the nerve well stretched.

5. Where there is combined anatomical completeness with physiological incompleteness.

Such conditions must be dealt with on the lines laid down in the preceding sections.

Of course in many cases two or more of the various pathological conditions described above coexist as component parts of the same lesion.

Again, the nerve may be damaged and the seat of one or more of the described pathological states at two or even more distinct points in its course. It is very essential that such should not be overlooked. This is liable to occur in cases where several wounds lie about or cross the path of the nerve, or, in the case of the musculo-spiral and other nerves coming into intimate relations with bones, where the nerve is not only affected directly by the projectile but also damaged or involved indirectly at some other point by a concomitant fracture of the contiguous bone.

NERVE TRANSPLANTATION AND NERVE ANASTOMOSIS.

One of the greatest problems as it is one of the greatest practical difficulties in present-day operative work on damaged nerves arises when, after stretching to the maximum amount possible or desirable and resection of the requisite amount of the nerve trunk or ends, it is not found possible to get the cut ends to meet, much less to procure accurate and close apposition of the cut surfaces.

Where the distance that remains to be bridged over is short, such possibly successful devices should first be tried as:

1. Adjustment and fixation of the segments of the limb or of the part the seat of operation—for example, by such flexion, such extension, etc., of neighbouring or concerned joints as will relax as far as possible the soft tissues in which the nerve is lying and also the tension of the nerve itself.

Some writers, however, have condemned the practice of this procedure on the ground that the strain put upon the suture line by subsequent working out of the fixed position of the limb is likely to cause the production of excessive fibrous tissue at that point.

2. Sometimes a shorter artificial path can be made through or between or over muscles. This has often the further advantage that the new path thus formed gives a bed for the sutured nerve more free from scar tissue and hence more favourable to regeneration.

3. When these do not suffice to bring the ends together, and but a very short distance still separates them, the strands of fine catgut of the suture may be trusted to act as conductors for the new fibres, especially if a tube of some animal membrane be carefully wrapped around both the nerve ends and the strands uniting them.

If, however, the gap be at all considerable then one has to resort to either of the following methods: (1) Nerve transplantation, (2) nerve anastomosis. The relative merits and demerits of these two procedures have as yet not been determined with any degree of certainty. Often, of course, anatomical and physical conditions decide for the surgeon which of the two to make use of in any particular case. In other cases this will be determined on grounds of theoretical consideration and probability.

Nerve Transplantation.

Conditions in which this method would seem to be indicated may be summed up in general terms as follows:

1. Where the distance to be bridged is relatively short.
2. Where no suitable or neighbouring nerve is available.
3. Where the affected nerve is of considerably less importance than the nerve to which it would have to be anastomosed.
4. Where, as in the case of the musculo-spiral, a suitable nerve for an autogenous graft (for example, the radial) is conveniently obtained.
5. Where a suitable homogenous graft is available.
6. Where the bed in which the graft will lie is composed of tissues favourable to the survival of the graft, which will not then run the risk of being strangled by fibrous tissue around it.

The nerves most favourable for use as autogenous grafts are the radial and the external cutaneous of the thigh.

Nerve Anastomosis.

On general grounds this procedure would seem to be indicated:

1. Where the distance to be bridged exceeds three inches.
2. Where a neighbouring nerve of considerably less importance and suitable size is available.
3. Where, if a graft were used, it would have to lie in a mass of already present scar tissue.

The varieties of anastomosis methods that are recommended are as follows:

1. *Partial Peripheral Anastomosis.*—The healthy though degenerated distal end of the affected nerve is inserted into a longitudinal slit in the sound nerve, if the nerves be small ones; if the nerves be large, the distal end of the affected nerve is sutured to a flap raised from the sound nerve at a point as far as possible proximal to the point of origin of any important branch.
2. *Implantation of both central and peripheral ends* of the affected nerve into longitudinal slits of the sound nerve may be advisable where the latter is chiefly or wholly sensory.
3. *Complete peripheral anastomosis* between the central end of the sound nerve, which is cut for the purpose, and the distal end of the affected nerve is justifiable only in very exceptional cases. Such a case was one in which the median nerve was destroyed from just above the wrist right up to the elbow. Inasmuch as the ulnar nerve in the hand—at any rate from the motor point of view—is a very much more important nerve than the median, it was not thought advisable to perform an anastomosis with it; but the radial was cut low down in the forearm and sutured to the distal end of the median. Of course, in this case all hope of recovery of power in those muscles of the hand supplied by the median was abandoned.

In the rare event of an ununited fracture of the bone of the limb segment being present with an extensive destruction of a nerve, shortening of the limb by resection of the bone would seem to be quite a justifiable procedure.

2. THE PREVENTION OF FIBROUS INGROWTH.

The necessity for the use of some wrapping material is still *sub judice;* on theoretical grounds at any rate it seems desirable. That Cargile membrane does not by the end of three weeks contract adhesions or absorb is proved by a recent case. At the first operation the writer removed an aneurysm of the third part of the axillary artery, an extensive lesion of the musculo-spiral nerve being found. It was found impossible to unite the ends, and strands of catgut were inserted, and they, with the divided ends, surrounded by membrane. Three weeks later the nerve was again operated upon, grafts of the radial and external cutaneous nerves being inserted; the Cargile membrane was found as it had been inserted.

The substances most frequently used for wrapping are Cargile membrane, hardened arterial tubes, segments of the internal saphenous or other large vein, and pieces of fascia lata and adipose tissue.

Some French surgeons, however, have recently been painting the nerves with sterilized olive oil in order to prevent fibrous ingrowth and the formation of dangerous adhesions.

OPERATIVE TREATMENT IN HOPELESS CASES.

Amputation.

The presence and recognition of injury to one or more nerves in a badly smashed limb may be the deciding factor in a decision to amputate.

Apart from such cases, however, one may be forced to amputate on direct account of the nerve injury:

1. Where after operation on the great sciatic nerve the sensory recovery does not get beyond the stage of recovery of protopathic sensibility with intense hyperalgesia.
2. Where recovery after operation on the nerves of the lower extremity does not include return of protopathic sensibility in the sole of the foot, and trophic sores and perforating ulcers cause trouble.

In hopeless cases or where motor recovery has not occurred, such operations as *muscle transplantation, arthrodesis,* and *insertion of artificial silk ligaments,* which have a recognized place in the treatment of infantile paralysis, may be performed with great advantage to the patient.

A CASE OF ENTEROSPASM IN WHICH THE PORTION OF INTESTINE INVOLVED WAS OF UNUSUAL EXTENT.

BY

C. HAMILTON WHITEFORD, M.R.C.S., L.R.C.P.

H. P. HAWKINS, in his comprehensive article on enterospasm,[1] says:

> Without any change in the intestinal wall, one or more sections of the intestine may exhibit a purposeless tetanic contraction. It is thereby converted into a hard, nearly solid, cord, pale and bloodless.

The second case of Hawkins's series presented symptoms almost identical with those of the case here recorded.

A woman, aged 49 years, wife of a shipwright pensioner and mother of two grown-up children, for thirty years suffered from "indigestion," with vomiting on an average once a week; nine years ago the discomfort increased to actual pain, which occurred soon after ingestion of food, milk causing less pain than solid food. The vomiting gradually became more frequent. During the last five years she had had many family worries.

Condition when First Seen.

She was thin, with only a quarter of an inch of abdominal subcutaneous fat, and stated that four years ago she was quite plump. Vomiting was occurring once daily, usually after breakfast. The vomit had never contained blood. Constipation with flatulence had existed for many years.

The only abnormality observed in the abdomen was a tender, ill-defined fullness situated between the umbilicus and the left costal margin. This tender area was constant. Nothing was observed on rectal and vaginal examination except a mobile retroverted uterus with an elongated cervix. A pessary had been worn for twenty years. Treatment by diet and drugs had given very little relief; the patient, neurasthenic, but not in the least hysterical, and of remarkable intelligence, willingly accepted an exploratory coeliotomy, fully appreciating the uncertainty of the benefits which operation might afford.

Operation.

Coeliotomy demonstrated that the stomach was enormously distended by gas, measuring in its greatest circumference 14 in., and that the duodenum was uniformly distended by gas (diameter 1¾ in.). The small intestine was traced downwards for its whole length. The upper 3 ft. of jejunum were distended by gas to the size of the duodenum. Three feet from the duodenum the jejunum became abruptly narrowed, being in a state of intense contraction. The next 3 ft. of jejunum were uniformly contracted into a rugose, anaemic cord half an inch in diameter. Below the spastic area the rest of the small intestine was normal, as was the large bowel.

The other viscera showed no abnormality except undue mobility. Absence of fat was marked, the gastro-colic omentum being diaphanous. The head of the pancreas was so loosely attached that it, together with nearly the whole length of the duodenum, was easily lifted above the level of the abdominal skin. The abdomen was closed.

After-Course.

At the time of writing, a month after operation, the patient is taking ordinary food and does not vomit; the bowels act daily under paraffin and drachm doses of liquorice powder. Such post-operative improvement, with attention to the bowels and rest in bed, appears to be of common occurrence, but, unfortunately, is apt to be only temporary.

I have seen at operation a number of cases in which the small intestine was either found in, or quickly passed into, a

state of tetanic contraction, but in all these the bowel was involved only for a few inches. Sometimes the contracted area, on being bathed with hot saline solution, was seen to relax and assume a normal appearance. No such observation was permissible in the above case, the manipulations having produced a marked degree of shock.

In regard to the action of belladonna as an antispasmodic, the patient, who was anaesthetized with ethyl chloride followed by open ether, had received one hour prior to operation a hypodermic injection of atropine $\frac{1}{100}$ grain. Enterospasm may simulate almost any intra-abdominal lesion, either chronic or acute, and is one explanation of cases which appear to be some variety of the "acute abdomen" but in which operation shows nothing abnormal, the surgeon not always being so fortunate as to catch the intestine in a state of spasm.

James Swain[2] has recorded a case resembling acute obstruction in which only spastic intestine was found; also a case resembling perforation of a gastric ulcer in which operation showed no cause for the symptoms. This last patient had previously undergone gastro-enterostomy, nephropexy, and removal of the appendix. In cases resembling an infective lesion the absence of an increase in the number of the leucocytes is a useful aid to diagnosis.

Mimicry by enterospasm of chronic abdominal affections is not uncommon. I have another patient, a medical man, aged 49, who has for ten years suffered from attacks of abdominal discomfort, sometimes aggravated into acute pain. He is mildly neurasthenic, and the attacks follow periods of excessive work or undue worry. They have at different times suggested chronic cholecystitis and a colonic growth, but nothing definite has ever been demonstrable, and the patient not unnaturally declines operation. In this case the spasm sometimes involves the rectum and perineum, the patient being awakened in the early hours of the morning by an intense sacro-rectal pain, which is relieved by firm pressure made on the perineum, and terminates with expulsion of flatus.

Among Hawkins's observations are the following:

There is much abdominal pain which has no name and does not kill.

Such patients may be intelligent and industrious, but they are none the less emotional. They are neurasthenic in the sense that the nervous power is rapidly exhausted by exertion of body or mind, and is but slowly restored.

The abdominal trouble varies directly with the mental state.

In nearly all of these cases some part of the colon can be felt as a hard cord about the size of a man's forefinger. This is more common in the left iliac fossa than elsewhere.

But it is well to remember that in patients with no symptoms of enterospasm it is usually easy, provided they are thin, to palpate the iliac colon as a rounded cord. Enterospasm frequently simulates chronic appendicitis, and Hawkins, after quoting eleven cases in which removal of the appendix caused no improvement, says:

It would be a gain if only it were generally allowed that not all pain in the right side is due to disease of the appendix, but may have such a comparatively harmless nature as is here suggested.

He concludes:

There is no disguising the fact that patients exist whose intelligence is of such an order that, if suspicion has once been cast upon the state of their appendix, they will not rest satisfied until it is excised. Finally, in cases in which the pain is probably of the functional kind and yet the possibility of appendix disease cannot be excluded, it is certainly helpful to the physician if the appendix has already been removed. On carrying out his course of treatment, he can then act more freely than if a doubtful appendix were still present.

Tissues which are diseased frequently need removal, but that asthenia, whether it be of the patient's intellect or of the physician's efforts, should be treated by ablation of organs not obviously abnormal, is a proposition which I am unable to accept.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, January 13th, 1906, p. 65. [2] Ibid., June 22nd, 1912, p. 1412.

THE University of Lausanne recently celebrated the twenty-fifth anniversary of its foundation. Among those upon whom honorary degrees were conferred on the occasion was Dr. Rollier, who has taken a leading part in the introduction of the sun cure for tuberculous diseases of bone in Switzerland.

PRACTICAL METHODS OF ANAESTHESIA.*

BY

JAMES T. GWATHMEY, M.D.,

NEW YORK CITY.

THE word "practical" in this paper means:

1. That the anaesthetic should be suited to the patient, to be modified or changed entirely if indicated.

2. That the induction should be pleasant to the patient, respiration, blood pressure, and colour reflex remaining normal.

3. That the maintenance of anaesthesia should vary with the requirements of the surgeon, at the same time keeping the patient's condition as nearly normal as possible.

4. That the transition from the anaesthetic stage should be as gradual and smooth as the induction, the patient emerging as from a quiet sleep, without pain, nausea, or conscious or unconscious vomiting.

All of these requirements are met by modern methods, not yet in general use by the excessively utilitarian surgeon who employs one method, administered by a nurse anaesthetist. Anaesthesia is a vital part of the practice of medicine. The adoption of any one method, and hence of any one anaesthetic, regardless of conditions, is contrary to the common sense that should govern all surgical procedures and the administration of all drugs. When a surgeon assumes the responsibility for the narcosis he becomes an anaesthetist. It is almost impossible for him to keep up with the literature of his own speciality; that he is not up to date on the subject of anaesthesia is proved by the type of anaesthesia witnessed in some of the best known clinics of to-day.

It is begging the question to say that the nurse anaesthetist is superior to the average interne. On the other hand, the professional anaesthetist must modify his point of view. A physician specializing in anaesthesia should have control of this department in every large hospital, in every medical college, and in every large teaching clinic. It is inexcusable to place nurses in absolute charge of anaesthesia in large teaching clinics.

The nurse anaesthetist has proved to be entirely "practical," according to some surgeons; but it is proposed to discuss the subject under the higher meaning of the word "practical," as briefly as possible.

Preliminary and Post-operative Medication.

In order to forestall acidosis, the patient should be given sodium bicarbonate and lactose, one drachm of each, every four hours for at least forty-eight hours before the operation. If the urine is already acid the dose of sodium should be increased. Glucose, by the rectum, should be given after the operation (Buckler). Bonnot and Cleveland, of St. Louis, after using quinine salts in 600 cases, recommended quinine muriate, grains 10, dissolved in 2 ounces of water at 100° F., to be given immediately after operation, and to be followed in thirty minutes by saline proctoclysis, or in septic cases by six ounces of olive oil. The quinine is repeated every six hours for from four to six doses. It is stated that with this medication "backache is practically eliminated, and only about 2 per cent. suffer gas pains."

Preliminary narcotic medication is indicated in nearly every case. It should vary with the patient and with the individual anaesthetist. Without such preparation, a rise of blood pressure at the very thought of the operation, together with other changes from the normal, may prevent the smooth induction, the easy maintenance, and the uneventful recovery that would otherwise be obtained.

Instead of morphine, which sometimes in itself produces nausea, we prefer the following preliminary, which is modified to suit the individual case:

℞
Paraldehyde }
Pot. bromid. } ... ... āā ʒi–ij
Aquae ... ...q.s. ad ʒiv
M. Sig.: With the patient in Sims's position give, per rectum, 40 to 90 minutes before operation.

It has been proved, in the laboratory, that with this medication: (1) Anaesthesia comes on more promptly and

* Read before the New York and New England Association of Railway Surgeons, New York, October, 1916.

less ether is required; (2) the margin of safety is increased, thus making anaesthesia a safer procedure.

This medication may possibly have the same effect as Crile seems to have found with morphine—that is, a regulator of acidosis. In fact, Crile recommends bromides by the rectum for this purpose. Codeine also may be used instead of morphine.

Anaesthetic Agents.

While morphine has long since been discarded as a general anaesthetic, it is well to bear in mind, in railway emergency work, that a patient is safer with morphine and alcohol than with either drug alone. Also, that with this combination an analgesic stage comes on before unconsciousness, just as, in the amputation of a limb, a tourniquet completes the analgesia long before the alcohol sleep commences.

Chloroform, anesthol, and ethyl chloride are rarely used in this climate as the terminal anaesthetic; as the initiatory agent, however, or to supplement other anaesthetics, they are most useful.

The essence of orange (composed of 25 per cent. oil of bitter orange peel and 75 per cent. absolute alcohol) is not in itself an anaesthetic, but the fact that its odour is ten times as penetrating as that of ether vapour makes it a safer and better introductory agent to ether by the closed method than nitrous oxide. The physiological basis for the beneficial effect of the oil of orange in the administration of inhalation anaesthetics may be found in its prevention of reflex stimulation, by the anaesthetic, of certain sensory nerves.

Dastré[1] attributed early syncope to reflex stimulation of the pneumogastric and trigeminal nerves, particularly the sensory branches supplying the nasal mucous membrane and the larynx. Embley[2] also has emphasized the part played by the increased excitability of the vagus mechanism, particularly during the early part of the administration. In his inhalation experiments he found that failure of respiration is mainly due to fall in blood pressure. With good blood pressure failure of respiration (his experiments concerned chloroform) is practically impossible. Restoration of respiration is dependent upon restoration of blood pressure. The chances of dangerous vagus inhibition are greatly increased by imperfect respiration.

From these findings it would seem fair to assume that any factor which prevents undue inhibition of the nervous mechanism of respiration, and which, by its stimulation of the respiratory centre, prevents fall in blood pressure, will have a beneficial influence upon the course of the anaesthesia. The oil of orange seems to exert this beneficial influence by dulling the sense of smell to such an extent that the odour of the anaesthetic is not noticeable during the administration.

Essence of orange is also useful when ethyl chloride, chloroform, or anesthol are used as the introductory to ether by the open method.

When chloroform is given with the proper apparatus, providing for oxygen, air, and rebreathing throughout, the patient goes under and comes out of the anaesthetic as quickly as with nitrous oxide and oxygen, and with immunity unimpaired.

In emergency practice, when chloroform is used it is safer and better in every way to surround the mask with paper or a towel, and to have rebreathing throughout, thus diminishing the amount of the anaesthetic used by one-half or less. Safety is also increased by dipping the chloroform bottle in a vessel of hot water from time to time, in order to keep the agent warm. This is in line with the theory that warm anaesthetics are safer than cold.

"Open drop ether" is a crude, unscientific method of administering this drug. It is responsible for the ill repute borne by ether to-day, especially as regards nausea and vomiting. Administered in this way by the best "artist" in the world, it is irregular and uneven and conduces to a tendency to acidosis and resultant shock on account of the insufficient supply of oxygen.

The "gas–ether sequence"—administration of nitrous oxide followed by ether—is an even cruder and more dangerous method than the "open drop." It raises the blood pressure enormously, cyanoses the patient, and is responsible for many deaths.

Any apparatus dependent upon automatic suction is theoretically contraindicated on account of the unusual strain placed upon the respiratory centre.

The nitrous oxide–oxygen–ether sequence by the closed method removes all the objectionable features of the gas–ether sequence, and should be used whenever a closed method is indicated.

The endotracheal method, introduced by Meltzer, has been called the "luxury of breathing." The patient can be given this same luxury by the endopharyngeal method, which is now used by those who formerly employed the Meltzer technique. The same results are secured, however, with the vapour mask which some of us have been using for more than ten years.

The "vapour mask" is any chloroform mask covered with gauze and provided with some suitable arrangement for admitting the warmed oxygen–ether vapour. The ether may be vaporized by any air-compressing device, or oxygen may be used from any ordinary low-pressure oxygen tank, or the oxygen tank may be filled with air. This method ensures an even ether vapour tension.

If this vapour is passed to the mask just described, it is called an "open," or, more correctly, a "semi-open" method, inasmuch as the mask is usually covered with towels. If the vapour goes to a rubber bag it is called a "closed" method.

The essence of orange–ether sequence closed method is one in which a mask and a rubber bag are used. The bag is first filled with essence of orange odour, which is followed by ether vapour. The patient goes under the anaesthetic without change of colour, and with respiration and pulse normal. An even, deep, safe anaesthesia is maintained, and the patient comes out with as little discomfort as follows a good nitrous oxide–oxygen administration. The usual amount of ether used is $2\frac{1}{2}$ ounces per hour, as against 4 to 8 ounces by the drop method.

The vapour mask, or semi-open method, should be used in operations on the head, neck, and upper thorax; the closed method in abdominal and other operations requiring relaxation.

The so-called gas–oxygen anaesthesia, supplemented with ether, should be used in selected cases only, and never as a routine. No method known to-day, either local or general, should be used as a routine.

Oil–ether colonic anaesthesia is now a recognized method of administering ether. The patient falls asleep in his bed, quietly, with pulse and respiration about normal, and colour reflex fully maintained at all times. This method is indicated wherever the element of fear is prominent, as in goitre cases, suspension laryngoscopies, and similar work. It is especially indicated in the obese alcoholic, a class of patients unsuited to any inhalation method. After a personal experience with colonic anaesthesia I prefer it to any other method.

While the latest available statistics give first place, as regards life, to nitrous oxide and oxygen, yet so many deaths have been reported from to time, since the more general use of this combination, that we are forced to conclude that it is not as safe as is generally supposed, at least with our present methods of administration.

I have devised, therefore, and am now using, a semi-open method of administering nitrous oxide–oxygen and warmed ether vapour. This ether–nitrous oxide anaesthetic vapour is now warmed, moistened, oxygenated, and deodorized. When administered in this way the patient neither tastes nor smells the ether at any time. The mask described is used, allowing the patient at all times to get such an abundance of anaesthetic vapours that there is no strain whatever upon the respiratory centre.

Unquestionably, the preliminary and after treatment of the patient are as important as the anaesthetic or the method of administration. The anaesthetist, therefore, should have entire charge of this treatment, as well as the selection of the anaesthetic, if he is to be held responsible for the condition of the patient after the operation. These conditions being granted, it can readily be appreciated that we make no rash promises to any patient in assuring him of a pleasant and safe voyage through the narcotic zone.

REFERENCES.

[1] Dastré, *Les anesthétiques*, Paris, 1901, pp. 104–9. [2] Embley, BRITISH MEDICAL JOURNAL, April 5th, 12th, and 19th, 1902.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF RECURRENT TETANUS.

THE following case seems of sufficient interest to place on record. It shows that a man, in spite of a previous attack of tetanus, and in spite of receiving large quantities of antitoxin, may again be attacked and succumb. He was wounded by shrapnel over the right scapula, and received a prophylactic injection of antitetanic serum on the same day. The onset of the first attack of tetanus occurred on the sixteenth day; between this and the twenty-sixth day he received 27,000 units of antitetanic serum. On the fifty-fifth and again on the sixty-fourth days he received a prophylactic dose of 500 units. The onset of the second attack of tetanus occurred on the sixty-seventh day, and between that and the seventy-fourth day he received 21,000 units intrathecally. He died of tetanus on the seventy-fourth day.

This patient died during a second attack of tetanus after an interval of forty-two days of apparently complete recovery after the first attack. The original attack was one of the worst I have seen in this country, although it was mild compared with the severity of the tetanic spasms I saw in a considerable number of Chinese wounded whom I had under care during the Russo-Japanese war, proving, I think, that the prophylactic injection, if it does not in all cases prevent an attack, at least greatly modifies the severity of the symptoms.

A. M. WESTWATER, F.R.C.S.Edin.

GASTRECTOMY FOR CARCINOMA OF THE STOMACH: SEQUEL.

IN May, 1909, I operated upon a lady, a patient of Mr. Gordon Brown and Dr. A. P. Gibbons of Finsbury Circus, for carcinoma of the stomach, originating on the edge of a chronic ulcer. The duodenum was divided and the distal end closed. Nearly the whole of the stomach was removed, only a small portion of the cardiac end—to which the side of the duodenum was attached—being left. The patient recovered completely from the operation and led a very active life. At the end of five years the case was reported in the BRITISH MEDICAL JOURNAL as a success. The specimen itself is in the museum of the Royal College of Surgeons.

In November, 1916, I was called in to see her by Dr. Clarke Wakefield of Brondesbury, under whose care she was at that time, as she was suffering from jaundice. The liver was not enlarged and the gall bladder could not be felt, but an exploratory operation was performed under the impression that there might be a recurrence in the stump of the duodenum involving the orifice of the bile duct, and that cholecystostomy might give relief. The gall bladder, however, was empty and the duodenum free, but the whole liver was full of small nodules of an unmistakable character. The jaundice deepened, the growth appeared to involve the suprarenal bodies, and the patient died from asthenia in February, 1917, seven and a half years after the original operation, for seven of which she had enjoyed perfect health.

In all probability the final growth in this case should be considered as secondary to the original one, starting in cancer cells that had become detached and embedded in the liver before the operation, and the operation itself must be classed among those performed too late, like nearly all operations for carcinoma of the stomach. The time it is true is long, though I have known longer. I have, for example, known carcinomatous cells begin to grow in supraclavicular glands thirteen years after removal of a breast for scirrhus without any recurrence locally, and it is difficult to account for such a sudden and widely spread awakening after so many years.

It must always be remembered, too, that one attack of carcinoma does not confer immunity from a second. On the contrary, there is reason to think that there may be such a thing as an actual predisposition on the part either of the individual or of the organ concerned encouraging a second outbreak. I have under my care at the present time a lady whose left breast I removed for carcinoma eleven years ago. The old scar—it was a complete operation, with removal of both pectoral muscles—is perfectly sound; there are no glands to be felt anywhere, and her general health is perfect, but there is a typical scirrhus growth in the opposite breast in exactly the same locality. There can be no question of secondary infection in such a case as this, and I could quote others similar to it though not of such long duration. For the present the question must be left open.

C. MANSELL MOULLIN, F.R.C.S.,
Lieut.-Col. R.A.M.C.(T.).

London, W.

Reports of Societies.

ORIGIN OF THE ELECTRIC CURRENTS LED OFF FROM THE HUMAN BODY.

AT the meeting of the Section of Electro-Therapeutics of the Royal Society of Medicine on March 16th, when Dr. HARRISON ORTON, President, was in the chair, Professor W. M. BAYLISS read the paper on the origin of electric currents led off from the human body, especially in relation to "nerve-leaks," which is published at page 387.

In the course of the subsequent discussion Captain MACDONALD said that if wounds in a denervated limb healed as rapidly as those in a normal limb, why was it that such bad sores were seen on paralysed patients, and why was it inadvisable to perform operations on paralysed parts? He had seen dielectric oil used for trench feet in France with great success.

Dr. AGNES SAVILL said that she had used dielectric oil for eczema. The patient had eczema on both feet; one foot was treated by dielectric oil and the other by ordinary methods. That treated by the oil healed more quickly, and the treatment was much more pleasant to the patient. Many practitioners were pleased with the results of the oil on inflamed throats.

Mr. HERNAMAN-JOHNSON spoke of the theory as used for diagnosis. He had brought two cases to an exponent of the method. Neither patient was very ill, and there was nothing so evident as to suggest a diagnosis at sight. The procedure was the same in each case. One electrode was placed over the back of the neck and was gradually moved down the spine, being lifted up between each application. In the case of the first patient nothing abnormal occurred until the mid-dorsal region was reached, when the galvanometer needle was noticed to swing more violently. Much the same occurred with the second patient, the abnormal movement occurring at the lumbar region. The first patient was suffering from chronic dysentery, the second from dysmenorrhoea, and later from amenorrhoea. A diagnosis was correctly made of bowel trouble in the one and pelvic trouble in the other, without the patients making any remark at all suggestive of their ailments. Both were rubbed with hot, dry towels; there was no visible moisture. In ulnar paralysis no deflection occurred over the region of distribution of the ulnar nerve. He said that if it could be shown that in lesions of certain organs there was greater deflection over the areas of the nerves supplying that organ, the method might be very useful in diagnosis.

Professor BAYLISS, in reply, said that the difficulty met with in the healing of ulcers and wounds on paralysed limbs was due rather to the difficulty in keeping desensitized limbs free from injury than to the destruction of "trophic nerves"; the limbs were more vulnerable because, being insensitive, they were unable to protect themselves from injury. It was said that the eye degenerated after destruction of the fifth nerve, but if the eye were protected no degeneration occurred. The method might be very useful in diagnosis if "nerve-leaks" occurred with definite lesions, but this was not proved. If a neurasthenic were examined each day would the "nerve-leak" be in the same place? He thought the effect might be brought about by a variation in the amount of sweat on the different parts of the skin. This suggested the question whether there were localized areas of sweating associated with definite lesions—for example, dysentery—but so far there was no proof that this was so. He thought that rubbing with hot towels was not an effective safeguard, as only the surface sweat would be rubbed off.

Reviews.

THE CHARAKA CLUB.

THE Charaka Club was founded in 1898 by some New York physicians interested in the literary, artistic, and historical aspects of medicine. They placed themselves, to use an ecclesiastical phrase, under the invocation of Charaka on the assumption that his work is the oldest extant treatise on Hindu medicine. The treatises of Charaka and Susruta are still regarded by many as of great antiquity. On this point, however, we venture to call attention to a communication made to the Paris Académie de Médecine on May 11th, 1897, by Dr. Liétard of Plombières, and published in its *Bulletin*.[1] It is there stated that M. Sylvain Lévi, Professor of Sanscrit at the Sorbonne, had recently discovered a number of documents of great importance in regard to medical chronology. These documents, first written in Sanscrit, but now lost in their original form, have been by a happy accident preserved in a Chinese translation. From them it appears that Charaka was private physician to Kanishka, an Indo-Scythian king who lived in the first century. "The mention of Charaka," says Sylvain Lévi, "is the first positive indication obtained of the date of the learned practitioner who disputes with Susruta the glory of having laid the foundations of medical science in India." Lévi thinks Charaka may have been a contemporary of Christ and that he lived in a medium in which Greek science and the Greek spirit were predominant. At any rate there seems to be good reason to believe that he flourished in the first centuries of the Christian era. His *Samhità* contains a chapter of medical deontology closely corresponding with the Oath of Hippocrates.

The first volume of the *Proceedings* of the Charaka Club was published in 1902, and was reviewed in the BRITISH MEDICAL JOURNAL of March 21st, 1903. A short note on the second volume, issued in 1907, appeared in the JOURNAL in the same year (vol. i, 1907, p. 1201). The third volume was not received. The fourth volume now before us is not less interesting than its predecessors.[2] Dr. Arpad G. Gerster gives an account of Professor Harnack's monograph on medicine in early church history, written in honour of the seventieth birthday of his father-in-law, the famous surgeon, Carl Thiersch, and published at Leipzig in 1892; it deals largely with demoniacal possession and exorcism. Dr. George L. Walton writes on the medical saints Cosmas and Damian, who are familiar figures in Roman art, and on the Icons of the Greek Church. The paper is illustrated with some admirable photographic reproductions of pictures in churches in Florence and Rome, and in France, Switzerland, and other countries. The saints are generally shown with their symbolic attributes —pill box, scalpel and forceps, mortar and pestle, caskets, vases, ointment pot, phials, rolled bandage, spatula, and urine glass. They were the patrons of surgeons, apothecaries and barbers, and also of the Medici family, the six red balls on whose coat of arms are held by some to represent pills. From Cosmas the Paris Confraternity of Saint Côme or College of Surgeons derived its name.

In another paper Dr. Walton compares the botanical terms used by Bacon and Shakespeare respectively; he thinks the parallelisms sufficient to "jostle Shakespeare of Stratford a little on his throne." Dr. Joseph Collins writing on the literary leanings of eighteenth century physicians, says there are few documents of human interest like Boswell's *Life of Johnson*, Saint Simon's *Memoirs*, and Pepys's *Diary*, concerning doctors. An obvious reason for this seems to us to be that much of a doctor's relation to his fellow men is too confidential in its nature to be made the subject of published gossip. Dr. Collins, however, thinks the likely explanation is that medicine does not attract men possessing the artistic temperament, while doctors are so absorbed by their profession that they have no time for the cultivation of literature or art. Here we venture to enter a demurrer. The drawings of Charles Bell are admirable, and Sydney Smith declared that his wax models of disease were the Apollo Belvedere of morbid anatomy. Seymour Haden was the foremost etcher of his day in this country, and founded the Royal Society of Painter-Etchers and Engravers, of which he was president. Prescott Hewett and Henry Thompson were habitual exhibitors at the Royal Academy. Abroad, Richard Liebreich, Paul Richer, and many others have shown that medicine and art are not incompatible. Dr. Collins gives an interesting account of Astruc, physician to Louis XV, and author of a history of syphilis which is a classic. Probably few know that he was a pioneer of the "higher criticism"; it appears to have been his interest in skin diseases that led him to the study of the Bible. Dr. Collins contributes another paper, on medicine in England in Chaucer's time, and Dr. James G. Mumford, who died a few days before the date fixed for the presentation of his paper, writes on the University of Alexandria, which was established by Ptolemy Soter in the fourth century B.C., and in ten years became the greatest in the world. Now the very site of the buildings lies buried in the ooze twenty feet below the modern city. Owing largely to the influence of Herophilus, one of its earliest teachers, Alexandria was long the principal centre of medical research. Dr. Charles L. Dana traces the development of anatomical illustrations in the fifteenth and sixteenth centuries, and gives reproductions from the works of Albertus Magnus, Vesalius, Eustachius, and others.

To readers who find pleasure in wandering in the by-paths of medicine the *Proceedings* of the Charaka Club are full of interest. The illustrations are admirably executed, but the volume is disfigured by irritating misprints. To name only a few taken at random, we have Benvenuto Celleni twice on one page (19); "*boite à remedies*" (p. 21); "*Pepy's Diary*" (p. 27); "Heller" for Haller (p. 28); "Bischat" for Bichat (p. 29); "Bengarius Carpus" for "Berengarius" (p. 70); "Mandeville" for Mondeville (p. 66); "Ambrose Paré (p. 73); existance (p. 108); and Hallowell-Phillips (p. 123 and again p. 124).

[1] *Bull. de l'Acad. de Méd.*, No. 19. Séance du 11 Mai, 1897; 3e série, t. xxxvii. 61e Année.

[2] *The Proceedings of the Charaka Club.* Vol. iv. New York: William Wood and Company. 1916. (Roy. 8vo, pp. 163; illustrated.)

NOTES ON BOOKS.

St. Thomas's Hospital Reports[3] for the year 1914 contain twelve reports from various departments of the hospital, for the most part statistical in character, and a full statistical review of acute intestinal obstruction by Mr. S. H. Rouquette, surgical registrar. This has been compiled to determine the immediate results of operation in 615 of these cases treated during the years 1908–1913; 315 were instances of strangulated external hernia, 93 were cases of non-malignant obstruction excluding intussusception, 82 were examples of malignant obstruction, and 125 were cases of intussusception—all but 3 occurring in patients under 11 years of age. The mortalities in these four groups were 21, 45, 56, and 30 per cent. respectively. A statistical analysis of the results of operation is given, extending to six pages.

The fifty-sixth issue of *The British Journal Photographic Almanac and Photographer's Daily Companion*,[4] for the year 1917, is the first issued since 1914. The volume is reduced in bulk, the edition is reduced in size, and the quality of the paper has been lowered. But photographers all the world over will accept these war economies without complaint, for the *Almanac* preserves its sterling qualities in spite of the war. The present issue has some 400 pages of advertisements; it also contains a directory of photographic societies and photographic bodies, an epitome of progress written by the editor, 100 pages of formulae and miscellaneous information, and 40 pages of serviceable tables. The only error of any importance we have found in it is on page 501, where the price of Mr. G. L. Johnson's book on *Photography in Colours*, now in its third edition, is given as 3s. 6d. instead of 4s. 6d.

[3] *St. Thomas's Hospital Reports.* Edited by Dr J. J. Perkins and Mr. C. A. Ballance New series Vol. xliii. London: J. and A. Churchill. 1916. (Demy 8vo, pp 355. 8s. 6d net.)

[4] *The British Journal Photographic Almanac and Photographer's Daily Companion.* 1917. Edited by G. E. Brown, F.I.C. Fifty-sixth issue. London: H. Greenwood and Co., Ltd. 1917. (Crown 8vo, pp. 778; illustrated. 1s. net; cloth, 2s. net.)

AN expansion of the sanatorium at Pedrosa was recently formally opened. The King of Spain was present at the ceremony. Dr. Salazar delivered an address, in which he said that during the past twenty years the average annual mortality from tuberculosis in Spain had been over 50,000.

British Medical Journal.

SATURDAY, MARCH 24TH, 1917.

THE NATURE AND PREVENTION OF SHOCK.

OF the evil influences which a military surgeon has to combat when a severely wounded man is first brought to him for treatment, shock, haemorrhage, and commencing sepsis are the chief; of these he most dreads shock, for he is less well equipped to deal with it, and until it has been overcome it may not be possible for him to undertake the operation which he knows to be necessary to diminish the risk of sepsis. Shock is also the danger ever present in the mind of the surgeon in civil practice, whether due to the accident which brings the patient into his hands or to the nature of the operation he may perform. Any light on its causation and treatment will be welcomed therefore by all surgeons, and the memorandum issued by the Medical Research Committee and printed in this issue of the JOURNAL will make a very strong appeal to them.

Owing to the immense importance of the subject to military surgery the Committee has thought it well to publish at once certain results of an experimental inquiry conducted for it by two investigators, H. H. Dale and P. P. Laidlaw, who have made a close analysis of the shock-like phenomena produced by the injection of a particular base, histamine, the peculiar properties of which they had noted some years ago. Its injection produces a profound fall of blood pressure, accompanied by a striking concentration of the blood, which may be so great that there is a loss of one-half of the original volume of plasma in about five minutes. This concentration is apparently due not merely to loss of water and diffusible constituents, but to the passage into the tissues and lymph spaces of all the constituents of the plasma. A large part of the blood, in fact, disappears from effective circulation, the veins are not distended, the great veins fill only very slowly from the periphery if clamped, and though the heart continues to beat with moderate vigour the arteries are pulseless. The capillaries in health have the power of active contraction, and it appears that under the action of this poison the capillary tone is lost, so that the blood from the arteries being stagnant in the slack capillary channels the quantity reaching the veins is inadequate for the filling of the heart; the cardiac output, therefore, falls to a very low level. Further, the slowness of the capillary circulation through the muscles and other tissues needing a plentiful supply of oxygen must lead to defective oxidation, with resulting acidity, and so to a further tendency for passage of water by osmosis from the blood.

Effects of the same general type can be produced by many products of protein digestion and bacterial activity; among these the condition commonly spoken of as the toxaemia of gas gangrene is to-day of special importance; the evidence so far obtained suggests that there is a fundamental similarity of origin underlying the similarity of symptoms between the toxaemia of gas gangrene and other shock-like conditions.

The point of most novel interest in the memorandum is the importance attributed to loss of plasma into the tissue spaces as a factor in the production of the circulatory failure. The loss causes both deficient volume and excessive viscosity of the blood, and this condition has been clinically recognized as an essential factor in the collapse occurring in cholera and in bacillary dysentery, where the fluid is lost by excretion. The Committee asks for reports of clinical studies or experimental observations bearing upon the questions raised in its memorandum, and intends later on to publish further results of the inquiries now in progress, along with such relevant clinical observations as may then be available. It is suggested that cases of traumatic shock without haemorrhage, of post-operative shock, of intestinal obstruction, of extensive burns, of anaphylactic shock, and of the rapid fulminating type of toxaemia from gas gangrene, may give relatively uncomplicated data for estimating the changes of the corpuscular element of the blood.

As to treatment, the importance of prevention is insisted upon, and it is pointed out that an antecedent haemorrhage, insufficient in itself to produce collapse, may be an important factor in the subsequent onset of shock, in so far as it is due to deficient volume apart from increased viscosity of the blood. The normal reaction to simple haemorrhage sufficiently large to diminish the output of the heart and lower the blood pressure, consists in the abstraction of fluid from the tissues until the volume of the blood is again adequate. The experiments now reported suggest that this restorative reaction fails in shock, and that the fluid continues to pass from the blood, even though the arterial pressure has fallen to a very low level. A relatively small haemorrhage, therefore, may have a serious influence in determining the onset of shock. Other causes tending to diminish the blood volume—such as fatigue, exposure, or prolonged abstinence from food and water—are well recognized by military surgeons as tending to shock; but it may be that sometimes measures preparatory to operation in hospital, such as free saline purgation and strict abstinence from food and water, may contribute to the danger. At any rate, we believe it to be true that the experience of the casualty clearing stations in this war is that exactly the opposite line of treatment must be followed in attempting to restore a patient sufficiently to withstand an operation; and so far, therefore, clinical practice has anticipated the experimental conclusion that a free supply of fluid, by infusion of physiological saline into the rectum or the subcutaneous tissues, must be begun before operation. The only drug which can be used with any advantage when shock has once developed is pituitary extract, which causes a prolonged and general contraction of the arterioles, thereby diminishing the total capacity of the circulatory system and mitigating the effect of a deficient blood volume. For reasons given in the memorandum the use of adrenalin, apart from the fact that its effect is fugitive, is open to objection. In place of the injection of physiological saline in fully developed shock the use of intravenous injections of hypertonic saline is suggested in the manner found valuable in the treatment of collapse of cholera and dysentery; the addition of calcium chloride to the solution is proposed, inasmuch as it has been found that calcium ions have a specific action in reducing abnormal permeability of capillaries. The aim in the treatment of shock should be to restore the volume of blood in effective circulation and at the same time to reduce the abnormal viscosity. An incidental effect of failure of the circulation is the defective oxidation of even the arterial blood, a fact which suggests that inhalations of oxygen may have some value.

SCIENCE AND THE NATION.

IN Homer's day it was generally recognized that the destinies of empires were among the things that lay upon the knees of the gods. In our own country, however, and under our own parliamentary system, it is held that this particular burden has now been transferred to the knees of the man in the street. It is therefore of the utmost importance that the man in the street should be rightly informed, and hold sound views about the things that really matter, so far as the future of our empire is concerned. One of the chief of these things is the attitude he adopts towards research and the progress of pure science. A most timely volume of essays on various aspects of this subject, written by a number of distinguished Cambridge graduates, edited by the Master of Downing College, and furnished with an introduction by Lord Moulton, has recently been published by the Cambridge University Press.[1] The object of this most readable book is to show that progress in applied science is directly dependent upon progress in pure science, and that progress in pure science is dependent upon the direct encouragement it receives from those who profit by its advances.

The course of the present war has brought out, more clearly, perhaps, than ever before, the vast influences of applied science upon the material progress of nations, whether in war time or in peace. As we read every day in the papers, modern warfare has been reduced to the science of destructive engineering in the line of battle, supported behind the lines with all that constructive engineering can organize in the way of railways, road transport, hospital and housing facilities, commissariat, and the thousand and one other material evidences of scientific discovery and invention. The importance of applied science to the arts of peace is a point that need not be laboured here, for it is a truism. Applied science may be defined in Huxley's words as "nothing but the application of pure science to particular classes of problems." Pure science — or, as Lord Moulton prefers to call it, experimental research inspired purely by the desire to increase knowledge — is science pursued for its own sake quite apart from utilitarian purposes. What is wanted at the present moment is that the man in the street should recognize that pure science must be fed, and fed more liberally than it has been in the past, if applied science is not to be starved in the future. Just before the war there was established in connexion with the National Insurance Acts a considerable endowment for research in medicine, an entirely new departure in the policy of this country. Once the public becomes convinced of the fact, long known to experts, that there is money in it, pure science or experimental research is sure to receive the reward and recognition that are its due. Indeed, a further step in this direction has just been taken by the Government. In the Civil Service Estimates relating to education, science, and art for the coming year, provision is made for a grant in aid of scientific and industrial research amounting to £1,000,000. Grants from this fund will be made by direction of the Privy Council Committee to approved trade associations. It is also provided that the same committee may grant the sum of £24,000 in aid of investigations carried out by learned and scientific societies, and the sum of £6,000 to students and others engaged in research.

[1] *Science and the Nation.* Essays by Cambridge Graduates; with an Introduction by the Right Hon. Lord Moulton, K.C.B., F.R.S.; edited by A. C. Seward, F.R.S. Cambridge: The University Press. 1917. (Demy 8vo, pp. 350. 5s. net.)

The essayists deal with many of the practical applications of pure science. One point of supreme importance that recurs again and again is this: that it is impossible to say beforehand either what line of research is likely to prove rich in practical applications or what practical use will presently be made of the scientific results obtained in the course of any investigation. Thus Professor Pope is able to show that it was the scientific study of the mineral deposits at Stassfurt that enabled Germany before the war to make herself the chief source of supply of potassium salts, indispensable to the whole world as a cultural manure. In his essay on physical research Professor Bragg is able to show how Roentgen's discovery of the x rays was directly based on Sir William Crookes's researches into high vacuums, Lenard's discovery of radiations able to pass through aluminium windows fused into vacuum tubes, and an entirely accidental observation of his own. In his essay on the modern science of metals, Dr. Rosenhain is able to show that the vast progress in our knowledge of the physical properties of metals and alloys made in the last few decades, upon which, indeed, almost all our recent engineering achievements depend, dates from the year 1861, when H. C. Sorby, a mineralogist, introduced the method of studying the minute structure of metals by the microscopic examination of metallic surfaces first polished and then etched with acids. At the moment Sorby was seeking for nothing more than further information as to the structure of meteorites; yet at the present time every metallurgical works of any importance has its own metallographic laboratory where the methods of Sorby are daily practised for the control of industrial operations. In his essay on medicine and experimental science Professor Hopkins is able to point out how the whole science of bacteriology may be dated back to the work of Pasteur as a crystallographer, in the days when he chanced to find that of the two distinct but closely related crystalline forms of the salts of tartaric acid, one was fermented and destroyed by a certain mould while the other was not. This accidental observation fixed the attention of the great chemist and crystallographer on fermentation and so led him to the foundation of what is now the science of bacteriology. Again, in his essay on systematized plant breeding Professor Biffen is able to prove that the solution of the problem of intensive cultivation of the land, stated by Swift in the famous aphorism of the two blades of grass has been enormously expedited by the use of the laws of inheritance discovered by Mendel, abbot of Brünn, through his experiments in growing and crossing varieties of the common or garden pea.

In all these instances and in many others that might be quoted, it is important to observe that no one had any inkling of their final results, still less of their possible commercial applications in the future. Never, as Professor Bragg says, was any experiment performed for the sake of making a particular application, but each advance was directed along the line disclosed from the vantage point attained by the efforts just made. There is a sequence of events that cannot be reversed. In that sequence discovery follows on discovery; and science must be pure in the sense that each step is necessarily free from any knowledge of what advantage may be made from it. The step is made not because it will be profitable, but because it is the next step on the only way. Science cannot be applied until there is science to apply, and science must begin as pure science. This is a truth that cannot be too widely realized by those, whether

educational authorities or captains of industry, who have the power to encourage the development of science.

PREVENTION OF T.N.T. POISONING.

THE Minister of Munitions has issued new rules, under the Defence of the Realm Regulations, governing the use of trinitrotoluene; they make compulsory in all factories and workshops in which trinitrotoluene, or any mixture containing it, is used or manipulated, recommendations made at various times by the Health of Munition Workers Committee. The rules are in two parts, the first applicable to employers, and the second to the employed. The first part directs that the ventilation of every place in which any T.N.T. process is carried on shall be approved and shall, if required, include an approved method for removing dust or fumes at the point of origin. Special arrangements are to be made for reducing to a minimum the contamination of the outside of articles during the process of filling, and all floors, work-benches, trolleys, fittings, or appliances on which T.N.T. may accumulate must be cleaned by an approved method; no oil or grease or other carbon compounds which are solvents of T.N.T. shall be used in any place in which any T.N.T. process is carried on, unless such use has been approved. No person under 16 years of age shall be employed, and the employment of a person under 18 years of age requires special approval. No person is to be employed continuously for more than a fortnight at a process involving contact with T.N.T.; either the person must be given other work or an equal period of absence from work, unless continuous employment has been approved by the medical officer. At every factory or workshop where 2,000 persons are employed there must be at least one whole-time medical officer, and at least one additional medical officer if the number exceeds 2,000, and at all factories and workshops a woman welfare supervisor must be appointed.

Every person employed in a trinitrotoluene process must be examined by the medical officer at least once a week, a health record of all persons employed in any trinitrotoluene process must be kept, a person suspended from work by the medical officer must not be employed in any trinitrotoluene process without written sanction from the medical officer, and the employer must appoint a person responsible for seeing that the order of suspension is obeyed. The employer must provide working costumes, which must be washed, cleansed, or renewed at least once a week, and also proper places for the storage of these costumes, as well as proper places for keeping clothing put off during working hours. The danger of absorption of T.N.T. by the skin is recognized by a rule requiring that approved substance shall be provided for the purpose of cleansing the skin, and also a lavatory with a sufficient supply of water, soap and nail-brushes, and dry towels renewed and washed daily. At every factory or workshop there must be a canteen approved by the Welfare Section of the Ministry, and every person employed must be supplied gratis daily with half a pint of milk or an approved substitute. The second part makes it compulsory on the employed to wear the working costumes provided, and before partaking of food or leaving the premises to remove the working costume, to cleanse the skin with the special fluid provided, and to wash in the lavatory. Employed persons must also submit themselves for examination by the medical officer when required.

The manner in which the Ministry of Munitions has handled the difficult administrative questions arising in connexion with the safeguarding of the health of munition workers has been admirable. It was at once realized that difficulties would arise, owing partly to the employment of a large number of workers, many of them totally inexperienced in any industrial labour, partly to the nature of the processes involved, and partly to the necessity for new agglomerations of population in districts not previously provided with adequate housing accommodation. The housing question was, in fact, one of the first to which the Ministry gave attention, and on that head it had a good deal of experience accumulated by public authorities to draw upon. On many of the questions special to munition factories, particularly those concerning individual hygiene, there was relatively little experience, and at a very early date a committee was appointed, with Sir George Newman as chairman, consisting of scientific medical men drawn from the Medical Research Committee, and the factory department of the Home Office, as well as representatives of employers, of labour, and of women workers. This Committee went systematically to work, and when necessary instituted special scientific inquiries for the carrying out of which the services of physiologists were secured. It has published a long series of memorandums dealing with questions of industrial fatigue, hours of labour, and other matters affecting the personal health and physical efficiency of workers, which are not only of great value in their application to the special conditions of the time, but of permanent importance as contributions to the study of the applied science of industrial hygiene. The Ministry in advising employers, and now in making regulations, has thus been able to work on an assured basis of ascertained facts.

The new regulations are an extension of others issued last September, but owing to the manner in which the Ministry has allowed itself, under the direction of Dr. Christopher Addison, to be guided by expert opinion, it has not been under the necessity of retracing its steps, but has gone steadily forward to increase the efficiency of munition work by guarding the health of the workers.

THE CONFERENCE SUMMONED BY THE DIRECTOR-GENERAL OF NATIONAL SERVICE.

THE conference called by the Director-General of National Service to consider the organization of the medical profession with a view to meeting the needs of the military and civil population in existing circumstances resumed its proceedings on March 15th, when all those mentioned as present on the previous day were again in attendance. It will be remembered that the subjects referred to the conference by Mr. Neville Chamberlain were whether the service to be given by members of the profession should be compulsory or voluntary; what arrangements should be made for the collection and distribution of fees, or other form of remuneration, in cases in which doctors left their own practices or took on the practices of others; what arrangements should be made, centrally and locally, for redistribution of medical men; and what should be the relation between any central, executive, or advisory body and the Department of the Director-General of National Service. The various matters arising out of these subjects were discussed, and certain resolutions adopted for submission to Mr. Neville Chamberlain. Until his views have been expressed we are not in a position to publish any further information.

THE MEDICAL SERVICE OF THE ARMY.

ANY decisions which may be taken in consequence of the recommendations made by the conference held last week at the request of the Director-General of National Service

will not affect the immediate demand of the army for additional medical officers. This demand is large and urgent, and the Central Medical War Committee, at its meeting on March 21st, resolved to proceed with its proposal to make an appeal to unenrolled men between the ages of 41 and 45 to offer themselves for service in the Royal Army Medical Corps. In furtherance of this it proposes to communicate with local Medical War Committees, suggesting the number of men between these ages the particular area should be asked to supply for immediate service. We intimated a fortnight ago that this might have to be done, and added that it might possibly be necessary before long to extend the appeal to men between the ages of 45 and 50. Many such men, though they may not be physically fit to stand the hardships and privations of the trenches, or the front line of a mobile force, could probably undertake work such as not a few of their contemporaries are now doing at the base hospitals and on the lines of communication abroad; their services might also be utilized at base hospitals and with units at home, thereby liberating younger men for service abroad. We are well aware that the opinion is entertained by many civilian practitioners in this country that further economies in the employment of medical officers might be practised in the army. We believe that the necessity for economy is appreciated by the Army Medical Department, but it must be realized that the responsibilities of that department towards the army and the nation are very great. The military situation is full of uncertainties, but English and French experts appear to be agreed in believing that the summer of this year may witness very active operations which cannot but be attended by numerous casualties, with which the medical service must be prepared to deal.

THE BACTERIOLOGY OF BACILLARY DYSENTERY.

OWING to the return to this country of many dysentery patients and convalescents during, and after, the autumn of 1915, the Medical Research Committee organized a system of investigation which involved bacteriological as well as protozoological inquiries. The results of the latter were published about a couple of months ago in a report noticed in our columns on January 27th. A report on bacillary enteritis has now been issued, founded upon the examination of 878 cases.[1] The bacillary investigations were carried out under the general direction of Professor William Bulloch, by Dr. L. Rajchman, Dr. G. T. Western, and Miss Collie, with the assistance of Captain T. R. Ritchie (N.Z.A.M.C.), at the London Hospital Medical College, and the help of Captain S. R. Douglas at St. Mary's Hospital. As the majority of cases upon which the report is founded were convalescent it was to be expected that the pathogenic agents would have decreased in number, or disappeared, before the examination took place, but to diminish error in the estimate of the nature of the epidemic due to this cause, the indirect method of serum examination was carried out in every case for the detection of a past infection. As the patients arrived in this country they were regarded in provisional diagnosis as only "dysenteric" in the general sense; it was not known either whether the "dysentery" was bacillary or amoebic, or whether it also included typhoid fever, paratyphoid fever, or other bacillary infections hitherto undetected. The object of the work now described was to determine the existence and frequency of bacillary dysentery and other bacillary infections of the typhoid-colon group, to determine the number of cases still infective, and by so doing to aid in controlling the further spread of the disease either in this country or in other territories to which the recovered patients might be sent. In each of the 878 cases, on at least one occasion an examination both of the excreta and of the blood serum was carried out. The examinations made were numbered in thousands, and have demanded great perseverance, accuracy, and a high degree of technical skill. The main results show that the Mediterranean epidemic of "dysentery" was highly complex. Both amoebic and bacillary infections existed side by side, or actually in the same individual, while a number of cases were not dysentery properly so-called, but paratyphoid fever, of which both varieties A and B were found; typhoid fever itself played no part in the epidemic. The actual frequency of the different infections was submitted to an exhaustive analysis so far as was possible from the data, but the figures reached represent the minimum number of those infected. In fact, true dysentery bacilli were found only in twenty-eight cases and paratyphoid bacilli only in twenty-seven. That these only represented a fraction of those actually infected is shown, however, by the serum reactions, in which 31.1 per cent. of all the cases gave a positive agglutinating reaction with *B. dysenteriae* Shiga and 11.1 per cent. with *B. dysenteriae* Flexner. The reaction was positive towards the two types A or B of paratyphoid bacilli in 32 per cent. of the cases.

[1] London: H.M. Stationery Office; to be obtained through any bookseller.

ROYAL MEDICAL BENEVOLENT FUND.

THE annual meeting of the Royal Medical Benevolent Fund took place on March 13th, when Mr. J. H. Morgan, C.V.O., was in the chair. It was announced that Sir John Tweedy, who had held the office of president for ten years, during which time the Fund was incorporated and the Guild established, had resigned that office. A vote of thanks was passed to him, and Dr. Samuel West was elected in his place. During the twenty-two years of Dr. West's treasurership the number of annuities has been raised from 108 to 161, and the invested property has increased from £52,000 in 1896 to over £102,000. This excellent financial result is largely due to Dr. West's skilful management and his organization of the finances of the Fund on strict business lines. The meeting adopted a cordial vote of thanks to him for his services, and elected Colonel Charters J. Symonds, C.B., to succeed him as treasurer. Dr. G. Newton Pitt was re-elected honorary secretary, and Drs. Fawcett, Leonard Guthrie, and Colman, and Mr. Guy Elliston were added to the committee. The total subscriptions and donations for the year amounted to £2,067, a decrease of £176 as compared with the previous year. As the amount distributed in relief was £2,503, the sum of £360 had had to be withdrawn from reserves. The annuity department had expended £3,119, an increase of £91 on the previous year; the number of annuitants had been increased by twelve. In response to the war emergency appeal, the object of which was to assist medical men on their return from the war, about £4,000 was received. This, it was pointed out, was far less than would be required; many doctors, owing to the sudden call to naval or military duty, had to leave their practices inadequately provided for, and on their return will no doubt find them seriously impaired. The Fund is the only one of its kind in the profession, and it is expected that when its existence becomes more widely known demands made upon it will be heavy. In order to meet the requirements of such cases substantial sums will have to be granted. The services rendered by the medical profession in the war have established a claim upon the public which, it is hoped, the public will recognize by giving its liberal support to the Fund. An appeal is made to medical men to bring the Fund, and its needs, to the notice of well-to do patients. The Royal Medical Benevolent Fund Guild continues its excellent work, details of which will be given in a report about to be issued.

IRISH MEDICAL SCHOOLS' AND GRADUATES' ASSOCIATION.

THE annual general meeting of the above association, which has now 646 members, was held on March 17th (St. Patrick's Day) at Pagani's Restaurant, when Dr.

Jocelyn Swan resigned the Presidential chair to Surgeon-General Sir Launcelotte Gubbins, K.C.B., M.V.O. The fortieth annual report showed that the finances of the association continued in a flourishing condition and referred with pride to the large number of members who were serving their King and country, many of them, including the metropolitan honorary secretary, having been at the front since the beginning of the war. Regret was expressed at the loss sustained by the death of one of their warmest supporters, the late Dr. James Little of Dublin, and of ten other members, including an ex-president, Dr. Highgate H. Phillips-Conn of Waterford. It was announced that the Arnott Memorial Medal had been awarded to Captain John A. Linton, I.M.S., whose conspicuous gallantry in Mesopotamia had won for him the Victoria Cross. The festival dinner was held subsequently, at which upwards of seventy members and guests, the latter including a considerable proportion of ladies, sat down. The toasts which followed were proposed and responded to in commendably short speeches, the President, Sir Launcelotte Gubbins, before they were entered on, inviting those present to show in the usual way their sympathy with H.R.H. the Duke of Connaught in his recent bereavement. The health of the King was most heartily drunk, the whole company singing the National Anthem with enthusiasm. The toast of "Our Defenders," proposed by Dr. William Douglas, was responded to by Captain Leahy, R.A.M.C., who said that the home folk could scarcely realize how much the prospect of a hearty reception on their return to England, Ireland, or Scotland helped the boys at the front to bear their hardships. He himself, having been a prisoner for a long time, experienced this to the full, and all were very grateful for what was done to make their lot endurable. The toast of "Our Guests," proposed by Dr. Gubbins Fitzgerald, was responded to by Dr. William Hill. The President, in acknowledging the toast of his health, said he felt it a great honour to preside over an association which during the forty years or nearly of its existence had had in the chair men of the greatest eminence in the profession. He made an earnest and eloquent appeal to his Irish brethren to use their influence with those they came in contact with in England to look ahead and prepare every one for the great combat in which all should take their share when the present war was over. There were, he said, three formidable enemies to be fought namely, tuberculosis, bad housing, and intemperance. The first could not be conquered until the second was got rid of. He would remind them of what had already been done to get rid of the second enemy in their own country, for no fewer than 47,000 comfortable cottages had been provided to meet the wants of the poorer peasants in Ireland, and to each was attached a quarter of an acre of ground. With regard to the third enemy to the health of the population in the poorer districts of the United Kingdom he would, though neither a teetotaler nor a prohibitionist, express a hope that the restrictions with regard to the sale of intoxicating liquors would be continued after the war to the great advantage of the health of the community. Evidence of how much had been done in the army of late years to lessen the evils of intemperance was to be found in the fact that out of 70,000 soldiers serving in India no fewer than 32,000 were teetotalers. Sir Launcelotte concluded by reference to the fine achievement just reported which their countryman, General Maude, had accomplished. The proceedings of the evening were enlivened by humorous songs and stories given by the Rev. Dr. Houston Collisson and by songs and violin playing by Miss Elsie Warner.

TAXES ON UNOCCUPIED FURNISHED HOUSES.

THE legal position so far as income tax is concerned as to taxation of houses not actually occupied except that furniture remains therein seems to be as follows: Section 70 of the Income Tax Act of 1842 provides that all properties shall be assessed whether occupied or not, but that the assessments on houses shall be discharged for the period they are "unoccupied." The statute gives no definition of occupation, but in a case decided in 1904—Smith *v.* Dauney, 2 K. B., 186—a furnished house not dwelt in or slept in for the whole financial year was held liable to inhabited house duty as well as to income tax (Schedule A) and local rates. It would therefore seem that there is no legal claim to exemption on the ground of absence of occupation. As to the quantum of the assessment the ordinary rules would apply, and it would be determined by the rent paid for that or similar houses. In view of the difference which the inclusion of the rental value of the house in the individual's total income might have on the rates of income tax payable on the whole, it certainly seems that this result, however correct legally, inflicts a substantial hardship. Inasmuch as the house would in such circumstances serve as store for the furniture, the complete exemption of the property could perhaps hardly be expected, but some system of assessment on "storage value" in such cases would obviate an existing injustice, and we hope that the point will not be lost sight of when the Finance Bill for this year is being discussed in the House of Commons.

THE DELINEATION OF INTERNAL ORGANS.

IN an article entitled "The delineation of internal organs by an electrical method," published in this JOURNAL in September last, an account was given of a device which at about that time was attracting some attention in the British Expeditionary Force. Information subsequently received seemed to justify us three weeks later in expressing the anticipation that we should be able to publish a full account of the method and results in an early issue. This expectation has not been fulfilled, and we have reason to believe that the inventor has failed to satisfy the physicists consulted as to the truth of his claims.

Medical Notes in Parliament.

Pensions for Soldiers and Sailors.

SEVERAL additions and improvements in the war pensions for soldiers and sailors were announced in the Commons debate on the warrant on March 19th. The principal controversy arose on the question of allowances for the "medically unfit" or broken down soldiers. The Government declines to recognize them for pensions, unless their disablement has been "aggravated in service" if not actually incurred in service. Under the warrant, however, such a man was to be eligible for a gratuity of not more than £100.

Mr. J. M. Hogge, in a general review of the scheme, repeated the demand that these men should be eligible for pensions. He recalled that 100,000 such men have already been discharged from the army, and reckoned that before the end of the war the discharges of men in this category would reach a quarter of a million. After his manner, Mr. Hogge had some caustic things to say about the different decisions of different medical boards. He mentioned the case of one of his friends, who, he said, had in November, 1915, been rejected by a medical board in Edinburgh as unfit even for home defence. Ten months later this man was again called up and passed as in Class B1. Then another medical board put him back to C2. In January last he was examined by a fourth board, which passed him for active service as A1. Mr. Hogge put it that in nine cases out of ten, if such a recruit broke down, the medical defence of the authorities would be that the man suffered from his troubles before he entered the army—it would not, according to Mr. Hogge, be admitted that they had been "aggravated by service." Mr. Hogge claimed to be able to produce cases of men who had fought in the war, and had nothing—not even the hundred pounds gratuity on their discharge as medically unfit.

Mr. Barnes (the Pensions Minister) gave an account of the new concessions to be made under the warrant, some of them arising out of the representations in the last debate. He spoke first of the case of a man, no longer totally disabled and not eligible for the highest degree of pension, who started work but had to attend hospital once or twice a week. If he lost time thereby or had expenses through the circumstance he would have an allowance up to 10s. a week. As for the gratuity question, Mr. Barnes said he was convinced that the hard cases quoted by Mr. Hogge referred to some time previous to February 15th. The man who had fought in the field and the man who had, it was said, been badly treated would be entitled

to a pension under the present warrant just as much as the man who had fought a year or more. The man the board had in mind for a gratuity was the man who might have been certified in an asylum, but had offered himself for service and was soon afterwards found to be insane; or he might be a man who was afflicted with syphilis, and who developed very soon some after-effects by reason of which he had to be discharged. Mr. Barnes next mentioned the case of a woman whose husband had died during the war and who had become incapable of supporting herself through a son being killed in the war. In such cases a pension of not more than 15s. a week would be allowed. Coming to alterations in the schedule fixing the amount of pension according to the nature of the disablement, Mr. Barnes said these matters had been largely left to the doctors, but the board had on its own initiative lowered the rate for the man who had lost both feet. The doctors had put him in the 100 per cent. category, but the board had reduced him to 80 per cent., but on representations from Roehampton had raised him again to the 100 per cent. class. Touching the treatment of blinded soldiers in Scotland, Mr. Barnes said he should be meeting the authorities of Edinburgh blind asylum in a week or two, but his information so far led him to believe that provision for the blind soldier could best be made by a central authority. He believed that St. Dunstan's could deal better with these men than any other institution in the country.

After further discussion, Sir A. Griffith-Boscawen (Secretary to the Pensions Ministry) made a further defence of the gratuity proposal for the medically unfit whose condition had not been aggravated by service. He quoted a number of cases in which the men had not done a single day's training. Wherever there was the slightest aggravation by military service a pension would be granted. With regard to the after-care of disabled soldiers, the minister said, in reply to a question, that Mr. Barnes was trying very hard to get that put on a systematic basis in every part of the United Kingdom. A Joint Committee had already been formed for Lancashire for the purpose of pooling facilities for treatment and training. Mr. Barnes and he were visiting Leeds to urge a similar scheme for Yorkshire, and were shortly going to Scotland for the same purpose, and they were quite prepared to take any steps they could to establish some national system for Ireland. They were prepared wherever facilities could be found for treating men in institutions to pay for their maintenance. It was the duty of the State, if proper institutions for the treatment, care, and training of disabled soldiers could not be found, to set them up. Existing institutions should first be used.

Before the close of the debate Mr. Bonar Law said the Government would raise the limit for the gratuity from £100 to £150.

War.

Contemplated Change of the Classification of Men in the Army.—In the course of debate on Army Estimates in the House of Commons on Wednesday evening Mr. Macpherson (Under Secretary for War) hinted that a revision of classification of men in the army was contemplated. He understood that the suggestion was to reduce the three classes A, B, and C, to two, A and B, the first named to be for men fit for general service, and the second for those who were not. Mr. Macpherson acknowledged that some men in Class C had been sent to France, but only after medical examination of such men, and only on assurance by the medical authorities that the conditions in France were equal to those at home for them.

Local Employment of Unfit Doctors of Military Age.—In the Commons Colonel McCalmont asked Mr. Macpherson whether it was in accordance with the decision of the Army Council that a civilian doctor in Ireland appointed in medical charge of troops in his locality before the war, who, although of military age, had been found medically unfit for general service by a board, was to be forthwith replaced by another local civilian doctor of over military age; and, if so, upon what grounds it had been decided to penalize young unfit doctors; and whether this decision would apply to doctors who had become unfit for military service. Mr. Macpherson replied that this was in accordance with the wishes of the Central Medical War Committee that young doctors should not be employed at home as that prevented others from volunteering. Young medical men who were unfit were employed on general service at home and not locally. Colonel McCalmont asked whether local doctors could not be employed in their own locality. Mr. Macpherson answered that offers of local service could not be accepted; doctors must volunteer for service in any part of the Home Command.

Woolwich Arsenal, Medical Department.—Mr. MacVeagh asked whether the doctors in the medical department at the Woolwich Arsenal were under the jurisdiction of the Army Medical Department. Mr. Macpherson said that, so far as officers were concerned, appointments were made to the office by the Director-General. He believed that one or two women doctors had been appointed by the Arsenal authorities direct. Like the rest of the Arsenal, the medical department was not under the jurisdiction of the Director-General.

Manipulative Surgery.—In reply to questions by Mr. MacVeagh and by Mr. Buxton, Sir Worthington Evans (Secretary to the Munitions Department) said that Miss Wade Thompson (whose case was referred to last week) was not prevented from resuming work at Woolwich Arsenal because she had been treated by Mr. Barker. When she offered to return to work on February 13th she did not produce a certificate that she was fit for work signed by a qualified medical practitioner, as was required under the rules of the Arsenal. She was not paid for the fortnight (February 13th to 27th) during which she was not at work. Nothing was known at the Arsenal of any question being raised in Parliament until March 2nd. Miss Thompson had been working since February 27th.

The Venereal Diseases Bill.—On March 15th the third reading of this bill was moved in the House of Lords by Lord Rhondda and agreed to. The bill therefore goes down to the Commons without amendment, and, if given second reading there, will doubtless be referred to the Grand Committee which is now considering the Criminal Law Amendment Bill.

Criminal Law Amendment Bill.—The Grand Committee on the Criminal Law Amendment Bill was occupied at its sitting on March 15th with Clause V. Under the bill the age of consent would remain the same as under the principal Act—namely, 16—but it was urged in the Commons debate on the second reading that the proposal in the bill to sweep away the defence of "reasonable belief" that a girl was 16 would in effect extend the protection afforded by the law. Mr. W. H. Dickinson, however, submitted that the time had come for raising the age and also for disposing of the defence of "reasonable belief" as to this age, and moved an amendment accordingly. Mr. Herbert Samuel supported the amendment, but said that if the Committee wished to choose between raising the age to 17 or keeping it at 16 and ending the defence of "reasonable belief" it would be better to keep the age at 16. Mr. Rawlinson spoke against the amendment on the ground that it would lead to serious increase in blackmailing, and suggested that the seduction of youths needed to be remembered. Sir George Cave, for the Government, opposed the amendment. He said that if the Committee decided to raise the age to 17, he should feel obliged to move that the provision regarding "reasonable belief" should be retained, and if he were defeated on that point he should have to consider whether he would proceed with the bill. He had been informed that in 50 per cent. of cases of this sort submitted to juries acquittals were given. The reluctance of juries to convict was an element that should be borne in mind. On a division the amendment was rejected by 21 votes to 20, and after some further debate the clause was passed as originally submitted. Thus the age remains at 16, as in the principal Act, but the defence of "reasonable belief" left available under that Act is made void. At the sitting of the Committee on March 20th, Mr. J. W. Wilson presiding, the Home Secretary withdrew Section 4, which concerned the definition of brothel. The proposal was to amend by reference previous Acts so that the word "brothel" should be construed as if the words "or for the purpose of habitual prostitution" were inserted after the words. The order paper was relieved of a page of notices of amendments by Sir George Cave's decision. Clause V proposed an amendment of penalties in cases of conviction of brothel keepers, such persons to be liable, on summary conviction, (*a*) On first conviction to a fine not exceeding £100, or to imprisonment, with or without hard labour, for a term not exceeding three months; (*b*) on a second conviction to a fine not exceeding £250, or to imprisonment, with or without hard labour, to a term not exceeding six months; and (*c*) in the case of a third or subsequent conviction to a fine not exceeding £500 or to imprisonment, with or without hard labour, for a term not exceeding six months. Discussion took place on amendments by Mr. Dickinson to omit the alternatives of fines. The argument for punishing these offences only with imprisonment was that brothel keepers made large sums of money, and were not much deterred by fines. On the other hand Mr. Dillon held that if the law were so framed it would be a terrible temptation to the police. A division was taken on the omission of the words as regards a first conviction, and Mr. Dickinson's amendment was rejected by 29 votes to 17. A second division took place with the same result in regard to later convictions. An amendment was afterwards moved by Mr. Samuel to give courts power not only to choose between the alternatives of fine or imprisonment but to impose a fine and to order imprisonment also. This was carried, the general opinion being that the twofold punishment would be awarded only in exceptional bad cases. Sir George Radford moved the rejection of Clause V which proposed to amend the existing law as regards penalties for soliciting and loitering so that a court should have power to impose on a second conviction a month's imprisonment, with or without hard labour. He pointed out that injustice might be done by one corrupt police officer. Ladies engaged in rescue work thought there might be danger of this kind. Sir George Cave replied that a temptation was put in the way of the police whenever a fresh statute against crime was enacted. No offence could be worse than blackmail on the part of the police, and if any case of that sort were brought to his notice it would receive very serious consideration. He had hoped that the chief objection to the present clause was removed when the subsection in Clause II as to medical examination was dropped. Mr. Samuel recalled the exhaustive inquiry by a special Commission some years ago into the matter of solicitation, and the findings which completely exonerated the police from vague charges which had been put forward. On a division the clause was rejected by 16 votes to 15.

THE WAR.

TREATMENT OF ARTERIAL WOUNDS.

ROFESSOR ENDERLEN, in a communication on the treatent of arterial wounds[1] at the congress of surgeons in eidelberg last year, said that ligature had been employed ss frequently than might have been expected; for stance, it had been applied only in 201 out of 421 ounds reported by Rehn, pressure or plugging sufficing r the remainder. The subsequent history of these cases, s regards the occurrence of gangrene, secondary haemorage, and aneurysm, was not available. Hotz of Freiburg ported unfavourably on the after-effects of ligature; thus six cases of ligature of the carotid, permanent unilateral aralysis followed in five, and in six ligatures of the moral, popliteal, and axillary arteries gangrene supervened in four. Spontaneous healing of a completely perrated artery was observed occasionally. The fact had en established during subsequent operations on the rves, and Enderlen had met with one instance in e carotid artery. If spontaneous healing did not take ace, a pulsating haematoma or arterio-venous aneurysm veloped and called for surgical treatment.

He strongly commended suture for wounds of arteries, ough suitable opportunities for performing this operation ere few. It should be performed early, for any marked duration of the tissues greatly increased the difficulties, that even after eight days the isolation of the vessel as no longer a simple matter. Early suture had many lvantages over other methods. The vessel could be adily isolated, its wall was not softened, ragged edges or ds could be trimmed or resected, and defects amounting several centimetres could be reduced by flexion of the nb or filled up by venous transplantation. The increase the haematoma and consequent injury to surrounding uscles and nerves was prevented, and the pressure of e blood effusion on the collaterals was got rid of. thrombosis occurred, the closure of the vessel was adual, as compared with ligature, thus affording ne for the development of the collateral circulan. Early treatment had the further advantage that e danger of late haemorrhage during transport was oided. Unfortunately, it was precisely in those cases ost suitable for the operation in which the perforations re small that diagnosis was difficult, since pulsation and rills were often absent in the early stages.

Suture was contraindicated if the patient were suffering m severe loss of blood; and if, on deferring the operan till the following day, the foot, in cases of wound of e femoral or popliteal artery, were cold, the operation as no longer of use. Only once was Enderlen able to ve the limb after circular suture of the popliteal in cases this kind. It was also contraindicated when the soft rts had suffered much laceration, since suppuration was en to be expected, and it was impossible to protect the tured wound. In wounds of arteries the ligature of ich would be followed by no untoward consequences ture would not be adopted. Early operation was to be commended in pulsating haematoma from wound of the mmon carotid, of the brachial below the circumflex anch, of the femoral below the profunda branch, and of e popliteal artery.

Stabsarzt Professor Gebele[2] has reported on the results operation in twelve cases of aneurysm from gunshot ury. Arterial aneurysms occurred less frequently than erio-venous; of the six aneurysms of the latter kind ich were operated on, four were indirect (varicose eurysm) and two direct (aneurysmal varix). Other ms were the not infrequent arterio-venous fistula d a peculiar aneurysm arising after complete division the femoral artery, in which the peripheral portion of e vessel became thrombosed, while the central portion mmunicated with the femoral vein through a large ematoma. Except in the rare cases in which spontaneous healing occurred, wound of an artery was followed the formation of a haematoma; and in the course of o to three weeks the periphery of the effusion became ganized into a fibrous sac. Gebele had observed haemaa in three cases; these appeared five days, seventeen ys, and seventeen weeks after wounding, the haematoma in the last case evidently being due to late haemorrhage, caused by the rupture of a contused spot or distended scar. In two cases pulsation and intermittent murmur of arterial aneurysms, and the thrill and continuous murmur of arterio-venous aneurysms were not present, and aneurysm should always be suspected when a haematoma showed no signs of diminishing within eight to fourteen days from the injury. A swelling was noticed four times, three times with discoloration of the skin; a tense pulsating tumour three times. In five cases both swelling and tumour were absent. Paralysis of nerves was observed in five cases, in two from direct injury, in three from indirect. External haemorrhage occurred in three cases, internal haemorrhage in one.

It was important that a recently wounded vessel should be ligatured at the seat of injury and not at the site of election, otherwise a recurrence of haemorrhage might take place through collateral channels. Wounds of vessels associated with the formation of aneurysm should not at first be interfered with; and there was some difference of opinion as to the most suitable time after wounding for operation. Many surgeons recommended from two to five weeks, but in all cases it was desirable that the wound should have healed, since infection excluded resort to suture of the vessel. It was not true, as had been stated, that the difficulties of the operation increased with the lapse of time from the infliction of the injury. Gebele had encountered great difficulties from adhesions around a femoral aneurysm as early as seventeen days after wounding, and, on the other hand, complete absence of difficulties in a similar case after five months.

The choice of operation lay between the methods of ligature or obliteration and those of reconstruction. Ligature above and below the sac was followed by slitting up of the sac or its excision or obliteration. The application of a single ligature above or below the sac was an uncertain method, and could rarely be required. The danger of gangrene was present in all methods of ligature, and Wolff had stated that in 2,043 ligatures gangrene occurred in 233. The danger was lessened if the vein was ligatured at the same time as the artery, the large veins apparently draining the blood too rapidly from the limb. Wolff found that with simple ligature of the arteries gangrene occurred in 20.4 per cent. in the lower limb and in 7.8 per cent. in the upper; when the vein was ligatured at the same time it occurred in 9 per cent. and 0 per cent.

The methods of reconstruction or restoration of the continuity of the vessel were suture and autoplastic transplantation of a portion of a vein. Suture was regarded as the ideal operation for aneurysm. Small thrombi were deposited upon the sutures, but no serious thrombosis occurred in the absence of infection. In arterial aneurysm the sac was slit up, the clot removed, and the aperture defined and closed by lateral suture. In arterio-venous aneurysm the sac was excised and circular suture performed. Venous transplantation was not necessary in traumatic aneurysms, and it was at times followed by thrombosis. Extirpation of the sac should be avoided, as it was often the cause of gangrene; the sutures should not be carried above the aperture in the arterial wall. The necessity of venous transplantation in large defects could be avoided by flexion of the limb, careful isolation of the vessel, with preservation of the lateral branches, and approximation of the ends by means of clamps. It was important that the vessel should be kept moist with physiological salt solution during the operation of suture, since drying favoured thrombosis.

Gebele performed seven ligatures and five sutures—three lateral and two circular, one of these with venous transplantation; eight of the cases returned to the front, two were disqualified, one died. Although gangrene did not follow in any of the cases of ligature, suture was to be regarded as the ideal operation.

[1] Bruns's *Kriegschir.*, Heft 14, p. 677.
[2] Ibid., Heft 15, p. 35.

HEALTH OF THE FRENCH TROOPS IN SALONICA.

FROM an account of the arrangements made for the protection of the health of the French troops in Salonica which appeared not long ago in the *Annales d'hygiène publique* we learn that in October, 1915, local laboratories for bacteriological diagnosis, water analysis, and general hygienic purposes were established under the

direction of members of the staff of the Pasteur Institute. A sanitary council, composed of French and Greek physicians, was appointed at Salonica to look after the health of the civil population and the troops living among them. Sanitary squads under the direction of a medical officer were formed; among their functions were the inspection of kitchens, the protection of food from flies, the incineration of refuse twice a day, the cleansing of latrines, and the removal of manure. Instructions as to the prevention of epidemics were gummed into the *livret* of every soldier. The most serious disease against which precautions had to be taken was malaria, which often occurred in the pernicious form. Thousands of mosquito nets were provided, fine network screens were placed in doors, windows, etc., and the men were given a pomade for the mechanical protection of the skin, especially the hands, as the mosquitos easily made their way through gloves. By the end of July, 1916, 12,000 kilos of quinine in tablets and 384,000 phials of quinine in solution for injection had been sent out, and similar consignments were repeated. The worst ravages of malaria occurred in the Vardar valley, where the Expeditionary Force at first chiefly operated.

In reply to representations by the sanitary service the general in command said that for strategical reasons it was necessary that the troops should remain there for several months. Prophylaxis was inefficiently carried out, the French soldier being unaccustomed to such precautions; many did not use the quinine served out; there was imperfect supervision on the part of the officers, and attacks of malaria passed as gastric disturbance accompanied by fever. The epidemic reached its height about the middle of July, 1916, when the temperature was about 120° F. in the shade, whilst military exigencies still made the laying out of roads and the digging of trenches necessary. Notwithstanding this, only one-fifth of the French troops were affected, and the large majority of the cases were mild. When the troops were moved to high ground, epidemic diseases became rarer and less severe. All the men were vaccinated against typhoid and cholera; those who had undergone antityphoid vaccination more than a year previously were revaccinated with triple vaccine (T.A.B.). Some cases of typhoid occurred, almost all of a mild type. An outbreak of typhus was feared, but, thanks to the precautions taken against lice, only two cases were reported; the troops were accompanied by special ambulances provided with douches and stoves for the disinfection of clothes. Although plague was prevalent in neighbouring countries, no case occurred among the French troops. In view of a possible importation of the disease, bacteriological examination of rats was made in a special laboratory at Salonica. Precautions were taken against the introduction of disease by prisoners, especially Bulgarians, as the sanitary condition of King Ferdinand's army left much to be desired. The evacuation of the sick and wounded was well organized; the number of available beds in the hospitals behind the fighting line was more than sufficient for requirements. Outside the Salonica region transport was more difficult, as in the hilly districts the patients could be carried only in barrows, or in baskets slung on the shoulders. The sanitary formations were provided with automobiles and a completely equipped train. The wounded were sent home in hospital ships, of which France at that time had seven, all well fitted out for the purpose.

EPIDEMIC JAUNDICE OF CAMPS.

THE occurrence of a form of epidemic and endemic jaundice in the western sector of the Italian front was recorded last year by Professors Frugoni and Cannata, as was detailed in the BRITISH MEDICAL JOURNAL of June 3rd, 1916, on page 800. A further communication on the same subject has recently been published [1] by Professors Frugoni, Gardenghi, and Ancona, containing a vast amount of clinical and pathological observations, based on the investigation of sixty-eight cases of this form of jaundice, and of seven other patients who had suffered from it from two to four months previously. A clinical picture of this Italian form of epidemic camp jaundice will be found in the reference given above, and it will not be reproduced here. The very complete pathological investigations of the three professors, however, may be briefly analysed and summarized as follows: In three of the patients the *B. paratyphosus* B was isolated from the blood, in eighteen it was found in samples of the bile collected by the passage of Einhorn's duodenal sound, and in seventeen it was cultivated from the faeces, which also gave growths of *B. paratyphosus* A in two instances and of Gaertner's bacillus in one. In all, over 35 per cent. of the sixty-eight patients with jaundice were shown to be infected with paratyphoid B or A bacilli. Many of the patients gave positive agglutinating reactions (dilution 1 to 100 or 200) with these bacilli. The conclusion reached is that about a third of the patients were definitely infected with paratyphoid organisms, which, no doubt, were inhabiting the bile ducts, and might be still excreted in the faeces two or three months after the attack of jaundice was over. What of the other two-thirds of the patients? Reasons are brought forward for believing that in some of these the infecting agent was *B. coli* or one of its congeners, and in others the Japanese *Spirochaeta icterohaemorrhagiae*. Four of the patients died, two being cases of paratyphoid B infection; in all four the bile ducts were pervious, the gall bladder normal, and the liver reduced in size and similar to the liver of acute yellow atrophy. Having made elaborate analyses of the gastric contents of many of their jaundiced patients, the authors show that hypersecretion of the gastric juice with hyperchlorhydria and diminished secretion of pepsin are common in epidemic camp jaundice. Examination of the blood proved an increase in the resistance of the red cells to haemolysis while the jaundice lasted.

Following up the histories of their patients, the authors found in six of them the notable development of a peculiar sequela. This they entitle "chronic residual hyposuprarenalism" (the name is theirs not ours), a condition characterized by a high degree of general weakness, Addisonian pigmentation of the skin and mucous membrane of the mouth, a feeble vaso-constrictor reaction and absence of true glycosuria on the injection of adrenalin, absence of alimentary glycosuria, and a conspicuous lymphocytosis. This syndrome might present itself soon or late after the attack of jaundice, and might develop more or less completely. It was attributed to the action of three factors—namely, the jaundice itself, the exhaustion produced in soldiers by the stress of service, and the formation of toxic substances. Other but less complete examples of this sequela were noted among the patients, and are referred to as instances of the "incomplete similaddisonian syndrome." In their experiments upon animals the authors did not succeed in reproducing the pictures of either the camp jaundice or the defective suprarenal activity.

[1] *Lo Sperimentale*, Florence, 1917, lxx, 587-695.

PREVENTION OF GUN DEAFNESS.

DISCUSSING the various methods of protecting the tympanum from the concussion of explosions, Dr. A. Eysell criticizes unfavourably the two devices most commonly in use. Opening the mouth and putting a finger into each ear are effective only when an explosion is anticipated. An unexpected explosion does not allow time for these precautions. Cotton-wool is useless, for it affords no effective protection to the tympanum, and many of the patients treated by Dr. Eysell for extensive laceration of the tympanum stated that they had always used plugs of cotton-wool. He described a small plug he has devised which, he says, can be worn for many hours without discomfort. Its main feature is that it contains a cavity guarded by a metal valve, which transmits ordinary sounds, but closes automatically when the atmospheric pressure is raised by explosions, the greater the concussion of the explosion the more effective the closure. It may be added, however, that at a recent meeting in Germany, at which concussion wounds of the tympanum were discussed, it was authoritatively stated that no satisfactory device had yet been found to prevent this and allied injuries.

[1] *Muench. med. Woch.*

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died of Wounds.

Lieutenant-Colonel M. L. Williams, Australian A.M.C.

Died on Service.

LIEUTENANT-COLONEL S. W. HEWETSON, C.A.M.C.

Lieutenant-Colonel Samuel William Hewetson, of the Canadian Army Medical Service, whose death was announced in the BRITISH MEDICAL JOURNAL of March 17th, died at the Royal Free Hospital, London, after an operation, on March 6th. He was formerly in practice at Calgary.

Killed.

Staff Nurse M. S. Dewar, Q.A.I.M.N.S. Reserve.
Staff Nurse M. Marshall, Q.A.I.M.N.S. Reserve.

Wounded.

Captain S. J. Linzell, R.A.M.C.
Captain G. D. Newton, R.A.M.C. (temporary).
Captain G. W. Rogers, R.A.M.C.(T.F.).
Captain E. A. Sanbrook, Australian A.M.C.
Lieutenant E. R. Daboo, I.M.S. (temporary).
Staff Nurse D. E. Dobbs, T.F. Nursing Service.

Prisoner of War.

Captain R. C. Clifford, I.M.S.

DEATHS OF SONS OF MEDICAL MEN.

Collins, Charles Bury, D.S.O., Colonel Royal Engineers, son of the late Dr. J. C. Collins of Stroud, died of cerebral malaria on March 1st. He was born on November 24th, 1867, educated at Wellington, and got his first commission in the R.E. from Woolwich on February 18th, 1886, becoming captain on October 7th, 1896; major on November 4th, 1904; lieutenant-colonel on April 19th, 1913; and colonel on April 13th, 1916. He had been successively assistant instructor and chief instructor at the School of Submarine Engineering, and at the time of his death was a deputy director of works, graded as chief engineer.

Downes, Howard Grey, second lieutenant Royal Engineers, only son of Dr. Howard Downes of Hornsey, killed March 12th, aged 23. He was educated at the Stationers' School and at Northampton Polytechnic Engineering School; joined the London University O.T.C. in August, 1914; was gazetted to the R.E. in June, 1915; went to the front in May, 1916; and was wounded on October 1st, but remained on duty.

Riddall, John George, Private Royal Scots, the 1st Foot or Lothian Regiment, second son of the late Dr. Riddall of Ayr, reported missing on July 1st, 1916, and now presumed killed from that date.

Ross, Ronald Maynard, Second Lieutenant Worcestershire Regiment, youngest son of Dr. Douglas M. Ross of Brighton, killed March 4th, aged 21.

Smith, J. Alan Tennyson, Lieutenant Royal West Kent Regiment, killed in action, aged 20, was the son of Dr. A. Tennyson Smith of Orpington. He was educated at Dulwich College, and matriculated at the University of London at the age of 16. He was going in for the medical profession, and had passed the first and a part of the second professional examinations for the M.B.Lond. He was fond of outdoor sports, and held his colours for football and cricket, and was captain of boxing in his own college, which he represented in the schools' boxing competition at Aldershot in 1914. He was company sergeant-major of the Dulwich College O.T.C., and retained his membership with the 1st Orpington Troop of the Boy Scouts, in which movement he took great interest. He received his commission in June, 1915, and in December was posted as officer-in-charge of his battalion machine guns. After spending a short time at Aldershot he went to France last May. He was wounded in June in the thigh and arm by shrapnel, but rejoined his battalion in time to take part in the battle of the Somme, and was mentioned in dispatches.

Umney, Cecil Francis, Second Lieutenant Dorset Regiment, elder son of Dr. W. F. Umney, Sydenham, aged 20, reported missing on September 26th, 1916, but now known to have been killed in action on that date. He was educated at The Hall, Sydenham, and Dulwich College. After matriculating at London University, he began the study of pharmaceutical chemistry. He obtained a commission in June, 1915, and was killed leading his men in an attack in the Somme offensive.

NOTES.

EDUCATIONAL FACILITIES FOR BRITISH PRISONERS OF WAR.

At a representative and largely attended conference of examining bodies in Great Britain, held on March 15th at the Board of Education, under the presidency of Mr. A. T. Davies, C.B., Chairman of the British Prisoners of War Book Scheme (Educational), it was unanimously decided, on the motion of Sir Edward Busk (University of London), to approve proposals for the encouragement and recognition of the studies pursued by prisoners during their internment. Various examining bodies (including most of the universities) have intimated their willingness to recognize work done and examinations passed in the camps, and to extend to the men on their return facilities for sitting for examinations under conditions which will take account both of their special circumstances and their needs. A message was read from the President of the Board of Education in which Mr. Fisher expressed sympathy with the objects of the conference and his belief that the result of its efforts would prove a great encouragement to the men to use wisely and well the time of their captivity, and, further, would be of material assistance to them on their return to this country. It is intended that the decision arrived at shall be communicated as soon as possible as "a message of encouragement and hope" to the various internment camps in enemy and neutral countries. Meantime it was suggested that friends and relatives of student prisoners might do them a service if, when writing to them, they would draw their attention to the steps in this connexion which are being taken on their behalf.

HONOURS.

The following medical officers are among the recent recipients of honours and awards for distinguished service in the field in Mesopotamia:

D.S.O.: Captain Allan Watson, M.B., R.A.M.C.

Military Cross: Temporary Captains John Low, M.B., R.A.M.C., Charles O'Brien, M.B., R.A.M.C., and Temporary Lieutenant A. Yeshwant Dabholkar, I.M.S.

The King of Italy has conferred the Order and Medalgia of Officer of the Crown of Italy upon Fleet Surgeon Robert Hughes, R.N., and Staff Surgeon Thomas W. Myles, F.R.C.S., R.N., for distinguished service during the war.

Operations in Gallipoli.

A list of officers who fell in action or died of wounds has been brought to the notice of the Secretary of State for War by General Sir Ian Hamilton, G.C.B., for distinguished and gallant service during the operations in Gallipoli. The names should be included in the list of mentions published in the *London Gazette* of November 5th, 1915. Among the officers mentioned is Captain M. F. Reaney, I.M.S.

England and Wales.

THE London County Council has resolved that the administration of Part I of the Children's Act, 1908, which deals with infant life protection, shall be transferred to the Public Health Department, believing that, having regard to the important public health aspects of the matter, the work of inspection should be entrusted to the medical officer of health. It has also decided that the work of the County Council under the Midwives Act should not be delegated to the borough councils.

CENTRAL MIDWIVES BOARD.

Special meetings of the Central Midwives Board were held on March 13th and 14th for hearing penal charges against twenty-four midwives; Sir Francis Champneys was in the chair. Sixteen of the women were struck off the roll. In eleven cases the charges were concerned with neglect of ophthalmia neonatorum. Other grave charges included negligence in cases of puerperal fever and serious rupture of the perineum. Two of the women struck off had been convicted and sentenced at the Central Criminal Court to twelve months and six months' imprisonment respectively, and another had been convicted and fined for using obscene language.

At the monthly meeting on March 15th, Sir Francis Champneys presiding, the Board considered a letter from the Local Government Board with reference to the question of a limited delegation by a county council to an urban district council within its area having a population of not less than 20,000. The Central Midwives Board adopted a reply, in the course of which it was pointed out that the locality in which the question was originally raised contained 124,580 inhabitants in 1911, a population which had in other instances been held to justify elevation into a county borough, but that the delegation of the power of inspection of midwives was to be regretted; the Departmental Committee had reported against it, and the amending bill proposed to repeal the power which was not given in the Scottish Act. The Chairman was requested to communicate with the Privy Council asking that some relief might be afforded in respect of the heavy expenses incurred by the country members in attending Board meetings owing to the large increase in railway fares.

The Report of the Board of Control.

The second annual report of the Board of Control deals with lunacy and mental deficiency during the year 1915.

On January 1st, 1916, the number of notified insane persons under care in England and Wales was 137,188, a number less by 3,278 than that recorded on January 1st, 1915. This is remarkable as being the first occasion since 1859 (when reliable statistics first became available) on which a decrease as compared with the previous year has been noted; in fact, for the ten years ending 1914 an annual average increase of 2,251 registered lunatics had occurred. The Commissioners remark that "it is natural to infer that the diminution is only temporary, and bears some relation to exceptional conditions—social and economic—arising from the war with which it coincides." Later they suggest a possible explanation in such conditions as withdrawal from civil occupations of so many males, the demand for female as well as male labour, and the consequent increase in material prosperity. On the other hand, the direct influence of war in "disturbing mental balance in those actively engaged in it," and stress of anxiety in their relatives, must not be lost sight of; and it is noted that an increased death-rate in the asylum population, as well as a diminished admission rate, is a factor in the decrease recorded during 1915. Deaths in county and borough asylums alone in 1915 exceeded by 2,116 those recorded in 1914, the death-rate rising to 12 per cent. from the previous quinquennial rate of 10.1. A corresponding heightened death-rate has prevailed in the Metropolitan District Asylums, the percentage for 1915 having been 13.97 as compared with 11.15 in 1914. During 1915 there had been a considerable increase in the asylum deaths from dysentery, influenza, pneumonia, enteric fever, and phthisis. The total average weekly cost per head for all county and borough asylums (11s. 1½d.) showed a rise of 4d. on the previous year, the total rise amounting to 9¾d. since 1913.

As regards mental deficiency, less elaborate statistics are given, probably because the carrying out of the Act has been greatly retarded by the war. Voluntary local associations have, however, accomplished much valuable preliminary work in conjunction with the "Central Association for the Care of the Mentally Defective," through which State grants in aid have been made. The training of attendants and instructors in institutions has also been taken in hand by the Central Association. The work of the voluntary institutions is commented on at some length, and an account of some of them will be found in the Supplement.

Borough of Hove Child Welfare Centre.

A child welfare centre has been opened recently in the borough of Hove. Its management has been placed under the direction of Dr. Rawdon Wood, the acting medical officer of health, who is largely responsible for its foundation. The work undertaken is that common to all child welfare centres—namely, the periodical examination of babies and young children as to their weight, nutrition, and general progress. Once a week the mothers are invited to bring their babies for inspection. The infants are weighed and examined, and if any disorders of digestion or nutrition are discovered advice is tendered, and simple medicines such as cod-liver oil or malt given. If any definite disease is discovered the mother is referred to the hospital for treatment. The parents are given advice as to the proper method of bathing, clothing, and feeding their children, as to the benefits of fresh air, cleanliness, and sleep, and as to the evils of dirt, flies, tube bottles, and "comforters." In connexion with the centre a voluntary aid committee supplies food for necessitous nursing mothers, and also hospital letters, instruments such as trusses, and general advice and assistance. The committee has a clothing club, and is in close touch with other associations for women.

The attendances vary from thirty to sixty, and the mothers all seem to take the greatest interest in the progress of their offspring. The afternoons are made as pleasant as possible by the director of the centre, who is assisted by Miss Ada Hipkins and a staff of voluntary workers. They keep the record cards, help the mothers to dress and undress the babies, keep order in the consulting room, receive visitors, and do generally useful work.

Exhibits are arranged of infant clothing; needlework and the cutting out and making of garments are taught. Tea is served at a trifling cost, and the mothers seem to enjoy their afternoons. Unfortunately, here, as in all other such centres, it is the mothers keenly anxious for the welfare of their offspring who attend. The very class of mothers it is most desirable to reach, those who from ignorance or indifference are improperly feeding or managing their children, are conspicuous by their absence. No scheme has yet been devised to get hold of this class, but it is hoped that the influence of such centres may gradually filter downwards and reach those for whom, after all, they are most needed. These remarks are in no way intended to belittle the most excellent work done at this centre, which is undoubtedly improving and later will still more improve the average standard of nutrition and health of the children of the borough.

In connexion with the centre a course of twenty lectures had been arranged on child welfare and the hygiene of child life and school life by Dr. Rawdon Wood, Dr. L. A. Parry (School Medical Officer), Dr. Helen Boyle, Miss Hipkins (Health Visitor), and Mr. Herriot (Sanitary Inspector). The course is intended primarily for health visitors, school nurses, and workers in child welfare, but medical practitioners, sanitarians, and others engaged in public health are invited. The centre is recognized by the Royal Sanitary Institute, and the lectures cover the whole course required for its examination for women health visitors, tuberculosis visitors, school nurses, and school teachers. The lectures have so far been most successful, many having to be refused admission. Probably they will shortly be repeated.

Venereal Diseases: Publicity Arrangements in London.

At the meeting of the London County Council on March 20th the Public Health Committee recommended that in dealing with the publicity arrangements under the scheme for the diagnosis and treatment of venereal diseases, the Council should confine itself for the present to disseminating information among persons who held positions of responsibility. The Council agreed to a motion that the National Council for Combating Venereal Diseases should be permitted to exercise such of the County Council's powers for disseminating information under this scheme as related (1) to the free distribution of literature in connexion with conferences to be held in each metropolitan borough, and (2) to the provision of lecturers and syllabuses for instructing social workers in association with such conferences. It was understood that a sum not exceeding £300 should be contributed for this purpose.

The Prevention of Tuberculosis in London.

At a drawing-room meeting held at 34, Queen Anne's Gate, Westminster, on March 21st, when Lord Glenconner was in the chair, Dr. F. N. K. Menzies, principal assistant medical officer of the London County Council, gave a lecture on the prevention of tuberculosis, the third of a series on social subjects arranged by the Charity Organization Society. The incidence of the disease, he said, had declined by 50 per cent. during the last half-century; this was due, first, mainly to the improved sanitation of dwellings and workshops, but also to improved nutrition and the general rise in the standard of living. It was only when the housing side of the problem was tackled that much further progress was likely to be made. There were, he said, eleven Central Fund dispensaries in London at the present time, many borough or municipal dispensaries and a few dispensaries, also under the control of the council, but attached to a hospital. Two boroughs, Bethnal Green and Hammersmith, had no dispensaries. The number of beds made available for children under the London County Council scheme had been largely increased even during the war, and all demands for uninsured adults, with whom alone the London County Council was concerned, had been met with the minimum of delay. Nearly thirty tuberculosis care committees were working in London, and it was hoped that before long every part of the metropolis would be covered. There were at present two open-air schools, both on the south side of the river; it was hoped that their number would be increased; to them would be sent the "pre-tuberculous" child. It was also hoped to establish at least four or five dispensary schools, attached more or less definitely to the tuberculosis

pensary, so that the children could get education and tment at the same time. The next development was the nature of more definite provision for persons in an anced stage of the disease. To each dispensary should ttached a home for such sufferers, to be looked after the dispensary medical officer, and to be used for those os which the officer picked out as requiring isolation. er on it was hoped also to develop farm and garden onies as had been done in Edinburgh.

CANCER HOSPITAL, LONDON.

he annual report for 1916 showed that 793 new in- ents were admitted, an increase of 20 on the previous r, and that the new out-patients numbered 1,519, an ease of 95. The number of operations performed was of which 227 were abdominal. The percentage of hs within three weeks of operation was 4.8. Colonel V. Webber, who presided at the annual meeting, said many military cases had been sent to the hospital for tment, especially in the electrical department. The arch department had conducted some important in- igations, but the results were not ready for publication. female staff had voluntarily accepted a reduction in meat ration from 7 lb. to 2½ lb. a week. In acknow- ing a vote of thanks to the medical staff, Dr. Charles ll, Chairman of the Medical Committee, said that gh no hospital had suffered more by the depletion of honorary medical staff, it had been possible to give ent service. Speaking as a member of the Reference mittee under the Military Service Act, which avoured to prevent the efficiency of the hospitals in metropolitan area being diminished while providing ers for the R.A.M.C., he said that the increasing ands of the army were causing a rapid diminution in anks of the civil medical profession. The public had to accommodate itself to a meat and a sugar ration, was now on the eve of a "doctor ration." It was only king stock of the available men and pooling resources it would be possible to carry on the work of the itals and safeguard the health of the community.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL.

the recent annual meeting of governors it was re d that the number of patients admitted to the wards 16 had increased to 2,075 as compared with 1,817 in ; and 2,058 had been attended at home by the hos- midwives. Of the in-patients 407, and of the out- nts 911, were the wives of soldiers and sailors. In to cope with the increasing work of the antenatal tment, a new (temporary) out-patient department had opened adjoining the hospital, and a physician (Miss ces M. Huxley, M.D.) had been appointed in charge. nfant consultation centre was also being opened, and ysician (Miss Margaret G. Thackrah) appointed in ge. The number of emergency cases admitted had greater than ever. Last year there were 183, many em being admitted in a grave condition. The work been carried on under difficulties due to a shortage rses, but the training school had well maintained its ation.

Scotland.

meeting in Glasgow, under the auspices of the cor- on, it was resolved to form a local centre of the nal Council for Combating Venereal Diseases. The ng was addressed by Sir Francis Champneys, and notion to form the local branch was moved by Dr. zer Duncan and seconded by the Rev. Professor r.

VITAL STATISTICS OF 1916.

reliminary statement on the vital statistics of Scot- n 1916 published by the Registrar-General states that irth-rate in that year was 22.8 per 1,000, the lowest corded, and 12.8 below that for 1876, when the rate ed its maximum. The marriage-rate was 6.5 per which was 1.1 below that for the previous year, low the mean of the rates for the preceding five years, and 0.5 below the mean of those for the preceding ten years. The death-rate was 14.6 per 1,000, which was 2.5 below that for the previous year, 1.1 below the mean of the rates for the preceding five years, and 1.3 below the mean of those for the preceding ten years. It was the lowest rate ever recorded for Scotland. The infantile mortality-rate was 97 per 1,000 registered births—nine less than the previous lowest infantile mortality-rate recorded in Scotland—that for 1912. Comparing the birth and death rates in urban and rural areas, it is shown that in the larger burghs taken collectively the birth-rate was 23.2, and the death-rate 14.9. In the smaller burghs the birth-rate was 21.8, and the death-rate 15.0. In the county districts the birth-rate was 22.8, and the death-rate 13.8.

MOBILIZATION OF THE PROFESSION.

A meeting of registered medical practitioners in Glasgow and the West of Scotland will be held in the Faculty Hall, St. Vincent Street, Glasgow, on Tuesday, March 27th, at 4.30.

The opinion of the medical profession will be invited upon the following points:

(*a*) Does the meeting approve of the principle of the immediate and compulsory mobilization of the whole nation (due regard being paid to age, training, and circumstances), to secure the successful and rapid conclusion of the war?

(*b*) Does the meeting approve of the medical profession being so mobilized in advance of the community?

(*c*) If the medical profession is to be mobilized, is the meeting satisfied with the arrangements which already exist, centrally and locally, for the redistribution of medical men, and for administrative purposes generally?

MATERNITY AND CHILD WELFARE.

The Scottish Travelling Exhibition of Maternity and Child Welfare Work was in Glasgow last week. Dr. Leslie Mackenzie, medical member of the Local Government Board, in opening it, said that it had been shown in a number of towns since it was first opened in Keith last August. From Glasgow it would go into Lanarkshire, and then to the west and south of Scotland. It had everywhere been welcomed. Sir Donald MacAlister said that the reports on the subject prepared by experts for the Carnegie United Kingdom Trust would be issued very shortly. They would, he felt sure, impress the public with the magnitude and complexity of the problem.

At a conference held in connexion with the exhibition a paper on the Midwives (Scotland) Act by Sir Halliday Croom was read for him by Dr. Haig Ferguson. A discussion on the Notification of Births Act was opened by Dr. Leslie Mackenzie. Dr. Maxwell Williamson dwelt on the value of properly kept records showing the districts of a town in which special provisions were required to meet the circumstances which led to the loss of child life. In reply to a question he said that the infantile death-rate in Edinburgh was almost in exact proportion to the number of licensed premises in the different districts, and Professor Hope said that the experience of Liverpool was very similar.

At a meeting under the auspices of the Scottish Federation of Mother and Child Welfare Centres, Dr. A. K. Chalmers, M.O.H. Glasgow, who presided, said that the Federation established a year ago now included thirteen associations. During the discussion it was urged that the medical supervision of school children should be under the direct control of the medical officer of health, and not of the School Board, and Dr. Leonard Findlay said that research was ahead of legislation in respect of the effect of bovine tuberculosis on children. A discussion on the relation of general practitioners to welfare centres and the problem of home visitation was raised by Dr. Chalmers. Dr. Michael Dewar (Edinburgh) contended that some of the welfare schemes proposed would mean unfair exploitation of the medical profession. Dr. Drever, secretary of the Glasgow Local Medical Committee, thought that as the State had admitted its liability for the mental training of the citizen it should provide medical attendance and treatment for every one.

Ireland.

THE Central Babies' Clubs' Committee, an organization working under the Women's National Health Association, has forwarded a resolution to the Local Government Board pointing out that the mortality among nurse children in Dublin is exceedingly high, and asking that persons desiring to take children to nurse should be compelled to register.

The Rathdown Board of Guardians has instructed its solicitor to apply for a mandamus against the Local Government Board, which has refused to sanction the appointment of a temporary medical officer of military age.

The epidemic of measles, which exists in some parts of England, prevails to so serious an extent in Dublin that nearly all the infants' schools have been closed, in accordance with the request of Sir Charles Cameron, M.O.H.

THE IRISH AUTOMOBILE CLUB AND WOUNDED SOLDIERS.

The report of the Irish Automobile Club's Ambulance Transport Service states that it now consists of fourteen ambulances carrying fifty-six regulation army pattern stretchers, and six ambulances carrying twelve regulation army pattern stretchers, or a total carrying capacity of sixty-eight stretchers. The decision of the military authorities to use only the regulation stretchers for unloading hospital ships had rendered it impossible to continue to make use of vans kindly lent by Dublin traders, as they were too short to take the army pattern stretcher. During the year covered by the report fifteen hospital ships had been met and 3,924 cases transferred to Dublin hospitals. Members and non-members of the club attended with their touring cars on every occasion, and assisted in transporting the sitting-up cases to hospitals. The total number of wounded soldiers carried by the ambulance service for the year was 12,640, exclusive of the rebellion period, and not including men carried in private cars. Having dealt with the work of the association during the rebellion period, the report recorded services in connexion with recruiting for the mechanical transport section of the Army Service Corps, the Wounded Soldiers Reception Committee, and for the provision of comforts and entertainment for soldiers.

Correspondence.

FOOD REQUIREMENTS OF CHILDREN.

SIR,—In the admirable series of recommendations on rationing and "how to save food," recently issued by the Controller, there are certain recommendations with regard to the diet of children that appear to call for revision. The recommendations of the Controller are based on the following statement: "Children need plentiful food. A child of 8 needs half as much as a grown-up; a child of 12 three-fifths as much; a girl of 16 needs as much as her mother, and a boy of 16 may eat as much as his father."

I am aware that this represents the teaching of standard textbooks on the subject, though I have never been able to ascertain the exact data on which the original recommendation by Atwater was founded. I venture to think, however, that this teaching is wrong, and is to be deprecated as a guide at the present time. My opinion is based both on practical observation and special investigation. The food requirements of a healthy schoolboy, say of 12 years, can be fairly accurately gauged from observation and a comparison with those of his parents on the same régime. If this test be applied, it can, I think, safely be said that the average boy of 12, in a household of the professional class, eats as much as his father. Corroborative information is obtained from the laboratory standpoint. Some time ago I made a detailed study of the actual amount consumed by healthy children in a series of medical families, every precaution being taken to ascertain the exact amount of food consumed. The ages of the children ranged from 4 to 6 years. The r showed a daily average of:

Protein	71 grams
Fat	67 ,,
Carbohydrates	198 ,,

Total calories, 1,725.

The supply of protein—the main food element i dietary of children—consumed by a child of 6 year under is shown to be greater than that allowed for b Controller for a boy of 12.

Fully grown subjects may with safety and po advantage to health accept the standard laid dow the average adult by the Food Controller. It is, how not advisable to restrict the feeding of children t extent indicated in the Controller's recommendation wise economy in regard to the feeding of children s be looked for in the selection of foodstuffs rather tha reduction of quantity below the pre-war standard.— etc.,

Edinburgh, March 17th. CHALMERS WATSON, M

THE PROPHYLAXIS OF VENEREAL DISEA

SIR,—Some of the remarks made by Dr. T. C. Mack and others in the course of the correspondence on question seem to show that there is still considerable conception concerning the chief point at issue betwee advocates and the opponents of the use of prophy applications. The real question is tersely and c stated and irrefutably answered by your correspon "A Medico-Legal D.P.H." and Mr. Arthur Cooper, i JOURNAL of March 10th. Dr. Mackenzie, hov erroneously assumes that those who hold it to b duty of a medical practitioner to spread the knowle effectual preventives against *venereal infection* b means in his power, are ignoring the value of all attempts, whether of morally persuasive or coercive n to diminish the evils of indiscriminate *sexual interc* Nothing that I or, as far as I know, any others who taken part in this correspondence have said justifie implication. There is, therefore, no point at all Mackenzie's suggestion that "if Sir B. Donkin an Elliot leave alcohol out of their scheme of scientifi phylaxis they will be disappointed in the results." people know, whether they be medical or not, that a is a frequent excitant of sexual desire, but the con tion neither of this nor of any other of the many exc of such desire has any relation to the purely m question as to the use of a direct preventive known effectual.

Dr. Mackenzie asks me whether I still maintai this "*subject* is essentially and exclusively medica whether I admit the importance of certain socia legislative measures . . . into all of which the factor enters." My answer is that the *subject*, as preted by Dr. Mackenzie in this double-barrelled qu (which is a good example of the *fallacia plurium i gationum*) has never been said by me to be a m question, and that I certainly adhere to my stat that the question of the duty of making know use of effectual preventives against infection is a medical one, and is properly answerable by the m profession alone, as, indeed, it is now being ans very widely in the affirmative.

To argue against prophylactic measures on the that they will not "get rid of venereal infection in or a generation" is clearly beside the point. If no used, no remedy—prophylactic, palliative, or curativ be effectual. The only sound argument against any method of preventi n is to prove that when properl it is not preventive.

Lastly, Dr. Mackenzie attempts to traverse my ment that Dr. Otto May urged that this question vention was a purely medical one. I did not say th Otto May used these particular words. But he s reported in the JOURNAL of February 10th, that he aware that any popular propaganda on the subj prophylaxis would meet with a good deal of opp in many quarters, but, all the same, he thought it ou be persevered with. The sooner the whole ques morality was divorced from methods of treatm disease the better. The two aspects—the moral a medical—must not be confused." Dr. Mack

equivocal use of the word "prevention" is perhaps the source of this misunderstanding. There must be no confusion of attempts to discourage irregular sexual intercourse with direct medical measures taken to prevent venereal infection.

While writing this I have seen in the *Lancet* of to-day's date a valuable contribution on the question of direct prophylaxis by Lieutenant-Colonel James Barrett, R.A.M.C., C.M.G., setting forth the views of important medical authorities in Victoria, and therefore take the opportunity of commending this paper to the notice of all who are interested in this discussion.—I am, etc.,

London, W., March 17th. H. BRYAN DONKIN.

THE DANGER OF SMALL-POX.

SIR,—In your issue of March 17th, p. 377, you refer to a recent lecture by Professor McWeeney before the Royal Dublin Society, as quoted by Sir Joseph McGrath, Registrar of the National University of Ireland, in which warning is given as to the danger of a serious outbreak of small-pox in Ireland owing to the increasing neglect of infantile vaccination.

The line of argument is as follows: "Small-pox mortality has been falling in Ireland since 1840, and has now entirely disappeared, the last death occurring in 1907. In Ireland, as in Great Britain, a large proportion of the population is at the present time unvaccinated. The proportion of successfully vaccinated children, which in 1905 was 82 per cent., was only 61 per cent. in 1913. *Ergo*, if small-pox should be introduced into Ireland—a by no means improbable contingency—the disease would find an abundance of totally unprotected individuals."

So far I am quite at one with Professor McWeeney. But then comes the statement which I feel bound to take exception to: "It (small-pox) would thus gain in virulence, and ultimately attack persons insufficiently protected by their primary vaccination. A dreadful calamity might thus ensue."

Now, Sir, with all due respect to orthodox opinion on this subject, I wish to suggest that the danger arising from the neglect of infantile vaccination has been much overestimated. I submit that it is not the practice of infantile vaccination which is abolishing small-pox from the British Isles. If that were the true cause of the disappearance of this disease, how is it that small-pox mortality continues to fall *pari passu* with a steady and rapid decrease in the amount of infantile vaccination? Or how is it that in Ireland, where the proportion of children vaccinated has always been less than in Great Britain, the disappearance of small-pox has been most complete? And, most remarkable of all, how is it that small-pox mortality has fallen in unvaccinated Leicester quite as much as, if not more than, in the rest of the country?

I submit that it is not infantile vaccination but other factors, especially modern methods of administrative control—notification, isolation, surveillance and vaccination of contacts, etc.—coupled with improved "sanitation" (using that term in its widest sense) which deserve the credit for having virtually abolished small-pox from our midst, and consequently that there is no sufficient reason for believing that neglect of infantile vaccination is fraught with the serious danger to the community which so many people would have us believe.

As for the statement that the presence of unvaccinated persons causes small-pox "to gain in virulence," this is surely very misleading. (I assume that Professor McWeeney was correctly reported.) It is, of course, true that if unvaccinated persons are attacked by small-pox they suffer from more severe attacks than vaccinated persons; but this is a very different matter from "increasing the virulence," which surely implies that they pass on a more virulent type of the disease to others. I assert that there is no evidence that this is the case. Indeed, here in unvaccinated Leicester the type of small-pox during the thirty years that infantile vaccination has been abandoned has, on the whole, been distinctly below the average in virulence.

Again, there is no evidence to support the suggestion that the unvaccinated section of a community are first affected by small pox and that ultimately the once-vaccinated and partially protected are attacked. The experience in the great majority of outbreaks is that it is the once-vaccinated and partially protected who originate and spread epidemics. This is because mild modified cases in the vaccinated are so easily unrecognized and overlooked. As I have shown elsewhere,[1] infantile vaccination has, for this reason, a very real tendency to spread small pox. This may seem a hard saying to some, but it is none the less true. As regards the unvaccinated, they should be regarded as the victims rather than the cause of small-pox outbreaks.

Lastly, the reference to the experience of Germany during the present war is surely rather unfortunate for Professor McWeeney's thesis. Behold, Germany, the much vaccinated and revaccinated Germany, which for years has been held up as a shining example and pattern to the world in the matter of vaccination, is now suffering from "several serious outbreaks of small-pox" in various parts of the country! Surely it is time that existing theories about vaccination were re-examined.

To prevent misunderstanding, let me say that I yield place to none in my faith in the power of recent vaccination to protect the individual. What I am out against is the alleged efficacy of infantile vaccination to protect the community. That is a very different proposition.—I am, etc.,

Leicester, March 19th. C. KILLICK MILLARD.

THE APPLICATION OF SURGICAL METHODS TO THE TREATMENT OF CEREBRO-SPINAL FEVER.

SIR,—Captain Drew's suggestions as to surgical treatment in cerebro-spinal fever (February 17th, p. 223) are interesting, but I should like to offer a few observations.

In the first place I should like to combat the idea that treatment by serum is no more effective than by simple tapping. The statistics of the naval cases published by Surgeon-General Rolleston and our experience here appear to prove that early treatment by serum is of great value. In the series of cases treated at this hospital last winter and spring the mortality in cases treated before the end of the third day of illness was only 9.09 per cent., the total mortality being 21 per cent.

Captain Drew says he cannot understand how the injection of antitoxic serum can affect a completely contaminated cerebro-spinal fluid, and doubts if the serum can penetrate sufficiently unless injected under dangerous pressure. The answer to the first point can only be decided by experience, and with regard to the second Dr. Carnegie Dickson, pathologist to this hospital, proved by experiment with methylene blue on the cadaver of a fatal case of cerebro spinal fever that fluid injected into the lumbar spine with fifteen inches water pressure reached the brain in a few minutes.

In the early experience of this work my colleagues and I found ourselves desiring a method of continuous spinal drainage, but further experience convinced me that it would be practically useless. In cases doing well daily drainage by lumbar puncture with the administration of serum is quite sufficient. A large majority of the cases which do not do well belong to the class referred to by Captain Drew in which the flow of cerebro-spinal fluid becomes progressively less. In such cases, as we have proved by *post-mortem* examination, the subarachnoid space is narrowed and the communications between the cerebral ventricles and the spinal canal have become blocked. The ventricles thus become closed chambers in which meningococci develop and flourish for long after they have disappeared from the spinal fluid. I cannot conceive how laminectomy and spinal drainage could benefit such cases.

The logically correct way to treat them would be by trephining and drainage of the lateral ventricles, but one naturally hesitates before undertaking such a drastic procedure.—I am, etc.,

A. CHARLES E. GRAY,
Captain R.A.M.C.,
Officer in Charge, Cerebro-spinal Fever Wards,
Fulham Military Hospital.

February 26th.

THE OLDEST AGE OF PARTURITION.

SIR,—My wife was born on February 5th, 1865. First child born March 31st, 1897. Eighth child born May 31st, 1914, the mother being then 49 years and 3 months old.

I can also vouch for a patient of mine whose first baby

[1] *The Vaccination Question in the Light of Modern Experience. An Appeal for Reconsideration.* London: H. K. Lewis.

was born when she was 19, and the last when just 49. She had, I think, fifteen children, all of whom lived to adult age. The mother, now close upon 80, is still hale and hearty. These cases cannot be so rare as is supposed, for I think I could find more of them.—I am, etc.,

COUNTRY PRACTITIONER.

March 18th.

*** Dr. J. B. Garman (Great Barr, near Birmingham) writes that he attended a multipara in August, 1915, aged 49 years and 7 months. He offers to supply further particulars to Dr. F. J. Smith.

THE WHITE CITY CASE.

SIR,—We have the concurrence of the solicitors to the *Evening Standard* in requesting you to give space in the BRITISH MEDICAL JOURNAL to the following expression of explanation and apology to Dr. Henry Dutch, which appeared in the issue of the *Evening Standard* dated the 2nd March, 1917:

THE WHITE CITY CASE.

An Explanation and an Apology to Dr. Dutch.

Our attention has been called to an unfortunate inaccuracy in the report of these proceedings appearing in our issue of February 27th. From our report it would appear as though Mr. Muir said that Dr. Dutch had told Sauge "to drop the Sergeant-Major a quid."

As a matter of fact, Mr. Muir, in making the statement quoted above, was referring to quite a different person, and made no aspersion whatever upon Dr. Dutch. We much regret the inaccuracy in our report, and we are pleased to take the earliest opportunity of correcting any misapprehension and express our unqualified apology to Dr. Dutch for any annoyance caused to him.

We shall therefore esteem it a favour if you will publish this letter in your next issue.—We are, etc.,

HEMPSONS,
Solicitors for Dr. Henry Dutch.

33, Henrietta Street, Strand, W.C.,
March 15th, 1917.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

IN the report of the meeting of the committee of the Belgian Doctors' and Pharmacists' Relief Fund it was stated that a printed statement had been prepared of the progress and working of the Fund during its first two years, but that it was not considered proper to incur the expense of circulating a copy to all subscribers to the Fund. A short summary of the statement may be of interest. It recalls that the Fund was originated in consequence of representations made by Dr. C. Jacobs, Professor of Obstetrics in the University of Brussels, who came to England in November, 1914, as a delegate and spokesman of a committee of Belgian medical men and pharmacists organized in Brussels. A provisional committee was formed, with Sir Rickman Godlee as chairman, and containing representatives of the Royal Colleges of Physicians and Surgeons, the Apothecaries' Society of London, the Pharmaceutical Society of Great Britain, and the British Medical Association. Dr. S. Squire Sprigge, editor of the *Lancet*, has acted as secretary throughout, and Dr. H. A. Des Voeux as treasurer. By the first week of February, 1915, over £5,000 had been received, and the first disbursement was made for the assistance of refugee Belgian medical men in England. Subsequently the British committee got into communication with a society formed in Belgium entitled, Aide et Protection aux Médecins et Pharmaciens Sinistrés, and the British committee has for some time been transmitting a sum of £800 each month to this society.

A general summary of the financial circumstances shows that the total donations to the fund down to November 30th amounted to £19,500 6s. 5d., including the sums collected by national committees in Scotland and Ireland, the Colonies, and America. Part of the fund was invested in Treasury Bills, and the interest on them and on money on deposit amounted to £826 14s. 6d. The financial position at the close of the second year of working was that £10,000 remained in hand after sending the sum of £800 a month for a considerable period to Belgium for the relief of doctors and pharmacists and their wives. From the beginning of June up to the end of November £627 2s. 8d. was received, and during this period £4,904 was expended, of which £4,800 was the amount of the *mensualités* sent direct to Belgium. A little over £100 was distributed during the same period in small sums in England for the relief of Belgian doctors and pharmacists or their wives or dependants.

The Executive Committee decided to continue the *mensualités* to Belgium for the ensuing four months, though aware that at that rate of expenditure, if circumstances allowed it to be kept up, the sum then in hand would not last more than a year. The question will soon arise as to the form which a new appeal should take.

The address of the Honorary Treasurer of the Belgian Doctors' and Pharmacists' Relief Fund is Dr. H. A. Des Voeux, 14, Buckingham Gate, London, S.W., to whom all subscriptions should be sent. The Honorary Secretaries are Dr. S. Squire Sprigge, the *Lancet* Office, 423, Strand, London, W.C., and Mr. W. J. Uglow Woolcock, the Pharmaceutical Society, 17, Bloomsbury Square, London, W.C. Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

Universities and Colleges.

UNIVERSITY OF BIRMINGHAM.

PROFESSOR ROBERT SAUNDBY having resigned the chair of medicine in the University, which he has occupied since 1892, including eight years' service in Mason College, the Council of the University at its recent meeting adopted the following resolution:

That in accepting the resignation of Professor Robert Saundby the Council records its great regret that circumstances of health have rendered this step necessary. It desires to thank him for his long and distinguished services to the medical school in Mason College and the University; and the Council takes this opportunity of expressing its appreciation of the invaluable assistance which he has rendered to medical education during the twelve years in which he has represented this University on the General Medical Council.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—*Part I:* L. Farris, P. E. Gorst, G. R. James (Distinction in Pathology); V. E. Jones. *Part II:* W. M. Jones (Distinction in Forensic Medicine and Toxicology, and Public Health), F. A. Prosser. *Part III:* E. S. Stubbs (First Class Honours and Distinction in Obstetric Surgery), I. J. Lipkin (Second Class Honours and Distinction in Obstetrics), P. B. Pinkerton (Second Class Honours), M. Azer, Constance M. Edwards, A. J. B. Griffin, Ruby E. McBirnie, R. Nixon, C. V. Pearson, R. C. Watts.

QUEEN'S UNIVERSITY OF BELFAST.

THE following candidates have been approved at the examinations indicated:

M.CH.—Dr. J. W. West.

M.B., B.CH., AND B.A.O.—J. Adams, †W. L. Agnew, S. T. Alexander, P. Clarke, J. H. Davison, †W. Harvey, J. H. B. Hogg, L. Jefferson, *R. N. B. McCord, W. C. McCullough, P. J. McSorley, †J. Scott, †J. Wilson.

* First class honours. † Second class honours.

D.P.H.—Dr. Mary G. Caskey, Dr. D. L. McCullough.

Obituary.

DR. FREDERICK WILLIAM HALLIDAY, of Wortley, Leeds, who died recently, was educated at the Leeds Medical School, University College, London, and Vienna. He took the diplomas of M.R.C.S., L.R.C.P.Lond. in 1887, and subsequently held the office of senior house-surgeon to the Leeds General Infirmary. For the last twelve months of his life Dr. Halliday was medical officer to an important national filling factory, where his work consisted of preventive duties in connexion with trinitrotoluene sickness. At this factory there were over 10,000 employees and during last winter he lived at his post day and night. There is no question that had he not shouldered this heavy burden of war duties he would still be with us. At the filling factory he had the complete confidence of the management and of the workers; he had an eye like a hawk for the early signs of trinitrotoluene illness. The Ministry of Munitions have lost in Dr. Halliday a man whose services will be most difficult to replace.

DR. PATRICK WILLIAM MAXWELL, who died in Dublin on March 10th at the age of 61, came of an ancient Scottish family, and was born in Glasgow. He was educated at Edinburgh University, where he took the degrees of M.B. and C.M. in 1880 and the M.D. in 1888. After a period o

study in London and Vienna he settled in Dublin, where he took the diploma of L.R.C.P.I. in 1884 and F.R.C.S.I. in 1890. He was appointed ophthalmological and aural surgeon to Jervis Street and Steevens's Hospitals, and later became surgeon to the National Eye and Ear Hospital. He took a great interest in the latter, where he was well known as a stimulating teacher and skilful operator. He was a member of the Royal Academy of Medicine and examiner in ophthalmology at Trinity College and at the Royal College of Surgeons. He was also surgeon-aurist in ordinary to the Marquis of Zetland during his term of office as Lord Lieutenant. He was author of several papers on ophthalmological subjects. Dr. Maxwell is survived by his three daughters, one of whom is on the staff of the Royal Victoria Hospital. His only son was killed in action last year at the battle of Guinchy.

DR. DAVID RICHMOND JOHNSTON of Reading, who died on February 26th, aged 55, from cerebro-spinal meningitis, was the son of the rector of Killarney. He received his medical education at the University of Dublin and Queen's College, Belfast, and graduated B.A.Dubl. in 1882. Seven years later he took the diplomas of L.R.C.P. and S.Edin. and L.R.F.P.S.Glasg. He had been medical officer to Messrs. Huntley and Palmer's biscuit factory at Reading for more than twenty-five years, and since July last held the post of medical officer to the Royal Flying Corps at Reading; he had suffered from overwork. He had been in attendance on a member of the corps who died from cerebro-spinal meningitis the previous week, and apparently contracted the disease at the *post-mortem* examination. Dr. Johnston was highly esteemed in the district.

DR. SIDNEY OLIVE BISHOP died suddenly at Farnham, Hants, on February 17th, aged 69. He was educated at St. Bartholomew's Hospital, and took the diplomas of M.R.C.S. in 1872 and L.R.C.S.Edin. in 1873. He afterwards went to India, where he served for many years as a planter's doctor in Assam, on the Konajan-Dolaguri and other tea estates, and for some time as medical officer of the Golaghat district. He also practised for some years at Darjiling. He was the author of a small book called *Sketches in Assam*, published about 1885.

DR. FREDERICK WILLIAM HIGGINSON died at Cole House, Jersey, on March 13th, aged 75. He was educated in the medical schools of Trinity College, Dublin, and of the Royal College of Surgeons, Ireland, and took the diplomas of L.R.C.S.I. in 1861, L.M.S.Dub. in 1865, and the F.R.C.S.I. in 1882. He entered the Indian Uncovenanted Medical Service nearly half a century ago, and acted as civil surgeon of various districts in the province of Oudh from 1870 to 1886, when he entered the gaol department, serving as Superintendent of the Central Prison at Benares 1886–90, and 1892–96, and of that at Agra 1890–92. He retired in 1896.

SIR ALFRED SWAYNE LETHBRIDGE, K.C.S.I., Bengal Medical Service (retired), died at Windhover, Burlesdon, Hampshire, on March 11th, aged 72. He was the son of Mr. W. F. Lethbridge, of Woolborough, Devonshire, born in Tirhut, Bihar, on September 30th, 1844, was educated at King's College, London, and at Aberdeen University, where he graduated M.B. and C.M. in 1865, and M.D. in 1867; he took the M.R.C.S. in 1865, and the Sanitary Science Certificate at Cambridge in 1876. He entered the I.M.S. as assistant surgeon, passing in first, on September 10th, 1867; became surgeon on July 1st, 1873, surgeon-major on September 30th, 1879, and brigade-surgeon-lieut.-colonel on April 9th, 1892, retiring with an extra pension on April 1st, 1898. The *Army Lists* assign him no war service. Most of his service was spent in civil employment and on extra-professional work. After acting as sanitary commissioner, first of Burma and then of Bengal, he became Inspector-General of Prisons in Bengal about 1878, and held that post till in April, 1892, he was appointed to the political department of the Government of India as superintendent of the Thagi and Dakaiti department. In 1890 he served as president of the Factory Commission, and from February, 1895, to January, 1897, was an additional member of the Legislative Council of India. He was decorated with the C.S.I. on May 21st, 1890, and with the K.C.S.I. on May 20th, 1897. Sir Alfred was one of the ablest officers who served in the I.M.S. during the past generation. The present gaol department in Bengal was practically organized by him. As head of a large and important department, he was not only firm and just, but also extremely popular, having the rare but very valuable faculty of administering reproof in such a way as to make the recipient feel that he was really in the wrong.

LIEUTENANT-COLONEL SARKIES CARRAPIAT SARKIES, Madras Medical Service (retired), died in St. Thomas's Hospital, after a long illness, on March 7th, aged 60. He was born on September 4th, 1856, educated at St. Thomas's Hospital, and took the diploma of M.R.C.S., as well as the Edinburgh double qualification, in 1878. Entering the I.M.S. as surgeon on March 31st, 1879, he became surgeon-major on March 31st, 1891, and lieutenant-colonel on March 31st, 1899, retiring on May 6th, 1910. He served in Afghanistan in 1879–80, and received the medal.

FLEET SURGEON HORACE ELLIOTT, R.N.(ret.), died at his residence at Sydenham recently, aged 59. He was educated at Westminster Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1878, and the degrees of M.D. and M.Ch. of the Royal University of Ireland in 1883. After serving as house-physician of the North Staffordshire Infirmary, and as senior house-surgeon of Macclesfield Infirmary, he entered the navy, and attained the rank of fleet surgeon on February 16th, 1901. During the South African war of 1899–1901 he served as staff surgeon of H.M.S. *Philomel*; he was in charge of wounded at Lambart's Bay and at Lorenzo Marquez, and received the Queen's medal with the Natal clasp.

PROFESSOR ANGELO BATTELLI, the distinguished Italian physicist who died recently, was the author of a treatise on the applications of electricity in medical practice. He was born at Macerata Feltria (Pesaro) in 1862, and held chairs successively at Cagliari, Padua, and Pisa. He won two prizes of the Royal Academy dei Lincei and a Bressa prize. He was a member of the Chamber of Deputies, where he sat on the left.

DR. CLAUDE LAMONT WHEELER, editor of the *New York Medical Journal*, died on December 30th, 1916, in his 53rd year. He was born at Montreal in 1864, and educated at the Laval University, Quebec, and at McGill University, Montreal, where he graduated in medicine in 1889. Twenty-six years ago he settled in New York as an ophthalmologist, being attached to the Manhattan Eye and Ear Hospital and the New York Polyclinic Hospital. In 1902 he joined the staff of the *New York Medical Journal*, becoming editor in 1911. He was an accomplished musician, a good linguist, and had a considerable literary gift.

DR. PAUL REDARD, a well-known orthopaedic surgeon of Paris, who recently died of pneumonia contracted in the course of work in military hospitals, took his doctor's degree in 1879. In 1884 he was appointed surgeon to the Furtado-Heine Dispensary. He was the author of monographs on torticollis, spinal curvature, and orthopaedic gymnastics; of a textbook of orthopaedic technique and of an atlas of radiography. He held appointments in connexion with the State railway service of France and was chief physician to the opera. On the outbreak of the war he took an active part in organizing services of orthopaedics and electrotherapy in the military hospitals to which he was attached.

DR. EDWARD MARSHALL BUCKINGHAM, who died on December 23rd, 1916, was born in Boston, Mass., in 1848, and graduated at Harvard in 1874. He was visiting physician to the Children's Hospital and the Boston City Hospital. For a long time he was instructor in children's diseases at Harvard, and he held the offices of vice-president of the American Pediatric Society and president of the New England Pediatric Society. For twenty years he was treasurer of the Massachusetts Medical Society. He was the author of many papers on subjects within his special province of practice.

Medical News.

MR. HUGH MALLINSON RIGBY, F.R.C.S., has been appointed surgeon to Queen Alexandra's household.

THE Wellcome Historical Medical Museum will be closed from April 1st to the 30th, inclusive, for cleaning.

THE house of the Royal Society of Medicine will be closed from Thursday, April 5th, to Tuesday, April 10th, both days inclusive.

AN anonymous gift of £20,000 has been received by the Petrograd Higher Institute of Medicine for Women for the foundation of scholarships in the name of Count Vorontzoff, who died in 1916.

THE annual general meeting of the Medical Sickness Annuity and Life Assurance Friendly Society will be held at the offices of the Society, 300, High Holborn, W.C., on Tuesday next, at 4.30 p.m.

A PAPER by Surgeon-General Sir C. Pardey Lukis, K.C.S.I., K.H.S., M.D., F.R.C.S., on opportunities for original research in medicine in India, will be read by Surgeon-General Sir R. Havelock Charles, G.C.V.O., President of the Medical Board, India Office, at a meeting of the Indian Section of the Royal Society of Arts, on Tuesday, March 27th, at 4.30 p.m. The paper will be followed by a discussion.

MEMBERS of the medical profession interested in physical methods of treatment for disabled soldiers are invited to view the Red Cross Clinic for wounded and disabled officers at 126, Great Portland Street, W., on Thursday or Friday afternoons, March 29th and 30th, between 3 and 6 p.m. A short account of the methods of treatment, and of the measuring instruments employed, will be given each day at 4 p.m. Tea and coffee.

THE fourth National Congress of Medicine of Cuba will be held at Havana in the second fortnight of December, 1917, under the presidency of Dr. Aristides Agramonte. The work will be divided among eight sections: general medicine; general surgery; hygiene and demography; laboratory research; diseases of the eye, ear, nose, and larynx; pharmacy; odontology; and veterinary medicine.

AMONG the persons "of distinguished eminence in science, literature, the arts, or for public service," recently elected by the committee of the Athenæum Club, is the Right Hon. Sir William MacGregor, G.C.M.G., C.B., late acting High Commissioner for the Western Pacific. Sir William, who is a Doctor of Medicine of the University of Aberdeen, is one of the most distinguished of the medical men who have exchanged their original profession for a public career.

ACCORDING to the *Chronique Médicale* of March 1st there are at present two medical candidates for vacant chairs in the Académie Française. One is Dr. Paul Vigné d'Octon, a well-known novelist; the other is Dr. Henri Fauvel, who comes forward as a successor to Jules Lemaître, whose pupil he was at the Havre Lycée. He is the author of a novel, *Le Docteur Jobert*, and of several volumes of verse, the principal of which is entitled *Ressouvenirs*. Dr. Fauvel was a friend of Gustave Flaubert, Alfred de Vigny, and Théophile Gautier.

The annual service of the Order of St. Michael and St. George will be held in the Chapel of the Order in St. Paul's Cathedral on Monday, April 23rd, at noon. The banners of Sir Charles Tupper and the Earl of Jersey, deceased, will be removed, and those of the Earl of Dudley and Lord Robson will be affixed. The West door will be reserved for members of the Order and others who have received tickets. Relations of deceased members who desire to be present should apply to the Prelate at the Chancery of the Order, Colonial Office, S.W.

THE *Medical Record* of February 17th states that the American Red Cross officials estimate that in case of war the force which could be mobilized immediately would include: Twenty-six completely equipped army and navy base hospital units, with a total of 1,250 nurses and 549 nurses' aids; hospital base reserve of 415 nurses and 525 nurses' aids; thirty-one partly complete navy detachments of 20 nurses each; one hundred and fifteen local emergency detachments; and corps of expert instructors in surgical dressing, totalling about 120. It is also estimated that the organization can put into the field 2,920 trained Red Cross nurses, and that if 30 per cent. of those to whom the Red Cross has given elementary training respond as nurses' aids the total nursing personnel will be about 5,000. With the customary assignment of ten patients to each nurse it would thus be possible for the Red Cross at once to undertake the care of 50,000 sick and wounded.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

H. asks for advice in the treatment of neuralgia in the stump after hysterectomy performed seven weeks ago; it is alleviated by rest, but not influenced by drugs.

LETTERS, NOTES, ETC.

INOCULATION AGAINST TYPHOID IN THE CIVIL POPULATION.

DR. JAMES J. HARDING (Ballincollig) writes: If typhoid fever has been banished from the armies by inoculation, is there any special reason for supposing inoculation would fail amongst the civilian population? If the reply is in the negative, am I not entitled to suggest that the profession has "gone to sleep"?

HOLIDAYS ON HOME SERVICE.

BRISTOL writes: "Battalion M.O." has been less favoured than some doctors I know who have had half a dozen leaves in as many months from Salisbury Plain camps. I am still inclined to think that civilians get less leisure than those in the R.A.M.C.

THE WAR AND THE SUPPLY OF DRUGS.

DR. J. S. MANSON (Warrington) writes: In your comments on Mr. F. A. Hocking's paper to the Royal Society of Arts (March 10th, p. 339) reference is made to the scarcity of bromides due to the stoppage of supply from the Stassfurt deposits. One may ask, Why are we so dependent on Germany for this indispensable salt of medicine and photography when sea salt and the brines of Cheshire contain bromines in the form of sodium bromide in appreciable quantities? Calvert, in his *Salt in Cheshire*, shows that the Marston brine contains 11 parts of sodium bromide in 100,000 parts of brine and the Wheelock brine 20 parts per 100,000. Thorpe's *Dictionary of Applied Chemistry* states that Scotland provides a minor contribution to the supply of bromides probably derived from sea salt. With the present price of bromides it would seem worth while to extend and develop this branch of chemical industry and so free us of dependence on others for the supply of this invaluable drug.

TOBACCO AS FLEA BANE.

DR. S. MALLANNAH, chemical examiner and bacteriologist to H.H. the Nizam of Hyderabad, writes to say that he believes tobacco to be a genuine flea bane if properly used. The proper method is to spread tobacco leaves liberally over the floors of rooms where people sleep, and, he adds, that as 85 per cent. of cases of plague occur in single-roomed houses the experiment he is carrying out will be both easy and cheap. His plan is to select a highly infectious locality of a plague-stricken city, and to spread black tobacco leaves, known locally as narasapuri, on the floors, and to put powdered tobacco into cracks and holes of half the houses; the other half are left untreated. The same method, he says, destroys bugs and has deleterious effects upon mosquitos and flies.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

INFECTION OF HAEMOTHORAX BY ANAËROBIC GAS-PRODUCING BACILLI.

BY

LIEUT.-COLONEL T. R. ELLIOTT, F.R.S., R.A.M.C.,

AND

CAPTAIN HERBERT HENRY, M.D., R.A.M.C.

(A Report to the Medical Research Committee.)

WHEN a man has been wounded in the chest, the two chief questions which arise in the minds of those who have the care of his case are whether his life will be endangered by further leakage of blood and air into the pleural cavity, or by the development of an infection.

Such figures as have been collected up to the present show that about one-fourth of all cases of haemothorax from gunshot wounds of the chest in this Flanders campaign are infected. In consequence of this frequency of sepsis, the principle of early exploration as a test for bacteriological infection of a haemothorax is adopted in all our military hospitals. But experience of the treatment of chest wounds in France is continually emphasizing the need for still greater vigilance in the early detection of sepsis, because there exists one particular group of infected cases which, though common, is liable to errors in diagnosis and treatment on account of its peculiar nature. A paper was written by us in description of this particular clinical group eighteen months ago, but owing to various circumstances it was not published at the time. A year's further observations, and in particular what was seen with the recent casualties from the fighting on the Somme, have convinced us that the need still exists for a more or less formal account of what may happen in the course of these chest wounds, for this particular infection seems to have been fully as common this autumn as ever it was before in France.

The group with which this paper deals is that due to the growth in a haemothorax of certain anaërobic bacilli, which may produce gas in the pleural cavity in so rapid an abundance that the physical signs of what is really a case of serious infection may be such as to lead the surgeon to the opinion that he is dealing only with a simple non-infected pneumo haemothorax that is being aggravated by a progressive leak of air from the lungs. To act on this opinion and leave the patient to rest and morphine, though the correct treatment for the early stages of a simple air pneumothorax, is merely to await the death of a man whose life might have been saved by timely recognition of the sepsis and immediate rib resection.

This form of infection with gas production is frequent. Out of the first 500 specimens of haemothorax fluid examined by one of us in the ordinary routine of laboratory work, 195 were found to be septic; and of these, 87, or 43.6 per cent. of the total of septic cases, were proved to be infected with such anaërobic bacilli.

After a latent period of varying duration, the gas and the poisons produced by the bacilli may develop in many instances with fulminating rapidity amid the haemothorax, so that a case which on the second or third day following the wound was regarded only with suspicion of sepsis has often been seen to pass in the next forty-eight hours into a state of the gravest danger. Even if the patient's life is not immediately imperilled by a developing toxaemia, there is still a disadvantage in every hour's delay in detecting the infection, because the increasing volume of gas compresses the lung and enlarges the empyema cavity, so that subsequent convalescence after rib resection is likely to endure for a longer time than would have been necessary had the pleural cavity been evacuated on an earlier date.

For both reasons, therefore, whether to save life or to lessen the period of invalidism, it is of the utmost importance that every endeavour be made by medical officers to recognize this type of infection at the earliest possible moment, and to deal with it without delay.

GENERAL STATISTICS.

During the year 1915–1916, in a consecutive series of 145 examples of septic haemothorax of which clinical notes were taken by us, the infection was bacteriologically identified in 101 cases. The details are as follows:

Organisms Found.	No. of Cases.	Total Deaths.	Total Deaths from Septic Haemothorax of Hopeless Gravity and without other Complications.
Pneumococcus, *B. influenzae*, and *M. tetragenus*—that is, from respiratory tract	17	4	2
Streptococcus and staphylococcus	38	11	4
Anaërobic gas bacilli (alone = 23, with other organisms = 19)	42	14	4
Diphtheroid bacillus, *B. coli*, etc.	4	0	0
	101	29	10

From these figures it appears that the haemothorax was infected from the lacerated lung in rather less than 20 per cent. of the total; and that when infection was introduced from without, from the soiled skin or by shreds of clothing, the anaërobic bacilli were present in about one half of such cases of external infection.

Some statistics given elsewhere by one of us (in a paper with Sir John Rose Bradford, *British Journal of Surgery*, iii, p. 249, 1915) showed that one-fourth of the cases of haemothorax seen at certain base hospitals during the first year of the war were infected. From this it follows that approximately *10 per cent. of all cases of haemothorax* seen at this level on the L. of C. contain anaërobic gas-producing bacilli. These are, or would become, for the most part, gravely ill cases; but with proper recognition of the sepsis and timely rib resection the mortality among instances of such infection is shown by the last column in the table printed above to be very similar to that for the other types of infected haemothorax, namely about 10 to 15 per cent. This reduced mortality is the total of deaths, four in number, which were due simply to the infection of the haemothorax, and which appeared to be hopeless according to the present methods of treatment. The other ten deaths, which were put aside for the purposes of attaining this figure, included three in which there was some error in the surgery employed, and six in which the empyema was drained for various reasons at too late a date to give much chance of recovery.

It must be admitted that the distinction which is made in the analysis of these numbers rests on a personal judgement gained by fuller experience of those which might have been saved by earlier operation, and of those which seemed hopeless, so that it is not one which yields an exact figure of mortality. But the results actually obtained in another series of these gas bacillus infections, which was collected subsequently to that quoted above, proved that their death-rate at base hospitals should not exceed 15 per cent. Most of the cases recover rapidly, even though they may have seemed to have been desperately ill before the empyema was drained.

It will be observed that the wound in every single one of the fourteen clinical examples of anaërobic infection, which are quoted later in this paper, was caused either by a fragment of high explosive shell or by shrapnel ball. Undoubtedly there is a greater liability for anaërobic bacilli to be carried in by shell fragments than by rifle bullets, but the preponderance is by no means so exclusive as these cases would suggest.

PATHOLOGICAL PROCESSES.

Certain details of the pathological changes which occur in the development of a septic haemothorax require description first in order that the clinical features may be better understood.

Jagged missiles which enter the chest often carry in shreds of dirty clothing around them. Most of these infected shreds are left close to the entrance wound; the remainder may adhere, especially to a shell fragment, and if such be the case infection must develop around the latter in its final resting place. This resting place is generally either in the structures of the thoracic wall or within the hollow of the pleural cavity. Pieces of shell, and more rarely bullets, may occasionally be embedded in the lung itself; but as a rule these missiles have enough

momentum to force their way through the non-resistant pulmonary tissue, after which they may fail to penetrate the bony framework of the chest, and so drop back into the pleural cavity.

The wound made through the lung is generally a lacerated track surrounded by a considerable amount of haemorrhagic extravasation. From these torn tissues and from the wound in the thoracic wall, where ribs are often splintered, fibrin ferment will be liberated in sufficient quantity to coagulate rapidly all the fibrinogen in the blood that is poured out from the wound track in the lung or chest wall. But the continued movements to which the effused blood is subjected within a breathing chest interfere with its coagulation and prevent its setting into a massive jelly. The fibrin is partly "whipped" out and deposited on the pleural surfaces; irregular lumps of more complete blood clot may form like mush ice in the haemothorax, especially in the recesses of the pleural sac and along the vertebral groove at the back when the patient is recumbent. The rest of the defibrinated blood remains as a fluid, a fluid which resembles blood in depth of colour more or less closely according to the number of red corpuscles that have escaped entanglement in the primary clot and are floating freely in it.

The pleural surfaces react to the irritation by the blood, and a serous effusion containing lymphocytes and endothelial cells, with a few polymorphonuclear leucocytes, is added to the haemothorax. Often the fibrinogen of this effusion also is clotted by the surplus of ferment from the haemothorax blood, and it reinforces the deposit of clot laid down on the pleura, so that adhesions of some tenacity are soon developed at the boundaries of the haemothorax, and thus separate the collection of fluid and clot from the rest of the pleural sac.

We are dealing in this paper exclusively with infections by anaërobic bacilli which are introduced chiefly from without, and therefore respiratory tract infections that may develop in the neighbourhood of the lacerated lung can be neglected. An infection from without may be introduced, broadly speaking, in two ways.

I. *Generalized Form.*

The infection may be disseminated throughout the fluid haemothorax from the very commencement, as occurs most conspicuously where the external wound track remains open and septic, so that organisms are sucked in with the to-and-fro currents produced by respiration.

II. *Localized Form.*

The septic focus may be one which is buried in a mass of blood clot—for example, a shell fragment with tattered clothing around it lying at the bottom of the pleural sac. Ultimately the organisms escape through the agglomerated clot, and are spread by respiratory movements through the pool of serum above.

The anaërobic organisms, presumably on account of their feeble powers of growth at first in freshly shed blood, often appear to grow slowly from an implantation which is enveloped by blood clot as described in (II). During this time they produce toxic substances which are absorbed into the circulation from the tissues around the septic blood clot, causing a general febrile reaction, while the same substances diffuse into the fluid haemothorax and excite from the pleural membranes an increase of serous exudate, to which polymorphonuclear cells are now added in greater numbers.

The growth of the bacilli within the septic clot is generally accompanied by the evolution of foul gas, which at first may remain imprisoned in the mass of clot as a small pneumothorax localized within the general haemothorax. Ultimately this gas bursts the clot asunder, and so scatters the infection through a wider field, or the bacilli make their own way directly through the obstructing clot into the fluid haemothorax.

Condition (II) is then thrown into the ordinary form of condition (I), with the free pullulation of bacilli throughout all the haemothorax fluid. An intense inflammatory pleurisy follows, and there is an abundant discharge of fluid effusion and of pus cells into the pool. Gas formation sometimes increases the volume of the empyema even more rapidly than does the fluid exudate, and this gas now lies free above the upper level of the fluid. Hour by hour the lung collapses more and more beneath the growing pressure; but the early adhesions at the boundary of the haemothorax usually hold fast and tether the upper part of the lung so that its collapse is not symmetrical and complete, and the gas may fail to reach a mobile position at the apex of the pleural sac. On account of this inability of the lung on the side of the haemothorax to collapse completely away from the side of the chest, the increasing volume of the pyo-pneumothorax causes an extra displacement of the mediastinum and the heart to the opposite side.

Apart from these local changes within the pleural sac on the side of the septic haemothorax, there are three directions in which the spreading results of the infection may appear.

1. In the opposite pleural sac, causing a pleurisy which is usually dry and rarely leads to the development of effusion and empyema. This contralateral pleurisy is a very frequent accompaniment of a septic haemothorax, especially when the latter has been neglected for some days.

2. In the pericardial sac, a path of spread which is much less common than that into the contralateral pleural sac, though when the infection takes this course, a purulent effusion usually develops and is quickly fatal. None the less, there is unequivocal evidence that a neighbouring infection may excite a dry pericarditis from which there is recovery as complete and as straightforward as in the case of a contralateral dry pleurisy.

3. In the blood stream, producing general toxaemia or even septicaemia. This may develop with rapid fatality when the focus of infection lies in vascular tissue, as when a shell fragment is embedded in the lung. In such a case there is haemolysis of the circulating blood, the serum acquires a deep yellow tint from the changes undergone by the freed blood pigment, and a jaundiced colour spreads over the face and body of the patient as a signal of the toxic state that is threatening his life.

The results of sepsis may appear along this third path when the infection is a pure one by anaërobic bacilli only. But our observations suggest that these bacilli do not easily spread from a haemothorax into the pericardial sac or the opposite pleura; and the infections described under headings 1 and 2 are probably in most of the cases due to an associated contamination with streptococci, which are the active invaders of the outlying regions beyond the haemothorax.

THE RESULTS OBTAINED BY EXPLORATORY PUNCTURE.

Before narrating the clinical features which are associated with an infected haemothorax of this nature, it is best to describe the varieties of samples that may be met with on exploration of the chest, because it will be continually necessary to refer to these in the course of the clinical description. The exploring needle is the sole means for obtaining the final evidence for a strict diagnosis. Cases which clinically present the appearance of being septic may be found by repeated punctures to be completely sterile; and on the other hand, cases which seem almost innocent, and beyond suspicion so far as rise in temperature is concerned, may turn out then and there to be heavily and dangerously infected. Therefore the needle should be used whenever doubt arises.

The contents of the pleural cavity, when infection is present in a haemothorax, often are not homogeneous. The needle may chance to enter an area of reactive serous effusion, or of haemothorax fluid, or blood clot; and any one of the samples so drawn off may at first be free from organisms, though a couple of days later bacilli may be abundant everywhere and their presence be at once made evident by the malodorous smell attached to the fluid as the consequence of their growth.

The following are the varieties of samples that may be met with in exploration of a haemothorax infected with anaërobes:

(*a*) A "blood" with an offensive odour, and of an intense purple colour, which is darker and more transparent than that of venous blood. This fluid contains dissolved haemoglobin from haemolysis of the red corpuscles, and consequently it will throw up a crimson froth in the barrel of the syringe. The crimson-purple colour is in itself almost characteristic of an abundantly growing infection by anaërobic bacilli; but the foul smell is the chief criterion,

and it may be accepted as sufficient proof of infection. From such a sample, on standing, a large flocculent deposit of reddish-brown pus may fall down, but the eye cannot recognize the presence of this pus in the freshly drawn sample. In some of these cases the needle may at first find only offensive gas under pressure, and fail to withdraw any fluid.

(*b*) A fluid that is obviously loaded with pus, reddish-pink or deep buff in colour, and either slightly or not at all offensive.

(*c*) A red fluid like that of an ordinary sterile haemothorax and inoffensive. Microscopic examination finds in films from this fluid a moderate increase in the number of polymorphonuclear cells, and bacilli appear on culture.

(*d*) A yellow serous fluid with the usual fine gelatinous secondary clot on standing, and the same findings under the microscope as in (*c*).

The offensive odour is the only criterion of infection that can be accepted at once without further microscopic study.

A purulent appearance may in very rare cases be given by a traumatic leakage of chyle, so that this naked-eye appearance is not completely reliable.

Otherwise all specimens should be examined under the microscope, and cultures made if no bacilli can be seen in direct films. The most rapid incubation is that within the chest itself. If a case is clinically suspicious, but the first sample receives a negative report from the bacteriologist, a second and even a third exploration should be made on the following days and in different places.

The delay in bacteriological proof of infection in a case which on clinical grounds appears certainly to be septic is a striking feature of this particular group. Such delay is never met with in infection by streptococci and staphylococci. It occurs occasionally with infection by the influenza bacillus or pneumococci, when it may easily be ascribed to a slow passage of these organisms from injured areas within the lung out into the surrounding haemothorax. But it is quite frequent with the anaërobic bacilli, although there can be no doubt that the infection in such cases was introduced from without at the moment when the wound was received.

Thus out of one continuous series of septic cases:

Thirty were found to be due to streptococci and staphylococci, and the proof of the infection in every one of these cases was found at the first exploration.

Forty-five were infected by anaërobic bacilli, and nineteen of these were infected only by members of this group. Of the latter, six were reported on the first sample to be absolutely sterile, and four others yielded proof of infection only by culture. Hence 50 per cent. of these pure infections by anaërobic bacilli yielded on first exploration a fluid that showed no organisms in a direct and careful film examination. These first samples were taken on days varying from the fourth to the eighth after the wound had been received, and the real proof of bacteriological infection was obtained from one to five days after the first sample that was reported to be sterile.

Clinical examples of this delay will be quoted later. The essential fact is that infection by anaërobes often tends to remain localized for a relatively long time in some part of a haemothorax, probably within clot. Hence early exploration of the chest may in one place strike a bubble of gas and foul blood as in (*a*), while in other places it may discover only such fluids as (*c*) or (*d*), fluids which after the lapse of a few days would in the same places be developed respectively into (*a*) or (*b*).

BACTERIOLOGICAL OBSERVATIONS.

The method of examination in the laboratory of pleural fluids taken from cases of haemothorax has been uniform throughout and has resolved itself into two stages, namely:

A. The immediate microscope examination of the fluid or of its centrifuged deposit.

B. The preparation from it of both aërobic and anaërobic cultures.

A.—*The Direct Microscopic Examination.*

Air-dried and flame-fixed films made on microscope slides are rapidly stained with a drop of Loeffler's alkaline methylene blue, and examined in the wet stain through a superimposed cover-glass. This method affords immediate and valuable evidence of the nature both of the cellular exudate and of the infecting micro-organisms. A second film yielding supplementary information is stained by Gram's method, while the first is being examined.

In fluids which are frankly purulent or which throw down a purulent deposit on centrifuging, it is a rule to find organisms after a brief search through these two films. The only microbe that is likely to escape detection by this simple routine is the influenza bacillus, which can be demonstrated by staining in weak carbol-fuchsin for half an hour.

We have found that, with reasonable patience in searching, the wet methylene-blue film and the Gram film together are sufficient to show the presence of organisms in 90 per cent. of all fluids subsequently proved by cultures to be infected, and to give an approximate indication of their nature. The accompanying table gives briefly a list of the organisms likely to be met with in an infected haemothorax fluid:

Table of the More Common Organisms Found in Infected Haemothorax Fluids.

Cocci.
- Gram-negative:
  - *Micrococcus catarrhalis.*
- Gram-positive:
  1. Streptococci.
  2. Staphylococci.
  3. Pneumococcus.
  4. *Micrococcus tetragenus.*
  5. Sarcinae.

Bacilli.
- Gram-negative:
  1. *B. coli* and coliform organisms including *B. proteus* and *B. pneumoniae.*
  2. *B. pyocyaneus.*
  3. *B. influenzae.*
- Gram-positive:
  - (*a*) Aërobic—
    1. *Subtilis-mycoides* group.
    2. A diphtheroid bacillus.
  - (*b*) Anaërobic—
    1. *B. perfringens.*
    2. *B. sporogenes.*
    3. *B. von Hibler IX* and others.
    4. A small diphtheroid.

The cocci can be neglected in the present discussion, for no real anaërobes were found in this group, and none are capable of forming gas. Among the Gram-negative organisms in the bacillary group it is only the coli-like bacilli that are gas producers; but none of these were found by themselves—that is, in the absence of an anaërobe—to give rise to gas inside a haemothorax cavity.

There remain only the Gram-positive bacilli for consideration.

Diphtheroids.

The stout aërobic diphtheroid bacillus, which closely resembles the bacillus of Hoffman, is but rarely seen in films, and as a rule it becomes obvious only in cultures. It is always associated with large numbers of other microbes, and may be looked upon merely as evidence of gross contamination of the pleural contents. The anaërobic diphtheroid is a small short granular bacillus growing in dense clumps, and so far we have succeeded in growing it only in liquid media. Its exact nature is so far undetermined. It does not produce gas, and would appear to be relatively harmless.

Aërobes.

It is with organisms of the *subtilis-mycoides* group that confusion may arise in diagnosis of anaërobe infections by the film method, for there are no morphological features which distinguish organisms of this type from the real anaërobes. They are stout Gram-positive, anthrax-like bacilli, which may give streptobacillary and filamentous forms and may also form spores, all of which features are common to one or other of the anaërobes. Eleven out of 195 septic cases showed sporing anaërobes of this type; in four of these the infection, which might have been an accidental contamination, was pure with a relatively mild clinical course; in five the combination of aërobe and anaërobe existed, while in the remaining two a streptococcus was found in addition to the sporing aërobe. The chance of confusing aërobe with anaërobe is therefore small, and one may take it that the presence of stout anthrax-like Gram-positive bacilli in a film is very strong presumptive evidence of anaërobic infection.

Anaërobes.

A short thick bacillus occurring singly or in pairs with occasional short chains is likely to be *B. perfringens.*

Streptobacillary and filamentous forms are common to a number of anaërobes, so that these morphological features are as a rule of little value as a means of differentiation.

The presence of sporing forms in a direct film bespeaks *B. sporogenes* or aërobic sporers. Out of eighteen infected haemothorax fluids proved to contain *B. perfringens* on culture, only one answered the spore test by heating to 80° for twenty minutes. In the bulk of cases, then, *B. perfringens* is present only in the vegetative and not in the sporing form.

It will be evident from these facts that the examination of morphological features in a film is never sufficient for the identification of these stout Gram-positive bacilli, and that the method must be supplemented by cultural tests.

B. *Cultural Examination.*

Cultures have been made from every specimen of haemothorax fluid sent to the laboratory. Implantations of varying amounts were made into plain broth, and on to agar either in tubes or in plates. These were found to be sufficient to grow any aërobic organisms met with, for the richness of the original sample in protein and in haemoglobin content make it unnecessary to use any special media containing these substances.

Anaërobic cultures were made by inoculating freshly sterilized milk under paraffin oil.

The investigation of the anaërobes found in haemothorax fluids was carried just sufficiently far enough to come to a determination of the main features of the organisms, for it was impossible in the routine of work to track each anaërobe down separately. The bulk of the infections were multiple—that is, there existed together several anaërobes, or aërobe and anaërobe, the combination of *B. perfringens* and a streptococcus being the most frequent.

The following simple scheme was found to give information which placed the organisms met with in certain more or less clearly defined groups.

I. *The B. perfringens Group.*

If one accepts the definition of *B. perfringens* as being a stout Gram-positive non-motile anaërobic bacillus, which gives stormy fermentation of milk, and which does not form spores in milk, then the definition groups together a number of organisms which have been described from time to time by different authors under different names. The question of the kinship and identity of these organisms cannot be here discussed. The group comprises:

1. *B. aërogenes capsulatus* of Welch and Nuttall; synonym, *B. welchi*.
2. *B. perfringens* of Veillon and Zuber.
3. *B. enteritidis sporogenes* of Klein. This was probably a mixed culture of a sugar-splitting non-motile bacillus of the *perfringens* type, together with a motile proteoclast akin to *B. sporogenes*.
4. Bacillus of articular rheumatism of Achalme.
5. *B. phlegmonis emphysematosæ* of Fraenkel.
6. *B. saccharobutyricus immobilis* of Schattenfroh and Grassberger.

The primary milk culture inoculated with a pipetteful of haemothorax fluid is examined after twenty-four and forty-eight hours' incubation. The development after twenty-four hours of stormy fermentation, indicated by strong coagulation followed by explosive disruption of the casein clot, is taken as evidence of *B. perfringens*. There is no other anaërobe that produces this effect with such vigour under suitable conditions. In the case of an indefinite or delayed reaction in the primary culture, one or two subcultures into milk may serve to dispel any doubt. Out of 87 specimens of haemothorax fluid proved to be infected with anaërobes, 71 specimens, or *81.6 per cent.*, gave this typical milk reaction, and were thus shown to contain *B. perfringens*.

The organism produces no digestion of the casein clot formed from ordinary milk. If naked-eye signs of digestion are present, then some other organism, aërobe or anaërobe, is present in the cultures. It never spores in milk, and, indeed, most cultures in milk die in about a week or ten days. A subculture on alkaline minced meat gives spores after several days' incubation, and the medium becomes bright red in colour. There is never any blackening of the meat.

II. *The B. sporogenes Group.*

A pipetteful from one of the original milk cultures taken after three or four days' incubation is heated to 80° for twenty minutes. By this means all vegetative organisms are killed, including *B. perfringens* and all the aërobes except those that spore. The organisms that spore in milk survive and are transferred to a second milk culture. A slow digestion and a clearing of the milk from the cream surface downwards is due to *B. sporogenes* or some near relative of this organism. *B. sporogenes* gives rapid digestion and blackening in meat cultures.

This is the same motile microbe that has been described by recent English writers as *B. œdematis maligni*. It was actually found in 14 out of the 87 anaërobic infected cases, in 9 of which it was associated with *B. perfringens*. Its real incidence was probably much greater, because the investigation of a haemothorax often ceased on finding the stormy fermentation of the primary milk cultures.

III. *The Third or Miscellaneous Group.*

This group comprises the so-called *B. von Hibler IX*, which was found once in combination with *B. perfringens* and *B. sporogenes*; *B. aërofœtidus* of Weinberg, found once only; and nine other organisms which were not identified and could not be grouped in either the *perfringens* or *sporogenes* category.

We were not able to recognize any particular clinical features as being characteristic of one or other of these forms of bacillary infection, doubtless because the infections within the chest usually contained more than one member of the group.

An investigation of the biochemical reactions of a number of pure strains of *B. perfringens* and *B. sporogenes* in culture media has been made by us in conjunction with Captain C. G. Wolf, R.A.M.C., and this has given some indication of the effects produced by these organisms individually in a haemothorax fluid. *B. perfringens* is characteristically a carbohydrate splitter. The gas it produces in a haemothorax cavity is derived chiefly from the glucose present in the original extravasated blood and in the superadded serous effusion. The amount of gas produced by a strain of *B. perfringens* from any given fermentable sugar varies considerably from time to time under artificial cultivation.

Under favourable conditions, growth in milk—that is, in a lactose-containing medium—will result in the formation of an amount of gas which may be more than twice the volume of the original culture medium, and will actually develop in twelve hours' incubation a pressure of two atmospheres, or more than 60 feet of water in the containing vessel. So high a pressure as this is never reached within the pleural cavity of a living man. The highest that we have actually measured was +15 to 20 cm., that is about 30 cm. of water above the normal intrathoracic pressure, or an increase of one-thirtieth of an atmosphere. The pressure may be so great as to drive back the piston of a glass exploring syringe and force it clean out of the barrel. The gas burns with a pale blue flame, and consists of a mixture of hydrogen and carbon dioxide, the proportions varying at different periods of the fermentation, but being approximately as two to one. Neither methane nor nitrogen are found in it.

The odour of the gas is due to the presence of traces of sulphuretted hydrogen and of certain volatile bodies produced in the degradation of the protein molecule. *B. perfringens* by itself is a feeble protein splitter *in cultures, and never* produces sulphuretted hydrogen or any offensive odour under these conditions. The smell results from a proteolytic destruction that in itself is not associated with the liberation of much gas, and hence one may meet with a most offensive and deeply haemolyzed fluid in cases where there is but little free gas (see Case IV).

In cultures outside the body these odours are met with only during the growth of protein-splitting organisms such as *B. sporogenes*, or where *B. perfringens* is mixed with other organisms. But with an infected haemothorax the gas is found to be malodorous even when bacteriological examination reports only the presence of *B. perfringens*. The explanation of this smell may be either that it proves the haemothorax in all such cases to be infected, in addition to *B. perfringens*, with some other anaërobic bacillus

that was not recognized in the rapid method of examination employed; or that *B. perfringens* can exert within the chest a proteolytic action of a nature which cannot be reproduced under the conditions of outside cultivation.

Whatever be the explanation of this difficulty, the essential fact remains that the gas is produced chiefly from carbohydrates, and, so far as that origin is concerned, is odourless, though it may be tainted by other substances derived from a bacterial proteolysis that does not liberate much gas. *The smell and the gas are separate results of an anaërobic infection of a haemothorax*, and they may appear separately.

Sulphuretted hydrogen is an extremely poisonous substance to man and it is very soluble, but it appears improbable that this malodorous body is ever produced in sufficient quantity to cause a fatal intoxication. The harmful effect of such gas as is evolved is chiefly mechanical.

The retardation of development of anaërobes after implantation in a haemothorax is such a striking feature clinically that it continually excites the hope that a fuller knowledge of the processes concerned in this resistance to the general dissemination of the bacilli may give the desired means to arrest once and for all the spread of infection from the original focus.

Laboratory experiments show the following facts:

1. Attempts to grow *B. perfringens* either in fresh whole blood, or in serum, or in old sterile haemothorax fluid, give only negative results, or meet with very scanty success.

2. If fresh serum be altered by the previous addition of trypsin to it, a medium is produced which is much more favourable to growth.

3. Blood serum obtained from the body at varying intervals after death is a medium in which *B. perfringens* will grow vigorously and almost without fail.

Therefore it follows that the cultures fail with fresh blood either because there is some body in it which inhibits growth, or because the food substance necessary for development is not presented in an accessible form. The general question has been discussed by Sir Almroth Wright,[1] in an attempted explanation of the "avalanche" growth that bursts forth when the necessary conditions are established.

Measurements made by Captain Wolf show that sterile haemothorax fluid of ten or twelve days' standing is slightly more alkaline than normal blood, and that there may be no acidosis in a fluid in which *perfringens* growth is proceeding vigorously. The nature of the facultative change is still unknown. In so much as a man, when his haemothorax is found to be sterile in its fluid part, may exhibit the clinical features of infection on the third or fourth day, it is certain that the bacilli must be growing very actively in some sheltered focus and liberating digestive products of sepsis. Presumably these products diffuse into the general pond of the fluid and alter its properties in such a way that the bacilli are enabled to follow and establish themselves abundantly.

General Clinical Features of These Infections.

The clinical features of these septic cases may be classified under three main headings:

1. Those indicating the general toxic action on the patient of the septic substances produced.
2. Those caused by inflammation of the pleural cavity.
3. The special physical signs within the chest.

Usually within three or four days after having received a wound in the chest which does not carry deep infection with it, the injured man has passed into a condition of relative ease. His dyspnoea becomes progressively less urgent; the temperature approaches normal by a smooth curve of decline, and the pulse falls to below 90. He sleeps well and his appetite returns. In every respect he is rapidly regaining the appearance of a healthy man, and each day marks an obvious step forward in that direction.

But when sepsis is present in a haemothorax the patient does not mend, and day by day each feature of uneasiness suffers increase. Sleep is broken and uncertain; the appetite fails; pain and tenderness in the affected side of the chest are complained of, and the breathing becomes more dyspnoeic; the cheeks may develop a hectic flush, and an obvious icteric tint appear in the conjunctivae. Together with these changes the face assumes a slightly anxious expression.

Restlessness, amounting to actual light delirium, by day as well as night, is noted in the most serious infections, of which it is often a very early and suggestive feature. Such delirium has no relationship to pericarditis.

The tongue may be tremulous and lightly coated with fur, though usually it shows so little change that one is often justified in the conjecture that a particular case of septic haemothorax is caused by anaërobes because the tongue is so unexpectedly clean. Other forms of infection produce either a heavy fur, or, as especially with the streptococci, a dry brown surface.

The temperature is always raised, but sometimes to so slight a degree that on this count alone it would appear idle to suspect sepsis. Indeed, the temperature is apt to be a most misleading guide if too exclusive reliance is placed upon it in searching for evidence of infection.

Increase of the pulse-rate is of greater importance. Tachycardia above 110 is rarely seen with a simple haemothorax in a patient who is free from other complications. Case VII illustrates the value of a rapid pulse-rate in raising the suspicion of sepsis in a case with very mild pyrexia. A low pulse-rate and slight fever are never seen combined in a case of anaërobic infection. On the other hand, severe infection and high fever may coexist with a pulse-rate not exceeding 90. (Cp. Case XII.)

The development of *jaundice* should be looked for with the closest attention. A sterile haemothorax may cause a slight conjunctival icterus, but nothing more. Real jaundice, especially if associated with epistaxis, has, without exception, in our experience been an index of a particularly severe type of infection by anaërobes; and not an hour should be lost in dealing with the patient when once this yellow tint has appeared.

Vomiting never occurs. Severe diarrhoea, of the offensive and uncontrollable type that may appear in any subject of old foul wounds, may be noted in patients with empyemata that have existed for many days without recognition, but it is not an early feature.

The *pleural inflammation* within the chest on the side of the haemothorax is shown by an increase in the size of the effusion and by local tenderness and pain. In most cases this pain is mild and needs inquiry to reveal it; but in a few it produces continual distress, and may even lead to a referred tenderness over the hypochondrium and abdominal rigidity, so that the surgeon is tempted to an exploratory laparotomy on the supposition that the missile has passed from the chest into the abdomen.

In cases where there is practically no haemothorax, and the infection is spreading from a focus around a splintered rib, coarse pleural friction will be heard on the side of the developing empyema. But usually it is fruitless to search on the injured side for pleural friction as a sign indicative of sepsis. On the opposite side a coarse pleurisy often develops from spread of the infection across the chest, and its recognition should always emphasize the need for exploration of the haemothorax.

Oedema of the contralateral base of the lung is also a feature suggestive of sepsis; but contralateral massive collapse may occur in either sterile or septic cases equally, and is chiefly the expression of a thick purulent secretion encumbering the airway of the bronchial passages.

Pericarditis develops in a small proportion of these infections, and is usually fatal before the effusion has attained a large size. But friction sounds heard over the cardiac area are not in themselves to be interpreted as being of invariably bad prognosis. They may be caused by a dry pericarditis, which slowly disappears in the same way as does the dry contralateral pleurisy; or they may simply be the trivial and transitory sounds that are ocasionally produced from leakage of air from the lung into the mediastinal tissues. Speaking generally, there is no special form of pericarditis associated with the anaërobic infection of the haemothorax. That which develops is similar to what is found in other forms of infection, and as a matter of fact it is generally due to streptococci or other organisms that were associated with the anaërobic bacilli in the haemothorax. The case of gaseous pneumo-haemopericardium, which was so successfully dealt with by Major Littler Jones,[2] was a rarity of which we have never seen an example in over two hundred autopsies on chest wounds at base hospitals. Occasionally frothing bubbles of gas

have been observed in a semipurulent pericardial effusion associated with anaërobic septic haemothorax; but the gas was not abundant, and there was no reason to believe that it was not entirely a *post-mortem* production. No example of a large pyo-pneumopericardium has been found by us at autopsy.

The special physical signs on the side of the haemothorax are simply those caused by the *development of gas* within it. This gas may be loculated within the haemothorax, or it may collect freely above the fluid in the pleural sac. In the latter case the signs are indistinguishable from those of an ordinary exogenous or air pneumohaemothorax; but the gas may be formed so abundantly that the heart suffers continually greater displacement, and the side of the chest may sometimes be bulged out under the internal pressure. (Cp. Case III.) In aspirating a traumatic air pneumothorax, we have never found a pressure greater than that of the atmosphere; but in these inflammatory gas collections the pressure may be as high as + 15 or + 20 cm. of water. The fluid below the gas is mobile, and its horizontal level of percussion dullness shifts when the patient is raised from the lying to a sitting posture. The anvil ("bell") sound is often yielded by the coin test.

The loculated collection of gas is almost in itself a diagnostic feature. Percussion reveals a resonant area, often with a low-pitched note that is almost "cracked-pot" in character, within the boundaries of the area of dullness that demarcate the haemothorax. The level of the latter does not change with posture, for the collection is not freely mobile. The gas producing the note is usually loculated at the back, somewhere near the angle of the scapula. It is extremely rare to meet with a similar collection of ordinary air that has escaped from a lacerated lung into a haemothorax and remained imprisoned so low down. Consequently, whenever this peculiar percussion note is met with in a haemothorax, where the cardiac displacement seems unusually great in proportion to the area of dullness and the physical signs are difficult to interpret, gas infection should be suspected, and tested for by exploration at the lower limit of the resonant area.

But there is one fallacy to be guarded against. The diaphragm on the wounded side often takes up an abnormally high position as an immediate result after the injury of some paralysis of the respiratory movement. It may be sealed up in this position by adhesions and remain elevated despite the increase of intrapleural pressure. Under such circumstances percussion over the base of the chest behind may elicit a tympanitic note from the raised abdominal viscera, on the right side as well as on the left. Therefore the preliminary diagnosis of gas should be accepted only when this abnormal note is found behind at a level above that of the ninth rib.

It is needless to discuss the differential diagnosis from pneumonia or other chest complications. The physical signs often fail to make the diagnosis secure. Safety for the patient is gained by the discarding of these dubious distinctions, by promptness to suspect infection, and by reliance on the exploring needle. In difficult cases an *x*-ray examination of the chest by fluoroscopic screen with the patient in a *sitting* posture will often lead to the solution of the problem. When mobile gas and fluid are present in the pleural cavity, the fluid will appear as a dark pool with an upper horizontal level. The surface of the free fluid shows oscillations caused by the heart-beat, and will be violently agitated if the patient coughs. Its level changes in relation to the chest wall when the patient is tilted first to one side and then to the other. Such an appearance is diagnostic of a collection of free fluid below gas or air.

REFERENCES.
[1] *Lancet*, January 6th, 1917, p. 1. [2] *British Journal of Surgery*, vol. iv, July, 1916, p. 103.

(To be continued.)

A COMMITTEE of superintendents of public instruction and other officials concerned with education in the United States has recently been formed to further the passage by the legislatures throughout the country of a bill, drafted by Dr. Dudley A. Sargent, the physical education expert at Harvard, for the promotion of physical training in the public schools. The committee believes that "the time has come for the adoption of a definite plan for the preparation of American boys and girls for the pursuits of peace or the vicissitudes of war."

CLINICAL OBSERVATIONS ON DYSENTERY.

BY

CAPTAIN T. J. CAREY EVANS, F.R.C.S.,

INDIAN MEDICAL SERVICE.

THE clinical symptoms of dysentery vary greatly, and rarely do they actually conform with the usual textbook description.

The simple acute bacillary type and the simple acute amoebic type are clinical entities and no difficulty should arise in distinguishing between them clinically. It is impossible to distinguish between the various types of bacillary dysentery without the aid of the bacteriologist. Clinically they must remain in the common group.

Another type of dysentery that has come under my observation during the present war is what might be called an acute mixed type of dysentery. The clinical symptoms are at first those of the acute bacillary type, which after varying intervals merge into those of the acute or subacute amoebic type. This type of dysentery is most important from the point of view of treatment. It is to be regretted that in this note no mention can be made of the bacteriological and microscopical examination of the stools. This should be carried out as a routine measure in every case whenever possible, but the circumstances under which I have observed and treated the majority of my cases have rendered this impossible.

Incidence and Causation.

From several years' experience of active service conditions on the North-East Frontier of India, and during the present war in Egypt, Anzac, and Mesopotamia, I cannot help coming to the conclusion that in the bacillary type the main source of infection is the common house-fly.

It is a remarkable coincidence that during the first few weeks or months in any campaign in which I have taken part the prevailing type of dysentery has been the bacillary type.

During the Abor expedition on the North-East Frontier of India, while the troops were collecting at the base and were engaged in making roads for the advance, in fact were more or less stationary, and the climate was such that flies could live and breed, then the prevailing type was the bacillary type; but when the troops pushed on, had fatiguing marches to do day after day, as the season also advanced and the weather became colder and wetter and the heavy rains seriously damaged the quality of the rations, then the amoebic type of dysentery made its appearance.

Again, during the expedition into the Mishmi country on the North-East Frontier of Assam, as long as the weather was hot and flies were abundant, and as long as the troops were engaged in cutting roads through the dense jungle, and progress was necessarily slow, then the bacillary type prevailed; but as soon as the weather became colder and wetter, and the flies disappeared and the troops pushed on to the hills, then did amoebic dysentery make its appearance. Flies are by no means a heritage of modern civilization, for in this dense jungle area of over sixty square miles, which was practically devoid of any human habitations, flies were as abundant as in an Indian bazaar in the middle of the hot weather.

Deficient sanitary arrangements attract flies and also encourage their propagation, and all that is required with such conditions is a favourable climate, and dysentery is bound to make its appearance.

At the beginning of any campaign, when large bodies of men congregate in limited areas, and before the sanitary details have had time to become properly organized, it is then, as it were, that the seed for future dysentery becomes sown, and it is only with the greatest difficulty and with the most thorough measures that the coming outbreak can be arrested or checked.

Military exigencies must always in every campaign be the first consideration, and a typical example of this occurred during the landing at Anzac on April 25th, 1915, and the following few days. Fighting men had to be landed at all costs and as rapidly as possible. All other branches of the army were during this critical time of secondary importance, and it was only when the position had been captured and consolidated that sanitary and other details could be landed.

During these first few days, when every one was in

immediate danger from the enemy's fire, little consideration was or could be given to any sanitary arrangements. It was only when things had quietened down that steps could be taken. It was during this period that the seed was sown. The small area occupied by the troops had practically all become contaminated with human faecal matter, while the dead bodies of men and mules, which lay unburied for weeks in unapproachable areas, proved to be a perfect nidus for flies to breed in. The climate also was ideal, so that in the circumstances it was not surprising that a serious outbreak did occur. The limited water supply and the limited variety of the rations being also contributory causes.

Troops on service seem to be far more liable to intestinal troubles when the ration is day after day the same. The monotony in eating the same daily ration acts psychologically in that it brings about anorexia and indigestion, which lower the soldier's resistance.

With amoebic dysentery the conditions are different. It has now been shown that the *Entamoeba histolytica* frequently exists between the gums and teeth in cases of pyorrhoea alveolaris. The diphtheria bacillus can exist in the fauces of its host without causing him any inconvenience, while the presence of the cholera vibrio in the stools of an apparently healthy individual is nothing new. It is, to a large extent, the carrier problem once more. It would be an extremely interesting experiment to have the stools of, say, 100 healthy Indian soldiers carefully examined for the *Entamoeba histolytica*. Positive results would, in my opinion, be obtained in a surprising number of the stools examined.

Laboratory experiments go to prove that the common house-fly is the chief factor in conveying this form of dysentery also. However, I am convinced that in far the larger proportion of cases drinking water is the main source of infection. This form of dysentery rarely makes its appearance during the first few weeks, or possibly months, of a campaign. In my experience it only begins to show itself when the troops are beginning to become fatigued or exhausted. Amongst Indian troops on frontier expeditions long marches or hard fatigues, with continued exposure to cold and wet, are the main predisposing factors. It occurs far more frequently during the colder months than during the hotter, so that flies cannot have the same share in its propagation as they have in conveying the bacillary form. It frequently follows after an attack of bacillary dysentery; here again the soil is prepared for it.

The entamoeba is, in the greater proportion of cases, conveyed by means of drinking water. It may produce dysentery at the time, or it may lie dormant and only show its presence when its host has become debilitated, or his resistance lowered by any means.

Symptoms and Treatment.

The symptoms of dysentery vary according to the type of infection and according to the acuteness of the disease. In all forms the most important symptoms are the frequency and character of the stools and the degree of tenesmus. From these the severity and progress of each case must be judged. The temperature runs no special course, but as an aid to treatment it must not be overlooked. In severe acute cases it may run up to 104° or 105° F., while in others it may be subnormal. In the latter type of case there may be varying degrees of collapse, which should be treated accordingly.

The disease in some cases begins as simple diarrhoea; in others the onset is sudden, with frequent stools containing varying quantities of mucus and blood, with colicky pains in the abdomen. Tenderness over the descending and sigmoid colon is also a frequent sign.

In severe cases the faecal element in the stools soon disappears, and the patient passes large quantities of mucus tinged with varying proportions of blood. In some cases after a few days there may be no trace of blood to the naked eye, while the patient may pass frequent motions containing large quantities of purulent mucus.

Tenesmus as a rule is not very marked in the bacillary type, and may be absent altogether. This is the symptom which is almost characteristic of amoebic dysentery. In severe cases it may be so intense that the patient dare not leave the commode, while the pain and straining may bring on a certain degree of collapse. All the patient passes in such a condition consists of very small quantities of blood-stained mucus.

It is extremely important amongst troops that every case of diarrhoea, however mild, should be promptly treated and checked. They should, if possible, be admitted to hospital and the stools rendered innocuous. Simple diarrhoea frequently goes on to dysentery unless treated in time, especially in localities where the disease is endemic.

All cases of dysentery should have absolute rest in the recumbent position. I have found that when cases are allowed to walk about recovery is greatly delayed.

The diet should be very sparing and should consist at first of nothing but barley water or rice water, later milk may be given, but, should the milk be passed undigested, whey should be given instead or a few grains of sodium citrate added to each pint, and the result watched in each stool. The less soups and broths given the better. Koumiss or sour milk is an excellent diet and can easily be made anywhere in the East. A few spoonfuls of dhai or leban are obtained from the nearest village and put into fresh or sterilized tinned milk. It is then kept at an equable temperature for a few hours, when it is ready for use. The time varies with the degree of activity of the culture of the lactic acid bacillus obtained and the temperature at which it is maintained.

As the patient progresses, rice thoroughly boiled in water is the best solid to begin feeding with. It is easily digested and does not contain too much starchy matter like sago, arrowroot, etc. Great care should be taken with the dieting, and the importance of personally examining every stool passed by the patient cannot be sufficiently impressed. From this inspection only can the diet be regulated.

Soldiers frequently, when they are progressing favourably, complain about the meagre diet they are getting, and to supplement this sympathizing friends from the lines may attempt to supply them secretly with all kinds of indigestible foods; a relapse is the usual consequence. The medical officer by examining each stool holds the master key, and can act accordingly. Malingerers can be caught out in this manner. Instances have occurred where the patient has deliberately kept up the symptoms by eating unauthorized foods so as to be sent back towards the base.

To prevent the spread of the disease from infected stools, each stool should be protected from flies and destroyed whenever possible by incineration; should this be impossible, then it should be rendered innocuous with one of the various disinfectants.

All cases of acute dysentery coming into hospital were given 2 drachms of magnesium sulphate every two hours until the stools became faeculent or until 2 oz. had been given. This was done as a routine measure unless the dysentery was of the amoebic type.

This method of treatment with rest and dieting has proved in my experience to be most satisfactory. If there were no improvement from this, the patient was then given bismuth salicylate and salol āā 10 grains three times daily for three or four days, and at the end of this again went through a course of the magnesium sulphate treatment. This salt acts mechanically by ridding the patient of the bacterial and other débris in his intestinal canal, and possibly also by virtue of its lymphagogic action may draw into the intestinal canal any antitoxins that may have been formed in the patient's blood.

With this treatment in the field ambulance it was found possible to return to duty within fourteen days 90 per cent. of the cases of dysentery which occurred amongst the Indian troops at Anzac.

Should the patient have intense pain, hot fomentations applied to the lower part of the abdomen will frequently relieve it; otherwise 10 minims of camphorodyne or 10 grains of Dover's powder will be found to act satisfactorily.

The promiscuous injecting of emetine in every case of dysentery is distinctly harmful. The results are very disappointing, and one's faith in its specific action in amoebic dysentery is apt to be shaken. It should only be used in those cases that are distinctly amoebic in type, or in which the entamoeba has been discovered in the stools. Emetine was found to have little effect in cases of mixed dysentery until the patient had gone through a course of the saline treatment first, when it had the same

marvellous action as one observes in India in cases of simple amoebic dysentery.

The injection of emetine should not be done indiscriminately, and the result of each injection should be carefully observed. In suitable cases a grain should be injected subcutaneously night and morning. If no good results occur after four injections, it should be stopped, on account of the depressing influence it exerts. It can be resumed after a few days' interval if thought necessary.

Chronic Dysentery.

Chronic dysentery is a far more difficult and intractable condition to treat. The results of medical treatment in bad cases that have persisted for several months have proved to be very unsatisfactory. The majority of chronic cases are by no means simple infections, other intestinal micro-organisms step in as soon as the bowel becomes seriously damaged, and a state of chronic toxaemia arises.

I am indebted to Major E. F. Sealy, I.M.S., for permission to observe a large number of cases among the Turkish prisoners of war that were in his charge. From *post-mortem* examination of the large intestine in a few cases that died, my conviction that medical treatment has very little influence on the progress of the disease was verified. In practically all cases examined the whole of the large intestine was an abscess cavity with extensive ulceration and in parts total destruction of the mucous membrane. Where an attempt had been made at repair the intestinal wall had become converted into dense fibrous tissue, which would in time have formed strictures and have been liable to break down on the slightest injury. The pus, which lined the whole mucous lining, was very foul, and it was evident that the *Bacillus coli* took an active part in helping to bring about the condition. The immediate results of appendicostomy and washing out the large intestine with ordinary eusol solution were excellent. Though all cases operated on by Major Sealy and myself were in an extremely debilitated condition, and some were actually scorbutic, the shock from the operation itself was *nil*. The lavage was done night and morning through a fine rubber catheter and fully two quarts of eusol allowed to pass. The patient experienced no pain or inconvenience, and the fluid was passed by the rectum within ten minutes or so. The fluid passed cleared away all the foul débris in the large intestine, and absorption was prevented, the stools that were passed were rendered far less foul, the septic appearance of the patient improved wonderfully, and the temperature came to normal. Difficulties arose later owing to the appendix contracting and to the skin wound closing up. This operation gives good results for a time, but they are not maintained. Relapse is almost certain to occur, the reason, in my opinion, being that it does not provide the necessary rest for the large intestine.

The ideal treatment in such cases would be an ileo-colostomy with appendicostomy and lavage. It is only in this way that the bowel can have the required rest. The injection of emetine in cases in which the *Entamoeba histolytica* is proved to be present should be carried out; of its specific action on the entamoeba there is no doubt; still its action on the ulcerative and septic changes in which at this stage other organisms are taking part is *nil*.

TWO CASES OF HEART FAILURE IN THE OPERATING THEATRE TREATED BY HEART MASSAGE: RECOVERY.

BY

ECHLIN S. MOLYNEUX, M.R.C.S., L.R.C.P.LOND.,

HONORARY SURGEON TO THE WARNEFORD HOSPITAL, LEAMINGTON; SURGICAL SPECIALIST, MONT DORE MILITARY HOSPITAL, BOURNEMOUTH.

THE interest that has been taken of late in heart massage, applied to the heart through the diaphragm in cases of failure of the heart and respiration while a patient is undergoing an operation, has suggested to me that the following two cases are worth recording.

It has been advised that when a patient has collapsed on the operating table, and has failed to respond to the stimuli that are usually employed, after waiting a few minutes the surgeon should start heart massage through the diaphragm. While success has crowned the operator's efforts after several minutes of waiting, it is advisable not to wait long before starting heart massage, because the patient is in desperate straits, and a delay of half a minute might mean all the difference between success and failure.

In Caes II, reported below, heart massage was started as quickly as possible when the patient did not respond to artificial respiration, and as soon as it was found that he was pulseless; and even then the first period of heart massage failed to cause the heart to contract. Had heart massage not been started promptly it seems probable that it would have been too late to do any good.

When the operation under which the patient has collapsed is not an abdominal section, naturally a surgeon is anxious not to open the abdomen if it can be avoided, owing to the risks of peritonitis following an abdominal section when there has been no time to perfect the aseptic technique. For instance, in an operation for adenoids the surgeon's hands are not sterile, for they have been in the patient's mouth, and he may not have a sterilized scalpel at hand, nor any iodine solution to paint on the skin of the abdomen. Even then I would urge that delay may mean a life lost. Such cases as these test the judgement of the most expert. When the operation has already necessitated the opening a clean abdomen, there can surely be no reason for delay.

The most common causes of sudden collapse on the operating table are: (1) Idiosyncrasy to chloroform; (2) shock from operating while anaesthesia is incomplete; (3) any operation that causes a too sudden relief of increased intra-abdominal tension.

In nearly every case of death on the operating table that has come to my knowledge chloroform has been employed. Let me, at the risk of repeating what has been written many times, urge that unless there is some special contraindication, ether should always be employed as the anaesthetic. It is very rare to hear of a death on the table under ether.

CASE I.

Four years ago a lady, aged 63, was brought to consult me because her abdomen had been getting large, and she suspected that she might be going to be confined for the first time. On examination, an ovarian tumour was diagnosed. It was of great size, impeding respiration seriously—in fact, the patient appeared to be a shell surrounding an enormous tumour. The pulse was irregular, the arteries somewhat thickened, and there was a marked aortic systolic murmur and an accentuated aortic second sound. She was told that the condition would soon be incompatible with life, and at the same time that there was a grave risk in operating on any one in her condition. She elected to have an operation.

The abdomen was opened and the tumour removed after having been aspirated with a trocar. Immediately after removal the patient collapsed. Respiration and heart stopped. After a short attempt at artificial respiration had been tried and pituitary extract had been administered without effect, the right hand was introduced through the abdominal incision, the left hand was placed over the heart, and the heart massaged by a series of rhythmic squeezes at the rate of forty or fifty a minute; the right hand compressing the heart through the diaphragm against the chest wall was reinforced by pressure on the outside of the chest by the left hand. Meanwhile artificial breathing was continued. After a short time the heart commenced to beat, respiration was restored, and the patient made a rapid recovery. Ether was the anaesthetic employed. The collapse was due to sudden relief of intra-abdominal pressure. The ovarian tumour was so large that it took two people to lift it off the table.

CASE II.

On January 10th, 1917, I was operating on a man for appendicitis. The abdomen had just been opened, and the man suddenly collapsed. Respiration and pulse were negative. The incision was rapidly enlarged, and the right hand introduced. The heart felt absolutely flabby, not a sign of contraction. Massage was started as in Case I, and artificial respiration continued. After about one minute, massage was stopped to see if the heart would contract. It would not. Massage was commenced again, and after about another minute the heart commenced to beat feebly. Pituitary extract and strychnine were injected, and after about five minutes the patient's condition improved so much that it was decided to complete the operation, as the appendix was distended and contained pus. His colour remained rather bad most of the day, and the pulse was irregular, but after continuous salines and adrenalin by the rectum, his condition in the evening caused no anxiety, and he made a good recovery. The anaesthetic used was a mixture of chloroform and ether before the collapse, and ether subsequently.

THE RELATION OF PERIDENTAL GINGIVITIS TO VINCENT'S ANGINA.*

BY

FRANK E. TAYLOR, M.A., M.D., M.Sc., F.R.C.S., D.P.H.,
PATHOLOGIST AND BACTERIOLOGIST TO THE QUEEN ALEXANDRA HOSPITAL, MILLBANK, AND LECTURER ON BACTERIOLOGY, KING'S COLLEGE, UNIVERSITY OF LONDON;

AND

W. H. McKINSTRY, M.B., C.M., D.P.H.,
TEMPORARY CAPTAIN R.A.M.C.

THAT ulcero-membranous inflammatory affections of the buccal cavity may be widely distributed on the mucous membranes of the mouth and gums, and not confined to the pharynx and tonsil in accordance with the classical descriptions of Vincent's angina, has been recognized by many observers since this was pointed out by Vincent himself in 1898. In addition to an ulcero-membranous pharyngitis and tonsillitis (Vincent's angina), he described an ulcero-membranous stomatitis and an ulcero-membranous gingivitis. In all these conditions, two or more of which are not uncommonly seen in the same patient, he found that the same micro-organisms were present—namely, the spirillum and *B. fusiformis* (Vincent).

Although Vincent's name is usually attached to these organisms they would appear to have been first seen and described by Miller, an American dental surgeon, in 1882.

In the Queen Alexandra Military Hospital during the last few months we have examined bacteriologically nearly 300 cases of fuso spirillary infection of the mouth, and have abundantly verified the constant presence of these organisms in all forms of ulcero-membranous inflammation of the mouth, either alone or associated with various forms of cocci, bacilli, and leptothrices.

In addition to the diffuse ulcero-membranous gingivitis previously described by Vincent and others, which is frequently found in association with Vincent's angina, there is frequently met with a more restricted infection of the gums with these fusiform and spirillary organisms, in which the lesions are limited to those parts of the gums which are in immediate contact with the necks of the teeth. This condition constitutes, we believe, a distinct clinical entity, and may accurately be designated fuso-spirillary peridental or marginal gingivitis—a condition named and described by us in a paper read before the Odontological Section of the Royal Society of Medicine on November 27th, 1916.

In addition to its prevalence this affection is of interest and importance in that it is often confused with pyorrhoea alveolaris, although it differs in the absence of pus and pus pockets. Further, the treatment, course, duration, and prognosis of the two affections are essentially differential.

In our earlier examinations of cases of Vincent's angina the investigations were restricted to the ulcero-membranous lesions of the pharynx and to the differential diagnosis of the condition from other ulcerative membranous infections, particularly diphtheria and syphilis.

Later the ulcero-membranous lesions were found not to be confined to the pharynx, and many cases of fuso-spirillary gingivitis were observed often associated with the typical Vincent's angina.

It is, however, the restricted peridental or marginal gingivitis which we have particularly found associated with Vincent's angina, although in a few cases the accompanying gingivitis was of a more diffuse character.

Since our attention was first directed to this association of peridental gingivitis and Vincent's angina we have made a systematic examination of the gums of 70 cases of Vincent's angina, and in every case, without a single exception, we found the gums to be affected, the condition in the great majority of these cases being a localized peridental or marginal gingivitis.

Conversely, out of 150 cases of fuso-spirillary gingivitis the characteristic lesions of Vincent's angina were present in the pharynx or tonsils in 70. In all these cases the clinical findings were confirmed by careful bacteriological examination.

An investigation of the histories of the cases showed the same sequence of events in them all—namely, that the gums were always infected first, and that the sore throat was the more recent condition, having been infected, it would seem, from the gums. In many cases the patients themselves would make no complaint about the gums, but on inquiry it would be found that the gums had been sore and bled more or less freely whenever an attempt was made to use a toothbrush or clean the teeth.

This condition of the gums may have been present for days or weeks, or even months, and in a few cases years before infection of the tonsil or pharynx supervenes.

In some of these cases of peridental gingivitis the patients had frequently suffered from attacks of sore throat, and examination in these cases usually revealed evidences of old ulceration of the tonsils or pharynx with loss of tissues, deep crater-like depressions in these organs being often found. In this connexion the following are interesting and instructive histories:

CASE I.

Second Lieutenant D., Lovat's Scouts, presented himself for treatment suffering from Vincent's angina of the left tonsil. Peridental ulceration of the gums was also present about the lower incisors. The teeth were sound, clean, and in good condition. After two weeks' treatment of the topical application of an alkaline solution of salvarsan the throat was quite healed and the condition of the marginal gingivitis was much improved, though slight bleeding of the gums when touched still persisted, and fusiform bacilli were still present though in greatly reduced numbers.

Owing to the fact that he was then recalled to his regiment no further treatment was undertaken. About the middle of November the right tonsil became sore and painful.

The regimental officer applied boro-glyceride, tincture of iodine, and other solutions, without success, and so referred the patient back to us on December 5th. We found a deep ulcer on the right tonsil, and a relapse of the peridental ulceration about the lower molars. Smears made from both the throat and the gums showed the usual picture of fusiform bacilli and spirilla. Swabbing the throat and gums with salvarsan solution was again regularly undertaken, and by December 18th the throat was completely healed.

On December 22nd the organisms had disappeared from the alveolar margins and there has been no recurrence either in the pharynx or the gums.

CASE II.

Pte. B., A.I.F., complained of sore throat, and two deep ulcers were found on the right tonsil. A soft whitish membranous exudation covered the ulcerated surface, and could readily be removed with a throat swab or platinum loop. This slight manipulation was sufficient to excite somewhat free bleeding. The throat had been sore for two days, and great pain on swallowing was experienced. The breath was fetid and the lymphatic glands beneath the left angle of the lower jaw were swollen and tender.

The gums also showed peridental gingivitis about the lower incisors. On cross-examination it was found that bleeding of the gums had been present for the last two years. The teeth were in good order, the first and second left upper molars having solid fillings. Smears from both the gums and throat showed the presence of fusiform bacilli and spirilla.

The teeth were thoroughly cleaned by the dentist, and the gums and throat were then painted daily with salvarsan solution. By November 22nd the condition of the throat was greatly improved and no bleeding occurred on instrumentation of the gums. On December 6th the throat was well and the gums were nearly healed. On December 15th both throat and gums were free from Vincent's organisms.

CASE III.

Pte. C. was sent for the bacteriological investigation of a sore throat of four days' duration. An ulcero-membranous inflammation of the right tonsil was found. The gums had been tender and bleeding for a week. Smears prepared both from the tonsil and the tooth margins of the gums showed typical *fusiformis* and spirilla. In ten days the throat was healed and free from these organisms, and a week later the peridental gingivitis was healed and the tooth margins of the gums were free from the organisms.

CASE IV.

Capt. K., R.A.M.C., complained of sore throat of three days' duration and of bleeding sore gums of three weeks' duration. The sore throat was a typical Vincent's angina and the sore gums typical peridental gingivitis. The characteristic organisms were present in both conditions.

These few cases may be taken as examples of many which we are encountering daily, and the histories of the cases keep repeating the same sequence of events with monotonous regularity. First the bleeding sore gums, which may or may not have been diagnosed as pyorrhoea, and which may have been present for some considerable time, and then the throat becomes affected, and the typical ulcero-membranous pharyngitis and tonsillitis of Vincent's

* A paper read before the Royal Society of Medicine (Laryngological Section), February 2nd, 1917.

angina is seen. The diagnosis is confirmed by finding the typical organisms in both conditions.

Our experience has been confined to adults, but Vincent's angina is also seen in children, and it would be interesting to learn if the same frequency of peridental gingivitis is observed in association with Vincent's angina in children, and whether in them the same sequence of events—namely, the peridental gingivitis preceding the Vincent's angina—also occurs.

As the result of our investigations we suggest that when a patient complains of a sore throat which presents the characters of Vincent's angina it is essential to examine the tooth margins for evidence of peridental gingivitis or pyorrhoea, and that smears be made from both sources for the detection of the causal organisms. When found to be present, the peridental gingivitis should be adequately treated as well as the Vincent's angina; otherwise the condition is likely to persist indefinitely and to cause repeated recurrence of the sore throat.

ABDOMINAL KNEADING IN THE TREATMENT OF INTESTINAL STASIS.

BY JOSEPH S. BOLTON, M.D.,
NOTTINGHAM.

DELAY in the passage of food through the large intestine is a potent cause of disease, and treatment by removal of a portion of the bowel is a very severe remedy, only to be resorted to if simpler measures fail.

The causes of intestinal stasis are numerous, but one of the most important is the anatomical construction which makes it necessary that in the first section of the large intestine the food should travel against gravitation and at the summit of the ascent turn the sharp corner of the hepatic flexure; and this just at the spot where in women it comes under the pressure of the corset. The difficulty of transit is increased by the fact that, whereas the contained food is in a semi-liquid state in the stomach and small intestine, it has become semi-solid in the colon owing to the absorption of moisture.

Then, again, the passage from a tube of small calibre such as the small intestine into a large elastic pouch like the caecum tends to favour delay. The normal time for the passage of food through the stomach and small intestine, a distance of twenty feet, is about twelve hours, while it takes another twelve hours to accomplish the journey through the five feet of large intestine.

These causes are present in the normal individual, but there are also morbid causes, such as sagging of the transverse colon, and adhesions, with the resulting kinks demonstrated by the *x*-ray meal.

That it is important to prevent the stasis of food in the large intestine is shown by the relief obtained through the use of purgatives and paraffin, and the popularity of the douche for washing out the large bowel.

It is to supplement these remedies that abdominal kneading is recommended. The patient, after being carefully instructed, can carry out this treatment for herself. Lying in a warm bed, in a comfortable position on the back, so as to relax as far as possible the abdominal muscles, she must place both warm hands, with the fingers flat, upon the abdomen over the position of the caecum. Gentle but firm pressure must now be made, gradually getting deeper and deeper as the muscles relax and the contents give way. The pressure must be made backwards and upwards, and must be continued at this spot for at least two minutes. The contents cannot be easily driven back into the small intestine, and will therefore be impelled forward. The hands, still pressing deeply, are made to follow the contents up the line of the ascending colon.

The next movement has for its object to assist the passage round the hepatic flexure. For this purpose the fingers of the right hand are placed at the right loin, in the cleft between the lower ribs and the hip-bone, and pressed firmly forward. The left hand is placed at a corresponding spot on the front of the body and pressure brought to bear so that the bowel is squeezed between the two hands and emptied of its contents. The pressure may be relaxed and repeated several times. The gall bladder must now be manipulated. The tips of the fingers of both hands are forced under the ribs at the position of this viscus and pressure brought to bear upon the fundus. A very efficient instrument for this treatment of the gall bladder is the electric vibrator.

Deep kneading is now applied over the transverse colon, pressing towards the spleen. The splenic flexure is treated in the same way as the hepatic, but it is far less important. Indeed, the only other important part to treat is the sigmoid flexure, and here the pressure must be exerted downward. The patient should treat herself after getting to bed at night and again before rising in the morning, spending fifteen to twenty minutes in the process. Steady pressure and great patience are necessary if any success is to be obtained. Much of the treatment recommended can be carried out by the use of a heavy ball of shot, which is very slowly rolled over the abdomen following the direction of the large intestine.

The most obvious effect of the kneading is the passage of flatus which usually occurs while the treatment is in progress. This is frequently followed later on by an action of the bowels.

In deciding what cases require this treatment, one naturally thinks first of constipation, biliary catarrh, and dyspepsia. But intestinal stasis is often present where it is not suspected, and a careful examination of the abdomen should be made in every case of chronic illness. It may be at once obvious on inspection that the right side of the abdomen is more distended than the left. Through the parietes of elderly women elevations can sometimes be seen showing the position of lumps of hardened faeces beneath. Palpation will clear up any uncertainty in the diagnosis. Of 156 patients in whom the abdomen was examined at the Electro-Medical Hospital, Nottingham, tenderness over the caecum was present in one-third. Most of these were suffering from some form of rheumatism or from neuritis. In many the tenderness disappeared after a short course of treatment, and in none did any harm arise from the kneading and electricity applied.

In elderly persons in whom the tone of the muscular fibre is lost, difficulty is experienced in bringing about a healthy action of the bowels; they suffer from chronic retention, and when the bowels are relieved by purgatives there is inability to retain the liquid motion. For these cases abdominal kneading with electricity is useful.

Many persons in ordinary health are subject to occasional attacks of heaviness or depression. They arrive at their office only to find that the head is not clear and work is an effort. Let them lie on a couch and carry out abdominal kneading. In the course of an hour the head will become clear and all the unpleasant depression pass away. Early morning headache is caused by poisons absorbed from the abdomen, and is relieved by kneading, even when there is no constipation. Diarrhoea is due in many cases to fermentation in the caecum. The overflow gives the mistaken impression that there is no stasis. Kneading is often of service in this condition. No case of mucous colitis should be considered incurable until kneading has been thoroughly tried, while paraffin is being given internally.

A very troublesome condition, often accompanied with much pain, is that due to adhesions following operations on the abdomen. Kneading, with radiant heat and electrical treatment, will bring about a good result if persevered with.

It is not in chronic diseases only that this treatment is useful; the doctor called in to an emergency case of flatulent colic can relieve his patient in a few minutes by this method.

THE United States Public Health Service in a recent bulletin states that garment workers, particularly pressers and ironers, are subject to chronic poisoning by carbon monoxide gas, discharged into the air of workshops by gas-heated appliances. In 11.8 per cent. of the shops examined in New York City the amount of carbon monoxide was found to be excessive; in 38 per cent. the smell of gas was perceptible. Fifty per cent. of the shops used ordinary gas irons only; 41.8 per cent. used irons heated by a mixture of gas and air under pressure. Only 2.4 per cent. used electric irons exclusively, and in 8.6 per cent. defective gas irons were found. Examination of the gas tubes showed that none were gas-tight.

EARLY COMPLICATIONS RESULTING FROM RETAINED BONE FRAGMENTS IN A CASE OF GUNSHOT WOUND OF THE HEAD.

BY CAPTAIN W. E. TYNDALL, R.A.M.C.(S.R.).

THE following case of gunshot wound of the head presented some features of interest:

Pte. G. was admitted in the early morning of November 5th suffering from bullet wound of the head. He was unconscious and collapsed; the pulse was imperceptible, temperature subnormal, and respirations shallow. He was very cold and evidently suffering from shock. The scalp wound was about 3 inches long, of the gutter type, and lay antero-posteriorly in the left parietal region. It was very dirty and jagged, with blood clot and brain tissue escaping from it. His right arm and right leg were paralysed.

First Operation.

He was put to bed, infused subcutaneously with normal saline, and the wound was dressed. In the evening his condition had improved and it was decided to operate. Under chloroform the edges of the wound were excised, the wound was well washed with normal saline and explored. There was a fissure fracture 2 in. long in the left parietal bone, about 1½ in. below the superior longitudinal sinus, with two fissures radiating from its posterior end; the dura was lacerated and the brain tissue oedematous and broken down. The brain was explored by finger, half a dozen small bits of bone were removed, and the edges of the wound in the cranium were cut away to expose the free edges of the dura. The wound was washed with normal saline and closed by suture. A flap had to be cut from the upper surface (Wallace method) to allow the edges to be brought together. A rubber drain was placed under the flap down to the opening in the dura and left for twenty-four hours.

Next morning the patient's condition was much improved, and he recovered consciousness towards evening.

He continued to improve, and eleven days after the operation all signs of paralysis had disappeared. The wound had healed by first intention, the edges of the flap were covered by healthy granulations, and there were no signs of hernia cerebri. He was able to sit up in bed and untie his bandages, and was shown "fit for evacuation."

On the evening of November 17th he complained of frontal headache, but was relieved by aspirin. He slept well during the night, but on the evening of November 18th there was a slight rise of temperature, and he again complained of headache. The following day he was drowsy, lay on his right side, his head covered and bent on his chest, his legs drawn up, and frequently complained of the pain in his head. This condition continued for the next four days.

During the night of November 21st his temperature rose to 104° F., and in the morning he was very dull and apathetic, but showed no definite symptoms. He vomited about midday. There was no optic neuritis, and the pupils were normal. There was no hernia nor increased pressure in his wound.

Second Operation.

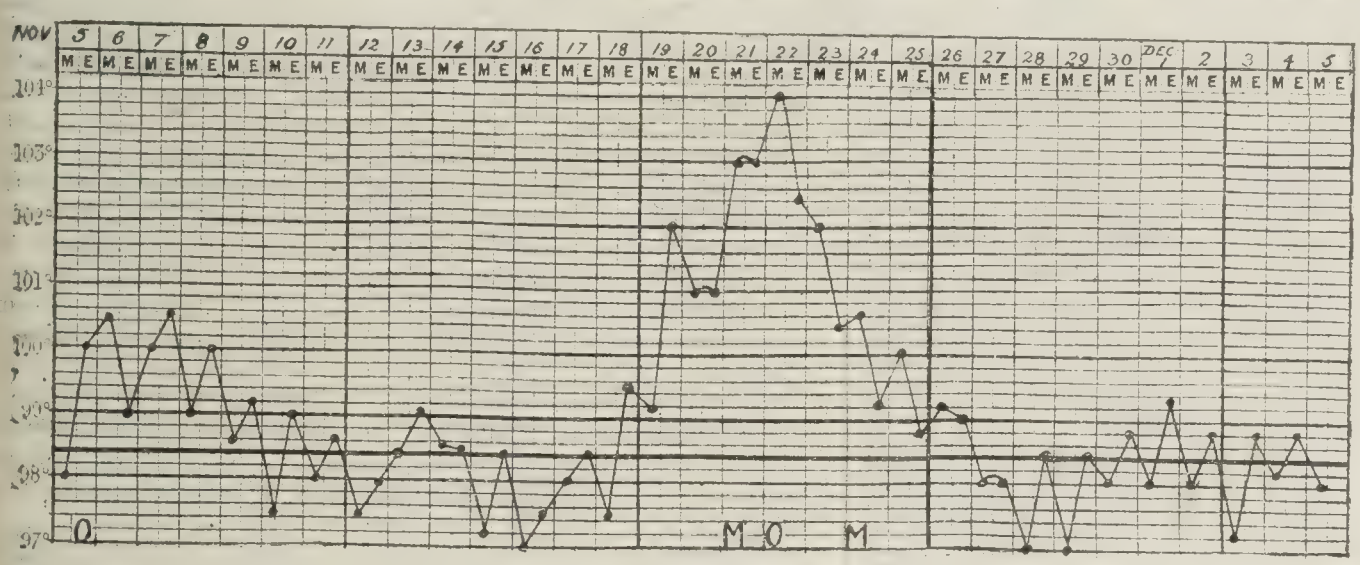
Lumbar puncture showed slightly increased pressure; the cerebro-spinal fluid was examined by Captain Buckell, pathologist, who reported:

"Cerebro-spinal fluid is turbid; total white cells 200 per c.cm.; polymorph leucocytes 91 per cent.; lymphocytes 9 per cent. No organisms seen on direct examination. Cultures on trypagar and trypsin agar both sterile."

A small incision was made along the line of union of the original wound, from which a little clear fluid escaped. There was a slight hernia of the brain outside the dura, but not above the level of the cranium. In the hernia there was a small opening, which led into a cavity about the size of a walnut. This cavity was full of clear fluid, and lying in it were two small pieces of bone ⅜ in. by ¼ in. These were removed and the wound sutured; a drain was left in for twenty-four hours.

The next day the patient was better, but was still dull and complaining of slight headache.

Recovery was gradual, with occasional headache. He was evacuated to the base a fortnight after the second operation. He was then quite well, showing no effects of his injury. The report received from the base previous to his evacuation to England stated that "there were no ill effects from head injury observed while patient was in this hospital. No symptoms."



O=Operation. M=Morphine ⅓ gr.

The necessity for the examination of the brain for foreign bodies, and their removal, is a subject of some controversy among the surgeons who are working in clearing stations. In their report on gunshot wounds of the head Lieutenant-Colonels Holmes and Sargent[1] state:

> It seems extremely doubtful if surgical intervention other than that necessary for the drainage and the healing of the wounds diminishes appreciably the risk of later complications or can modify except in a harmful direction the course of these cases from the functional standpoint.

Our records also show that many patients with foreign bodies lodged deeply in the brain recover, and are scarcely more liable to serious complications than men in whom the brain has been merely exposed and lacerated.

In the case here reported the patient was making an excellent recovery until he was interrupted by a serious relapse, which was relieved by the second operation. If the pieces of bone which were then removed were the cause of the relapse—and this seems a fair conclusion—it points to the necessity for removal of any such foreign bodies at the first opportunity. If this course had been carried out at the first operation the case would probably have made an uncomplicated recovery.

I should like to express my thanks to Lieutenant-Colonel H. H. Norman, R.A.M.C., for permission to publish this case, and to Captain Richards, D.S.O., for his advice and help.

REFERENCE.

[1] *Journal of the Royal Army Medical Corps*, September, 1916.

COMBINED SUSPENSION AND EXTENSION APPARATUS FOR COMPOUND FRACTURES ABOUT THE HIP.

BY G. M. HODGES, M.B., B.S.LOND.,

LATE TEMPORARY CAPTAIN R.A.M.C.

SEVERE wounds of the buttocks and wounds of the upper third of the thigh, with high fracture of the femur, unfortunately common in this war, are among the most unsatisfactory that the surgeon has to deal with and the most distressing to the wounded themselves.

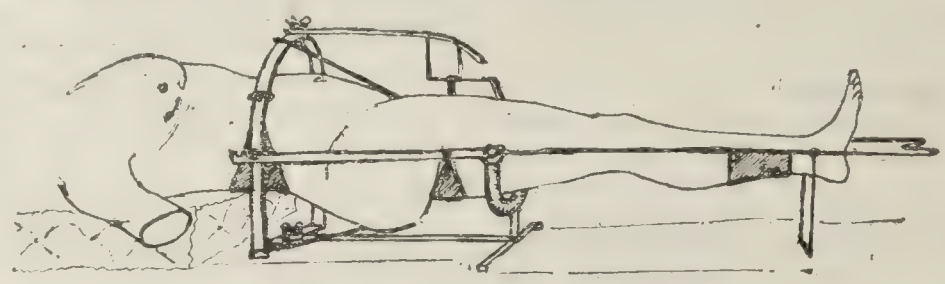
As regards buttock wounds, the patients from choice will always lie on their faces; this is the position in which they are sent from the field ambulances to the casualty clearing stations, and at this early stage it is certainly the best. But when, as invariably happens in shell wounds of this region, sepsis is firmly established, the advantages of dependent drainage practically necessitate the patient lying on his back. Pressure on the wound thus produced retards healing and often causes almost intolerable pain. In addition, it makes the dressing of the wound difficult, tedious, and painful, while the same may be said of the use of the bedpan, care of the back, and other details of nursing. Especially is this so when fracture of the sacrum, ischium, or upper extremity of the femur is a

complication. The frequent movement of these fractures for dressing, etc., are, of course, both painful and surgically bad.

Wounds of the upper third of the thigh with fracture of the femur may commonly be put up in a Thomas's leg splint (slung and abducted) quite satisfactorily, but too often the ring of the splint covers some area of the wound, and it is not easy to transport cases thus put up by ambulance train without much harmful and painful movement of the fracture.

The various modifications of the Thomas we have found quite unsatisfactory. The half-ring, for instance, may not press on or cover the wound area, but the splint is extraordinarily difficult to keep in position when the patient is in a bed; during transport it is nearly impossible.

A Jones's abduction frame meets the difficulty when there is an anterior wound only, but when, as generally happens, there is a through-and-through wound, of which entrance or exit is posterior, this is in contact with the padded frame, and is difficult or impossible to dress. The frame has other disadvantages from the army point of view—it is cumbersome and takes up much space in supply trains, and it is expensive.



Experience of these difficulties raised the consideration whether it was not possible to devise an apparatus that should be efficient as a splint and yet be comfortable for the patient; allow free access to the wound and facilitate nursing; be simple of structure and application, easy of transportation when in use; cheap, light, and portable when packed.

We claim that all these requirements are met by the Hodges-Lockwood combined suspension and extension apparatus described below, which was elaborated by Captain A. L. Lockwood, R.A.M.C., and myself, with the very able assistance of Mr. Price, of Down Bros., by whom the splint was made to order of the War Office.

1. As a splint good extension is obtained and also fixation, the loin sling tending to prevent slewing of the body, while abduction can be made to any extent required. It can be adapted to either side.

2. It is perfectly comfortable.

3. Its advantages in dressing and draining of posterior wounds are obvious, and as these are not pressed upon there is an improved chance of rapid healing and less pain to the patient, especially as he does not require moving for any purpose. The use of the bedpan, etc., is easy.

4. Once the patient is in the splint he can be moved on to an army stretcher, which the splint is made to fit, and to which it can be firmly fixed. In this way he can be transported by ambulance or by train to the base, or by ship to England without in any way disturbing his fracture.

5. Packed, the splint measures 36 in. by 36 in. by 9 in. Its lightness, simplicity of structure and application, will be obvious from the following description, which is issued with the splint.

The splint consists of an iron cradle which is passed round the patient at about the level of the umbilicus. At right angles to this cradle is attached a second cradle which passes vertically between the patient's thighs. To this again is fixed (1) a cross-bar to give support when the apparatus is on a stretcher, and (2) a modified form of Thomas's leg splint supported at the foot end by a folding upright. This leg splint (made to fold for purposes of packing) is attached to the transverse cradle on the outer side by a short bar, adjustable as to length, and to the second cradle by a slotted bracket and thumbscrew. A stout canvas sling is attached to the transverse cradle by straps and buckles, and suspends the patient's lumbar region and perhaps just the upper part of the sacrum.

A second sling is attached to the second cradle and to the outer adjustable bar to take the weight of the thigh just below the natal fold.

A third sling is fixed to the leg splint near the foot.

The head, shoulders, and opposite leg being suitably supported, the patient can be raised by means of these slings 6 in. or more above the bed.

Fixation is obtained by means of a padded perineal band strapped to the transverse cradle above and below him.

Extension is obtained in the way usual on a Thomas's leg splint.

Abduction.—By the adjustment of the short outer bar any required abduction can be obtained.

The diagram shows the patient with apparatus in position.

Method of Application.

1. Place the transverse cradle in position at about the level of the umbilicus, passing it over the patient's head and shoulders.

2. Push the second cradle into position, passing it between the patient's thighs as shown in diagram, and fix above and below to the transverse cradle by the thumbscrews—but *not* tightly.

3. Slide the leg splint under the limb and attach the semicircular ring to the second cradle.

4. Fix the short outer bar in position (roughly).

5. Raise the patient by means of the slings, at the same time supporting the head, shoulders, and opposite limb on pillows or half mattresses (biscuits).

6. Fix the perineal band.

7. Apply the necessary extension.

8. Abduct the limb as required by adjusting the short outer bar.

9. Tighten the thumbscrews connecting the two cradles.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RECURRENCE OR REDEPOSIT OF CANCER: WHICH?

IN your issue of March 24th Mr. Mansell Moullin relates the case of a lady upon whom he performed gastrectomy for carcinoma of the stomach, and who died "seven and a half years after the original operation, for seven of which she had enjoyed perfect health." He states that "the whole liver was full of small nodules of an unmistakable character." I should like to add very brief notes of two cases of late recurrence or redeposit of laryngeal cancer.

The first was a man who had an epithelioma of the left vocal cord. The diagnosis was confirmed by Sir Felix Semon, and by microscopic examination after operation. I removed the growth by laryngofissure, and the patient enjoyed perfect health for thirteen years. I was then called to see him one evening because of urgent dyspnoea. He was cyanosed, laryngeal stridor was very obvious, and both lungs were congested. It was obvious that while an immediate tracheotomy might prolong life, it was improbable that it would be successful owing to the serious condition of his general symptoms. A tube was inserted, but the patient died a few hours afterwards. Permission was obtained to remove the larynx only. This showed that the scar of the original operation was perfectly healthy, while a fresh cancer had developed in the right, or originally healthy, cord, and that this growth had been the cause of the final laryngeal obstruction. The specimen is in the museum of University College Hospital, and further details of the case may be found in the *Journal of Laryngology* (September, 1903, p. 473).

The second case was originally operated on by Sir Felix Semon for malignant disease of the left vocal cord, and fourteen years later (after Sir Felix had retired from practice) the patient was referred to me for increasing dyspnoea. The larynx was reopened (laryngofissure) and I found such extensive recurrence that in view of the patient's age and general condition only as much of the disease was removed as seemed possible at the time, and the tracheal cannula was allowed to remain. In the course of a few months the growth spread into the trachea, appeared around the tracheotomy opening and assumed such dimensions that a long spiral König's cannula was necessary to reach below the cancerous mass in the windpipe. Eventually he died from pulmonary complications. Here again we have a patient who enjoyed perfect health and immunity from his disease for nearly fourteen years after the primary operation.

I have records of three other cases in which recurrence

of laryngeal cancer took place nine, seven, and seven years respectively after operation.

In reading the statistics of the results of operations for cancer in different parts of the body it has often been assumed that if there is no recurrence within three years the disease has been cured. Such experiences as Mr. Moullin's and my own unfortunately do not warrant such optimism, although at present no method of treatment other than radical intervention in early cases of cancer offers anything like the same prospect of a long immunity. This is particularly the case with laryngeal cancer if the disease is limited to the vocal cords or to their immediate vicinity, because the lymphatic connexion with surrounding regions is fortunately very restricted.

As to the light in which we are to regard such experiences opinions will differ very widely. In my first case a growth appeared on one vocal cord and was removed. The patient lived for thirteen years and then died as a result of a similar disease in the opposite cord. It is improbable that at the primary operation cancer cells were detached and infected the healthy cord, but laid dormant there for thirteen years. Is it possible that the primary growth confers an immunity on the patient, and that the period of this depends on certain constitutional predisposing factors of which we have at present little or no knowledge?

HERBERT TILLEY, F.R.C.S.,
Surgeon, Ear and Throat Department, University College Hospital.
London, W.

Reports of Societies.

RE-EDUCATION OF ATTENTIVE CONTROL.

AT a meeting of the Association of Registered Medical Women on March 13th, when Dr. HELEN BOYLE was in the chair, Dr. MARY BELL, in a paper on some modern methods of re-education of attentive control used in the treatment of the functional neuroses, said that children and many adults had no power of selective attention and could not concentrate on any one thing for long. In mature age those stimuli had generally been selected which were connected with one or more so-called permanent interests and attention had grown irresponsive to the rest. The level of consciousness varied in different people and in the same person at different times, being lowest in fatigue. Some people were aware of so many sensory stimuli within and without their own bodies that life became a burden to them, and they tended to become increasingly self-centred. Many were unable to concentrate on a simple exercise for more than three-quarters of a minute. A large variety of exercises were used in the treatment; at first two minutes were allowed for an exercise, followed by varied exercises calling forth different faculties for ten to fifteen minutes. Any simple exercise would do, provided it could not be carried out mechanically—thus, a right-handed person might learn to write with his left hand or to do looking-glass writing, etc. Ordinary reading was of no use, but the patient could be made to read upside down. Exercises were given for fixing the attention on co-ordinating muscles and for training the observation. Some patients did better with a subjective type of exercise such as controlled breathing, visualizing words and numbers. Patients tended to be bored at first, and at every pause to talk about themselves, but in a few days they became interested in their progress. The whole day was mapped out, first by the physician, and later by the patients themselves; they walked, gardened, dusted, cleaned motors, played patience, etc. It was good to include some distasteful work in order to develop the power of forgetting themselves. Dr. Bell described some cases of chronic invalids who had been cured by this method and were now doing useful work. Dr. HELEN BOYLE thought patients might be made too conscious of trying to improve themselves by these modern methods. As depression was a very common element, it was important to give encouragement and allow them to do the things they enjoyed rather than those they disliked, by which means a greater concentration on external things was likely to be secured.

Reviews.

GRANULOMA VENEREUM.

VENEREAL GRANULOMA is one of the many names given to a chronic ulcerative affection of the skin about the genital organs, occurring in tropical and subtropical countries. An account of some recent investigations of its etiology, occurrence, and treatment, made by Dr. H. C. DE SOUZA ARAUJO, of Rio de Janeiro, was published in the BRITISH MEDICAL JOURNAL of July 29th, 1916 (page 146). A description of a case of the disease, acquired on the Gold Coast, and treated at the Albert Docks Hospital in London by Drs. G. C. Low and H. B. Newham, is given in the BRITISH MEDICAL JOURNAL of September 16th, 1916 (page 387). Quite recently Dr. de Souza Araujo has published at Rio de Janeiro a full account[1] of venereal granuloma, in a book which may be regarded as an extension and completion of his inaugural thesis mentioned above. This new work, which was presented at the first Medical Congress held at S. Paulo in December, 1916, contains eight chapters, and is throughout very fully documented with references to the literature of the subject. The first chapter describes *inter alia* the geographical distribution of the disease, which has been seen in England, Germany, Portugal, various parts of Africa, and North America; it is endemic in Asia, and is comparatively common in Australia, South America, and Oceania. The second chapter deals with the etiology and pathogenesis of venereal granuloma. The author concludes that it is due to a capsulated bacillus discovered by C. Donovan in 1905, and named *Calymmatobacterium granulomatis* by Aragao and Vianna in 1912. It may be added that other microbes of the new genus *Calymmatobacterium* are Friedländer's bacillus, the bacilli of rhinoscleroma and ozaena, the *B. lactis aërogenes*, and other capsulated organisms. The disease rarely attacks children or persons more than 40 years old; the primary infection habitually takes place by direct contact during coitus through cracks or erosions of the skin. The disease is not disseminated by the blood or the lymph channels, but spreads by contiguity of tissues or autoinoculation. A full account of the bacteriology of venereal granuloma is given. The specific microbe is described as capsulated, non-motile, Gram-negative, non-spore-forming, unable to liquefy gelatine or to coagulate milk. The organism was first cultivated in 1912 by Aragao and Vianna, and is polymorphic, occurring as cocci and bacilli, diplococci, diplobacilli, and filaments, all with a mucous capsule, whether in the tissues or in artificial cultures. It retains its virulence for experimental animals, at any rate as far as the hundredth subculture on gelatine; the virulence can be increased by the method of passage through animals up to a certain point. The experimental study of venereal granuloma began in 1896 with the unsuccessful attempts of Conyers and Daniels to inoculate guinea-pigs with infective material from cases of the disease in British Guiana. Aragao has employed rabbits, guinea-pigs, rats, marmosets (*Hapale penicillata*), and dogs in his experiments. Death due to *C. granulomatis* septicaemia usually occurs in twenty-four to forty-eight hours after intraperitoneal inoculation and sometimes after subcutaneous inoculation. The account of the pathological histology of venereal granuloma is illustrated with microphotographs and coloured plates; the disease begins in the corium, which becomes extensively infiltrated with plasma cells, particularly in the papillary and Malpighian layers. The plasmomas thus formed presently break down, with ulceration of the skin, which spreads widely but not deeply. Spindle cells and mast cells are not abundantly present; newly formed connective tissue is found in the older cutaneous lesions with numerous capillaries, forming nodular outgrowths and later scar tissue, which contracts. No giant cells are seen. The specific bacterium can be seen in sections stained with Unna's polychrome blue or Giemsa's stain; taking the form of intracellular or extracellular cocci, diplococci,

[1] *Granuloma Venéreo*. Trabalho do Instituto Oswaldo Cruz. Prefaciado pelo Dr. Fernando Terra, apresentado ao primeiro Congresso Medico Paulista. By Dr. H. C. de Souza Araujo. Rio de Janeiro: Companhia Lithographica Ferreira Pinto. 1917. (Imp. 8vo, pp. 246, with 7 coloured plates and 40 figures in the text. Price, 10 dols.)

chains, or zoogloeal masses, encapsulated and staining more or less well. The plasma cells often show hyaline degeneration when they contain the specific organism. The histological lesions found in experimental animals infected with *C. granulomatis* are those of a bacillaemia. The clinical study of the disease is illustrated by photographs and three admirable coloured plates. From the clinical point of view the author describes (1) ulcerating and (2) hypertrophic forms of the infection, which either have or have not serpiginous outlines; and (3) a mixed or ulcero-hypertrophic form. The complications met with are those due to secondary infections, generalized tuberculosis, or ulceration into the abdominal cavity, bladder, vagina, or rectum. Recurrence of the disease may be seen even after the treatment by intravenous injections of tartar emetic described below; but it is rare after this treatment, and may be due to reinfection rather than relapse. The diagnosis of the disease should be clinched by the microscopic examination of an excised portion or scraping of the diseased tissue. Of the various methods of treatment that have been employed, only two have proved serviceable—namely, the *x* rays, first used by Macleod in 1907, and injections of tartar emetic. The author has employed the latter for two years with very satisfactory results. The lesions are dressed twice daily with compresses soaked in a 1 per cent. solution of tartar emetic dissolved in normal saline; if this proves too strong and provokes local irritation, a solution of tartar emetic only half as strong is to be tried. Such dressings are of undoubted benefit; but they should be combined with intravenous injections of 5 c.cm. of the 1 per cent. solution in normal saline, given daily or on alternate days. The quantity of the injection can be increased cautiously to 6, 7, or 10 c.cm., or even 12 c.cm. in tolerant individuals; the injections are better borne by men than by women. Sialorrhoea is common with this treatment, and too large doses produce painful but not alarming reactions. Full details of the preparation and use of the solution for these injections are given. An account, illustrated with seventeen photographs, is given of cases treated by the author and his colleagues; of his own 23 cases of the disease 19 had the tartar emetic treatment, and apparently none of these had relapsed. However, one of the patients had been cured of the disease by Aragao and Vianna in 1913, with a series of twenty-two of these intravenous injections containing in all 2.03 grams of tartar emetic; two years later relapse (or reinfection) had occurred, and the patient was again cured of the disease by tartar emetic and *x*-ray treatments combined in July, 1915. The book ends with a bibliography containing 154 references to the literature of venereal granuloma.

Comparison of the photographs of the lesions in his cases with those printed by Dr. H. Tucker in a recent issue of *International Clinics* (Vol. iv, Series 26, 1916; J. B. Lippincott Company, Philadelphia and London) leaves the impression that some at any rate of the latter's eight patients may have been suffering from venereal granuloma, a diagnosis apparently not considered by Dr. Tucker. The disease is not unknown in the United States of America; in 1913 Grindon (*Journ. Cutan. Diseases*, New York, 1913, xxxi, 236) described three cases of it met with at St. Louis.

PATHOLOGY.

PROFESSOR MACCALLUM'S *Textbook of Pathology*[2] is constructed on new lines. After a series of preliminary chapters on disturbances in the circulation, and in metabolism, and on the defences of the body against injuries of all kinds, there follows a long series of chapters on types of injury as illustrated by various lesions in the organs and tissues of the body. No attempt is made to deal with the lesions of the various organs seriatim, and the result in a textbook may be a little confusing for the student. On reading the book, the plan adopted appears far more suited to a series of lectures. Moreover, the author is compelled to make use of numerous paragraphs in small print in order to drag in lesions which really have no connexion with the type of injury he is writing about. This is illustrated in the chapters on obstruction. In dealing with inflammation Professor MacCallum seems to take too narrow a view of the processes involved. He rigidly separates the phenomena of repair from those of inflammation, and regards the latter as essentially a vascular response. He makes practically no mention of inflammation of non-vascular areas. In dealing with infarction the experiments of Greenfield are not referred to; in fact, in many sections of the book the achievements of British workers are ignored, and the vast majority of the references to the literature given after the various sections are to German authors. To a large proportion of English students, at all events, these references would be useless.

The manner in which the various lesions are discussed is somewhat uneven. Some rather uncommon ones are given prominence, and to others of everyday occurrence are allotted a few lines only. Thus uraemia is dismissed in eight lines and ochronosis receives eleven lines. The author's plan of presenting his subject leads him to a rather irritating repetition of phrases, such as "There is nothing specially characteristic, or nothing peculiar, about the inflammatory process in . . .," etc. When applied to ulcerations in the stomach the statement becomes untrue, especially as the author himself describes quite well the characteristics of a gastric ulcer. The chapters on tumours on the whole are good, with the exception of the section on giant-celled sarcomata, which is quite inadequate. The typical myeloma of the long bones deserves much fuller treatment. The book is beautifully got up and admirably illustrated with 575 figures, chiefly from drawings. Of the coloured figures, Fig. 234, of old scars in the heart wall, and Fig. 323, of caseous pneumonia, are especially good.

Although we have been compelled to draw attention to several respects in which its construction seems to be faulty as a textbook, the volume is one which may be read with advantage by teachers.

[2] *A Textbook of Pathology.* By W. G. MacCallum. Illustrated chiefly by drawings by A. Feinberg. Philadelphia and London: W. B. Saunders Co. 1916. (Sup. roy. 8vo, pp. 2000; 575 figures. 35s. net.)

NOTES ON BOOKS.

THE book by Carrel and Dehelly on the treatment of infected wounds, reviewed on February 24th, has been supplemented by a brief and practical booklet prepared by J. DUMAS and ANNE CARREL[3] for the use of nurses. Full details of the technique of applying these dressings are given; the apparatus used for the continuous irrigation is described and figured, together with the exact mode in which it is applied. Several pages are given to the details of the preparation of Dakin's solution, and several pages are devoted also to the method of ascertaining the results of the treatment by study of the number of microbes visible in stained microscope slides prepared from the secretions of the wounds under treatment.

The fifty-third edition of HERBERT FRY'S *Royal Guide to the London Charities*[4] gives a business-like account of the metropolitan charities of all sorts that have done such excellent work for years and years in the relief and prevention of distress. In the preface to the volume the editor notes that in 1916 the sum of £1,800,000 was bequeathed in the cause of charity, and draws attention to the great importance of lessening our unduly great infant mortality. The book should be consulted by all who have money to give in charity and do not know where best to bestow it.

[3] *Pratique de l'irrigation des plaies dans la méthode du Dr. Carrel.* Par J. Dumas et A. Carrel. Paris: A. Maloine et Fils. 1917. (Cr. 8vo, pp. 28; 5 plates. Fr. 1.25.)

[4] *Herbert Fry's Royal Guide to the London Charities.* Edited by J. Lane. New and revised edition, the fifty-third. London: Chatto and Windus. 1917. (Cr. 8vo, pp. 353. 1s. 6d. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

Citrated Malted Milk.

HEDLEY'S MALTED MILK (citrated), prepared by the Hedley's Malted Milk Co., 57–59, Ludgate Hill, E.C., is a food consisting of dried milk and malt extract and is stated to be specially digestible owing to the fact that the milk has been both malted and "citrated." Our examination of a sample supplied to us gave the following figures:

Fat	19.1 per cent.
Sugars, calculated as maltose ...	54.9 "
Diastatic power, by the method of the *British Pharmaceutical Codex* ...	89.4

The general characters of the sample were those of a mixture consisting principally of dried milk and malt extract, the fat having the refractive index of milk fat, while the principal sugars present were maltose and lactose. The food is very palatable, and, after preparing in the prescribed manner, yields a loose clot when mixed with 0.2 per cent. hydrochloric acid; it will, no doubt, be excellent for infants and for adults needing an easily digested food.

MEDICAL RESEARCH IN INDIA.

AT a meeting of the Indian Section of the Royal Society of Arts on March 27th, when the Right Hon. AUSTEN CHAMBERLAIN, Secretary of State for India, was in the chair, Sir R. HAVELOCK CHARLES, President of the Medical Board, India Office, and Medical Adviser to the Secretary of State, read a paper prepared by Sir C. Pardey Lukis, Director-General of the Indian Medical Service, on opportunities for original research in medicine in India.

Mr. AUSTEN CHAMBERLAIN, in some introductory remarks, said that Sir Pardey Lukis, in the interval between the resignation of one director of the Army Medical Service in India and the arrival from Europe of his successor, had served in that capacity, and Mr. Chamberlain was glad to have the opportunity—especially in view of the criticism, some of it just and much of it unjust, which had been passed upon Indian medical administration—of publicly paying a tribute to the admirable work done by Sir Pardey Lukis during the few months in which he occupied the position. Mr. Chamberlain also spoke of his indebtedness to Sir Havelock Charles for the work he did at the India Office, where he discharged his often difficult and disagreeable task with great impartiality.

The paper pointed out that, though few were unconscious of the debt the empire owed to medical research, some might not have a clear idea of its magnitude. In the vast British tropical and subtropical dominions, and in the smaller outposts, inhabited by fellow subjects, few of whom had any knowledge of sanitation or preventive medicine, diseases largely of a preventable nature prevailed, and caused death-rates unparalleled in more fortunately placed Britain. It was no exaggeration to say that the science of tropical medicine had practically been created within the last twenty years. Anterior to that date important discoveries were made—Laveran's discovery of the malarial parasite in 1880; Koch's discovery of the cholera vibrio in Egypt and in India in 1884–85; Vandyk Carter's work in Bombay on the spirillum of relapsing fevers; Manson's observations on filaria and mosquitos in 1879–83, and Kitasato's discovery of the plague bacillus in 1894. But workers were few, and it was not until the close of the last century that the importance of the subject began to be realized. The efforts of Sir Patrick Manson to obtain for tropical medicine its due meed of recognition could hardly be rated too high. In 1898 Ronald Ross, then a member of the Indian Medical Service, showed that a species of mosquito acted as host to convey from bird to bird the malaria-like proteosoma parasite, and demonstrated its life-history; subsequently he observed an identically similar cycle in the development of the malaria parasite itself. These observations opened up new and important fields of work and attracted numerous enthusiastic workers, but the late Mr. Joseph Chamberlain was the first to recognize the importance of Britain's overseas dominions and to impress upon stay-at-home persons the necessity for making the dwellers in these vast countries healthy and contented. Through him research in tropical medicine received an impetus, the effects of which were seen to-day. Two schools of tropical medicine were established in England—the one the London School at Albert Dock, which owed so much to the help of Mr. Joseph Chamberlain, and the other at Liverpool.

Sir HAVELOCK CHARLES, in the names of workers in tropical medicine, thanked Mr. Austen Chamberlain for presiding at the meeting that day; all knew the immense burden of work on his shoulders, but, in spite of it, in keeping with the spirit of his father's memory, he, to show his sympathy with those engaged on work for India and the Indians, had made time to be present. This act could not fail to have a good influence, proving that the Secretary of State was not unmindful of the benefits conferred on India by the Western system of medicine and the untiring labours of the medical profession in that country.

India, indeed, had not been slow to appreciate the importance of the movement for the study of tropical medicine, but the terrible visitation of plague involved the country in unparalleled misfortune, and the difficulties, the mistakes, the failures that attended the efforts to control that disease, due to the ignorance of the mode of its spread, demonstrated the urgent need of medical research. The Indian Medical Service, towards the close of the nineteenth century, had been fortunate in attracting a number of men with a special bent for research work. Individual officers fired by enthusiasm carried out investigations, often in the face of considerable difficulty, with little or no official encouragement. Such men were Semple, Glen Liston, Rogers, McCarrison, and Mackie. Their work did much to bring about the formation of a bacteriological department which in recent years had so developed that it now consisted of twenty-nine cadre appointments, not reserved entirely for members of the Indian Medical Service but open to independent medical men possessing the necessary qualifications for medical research, of whom some were already at work. In India there were three research laboratories—at Kasauli, Bombay, and Madras; and five Pasteur institutes—at Kasauli, Coonoor, and Rangoon, one about to be opened at Shillong, and another at Parel, Bombay. Further, two schools of tropical medicine would shortly be opened, one at Calcutta and another in Bombay, while a pathological institute at Madras would form practically a third. All would make provision for post-graduate and research work, and would afford unrivalled opportunities and facilities for the study and investigation of tropical diseases. At Kasauli there was also in connexion with the Central Research Institute the Malaria Bureau, in charge of Major Christophers, doing work of the greatest value. Such remarkable progress effected in a few years was striking evidence of the importance the Government of India attached to medical research. The enthusiasm displayed on all sides augured well for the future, and, provided that India continued to attract medical men with a leaning towards the scientific research sides of their profession, there was no limit to the possibilities of the future.

Perhaps the most important of the more recent developments had been the establishment of the Indian Research Fund Association in 1911; it was generously endowed by Government, and practically the only limit to medical investigation since its establishment had been the difficulty of obtaining a sufficient number of scientific workers of suitable stamp. The articles published in its journal—the *Indian Journal of Medical Research*—showed the subjects which were being dealt with, notably malaria, cholera, dysentery, kala-azar, plague, tuberculosis, diabetes, goitre, leprosy, and various entomological subjects. But though much had been done only the fringe had been touched, and the war had curtailed all work. There was scarcely one of the communicable diseases of India which would not repay further research. With regard to plague, for instance, more accurate information was needed as to the immunity of vast tracts in the east of India and in Burma, as to the part played by grain and grain godowns in the spread of the disease, and as to the influence of late-infected villages in carrying over the disease from one plague season to another. As to kala-azar, information was needed with regard to its mode of transmission, and as to its relation to the infantile form in the Mediterranean. Relapsing fever had been proved to be more common in India than was formerly realized, and investigations were required into the conditions favouring its development and spread. Mackie had shown that it was carried by the body louse, and Nicolle that it was transmitted by the accidental crushing of the louse, but the problem was not simple and the louse was not the only carrier of spirillar fevers in India. The fevers of short duration and uncertain origin, which had many affinities with yellow fever and occurred in many parts of India, called for research as to their occurrence, and also to establish whether they were separate diseases or merely modifications of one and the same. There were still many unsolved problems relating to the dysenteries from the etiological and therapeutic standpoints; much further research with regard to malaria also was necessary, for careful work was needed before the Government of India undertook expensive and extensive measures, such as might be involved in dealing with its endemicity in the Gangetic Delta. There was work also for the botanists, the biologists, the entomologists, the mycologists, and the helminthologists. Among the subjects calling for bacteriological investigations were the various forms of pernicious anaemia, especially the disease called sukhi following childbirth, and beri-beri, to which the military paid a heavy toll. It had, perhaps, a relation to epidemic dropsy, and it and scurvy were of vital

importance to the army. Other problems were connected with the possible fixing of physiological standards of purity for potable waters; as to how far, in view of Greig's recent work, cholera was to be looked upon as a water-borne disease only; as to the possible connexion of goitre with faecal contamination of the water supply; as to the comparative value of the cinchona alkaloids; as to the use of intravenous injections of metallic antimony and soluble antimonial preparations in the treatment of kala-azar; as to the possibility of substituting for emetine the cheaper alkaloids of opium, narcoteine, and papaverine, as remedies for amoebic dysentery, and as to the properties of indigenous drugs. The possibilities of research were limitless, and when its importance was still more widely recognized, as also the debt the medical profession owed to itself, to its country, and to the millions of our fellow-subjects beyond the seas, medical research work in tropical and subtropical climes would attract recruits from the best intellect of the profession. This was the type of worker India required, and for which the Indian Research Fund and the Bacteriological Department of the Medical Service, with their numerous research laboratories and institutes, offered unique opportunities.

Mr. CHAMBERLAIN recalled how his father, when he went to the Colonial Office, quickly came to the conclusion that if this country was to do its duty by its tropical dependencies it was of the first consequence that the health of the people in them should be safeguarded. Nowhere in the empire was there a larger field for research and for fruitful experiment than in India. He was struck at the India Office by the scale on which Indian life was measured; on the one hand the magnitude of the populations, and on the other the immense extent of the scourges—plague, famine, snake-bite—which claimed their victims not by hundreds, but by tens of thousands. For the task of research and alleviation, this country should always send its best to India: nothing but the best would justify the position held and maintained, and never was this more necessary than now. He wished to appeal to the leaders of the medical profession in this country—especially the heads of the great medical schools—to make themselves aware of the openings which service in India afforded, whether in the immediate practice of the profession or in research, and then to spread that knowledge and never to grudge to India some of the best pupils they could produce. As a result of the war there would be a greater call for doctors at home and a more restricted choice of field, but let no one think that all the best must remain here. It was of the first consequence as a matter of imperial policy that the heads of the profession should use their influence to give to India a proportion of their best students.

Sir PATRICK MANSON, who was asked by the Chairman to take part in the discussion, said that in the past he had had considerable experience in the investigation of tropical disease in China, and had been struck by the latent capacity of the Chinese for studies of this description. He believed there was a similar latent capacity in Indians also, and therefore he would strongly urge the encouragement of the natives of India to attempt original investigation in tropical disease. He thought rewards of some sort—he would not say pecuniary—should be offered. He would suggest a multiplication of medical students in the colleges of India, and special attention to be paid to their qualifications. The Indian brain was as subtle as our own, perhaps more so; the imagination of the Indian was as active, and his manipulative skill far greater. He had himself found a Chinaman who, after a little training, was able to relieve him of all the technical work in microscopy. A proper appreciation held out, not only to European medical men in India, but to native medical men as well, would mean an enormous stride in tropical medicine. Sir Patrick concluded with some reminiscences of the interest shown by the late Mr. Joseph Chamberlain in the subject while he was at the Colonial Office.

Sir MALCOLM MORRIS said that his own antecedents were connected with the Indian Civil Service, and as a child he recollected relatives coming home from India to die of liver abscess. This condition was now practically extinct, the result of research in India upon dysenteries. If sufficient encouragement were given, other diseases of the East would fall away one after another. There were at present many thousands of lepers throughout India and China, and no serious attempt had been made until recently to stamp that disease out. Sir Leonard Rogers of Calcutta had, however, started a work in this direction which seemed likely to bear wonderful fruit. While the speaker was visiting India in January, 1914, he saw an Englishman, a member of one of the services, who was afflicted with leprosy. This man came under Sir Leonard Rogers's treatment, and he (Sir Malcolm) had seen him within the last few months, and he was absolutely well; it could not be asserted that the recovery was permanent, but all manifestations of the disease had disappeared. He had seen a similar case in this country, that of a young officer afflicted with leprosy, and the result of carrying out the treatment was much the same as in the other instance.

Major R. MCCARRISON, I.M.S., added his testimony as to the opportunities India afforded to keen officers. The world owed the major part of the present knowledge as to the treatment of dysenteries to India, and even now that serum therapy was recognized as a specific means of cure, the value of salines as an adjunct remained unshaken. Owing to the emetine treatment of dysentery there were practically no traces of amoebic abscess of the liver in the present war.

Sir HAVELOCK CHARLES, in replying to a vote of thanks, said that with regard to the employment of Indians for scientific research, he would like to state that out of twenty-nine appointments in the bacteriological department, six were held by men who were not members of the Indian Medical Service, and of these six, five were natives. The field of India was so large that jealousy was out of the question. The Indian Medical Service had been the father and mother of Indians so far as medical education was concerned, and was a parent ever jealous of his child?

ROYAL MEDICAL BENEVOLENT FUND.

AT the meeting of the Committee on March 13th twenty cases were considered, and £277 4s. voted to seventeen of the applicants. The following is a summary of some of the cases relieved:

Widow, aged 49, of L.R.C.P.Ire. who practised at Great Yarmouth and died in 1915. Was left practically without means, and, owing to ill health, is unable to earn a living. At present staying with friends, who cannot continue to help her permanently. Voted £6 in six instalments.

Widow, aged 29, of M.B.Lond. who was a medical missionary in China and died in June, 1916. Applicant left with two children, aged 2 and 4, and only £35 per annum. Another charity has promised £20 per annum. Applicant wants some help to provide training for herself, so that she will be able to earn a living. Voted £2, and referred to the Guild.

Daughter, aged 50, of M.D.Dubl. who practised at Cambridge and died in 1904. Applicant was a teacher in a boarding school, and in 1913 took over the school, but the venture has not been a success, owing mainly to bad health and bad eyesight, which is gradually getting worse: she has lost the sight of one eye. Is now in great financial difficulty. Voted £10.

Widow, aged 62, of L.R.C.P.Edin. who practised at Wigan and died in 1913. Endeavours to make a living by letting rooms in the summer, but last year was not successful. Only son joined the army, and the allowance of 9s. 3d. a week is all she has to definitely depend upon. There are a few book debts still owing from her husband's practice. Wants help towards her rent. Voted £10.

Wife, aged 38, of M.R.C.S.Eng. who practised at Bournemouth but is now in an asylum. Applicant has no means, and is suffering from advanced tuberculosis. Her three children are provided for at present. She has a little help from other charities, but not sufficient to meet her requirements. Relieved twice, £37 10s. Voted £18 in twelve instalments.

Daughter, aged 56, of M.R.C.S.Eng. who practised at Manchester and died in 1898. Owing to ill health, applicant has had to give up her work as a clerk. Only income a pension from her late employers of 6s. a week. Relieved twice, £26. Voted £15 in twelve instalments.

Daughter, aged 53, of M.R.C.S.Eng. who practised in London and died in 1895. Although she has tried various kinds of employment, her health will not permit her to continue. At present staying at a home of rest. Relieved five times, £63. Voted £12 in twelve instalments.

Widow, aged 62, of L.R.C.P. who practised at Dumfries and died in 1909. Applicant was left with four children, two of whom are now in the army, and the youngest daughter only earning 23s. a week, and not living at home. Applicant unable to work owing to ill health. Relieved eight times, £80. Voted £12 in twelve instalments.

L.R.C.P.Edin. and L.S.A.Lond., aged 89 (married, his wife 83), who practised at Wandsworth. Owing to age, not able to do much work. Some years ago lost practically all his practice through the removal of a large railway works from which most of his practice came. This, with the coming of the

National Insurance Act, ruined his practice. In great financial difficulties. Relieved once, in 1913, £12. Voted £26 in twelve instalments.

Daughter, aged 50, of M.D.Glasg. who practised at Bawtry and died in 1872. Applicant lives in own house and endeavours to make a living by taking in paying guests, but as she lives on the East Coast has not been successful since the war commenced. Relieved twice, £20. Voted £10 in two instalments.

Widow, aged 53, of M.B.Aberd. who practised at Belfast and Dublin, and died in 1913. Was left unprovided for with four children. The eldest son was in his second year as a medical student when the war broke out, and he joined the army. He has been wounded, and is now invalided out of the service, and is continuing his medical studies. The other children only earning very little. Relieved once, £5. Voted £15 from the War Emergency Fund.

Widow, aged 63, of L.R.C.P.Ire. who practised in London and died in 1916. Her husband was for some years a pensioner of the Fund, and the applicant was left quite unprovided for, and makes a living by letting rooms. Relieved twice, £14. Voted £15 in twelve instalments.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE FRIENDLY SOCIETY.

THE thirty-fourth annual general meeting of the Medical Sickness, Annuity, and Life Assurance Friendly Society was held at its offices, 300, High Holborn, W.C., on March 27th, when Dr. F. J. ALLAN, chairman of the Executive Committee, presided.

Chairman's Address.

The CHAIRMAN, in his annual address, said that though the number of new proposals had not been up to the average of pre-war years, which was scarcely to be expected, many members had increased the amounts for which they were insured. While other offices had increased their rates for men going into the army, the society had decided to take the risk and charge no extra premium for either sickness benefit or life insurance for those members of the profession joining the R.A.M.C. That the risk was not a small one could be gathered from the fact that the number of members had increased from 450 in 1915 to 1,500 in 1916, while the claims for sickness benefit had increased from 44 to 83, and the amount paid from £1,776 to £3,204. The committee had, however, deemed it prudent to limit the amount insurable by army medical officers to £6 6s. a week. Though the sick officers would be in receipt of army pay when sick, the committee recognized the fact that after leaving hospital those members had many additional expenses during convalescence, having in many instances to provide for families on incomes very much less than when in civil life. He believed the other members of the society would esteem it a privilege to be able to assist their professional brethren who had given up their practices, and were risking their lives in the service of their country. As an indication of the risks run by medical officers he referred to the number of decorations conferred on them for conspicuous bravery in attending the wounded under fire, and mentioned the loss the society had sustained by the death of one of its trustees, Sir Victor Horsley, while on active service. He also referred to the deaths of Dr. St. Clair Shadwell, and Dr. H. A. Sansom, both of whom took an active part in the work of the society. With so many members of the medical and dental professions serving in the army, the strain upon those left behind had been very great, and it was not surprising that many members had broken down under it. It was, however, gratifying to know that the number of weeks on which sickness benefit was paid was 10 per cent. below the expectation. One member of the society had emphasized his appreciation of the benefit received by making a donation of twenty guineas to Epsom College in the name of the society, and the votes appertaining thereto were to be utilized, at the discretion of the Committee, for the benefit of past and present members or their dependants. This member had had an accident which incapacitated him for 479 weeks—practically he was permanently disabled; he had received £1,117 from the society, and had paid in only £228. It was remarkable that with the special advantages offered by the society to medical men more members of the profession were not insured in it. The society was probably handicapped because it did not employ agents, but the Committee hoped soon to overcome this difficulty. As a proof of the soundness of the society the Committee had been approached by other insurance companies with a view to absorption or amalgamation, but the proposals had not been entertained. A subcommittee had, however, been appointed to consider whether the benefits now offered could not be increased, and the advisability of developing into a registered company working on mutual lines. The financial statement showed an increase of £6,331 in the funds of the society, but in view of the fall in Stock Exchange values since the war, it had been considered advisable to add £6,000 to the investment reserve fund, which now stood at £10,000. It was, however, hoped that at the quinquennial valuation next year circumstances would have changed and values improved. The society had by new money, conversion of Government stock, old war loan, and Exchequer bonds, invested £40,500 in the new war loan, which afforded a desirable investment at a higher rate of interest than had hitherto been available. With the exception of the Secretary, all the regular staff had been called up for military service, and he had no doubt the meeting would accord him their thanks for the manner in which he had been able to keep the work of the society running smoothly.

Dr. BRINDLEY JAMES proposed the reception of the annual report and the audited accounts for the year 1916, which was carried.

On the motion of Dr. VINRACE, seconded by Dr. HARVEY HILLIARD, the report was adopted and the Chairman's address directed to be printed and circulated among members.

In answer to an inquiry from a member, the auditor, Mr. H. HOLTON STURGES, F.C.A., expressed the belief that the low value of stocks would remain for a generation and that the Committee would next year find it advisable to increase the investment reserve fund.

Election of Officers.

Dr. F. J. Allan was re-elected chairman for the ensuing year, and Dr. S. Squire Sprigge, editor of the *Lancet*, was elected a trustee. The other members of the Committee whose names were before the meeting were elected.

On the motion of Dr. BRINDLEY JAMES, seconded by Dr. VINRACE, a hearty vote of thanks was accorded to the Chairman for the able way in which he had conducted the business of the society.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE following additional subscriptions to the Fund have been received:

	£	s.	d.
Sale of lady's jewellery (per Dr. Colquhoun, Dunedin, N.Z.)	5	0	0
Dr. W. W. David	2	0	0
"La Tricalcine"	8	19	8
Mr. J. Y. W. MacAlister	5	0	0
Dr. G. D. H. Carpenter (23rd donation—total, £23)	1	0	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund crossed Lloyds Bank, Limited.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

MR. W. B. MCKINLEY has given £24,000 to the University of Illinois for the establishment of an infirmary for the use of the students and faculties.

British Medical Journal.

SATURDAY, MARCH 31st, 1917.

MATERNITY, CHILD WELFARE, AND A MINISTRY OF HEALTH.

It may very well happen that future medical generations will look back to the conference between the President of the Local Government Board and the deputation from the British Medical Association as marking an epoch, although the story goes back to the decisions of the Representative Meeting of 1915, by which the deputation was guided in the opinions it expressed to Lord Rhondda. The conference was primarily concerned with maternity and child welfare, and the cordial agreement of the Association with the desire of the Government to deal effectively with these problems was expressed; but the discussion went further, for Lord Rhondda, in opening the conference, more than hinted his desire to establish one single central health department in order to prevent overlapping, and the spokesman of the Association agreed with this view, but insisted that in any unified central health department or ministry of health the clinical side of the work of the profession should be represented both centrally and locally on an equality with the administrative side. Lord Rhondda himself referred to the suspicion with which the Local Government Board is regarded by general practitioners, and, it may be added, not by them alone. Of the woes of that department, certainly that of being well spoken of by all men is not one. In fact, the Board has very few friends. This may be in part due to its association with our antiquated Poor Law system and to the nature of the control it is required to exercise over local authorities and the manner in which it has been exercised, but not wholly, for in dealing with medical questions there has often been displayed a want of insight and imagination—of what it is the fashion to call "vision." Lord Rhondda, judging from his career, must possess imagination, and his vision is the saving of the lives of fifty thousand infants a year. It is a noble ambition, one which the medical profession has long entertained, and it is to its persistent efforts that the public demand for action is due. There is a risk that any scheme drawn by the Local Government Board may be defective because it has no advisers possessing clinical experience, no organization for dealing with the clinical needs of the people, and, except in its very indirect influence on the treatment of infectious fevers, no concern with the treatment of the sick man or woman or child in the home save in so far as it has to do with Poor Law administration, which, it is to be hoped, will not be taken as a model for the extension contemplated. The methods of administration applicable to the prevention of disease, and particularly of epidemic disease, are not suitable to the bedside treatment of other diseases and to their prevention, and it shows lack of "vision" to suppose that they could be.

The Insurance Act, however we regard it—and at the present moment it does not seem very popular with any one—had at least two conspicuous merits: it recognized that to ostracise the family practitioner would not be to the advantage of the public or to the advancement of medicine, which, after all, are only two aspects of the same matter, and it recognized that medicine cannot be advanced without facilities for research. It is a significant fact that, owing to the demands made by the war, the Medical Research Committee has been occupied almost since its inception in the study of clinical problems—the treatment of dysentery and dysentery carriers, the relative value of antiseptics, and the diagnosis and treatment of so-called functional diseases of the heart, to mention only three of them.

It has to be realized that schemes for the public supervision of the medical treatment of most persons have, as the report of the British Medical Association in 1915 pointed out, already gone very far: there is the period of birth to school age with which the maternity and child welfare schemes are to deal; there is the period of school attendance when the child's health is supervised by the medical department of the Board of Education; and there is the period from 16 years of age onward, when all persons engaged in industrial occupations come within the operations of the Insurance Act. From 16 years onward treatment for all ordinary conditions of ill-health is, in practically all cases, assigned to the general practitioner, and it would be a departure from a desirable continuity of method if a different system were encouraged in the earlier years. Yet there can be no doubt that the scheme of the Board for maternity and child welfare must, unless greatly altered, tend to the formation of a class of practitioners wholly concerned with the treatment of disease in expectant mothers and young children. Sooner or later the effect of such a system would be to withdraw the whole of actual practice among such patients from the general practitioner. The most satisfactory and valuable form in which the family—parents and children—can receive advice and treatment is through the family doctor, with personal choice as to who he should be; the scheme of the Local Government Board, since it tends to lead away from this ideal to a method of treatment by one or two officially appointed whole-time medical officials, must be detrimental to the public and the profession alike. There are no good grounds for creating such specialists, and the sound policy will be to regard the employment of general practitioners as the normal method by which advice and treatment shall be given to expectant mothers and young children. The family practitioner should be the essential element in all schemes for giving attendance to the industrial classes; the same practitioner would then advise the expectant mother, attend her in confinement when necessary, attend the infant and the children, whether for ordinary diseases or for the so-called "school diseases," and continue his attendance after the children have become insured persons, as the vast majority of them will.

As Sir Clifford Allbutt pointed out, the tendency of recent legislation had been to diminish the responsibilities of the family doctor by withdrawing from him the treatment of certain diseases, including infectious diseases, which may be inevitable, but including also tuberculosis, venereal diseases, and what is in the present connexion of special importance, the care of children, which does not mean merely their treatment when they ail. The wise advice of a doctor acquainted with the history of the family and familiar with the conditions of life in the district can do more to preserve child life than any amount of specialized advice given in centres, or the distribution of leaflets in tons. Sir Clifford Allbutt paid a generous tribute to the general practitioners of the country, of whose abilities and efficiency he has had personal knowledge

uring many years' experience as a consulting phyician, as well as unrivalled means of judging the intelectual quality of the men now going into general pracice from his experience as professor of medicine in the Jniversity of Cambridge—probably the school in this ountry which in the present generation has turned ut the largest number of general practitioners. It is, s he said, of the highest importance to the comunity that there should be no deterioration in the uality of medical men entering into this the most mportant branch of the profession. The family pracitioner cannot be replaced by the official without njury to the community. If the diagnosis and treatnent of certain diseases are by degrees to be placed o an increasing extent in the hands of special wholeime officers, it must follow that the experience of the rivate practitioner in these diseases and his interest n them must gradually cease, and his efficiency hereby be lessened.

Lord Rhondda did not give any distinct indication f the scope of the bill he proposes to introduce. Originally it was, we believe, a small measure deigned to correct an oversight, and Lord Rhondda aid stress on the fact that the measure he as at present in hand is an enabling bill nly, and that it would not preclude any measures which were desired in regard to infant welfare. But the common history of an enabling bill is pretty ell known; either it becomes a dead letter, or such ressure is put upon local authorities to adopt it hat it is early applied in all great centres and is ventually made compulsory. It is therefore of the rst importance that the principles of the enabling ill should be such as would command the support of he profession and commend them to those really equainted with the needs of the industrial classes. hey may be summed up in the statement that the eneral practitioner should be relied upon for clinical reatment and that the salaried whole-time medical fficer should be an organizer and administrator nly.

It would be premature for us to attempt to discuss he larger proposals for the establishment of a unified entral health department or Ministry of Health. he matter is now being very carefully considered by special committee of the Association; it calls for he exercise of wise statesmanship, and we are glad o find that Lord Rhondda himself looks at the matter n a broad way, and is convinced that the general or amily practitioner must be encouraged and helped, nd his services used to the full. We wish him every uccess in the enterprise on which he has embarked, ut every one will realize that it is no easy task. It ould seem that in such a ministry as he contemplates would have to be included the public health nd a large part of the Poor Law work of the ocal Government Board, the medical, sanatorium, nd maternity benefits, and the research department f the Insurance Commission in England and Wales t least, and the medical department of the Board f Education; this would leave out the factory epartment of the Home Office and the Board of ontrol (Lunatics and Defectives), to mention only wo other highly organized departments of the State.

The profession will recognize that the proposal ow to be made, and the extensions which may e expected to flow from it, may go a long way owards acceptance by the State of responsibility for he treatment of all dependents of insured persons. he profession is familiar with the idea that such a roposal might be made, although it was not generally nticipated that it would be put forward during the ontinuance of the war.

MEDICAL RESEARCH IN INDIA.

THE meeting of the Indian Section of the Royal Society of Arts on March 27th, to hear a paper by the Director-General of the Indian Medical Service on opportunities for original research in medicine in India, was distinguished by the presence of the Secretary of State for India, who, by presiding on this occasion, in spite of his great burden of official work, never greater than to-day, showed his own appreciation of the importance of medical research to the good government of India and the welfare of its inhabitants. As Sir Havelock Charles, who read Sir Pardey Lukis's paper, said, all workers in tropical medicine, who already owed so great a debt to the prescience of the late Mr. Joseph Chamberlain, would be stimulated by the knowledge that his son was imbued with the same spirit and recognized the benefits conferred on India by the Western system of medicine and the untiring labours of the medical profession in that country.

The occasion was remarkable also by reason of the grounds upon which the appeal was made. It was founded not on the offer of material rewards, but on a belief in the readiness of medical scientific workers to respond to the call to undertake medical research in tropical and subtropical climes. The inducement was the extraordinary opportunities afforded for useful work: they were enumerated in the paper and we need not repeat them. That facilities for such work exist in India is due largely to the Indian Research Fund Association, founded in 1911 with financial support from the Government of India. Practically, it was said, the only limit to medical investigation since the establishment of this association had been the difficulty of obtaining a sufficient number of scientific workers of a suitable stamp. The first move of recent years was the creation of a bacteriological department and the foundation of research laboratories in Bombay, Kasauli, and Madras. This department is not staffed entirely from members of the Indian Medical Service. Of the twenty-nine appointments in it six are at the present time held by independent practitioners—one European and five Indians. The wisdom of this policy was commended by Sir Patrick Manson, who considered that if encouragement were given to natives of India to attempt original research in tropical disease they would prove efficient investigators. As Sir Havelock Charles said in concluding the discussion, the field in India is so large that there ought to be no room for jealousy. We also believe that he and Sir Pardey Lukis are right in maintaining that selection for these appointments must be severe, and that such national prejudices as exist must be set aside. Only men of high intellectual capacity can do work of the kind that is wanted; they must be thoroughly trained and preferably not in one school, they must be chosen on the promise they give during their period of training, and must have the stimulus of knowing that continuous energy and enthusiasm will be rewarded. About the magnitude of the field there can be no sort of doubt, and that the laboratory facilities provided for research are already considerable is shown by the fact that in addition to the three research laboratories already mentioned there are Pasteur institutes at Kasauli, Coonoor, and Rangoon, and that two others are about to be opened, one at Shillong and the other in connexion with the Bombay Bacteriological Laboratory at Parel. Kasauli is a kind of centre, for it is there that is established the Central Research Institute, with a special malaria bureau, to deal with the endless questions.

administrative and therapeutic, relating to the treatment of venereal diseases.

Though at the present time the energy of research workers in India, as in other parts of the empire, is turned to problems connected with the war, the Government of India does well to look forward, and to seek to enlist young medical men with scientific leanings. In order that men of the necessary intellectual capacity and attainments may be attracted, it will be essential to have a well thought out scheme ready to put into force, and it must be realized that one of the conditions of success will be the provision of adequate funds. There are many problems calling for the undivided attention of individual workers, and it may be said that the research institutes and laboratories mentioned afford them opportunities; but there are others which require what is called "team work," that is to say, an organized attack upon a problem by a sufficiently numerous body of workers led by a man who has proved his capacity in research and provided with adequate funds for carrying the inquiry to a successful conclusion. As an instance, we may take those fevers of short duration to which Sir Pardey Lukis referred as in some respects showing striking affinities with yellow fever, and those others which are either dengue or diseases nearly resembling it. Such problems can only be solved by extensive simultaneous epidemiological investigations in various districts, backed up by laboratory research.

It must also be realized that to receive the benefit which the methods of modern Western medicine can confer there will need to be established a deliberate policy to be pursued by the Government of India for a term of years and for which the cordial co-operation of the financial department must be assured. The services which well-directed medical research can render must be seen from a proper point of view and in proper focus by that department, which, we fear, is prone to look upon expenditure on medical research as unremunerative. There could not be a more fundamental error. The duty of the Government of India is to bring happiness and prosperity to the peoples of that great country; but, even looked at only from the commercial point of view, the discovery of the cause of a widespread endemic or epidemic disease, leading as it does to effective methods of prevention, is worth untold millions to the industry of the country, and would very soon be reflected in the budget. Experience shows that competent men will be attracted if opportunities for useful work are assured to them, but we should strongly deprecate any attempt to trade upon the altruism of the profession. "The labourer is worthy of his hire, and must be made to feel from the beginning of his service with the Government of India that good work will be honoured and rewarded.

WORKING OF VENEREAL SCHEMES.

THE Local Government Board has presented to Parliament a statement showing the progress that has been made in the organization of measures for the provision of free diagnosis and treatment for persons suffering from venereal disease. The Board has information that between 130 and 140 hospitals in England and Wales have expressed their willingness to participate in the schemes of local authorities, and although in a few instances the authorities of important hospitals have been reluctant to inaugurate during the war any fresh arrangements for the treatment of these diseases, this hesitation has already been overcome in some cases. The shortage of medical staff and the pressure on the accommodation at most hospitals at the present time have presented obstacles in many instances, but the former difficulty has been met to some extent by the Army Council arranging that certain officers of the R.A.M.C., who are specially skilled in the treatment of venereal diseases, should devote part of their time to the work of the clinics provided at general hospitals for the treatment of these diseases. Schemes for the diagnosis and treatment of these diseases have now been submitted to the Local Government Board by 86 out of the 145 councils which are charged with the execution of the regulations. The total population of the areas of these councils is 23,500,000. Forty-five schemes serving a population of over 16,000,000, have been approved and the work has already started at 30 hospitals. It is estimated that the facilities provided at these hospitals will serve a population of at least 12,000,000. A comprehensive scheme for London and the Home Counties embracing 22 of the hospitals in London, was inaugurated on January 1st last. The councils at present participating in the scheme include the county councils of London, Buckinghamshire, Essex, Hertfordshire, Kent, Middlesex, and Surrey, and the county borough councils of Croydon, East Ham, and West Ham. The Middlesex County Council has also arranged for the provision of special facilities at the Prince of Wales's Hospital, Tottenham; the Essex County Council has provided similar facilities at the Chelmsford and Colchester hospitals, and is arranging for a special clinic at the Saffron Walden Hospital, and the Kent County Council is negotiating for the provision of special facilities at the hospitals at Dover, Folkestone, Gravesend, Rochester, and Tunbridge Wells. A scheme of diagnosis and treatment for the whole of the counties of Durham and Northumberland is already in partial operation. The councils participating in this scheme include, in addition to the two county councils, the county borough councils of Darlington, Gateshead, Newcastle-on-Tyne, South Shields, Sunderland, Tynemouth, and West Hartlepool. The whole of the pathological work for this large area will be performed at the Durham University College of Medicine, and treatment centres for venereal diseases have been opened at the Royal Victoria Infirmary, Newcastle-on-Tyne, and the Sunderland Royal Infirmary. Treatment will shortly be commenced also at the Durham County Hospital and the Darlington Hospital, and negotiations are in progress for the establishment of further treatment centres at Gateshead, Hartlepool, and South Shields. The scheme of the Portsmouth Town Council came into operation on February 20th last, and the necessary facilities for pathological diagnosis and for treatment are provided at the Royal Portsmouth, Portsea, and Gosport Hospital. The area conveniently served by this institution includes, in addition to Portsmouth, parts of the counties of Hampshire and West Sussex, and the Isle of Wight. The Leicester Royal Infirmary, which serves Leicester and Leicestershire, started operations on March 2nd, and provides the necessary laboratory facilities. Treatment centres are to be opened on April 1st at the Norfolk and Norwich Hospital for the county of Norfolk, part of the county of East Suffolk, and the county boroughs of Norwich and Great Yarmouth, and at the Hereford Hospital, which will probably be utilized by patients from other counties besides Herefordshire. The Birmingham Corporation has arranged for the provision of a treatment centre at the Birmingham General Hospital, which will serve a wide area round the city. Sheffield, part of the West Riding of Yorkshire, and probably other areas will be served by the Sheffield Royal Hospital, the Sheffield Royal Infirmary, and the Jessop Hospital for Women, and the Leeds Corporation is arranging for the necessary facilities to be provided at the Leeds Royal Infirmary. This institution will also conveniently serve part of the West Riding and possibly some other areas.

TSUTSUGAMUSHI DISEASE.

SUTSUGAMUSHI or kedani disease is an acute infectious anthem at present known to occur only in the northern astal districts of Japan. It has a high mortality, varying ar by year between 20 and 50 per cent. The infection kes place by the bite of a mite similar to the European rvest-mite, *Leptus autumnalis*, with which many of us e so painfully familiar in the summer. The incubation ne of the disease is said to be from five to twelve days, d the disease itself closely resembles Rocky Mountain otted fever. The characteristic eruption of kedani sease takes the form of small haemorrhages appearing the face at the end of the first week, spreading thence the trunk and sometimes the extremities, and lasting for few days. The average duration of the fever is said to be ree weeks. Its specific organism has not yet been re-gnized with certainty, although in the year 1915 four panese observers expressed the opinion that certain roplasma-like forms found in the spleen, lymphatic ands, and blood, but not in the red corpuscles, might the cause. The same observers have recently[1] pub-shed an account of the mite that is the carrier of utsugamushi disease, and they claim a new genus for it, d that the name *Trombidium akamushi* given to it in 10 should be replaced by the new name *Leptotrombidium amushi*. In Japan this mite is known by at least ur names — tsûtsugamushi (disease mite), akamushi ed mite), kedani (hairy mite), and shimamushi (island ite). In the publication now under consideration the thors say that they have found a number of species of *rombidium* in the Yamagata district in which the sease is endemic, and that they have been able to olate at least five of these with certainty. In addi-on they have found the real parent of the tsutsu-mushi, and the bulk of their paper is concerned with nymph and prosopon, which have hitherto been known. The mites themselves are carried by field ice; the development of the larvae into nymphs is scribed in detail, and so is the morphology of the mph itself. It was not found difficult to breed these mphs, and careful search revealed the fact that they o could be found in the endemic area. Careful measure-ents and descriptions of the mature form or prosopon the tsutsugamushi are also given, and it was found ssible to cultivate larvae from these. It still remains ubtful, however, whether these larvae develop from gs or leave the viviparous parent already formed. At y rate, it has been established that the adult female utsugamushi does not deposit eggs in heaps, as is the stom with other *Trombidia*, and that the larvae hatch out through the year and feed on mammals. Points in the termination of the prosopon, nymph, and larva of *ptotrombidium akamushi*, *N. sp.* are given in tabular m to facilitate the discrimination from *Leptus tumnalis*, *L. irritans*, *L. americanus*, and other mites the allied harvester and chigoe breed. No doubt it is e danger of infection with the serious tsutsugamushi sease to which investigators of this mite are inevitably posed while working in infected regions that has for so ng discouraged naturalists from determining its life-story. The authors of the paper here briefly reviewed e to be congratulated upon the success with which they ve tackled a dangerous piece of work.

[1] M. Nagayo, Y. Miyagawa, T. Mitamura, and A. Imamura, *Journ. experim. Medicine*, Baltimore, 1917, xxv, 255.

HE COMPULSORY SEGREGATION OF TUBERCULOUS PERSONS.

HE London Insurance Committee, having accepted the port of the Special Subcommittee appointed to consider d report upon the correspondence with the Insurance mmissioners on the subject of funds available for the rposes of Sanatorium Benefit, have passed that report to the Local Government Board, the Chairman of the Joint Committee, and the Insurance Commissioners. As already reported (SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL, February 17th and March 3rd) this proceeding was carried out by a majority of the lay members of the Committee in the face of the fact that it was opposed by 90 per cent. of the medical members present. The importance of the questions involved have induced the dissentient minority to set forth their arguments for reconsideration in separate form, for the enlightenment of the responsible bodies concerned. Their memorandum contains many points of importance, indicative of the lines upon which the compiler of the report, Mrs. Handel Booth, the Chairman of the Subcommittee, has run into error, for lack of adequate medical guidance. Chief among these is the sweeping recommendation that powers should be obtained to "carry out the isolation of patients proved to be suffering from tuberculosis." A comparison is made between tuberculosis and small-pox and other infectious diseases, and it is assumed that as isolation and segregation have succeeded in stamping out small-pox, so it has only to be applied in order to obtain a like result in the case of tuberculosis. Such an assumption could never for a moment be accepted by any one with practical knowledge of the disease. But apart from the manifest impossibility of carrying out any such plan it is in the highest degree undesirable that the notion of the infectivity of tuberculosis should be exaggerated or even misstated. Already there is a widespread belief that the disease is infectious, and it has been reported by tuberculosis officers and others that, as a result, concealment is frequent. How much more frequent this would become if it were supposed that compulsory isolation must follow its detection, can well be imagined. Tuberculosis is a malady which cannot be dealt with effectually by rough and ready methods. It requires very careful handling, and any influence that might militate against early detection and treatment is to be deprecated. It was impossible for the medical members to allow the proposals contained in the report to pass without protest. Segregation in certain cases is highly desirable, but if carried to its logical conclusion, the recommendation would involve the isolation of all the 150,000 persons who are stated in the report to be disabled annually in England alone, by tuberculous disease. In addition to this it is recommended that patients already under treatment in hospitals and sanatoriums should be detained there if so ordered by the doctor in charge. The hospital is to become the gaol, and the doctor the gaoler. Apart from these impossible conclusions, the report would appear to teem with confusion as to the true meaning of sanatorium benefit, and the idea is allowed to prevail that sanatorium benefit means treatment in a sanatorium for every one who applies for it. Actual residence in such an institution is by no means necessary for many of such applicants, and segregation is not needed. Many patients "suffering from tuberculosis" are not in any way dangerous to their fellows, and dispensary treatment, associated with domiciliary advice, supplies all that is needed to help the patient to keep the progress of his disease in check, without any personal restraint. It is to be hoped that wiser counsels will prevail when the report is considered by the bodies to whom it has been sent, and that amendments will be made in accordance with the representations that have been set forth by the medical members of the committee.

WARM BEDS IN OPEN AIR.

ONE of the chief difficulties in the application of open-air treatment in winter has been in connexion with the maintenance of uniform warmth in the bed. The hot-water bottle has hitherto been the only means available, and although its use is almost universal, no system has yet been devised to minimize its obvious shortcomings where a steady and uniform degree of warmth is desired. In a report recently issued by the managers of the Lord Mayor Treloar's

Hospital for Crippled Children at Alton the medical superintendent, Dr. H. J. Gauvain, gives an account of a new method of heating which would seem to deserve the attention of all hospital managers. Details, either of construction or of cost, are not included in the report, but the plan consists in the application of electricity as a means of uniform warmth to the mattress upon which the patient lies. It has already been tried and proved efficient, and a complete ward is to be furnished with such electrically heated mattresses. The system is stated to be "simple, safe, economical and efficient," and the degree of heat can be regulated so as to maintain an even temperature under all conditions. It is claimed that the problem of keeping patients warm in open-air institutions has now been solved, and if it can indeed be shown to be economical, as that term is usually understood, then its introduction should be welcomed wherever electric facilities can be combined with open-air beds. But it would appear from the published balance sheet that expense has not to be quite so rigidly regarded at Alton as at most institutions dependent upon public charity. It may be noted that no less than £4,000 have been expended on fuel, lighting, water, and sewerage. No mention is made as to cost of electric current, which would probably be included under the heading of lighting. Further particulars as to construction, cost of installation and maintenance of the new mattresses would be welcomed by all hospital authorities.

A FORESHADOW OF THE RED CROSS.

A DIM foreshadowing of the Red Cross at the end of the fifteenth century is described in *La Medicina Practica* of Naples in its issue for February 28th. It is there stated that the beginnings of the movement may be traced to the action of the Venetian Republic after the battle of Fornovo on July 6th, 1495, when the army of Charles VIII in its retreat to France narrowly escaped destruction in the passes of the Apennines. In a narrative written in the form of a diary, an eye-witness, Alessandro Benedetti, who served as a surgeon with the Venetian army, says there were many Frenchmen among the wounded, but all were treated by the Venetian doctors at the public expense. Melchior of Treviso, procurator of the army, had those who could not keep up in the march carried to Parma, supplied them with money in the name of the Senate, and provided surgeons at a liberal scale of pay. "The good jovial old man," says Benedetti, "now Vice-General of the fleet, went round the beds and exhorted the patients to be of good cheer; among them were wounded Frenchmen." The people of Parma marvelled greatly at the clemency shown by the Venetians towards enemies. This, says Paolo Picca, the writer of the article, which first appeared in the *Rivista Ospedaliera* in 1911, is the first instance of such humanity recorded in history. When in 1581 Alessandro Farnese, Duke of Parma, made terms for the capitulation of Tournay, allowing the garrison to come out with the honours of war and undertaking to take care of such wounded enemies as could not be removed, it is very probable that, remembering the noble example set by the Venetians eighty-six years before, he was moved to give it for the first time a more concrete form by embodying it in a formal treaty. On this action is based the claim put forward for Italy to have initiated a radical reform of the barbarous customs of war, which found its consecration in the Geneva Convention and its practical realization in the foundation of the Red Cross in 1864.

MALARIA IN THE UNITED STATES.

MALARIA is one of the great national health problems of America, and has also an important economic aspect. Dr. John W. Trask, assistant surgeon-general of the United States Public Health Service, who has recently reported on the distribution of malaria, says there is probably no State in the Union in which the disease is not present and in which it is not spread by mosquitos bred locally. In the territory extending from the Gulf of Mexico to a line north of the Ohio River and from the Atlantic seaboard to the eastern part of Kansas, Oklahoma, and Texas, few if any localities are entirely free from malaria. In most of the lowlands it is very prevalent; there is less of it in the mountains and better drained areas. The disease is also endemic in southeastern New York and parts of Connecticut, Rhode Island and Massachusetts, and in California in the Sacramento and San Joaquin valleys.

Medical Notes in Parliament.

The Criminal Law Amendment Bill.

IN further consideration of the Criminal Law Amendment Bill on March 22nd the Grand Committee dealt with Clause VII, which proposes to embody in this measure sections of the Indecent Advertisements Act of 1889 with an addition. There was some general discussion on a motion by Mr. Glyn-Jones to postpone consideration of the clause, but after an appeal by Sir George Cave, who said that Lord Rhondda preferred that the matter of advertisements should be taken up in this measure rather than in the Venereal Diseases Bill, Mr. Glyn-Jones's proposal was rejected by 33 votes to 3.

There was also some protest by several members against legislation by reference to other Acts of Parliament. Mr. Burns urged that in matters of elementary criminal law the whole of the laws should be brought together. Mr. Herbert Samuel advised the Committee to concentrate attention on amendments of substance, and expressed the hope that if this was done Sir George Cave might produce a bill codifying all the Criminal Law Amendment Acts. Sir George promised to consider the suggestion.

Advertisements.

The Committee then took up Subsection (*a*) of the Indecent Advertisements Act, which it was proposed to incorporate as follows:

> (*a*) A person who publishes by way of advertisement, or causes to be published, any picture or printed or written matter which is of an indecent or obscene nature, shall be guilty of an offence under Section 3 of that Act, and punishable accordingly.

Upon this Mr. Glyn-Jones proposed to strike out the words "by way of advertisement," but Sir George Cave said that writing of a private letter would constitute "publication"—a letter from one person to another would do this—and as it was not the intention to go further in the clause than to amend the Indecent Advertisements Act, he asked that the amendment should be withdrawn.

Mr. Dillon, opposing the amendment, said that if it were carried all literature would come within the scope of the present measure.

The amendment was withdrawn, and the subsection passed. The Committee then considered further subsections, which were adopted as under:

> (*b*) A person who gives or delivers to any other person any such picture or printed or written matter with intent that the same should be published by way of advertisement shall be guilty of an offence under Section 4 of the Act [the Indecent Advertisements Act] and punishable accordingly.
>
> (*c*) The maximum penalties under Sections 3 and 4 of that Act shall be one hundred pounds and six months' imprisonment instead of forty shillings and one month's imprisonment respectively, and these sections shall have effect accordingly.

The principal discussion occurred on the proposed new subsection as under:

> (*d*) Any advertisement relating to syphilis, gonorrhœa, nervous debility, or other complaint or infirmity arising from or relating to sexual intercourse; and any advertisement which suggests, directly or indirectly, the use or taking of any appliance, drug, substance or thing, for the purpose of procuring miscarriage or abortion, or which suggests, directly or indirectly, that any premises are or can be used for immoral purposes, shall be deemed to be printed or written matter of an indecent nature within the meaning of Section 3 of this Act.

Following upon this is a new section which lays down that the above provision shall not apply to any advertisement by any local or public authority; nor to any advertisement published in any bona fide medical or pharmaceutical publication or trade list; and that a person publishing an advertisement should not be convicted if he had no reasonable ground for suspecting the character of the advertisement.

Objections were raised to the terms of the definition phrases as to advertisements. Sir Philip Magnus held that the words "an advertisement" were "too wide and too narrow." The

chief controversy, however, ranged round the inclusion of the term "nervous debility." Mr. Rawlinson thought that it would rule out advertisements of remedies for overwork which had nothing to do with sexual diseases, and pointed to the advertisements of two well-known preparations—one of which sometimes had the support of testimonials (with photographs) from eminent persons.

Mr. Burns appealed to the Home Secretary to stand by the clause as a whole. He pointed out that there were a large number of unqualified persons dealing with sexual diseases who might profit more by "misery long drawn out" than by rapid cure. The object of this clause he took to be to drive people into the hands of the doctors. The Committee had to decide whether the doctors should be given a monopoly, with virtual control of the disease, or whether an opening should be left for charlatans who had battened on the diseases of the vicious too long. He thought that the medical profession sometimes went too far in pressing for privileges. But if he had to choose between the medical profession (which he considered the greatest profession in the world) and the men who had taken up pornography for their province, he should of two evils choose the less and decide in favour of the doctors.

Ultimately Mr. Glyn-Jones moved to omit the words "nervous debility." Sir George Cave, however, said he did not like to leave out those words, as this form of advertisement was in common use as a means of concealing announcements. Neither did he think there was any real risk that their inclusion would affect genuine preparations for nervous debility. He urged that in the bill the words were restricted in their meaning by the succeeding words, "arising from or relating to sexual intercourse." The Chairman (Mr. J. W. Wilson) suggested that if the comma between "nervous debility" and "arising from" were omitted, the definition would be clear. Sir George Radford repudiated the notion that lawyers or judges were influenced by commas, and the Chairman's demur that he was "surrounded by commas" in statute books on the tables left Sir George Radford cold. He held to his assertion.

On a division, Mr. Glyn-Jones's amendment was defeated by 20 votes to 13. The words "nervous debility" therefore remain in the bill.

Sir Albert Spicer moved a further amendment to add to the prohibitions advertisements of drugs, etc., to prevent conception, but after a very brief discussion this was withdrawn as outside the scope of the bill.

When the discussion was resumed on March 27th, Mr. Glyn-Jones proposed to substitute a new section whereby it should be an offence to recommend by any public notice or advertisement, or by any written papers or handbills, or by label on preparations (which the amendment specified in detail), or on inclosures, any remedies for any venereal disease. But this prohibition was to be subject to regulations which might be made by the Local Government Board.

In the discussion which ensued Sir George Cave at first expressed the opinion that the amendment would be unfair to the chemists as a body, and would make the clause absurd through overlapping. Mr. Dillon having stated that he had received a request from the Pharmaceutical Society for support for the amendment, Sir George said he was willing to reconsider the matter. Mr. Samuel confessed that he did not know what the chemists wanted, unless it was that it should be made clear that a label on a box, or in a window, was to be regarded as an advertisement. If it were decided that such a notice was an advertisement, the point could be made clear.

Sir William Collins said Mr. Glyn-Jones's amendment seemed to propose that the Local Government Board should take the place of the doctors in deciding what were fitting and appropriate as remedies. He should demur to placing in the hands of the Home Secretary or of the Local Government Board decision which advertisements and which remedies were to be regarded as orthodox and which as heterodox. The Royal Commission did not recommend that the medical profession should be given a monopoly, and he preferred that they should stand on their own merits.

Sir George Cave said that the point raised by the amendment was whether power should be given to the Local Government Board. The whole purpose of this portion of the bill was to prevent public advertisements of these things addressed to ignorant people who did not know better than to believe these advertisements. The exceptions were put forward because the Government wished not to prevent the bona fide inventor or chemist bringing to the notice of persons qualified to judge these things what he had to offer. The exceptions were made in favour of freedom.

Mr. Dillon asked how it was proposed to prevent the public having access to medical journals where the advertisements would command greater confidence than if they were in ordinary journals, and Mr. Chancellor wanted to know how it was proposed to distinguish "bona fide" journals.

Sir George Cave replied that this would be a question of fact such as judges were accustomed to deal with. If the paper was a sham that might be found out. He agreed with Mr. Dillon that there was a risk through access of the public to these journals. But he did not think that the man in the street bought papers of the kind indicated. He thought the alternative of reference to the Local Government Board was a novel and undesirable suggestion. He should like, however, to talk this matter over with his adviser to see whether there was any way to meet the question raised as to medical journals.

Mr. Samuel doubted whether the Home Office would be able to avoid the abuse of the advertisement columns of medical journals. He feared that persons wishing to avoid publicity and wishing to avoid going to the treatment places of the Local Government Board would seek information in free libraries and elsewhere. The discussion had referred to high-class papers, but others might spring up which might lend themselves to publication of these advertisements. He doubted whether it was necessary to make the exemptions suggested; could not valuable remedies be notified by circular to members of the medical profession? He did not know whether there was any real danger that the world might be deprived of useful knowledge by the stoppage of advertisements of the kind under discussion. Possibly the Home Secretary could consult the Medical Council before the report stage of the bill.

After further discussion Sir George Cave asked Mr. Glyn-Jones to withdraw his amendment on the understanding that the valuable suggestions made by members of the Committee would be carefully considered before the report stage of the bill, and Mr. Glyn-Jones agreed to do so.

On the clause as a whole, Sir George Radford said as the Committee was passing a sort of a sketch of what the clause might be, it was not permissible to vote against the clause, but he must reserve his opinion as to the course he would adopt when it reached its final stage. The clause was then passed.

Other Clauses.

Clause VIII was also agreed to. It allows a wife or husband to be called as a witness in certain cases.

Clause IX, which proposed that where a charge of incest was made it should not be necessary to obtain the consent of the Attorney-General or of the Director of Public Prosecutions before arrest, but only after remand, was withdrawn, the prevailing opinion of the Committee being that irreparable injury might be done to innocent persons.

At its sitting on March 18th the Committee reverted to the consideration of Clause I, which had been postponed until the other clauses had been disposed of. It concerned acts of indecency and the plea of consent as a defence, the proposal being to raise the age of consent from thirteen to sixteen years. The clause as submitted in the bill was cumbrous, and Sir George Cave now proposed a new and simple clause as follows:

> It shall be no defence to a charge or indictment for an indecent assault on a young person under the age of sixteen to prove that he or she consented to the act of indecency.

In the original clause the reference as to consent was only to the female sex. The new clause was accepted, and an immediate result was that it lightened the notice paper of a number of proposals, for new clauses put down by private members of the Committee, among others one to protect boys, were withdrawn.

Mr. Chancellor afterwards moved a new clause to make common prostitutes liable to detention under certain penalties. Sir George Cave said he regretted very much that Clause VI (to stiffen the law against loitering in the streets) had been cut out; but that having been done, he thought that the Committee could not go back to this question. Mr. Burns also objected, and the motion was withdrawn.

Considerable discussion took place on a motion by Mr. Dickinson to add a new clause to make it an offence for a person knowing he was suffering from venereal disease in a communicable form to communicate it by any action other than was already provided against in an earlier section which dealt with sexual intercourse. Sir George Cave urged that this was a matter rather to be taken up in public health legislation, and spoke of the difficulty of definitions. He thought that as Mr. Dickinson's amendment was framed a person suffering from disease could hardly live. The division gave 16 for the clause and 16 against. The clause was then rejected by the casting vote of the Chairman.

Infantile Death-rate.—In the House of Commons on March 26th Mr. O'Grady asked Mr. Hayes Fisher whether the simultaneous decline of the infantile death-rate to the lowest on record—namely, 91.0 per 1,000 registered births—and of the number of children vaccinated to the lowest number since vaccination was made compulsory would be inquired into so as to ascertain how far the one explained the other, and, if not, whether he had any other explanation of the cause of the decreasing infantile rate. Mr. Hayes Fisher replied there was no foundation for the suggestion that the decline in the infant death-rate was due to the decline in the number of children who were vaccinated. The lower death-rate was not confined to districts in which vaccination was neglected, and at least one-half of the infants died before the age at which vaccination was usually performed. The decline in the infant death-rate was no doubt due to a number of causes, one of the most important of which was the valuable work now undertaken by local authorities and voluntary agencies for attending to the health of mothers and infants.

Re-examination of Rejected and Discharged Men.—The bill introduced by Mr. Macpherson on March 28th for the re-examination of men who have been excepted from service in the army or discharged, provides that where a disabled man accepted for service in pursuance of notice under the bill was, when he left the service, an officer, he shall be restored to the military rank he held unless the Army Council otherwise directs.

THE WAR.

TREATMENT OF FRACTURES.

OBERSTABSARZT PROFESSOR THÖLE,[1] discussing the treatment of gunshot fractures in the field, referred to the divergence of opinion as to the relative merits of splints, extension, and plaster bandages, and went on to trace the several stages in the treatment of fractures of the limb bones from the moment of the receipt of the injury to their transfer to the home hospital, taking fractures of the femur as a standard of comparison for the rest.

In mobile warfare the wounded soldier was placed on a stretcher and the limbs bound together above and below the fracture, below the knees and at the feet, the unwounded limb acting as a splint. In stationary or trench warfare the stretcher could not be used, and the patient was transported in a canvas sheet slung from a pole. Bearers were instructed in placing the patient in a suitable position. Thus, for head wounds they were taught to use a sitting posture, the head end of the canvas being raised; for fractures of the thigh the foot end of the canvas was raised, the legs being over its edge at the knees. In either case the wounded part was steadied by the hinder bearer, and the limbs were not bound together.

I. *At the Front Dressing Station.*

Here every fracture was immobilized in order to avoid further injury during transport, with consequent increase of the haematoma and increased liability to inflammation. For this purpose an external extension splint, 140 cm. long, provided with a foot-board, was used. The splint was perforated in five places for straps, the uppermost passing round the perineum for counter extension, the others below the iliac crest, around the thigh at the knee, and around the leg respectively. Extension was provided by a spiral spring, 5 cm. long, attached to the foot-board and to a figure-of-eight bandage round the ankle knotted beneath the sole. The boot was not taken off unless the leg or foot were also injured; in that case it was removed by cutting, a loop of bandage fixed to the leg with mastic varnish affording attachment for the spring. Pads were placed between the splint and the limb at the level of the straps. If an extension splint was not to be had, the stretcher itself was made use of. The strap of a knapsack passed round the ankle and through the lowest slot of the stretcher-pole on the side of the injury was carried across and fixed to the opposite pole; counter force was applied by a second strap round the perineum, fixed to the upper end of the pole. The limb was further steadied by a third strap passed in figure-of-eight round the knee and the stretcher-pole. At the dressing station all procedures were based on a definite prearranged scheme; individualization in treatment was in place only at the Feldlazarett, and there only in stationary warfare.

II. *At the Main Dressing Station.*

In stationary or trench warfare the case was passed on without delay to the Feldlazarett, where treatment appropriate to each individual case was decided upon. In mobile warfare the nearest Feldlazarett was not a stationary hospital, and consequently the case could not be retained there for treatment, but was passed on to the reserve or home hospital. In order that the patient might bear this prolonged transport, it was necessary to apply a plaster bandage, provided with a suitable window or bridge, to leg and pelvis. The superiority of this method of immobilization and its influence in localizing inflammation were not doubted; it was therefore adopted as early as possible—that is to say, at this station rather than at the Feldlazarett.

III. *At the Feldlazarett.*

In mobile warfare the aim was to transport the case as soon as possible to the home hospital before the infection of the wound had led to marked inflammation or suppuration. The objection to a delay at the Kriegslazarett was the danger of overcrowding; this might be overcome by transporting to the home hospital all cases which appeared to be permanently disabled, retaining within the field of operations only those which had a prospect of again becoming serviceable. Before applying the plaster bandage the wound was attended to. With bullet wounds of small size this was done at the front dressing station. After disinfection of the surrounding skin with tincture of iodine a gauze pad was placed on the wound, covered with wool and fixed with mastic varnish, which was not applied so near the edges of the wound as to obstruct the discharges. At the Feldlazarett this dressing was left undisturbed, and a window made over it on applying the plaster bandage. With a large aperture of exit the wound was lightly plugged with gauze, loosely covered with wool and a bandage; this dressing was changed at the Feldlazarett. Small grenade and mine wounds were treated at the dressing station in the same way as bullet wounds, but at the Feldlazarett the tracks, being almost certainly infected, were laid open. In superficial wounds of this kind the skin was incised from aperture to aperture, thus converting the track into a trough; if the track ran deeper, longitudinal incisions were made at both apertures sufficiently long to enable the deepest part of the track to be reached from either side. If the fragment had lodged, the canal was traced to its termination. Where the bone was comminuted and the wounds were of large size, the edges of the wound were widely excised, all foreign particles and all loose or almost loose fragments of bone removed, all lacerated tissue cut away, and pockets beneath the skin and between muscles opened out; ample drainage was provided. A fair trial was given to the hypochlorite antiseptic method of Dakin-Carrel, but the method was discarded as giving no better results than that of "physical antisepsis." The plaster bandage was mostly applied in the extended position of the limb and under manual extension. Thöle, however, adopted in preference the semiflexed position, because he believed it to produce a more equal relaxation of the muscles and to facilitate the reduction of the deformity. The bandage was applied under anaesthesia, the patient lying on Dittel's poles supported on trestles. A movable foot-board, with heel-cap and strap for the fore part of the foot, attached to one of the poles, served to fix the foot, while extension was applied by means of a pulley and strap applied immediately below the knee. In supracondylar fractures extension was contraindicated and the knee was placed in a position of full flexion with a small chaff-pad in the popliteal space to tilt the upper end of the lower fragment forwards. When completed the bandage was marked with the date and an indication that it was for transport only.

If the removal of the Feldlazarett or the presence of multiple large wounds precluded the application of a plaster bandage, the patient was transported with the extension splint already applied at the dressing station, provided the transport were of not more than two days' duration. The perineal band could not be borne longer, and the extension splint was replaced by a simple wire splint, modelled to the sole and calf and bent at an angle of 150 degrees at the knee, and carried half-way up the hinder aspect of the thigh; firmly fixed to this was a second splint reaching from the middle of the calf to the angles of the scapulae and modelled to the curves of the leg and back. In this way a double inclined plane was produced, which was further supported beneath the knee by an open metal framework.

In stationary warfare the treatment of these cases was undertaken at the Feldlazarett, and if possible treated to the end. This could be done if a Roentgen apparatus were available. Moreover, individualization in treatment was possible here, since the conditions resembled in the main those of a civil hospital. In the earlier stages of treatment it was necessary that large areas of the limb should be fully under observation, so that any local or spreading inflammation might be detected. The plaster bandage did not fulfil this requirement. At the same time, more complete rest was demanded than was afforded by the ordinary weight extension in semiflexion. So long as there was any doubt as to the presence of infection it was desirable that extension should be combined with good fixation by means of a splint. These requirements were met by a splint with a screw extension to the foot-piece, the weight of the trunk then acting as the extending force, while the screw mechanism provided counter extension on the leg and fixed the knee at the apex of the inclined plane. With this splint practically the whole limb could be kept under observation, the transverse bars of the splint being cut

[1] Bruns's *Kriegschir.*, Heft 18, p. 449.

away in cases where the wound was on the hinder aspect of the thigh. If the wound proved to be aseptic the case was then treated as a simple fracture, and the splint replaced by weight extension in semiflexion, the leg being supported in a plaster trough slung by cords from a horizontal pole over the bed. A plaster bandage was used in these cases only when it was necessary to transport them, owing to the lack of a Roentgen apparatus.

If suppuration occurred, but remained localized after eight days, the splint was replaced by a plaster bandage with suitable window or bridge. This was retained to the end of the case if the bones were in good position; otherwise extension was again resorted to after subsidence of the inflammation.

If spreading inflammation occurred, the splint was retained as long as the infection progressed, and even beyond the subsidence of the inflammation when multiple and large wounds were present, since the application of a plaster bandage was then impossible. In these severe cases of prolonged suppuration it was undesirable to use a single form of apparatus for too long a period, and it was Thöle's practice to replace the splint after six to ten days by weight extension in semiflexion with the leg slung up.

On the whole, the author made but subordinate use of the plaster bandage in stationary warfare, since multiple large wounds and spreading inflammation were generally present, and when the inflammation had subsided there was no longer any need for it.

If in stationary warfare the Feldlazarett was suddenly broken up, the cases with plaster bandages or splints were transported without change; those being treated by extension had plaster bandages applied, or, where time was lacking, a splint. The procedure in the case of fracture of other bones is described in similar detail.

CHANGES IN THE GERMAN ARMY MEDICAL SERVICE.

IN the course of a tour of inspection in Germany last summer, Colonel Hans Daae,[1] head of the Norwegian Army Medical Service, was given certain facilities to study German experiences for the benefit of his own service. In Berlin he was shown over the Hauptsanitätsdepot, which has been housed in the gigantic block of buildings owned by Wertheim before the war. Here vast quantities of every requisite for the medical service were stored, classified and indexed. In one department there was an exhibition of models of everything in use at the outbreak of the war, and altered or invented during the war. Colonel Daae was impressed by the smoothness with which everything worked, and he noted, obviously with some envy, that the head of the dépôt and his staff were less overworked than the men holding similar appointments in Norway, Denmark, and Switzerland. The dressings at the dépôt were packed in squares, stamped on both sides, and different colours were employed to distinguish between sterilized and non-sterilized dressings. One of the most radical changes effected during the war concerned instruments and their cases. These were, in fact, discarded, the metal of which they were made being urgently needed for other purposes. To prevent rust, the cloth in which the instruments were kept, in place of the metal cases, was impregnated with paraffin. A sketch of each instrument was stamped on the cloth to show where each instrument should go. The dental equipment provided for the extraction of teeth, for temporary stopping, for fractures, and for the modelling of false teeth and for various refinements in dentistry. The *post-mortem* outfit was also elaborate, and the arrangements for replacing broken lenses for spectacles were good. About 500 application forms for new glasses were received daily at the dépôt.

The manufacture, repair, and control of gas masks also came under the management of this dépôt. Each mask consisted of three parts which were kept in separate tin boxes, packed away in a bag like that for holding the bread ration. The eye-pieces were made of celluloid and secured by rubber rings. In the funnel-shaped respiratory part of the mask was a pumice-like substance impregnated with some chlorine-absorbing preparation. The cloth of the mask was so slack as to allow the eye-pieces to be wiped from the inside by invaginating the cloth with one finger. But in spite of this arrangement, the eye-pieces were constantly getting dimmed by the deposit of moisture. The mask, when put together, was suspended from the neck by a tape whenever the men went into action. To test the fittings of the eye-pieces and rubber rings, air was blown into the mask after soap-water had been poured over the eye-pieces; any escape of air was betrayed by bubbles. The spectroscope was used to detect the nature of the gas used by the enemy.

The original military knapsack was partly replaced during the war by the rücksack, but even this did not give complete satisfaction. All metal lids and fittings were discarded in favour of cloth caps and bands. Every article of copper, brass, and nickel was withdrawn from the medical service and replaced by galvanized iron or papier-maché, with, according to the assertions of the Germans, quite satisfactory results.

It was soon found that the organization of the medical service in the field must be thoroughly revised. Early in the war the infliction of a single casualty was the signal for a medical officer to be sent off to the spot at once; in consequence, the medical service suffered great losses in the first months of the war. A similar mistake was also made in establishing dressing stations before it was even comparatively safe to do so. When the casualties in the medical service had assumed alarming proportions, orders were issued to the effect that the military surgeons should not be sent hither and thither at the command of the non-medical staff, but should themselves determine when and where their services should be given. It had become plain that the military surgeon could balance the risks to the medical service against the good it could do far better than the non-medical divisional commander. Colonel Daae was struck by the improvement effected in the status of the officers in the Army Medical Service during the war. They had become far more independent, and were in every direction more respected than before. He also noted that the heads of the medical service were spoken of with the same regard as the leading generals in the field; the senior officers of the cavalry, artillery, and engineers certainly did not enjoy the same prestige. It would appear that before the war the military surgeon in Germany was regarded as a necessary but inferior official, by no means on the same footing as his fellow-officers in the other services. Now this gulf has been largely bridged, and this process has been hastened by the fact that the old distinction between combatant and non-combatant officer has been much diminished. The combatant officer sits in relative safety by the telephone or desk, while the non-combatant medical officer shares the vicissitudes of the troops in the fighting line.

[1] *Norsk Tidsskrift for Militaermedicin*, vol. i, 1917.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN W. B. CLARK, R.A.M.C.

Captain William Brown Clark, R.A.M.C., was killed in action on March 13th, aged 37. He was the son of Dr. G. B. Clark, ex-M.P. for Caithness, was educated at King's College Hospital, London, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1903, and graduated M.B., B.S.Lond. in 1905. After filling the post of senior house-physician of King's College Hospital he studied at Frankfort, carrying out researches on the nervous system under Professor Edinger. Subsequently he went into practice at Woking, Surrey. At the beginning of the war he joined the Wounded Allies Relief Committee, went to Belgium in September, 1914, and left Antwerp by the last steamer which got out of that port. He took a temporary commission as lieutenant in the R.A.M.C. on November 4th, 1914, and was promoted to captain on completion of a year's service. He was killed by the bursting of a shell while serving with the Scots Guards. He leaves a widow and a daughter.

LIEUTENANT A. I. MILLER, R.A.M.C.

Lieutenant Archibald Ingram Miller, R.A.M.C., was killed in action on March 11th, aged 34. He was the

second son of Mr. James Miller of Kensington, and late of Ceylon, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1905. He was in practice at Stourport, Worcestershire, until he recently took a temporary commission in the R.A.M.C.

LIEUTENANT T. W. JONES, R.A.M.C.

Lieutenant Thomas William Jones, R.A.M.C., has been reported as recently killed in action, aged 31. He was the son of Mr. J. Trevor Jones, of Rhos, and was educated at Rhos Council School, Ruabon Grammar School, and at Liverpool University. He had a most brilliant career as a student, taking the Gee Entrance Scholarship, the junior and senior Lyon-Jones Scholarships, the University Scholarship in Medicine, and the Holt medal and midwifery prize, and graduated as M.B. and Ch.B. with first class honours in 1908. After graduating he held the Ethel Boyce Fellowship in 1908-9, and employed himself on research work for a year, taking the M.D.Liverpool in 1909, also the D.P.H. in 1911. He subsequently filled the posts successively of house-surgeon of the Northern Hospital, Liverpool, of obstetric assistant at the Maternity Hospital, Liverpool, and demonstrator in obstetrics at the University, and of assistant medical officer of the City Hospital, North Liverpool. In December, 1912, he was appointed medical officer of health to the Borough and Rural District of Wrexham, school medical officer, and medical superintendent of the Joint Fever Hospital, Wrexham. He volunteered for service at the beginning of the war, but could not obtain the consent of the Local Government Board to his leaving his duties at home until 1916, when he took a temporary commission as lieutenant in the R.A.M.C., and went to France last December, and in February became attached to the Northumberland Fusiliers, and whilst with them he was killed. He met his death in the most gallant manner, whilst rendering assistance to a wounded man who was unable to reach cover from shell fire. Dr. S. Edwards Jones, Chairman of the Borough Health Committee, states that during his term of office at Wrexham he did invaluable work in sanitation, and his death has terminated what undoubtedly would have been a brilliant career in the public health service of the country. As a public official he enjoyed the fullest confidence of all his colleagues, and with a remarkable combination of ability and tact he discharged his duties with a thoroughness and efficiency which commanded the admiration of all who were associated with him. Deepest sympathy is felt for his widow and little girl.

Died of Wounds.

LIEUTENANT-COLONEL M. L. WILLIAMS.

Lieutenant-Colonel M. L. Williams, A.A.M.C., whose death from wounds in France on March 3rd at the age of 31 we announced last week, was one of the best known and most promising of the younger men of the medical profession in Victoria. After matriculation he entered Trinity College, Melbourne University, and took a leading part amongst his fellows at the college and in the university. He gained his football blue, and represented Melbourne University in inter-university matches and in first grade football. After a brilliant career as a student he graduated M.B., B.S. in 1908, and took a leading position in the final honours list of his year, qualifying for appointment to the resident staff of the Melbourne Hospital in 1909. He was later appointed medical superintendent to the Bendigo Hospital, and relinquished this appointment to commence private practice in Bendigo. He volunteered for active service, and was appointed as major to an Australian field ambulance which served in Egypt and France. He was later promoted lieutenant-colonel and placed in command of another field ambulance, with which he was on duty when he received the wounds of which he died. His death will be deeply felt by a very large circle of friends, and the medical profession in Australia has lost a most promising member. He leaves a widow and two children.

LIEUTENANT J. M. HAMMOND, D.S.O., R.A.M.C.

Lieutenant John Maximilian Hammond, D.S.O., R.A.M.C., died of wounds received in Salonica on March 15th, aged 41. He was the son of the late Mr. Henry A. Hammond of Bournemouth, was educated at University College, Bristol, and at St. Bartholomew's Hospital, and graduated M.B. and B.S.Lond. in 1908, also taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1909. After acting as assistant house-surgeon at St. George's Hospital and as house-surgeon and house-physician at the West London Hospital he went into practice at Bournemouth. In the autumn of 1914 he went with a batch of volunteer helpers from Bournemouth to the English section of the French Military Hospital at St. Malo. His work there for seven months was highly appreciated. In July, 1916, he accepted a commission in the R.A.M.C.; he was ordered to Salonica, and appointed to the 10th Devons, with which regiment he remained till he was wounded in both legs, by the bursting of a shell in February, during an attack on the Bulgar lines. Dr. Hammond was a man of lofty character, high thinking, and strict integrity, whom to know was to love. His quiet, unostentatious work amongst the suffering poor was a constant source of joy to him, and his kindly services will ever be gratefully remembered. His genial personality and conduct were permeated, through and through, by an intense and deeply-rooted religious fervour and conviction, which at once exerted a profound influence for good upon those with whom he came into contact. He was generous to a fault, and whilst his generosity was frequently imposed upon, never a complaining word escaped his lips; indeed, he was too "big" a man to worry about such apparent trifles. Upon joining the R.A.M.C. he was asked whether he would go to a base hospital or on the field, and his reply was characteristic: "I will do whatever you wish." This was the spirit exemplified to the last, and the medical officer in charge of the clearing station wrote that Dr. Hammond showed the most wonderful pluck and endurance he had ever seen, and added that "a few more like him would be a far better object lesson than all the Padres in the country, with the Bench of Bishops thrown in."

Hammond was a sound clinician—careful, painstaking, and conscientious—a faithful and loyal colleague, who will be sorely missed by friends and patients alike. The widest sympathies are extended to his wife and sister, who remain to mourn their loss.

Died on Service.

LIEUTENANT F. G. HEARD, R.A.M.C.

Lieutenant Francis George Heard, R.A.M.C., died at Bradford on March 15th. He was the only surviving son of the late Lieutenant-Colonel Francis Heard of Lenehagh, county Cork, and of Camira, Tipperary, and was educated at Edinburgh, taking the Scottish triple qualification in 1889. After serving as assistant medical officer of the West Free Dispensary, Edinburgh, and of the Rotunda Hospital, Dublin, he went into practice at Undercliffe, near Bradford, where he was medical officer and public vaccinator of the Eccleshill district of the North Bierley Union. He was also honorary surgeon of the Eccleshill division and of the women's sick nursing division of the St. John Ambulance Brigade. He had only recently taken a temporary commission in the R.A.M.C.

Wounded.

Captain W. B. Purchase, R.A.M.C. (temporary).
Captain F. G. Thatcher, R.A.M.C.

DEATHS OF SONS OF MEDICAL MEN.

Clarkson, John Osborne Price, Second Lieutenant Hussars, only son of the late Lieutenant-Colonel Clarkson, I.M.S.(ret.), of Westbourne, Lee-on-Solent, killed on March 10th. He was educated at Stanmore Park, and at Malvern, passed fifteenth into Sandhurst, got a prize cadetship in July, 1914, and was gazetted to the 13th Hussars on December 16th, 1914.

Cotterill, John Henry, Second Lieutenant Royal Highlanders, the 42nd or Black Watch, youngest son of J. M. Cotterill, F.R.C.S.E., Lieutenant-Colonel, R.A.M.C.(T.F.), of Edinburgh, died of wounds on March 14th.

Irwin, Richard Ninyan, Lieutenant Gloucestershire Regiment, younger son of Dr. Stewart Irwin, of Olverton, Gloucestershire, killed on March 6th, aged 19.

Turner, Edward Percy, Captain R.F.A., killed in action on March 19th, aged 26, was the younger son of Surgeon-General G. R. Turner of Radlett. He was educated at Wellington and Christ's College, Cambridge, and was one of the team selected to represent Cambridge against Oxford in the cross-country contest. At the outbreak of the war he was in Japan, but came home and joined the R.F.A. in March, 1915; he proceeded to the front in the following June. He leaves a widow and a daughter.

NOTES.

THE WAR OFFICE AND THE MINISTRY OF PENSIONS.

Secretary of the War Office announces that Colonel Walter Lawrence, Bt., G.C.I.E., C.B., has been ap-ted by the War Office as liaison officer between the Office and the Ministry of Pensions in connexion with natters concerning the treatment and training of dis-ged and disabled soldiers. One of his most important es will be to act as a link between the military hos-ls and the civil institutions which will be formed by Ministry of Pensions.

AMERICAN RED CROSS HOSPITAL FOR FRANCE.

r. Joseph A. Blake, formerly professor of surgery in mbia University, New York, has been invited by the ch Government to take charge of the hospital founded he late Dr. Doyen of Paris. It is to be conducted as ar hospital under the American Red Cross. The ert Walton Goelet Laboratories will be incorporated it and will be under the direction of Dr. Kenneth lor. A jaw hospital will be installed in connexion the new institution.

HONOURS.

supplement to the *London Gazette* issued on March 26th ains a further list of honours conferred for gallantry and tion in the field. The following medical officers are ded in the list:

Bar to Military Cross.

porary Captain Archibald Stirling Kennedy Anderson, M.B., M.C., R.A.M.C., attached R.N. Field Ambulance.
or conspicuous gallantry and devotion to duty. He rendered st valuable services while in command of a bearer subdivision assisting to collect wounded from a forward area under very vy fire (M.C. gazetted August 25th, 1916).

Military Cross.

porary Lieutenant Herbert John Davidson, M.B., R.A.M.C., attached R.N. Field Ambulance.
or conspicuous gallantry and devotion to duty. He tended the nded in a forward area under very heavy fire. He set a splendid mple to all ranks.

ain Robert Andrew Kerr, M.B., R.A.M.C., attached Royal Warwick Regiment.
or conspicuous gallantry and devotion to duty. He succeeded rescuing his three bearers who were entombed when the aid post s blown in. He constantly visited the most dangerous parts of line in order to tend the wounded.

porary Lieutenant Allan George Reid, R.A.M.C., attached R.N. Field Ambulance.
or conspicuous gallantry and devotion to duty. He tended the nded under very heavy fire and worked continuously for thirty-hours in command of a bearer subdivision which was operating forward area.

ain Norman Craig Shierlaw, A.A.M.C., R.M.O., Australian Infantry.
or conspicuous gallantry and devotion to duty. He continually nded to the wounded for two days and nights under very heavy . He has on many previous occasions done fine work.

---

geon John D. Milligan, M.B., R.N., has received per-on to wear the decoration of the Croix de Guerre avec e conferred upon him by the President of the French blic for distinguished services rendered during the war. as also been mentioned in dispatches.

England and Wales.

THE SUPPLY OF MIDWIVES.

twelfth annual meeting of the Association for Pro-ng the Training and Supply of Midwives was held at een Anne Street on March 22nd, when Major A. P. R.A.M.C.(T.), was in the chair.

ter the transaction of formal business, Dr. George , County Medical Officer for Staffordshire, gave an ess on midwifery and Government subsidies, in the se of which he said that at the time the Midwives Act into operation there were in Staffordshire 438 -fide midwives who notified their intention to prac-and only 18 qualified women; now the respective bers were 191 and 129. Large numbers of the bona-midwives had dropped out by reason of incapacity, and death, but 82 had dropped out by reason of mis-uct. He did not suppose that the conditions were e in Staffordshire than elsewhere, but the inspection possibly more thorough. As time went on the deple-tion of the bona-fide class would be much more rapid; of those remaining in Staffordshire 54 per cent. were over 60 years of age. In that county 52 midwives would be required during the next two years to extend the work where it was not at present done and to replace those who had dropped out; on the same basis the number required for the whole of England and Wales would be 1,900. In any scheme that was introduced care must be taken not to kill voluntary effort, not to relieve the pockets of those who were capable of paying for midwifery themselves, and not to compete with efficient midwives so as to prevent them from earning a livelihood. He thought that the scheme ought to be carried out through the establishment of local nursing associations, which in his experience had proved very efficient. These associations, properly subsidized, could be so arranged as to cover the county. They would receive grants from the County Council (a proportion of which would be recovered from the Government) on a basis to be considered in relation to the amount collected in the area. It would also be necessary to subsidize midwives for areas where the population was not sufficient to constitute an association, and here it would be a good thing to train some local resident who could act in cases in her neighbourhood. For areas still more scattered he suggested a small staff of itinerant midwives, who would live in the homes of the nearest nursing associations, and go as required into the outlying districts. In an area not large enough to maintain a whole-time health visitor the midwife should be trained to act in that capacity. In Staffordshire between 40 and 50 midwives were serving as health visitors. In reply to questions with regard to the advisability of school nursing being undertaken by midwives, Dr. Reid said that, in his opinion, there was no risk in ordinary school nursing with properly trained women. He would not say that the midwife should nurse a case of measles, but there was no danger in dealing with verminous children if the midwife herself was clean.

COMMEMORATION AT MANCHESTER UNIVERSITY.

At the Manchester University, on March 23rd, the commemoration of founders and benefactors was very fitly joined with a memorial service in honour of the graduates and undergraduates of the university who have fallen in the war. The Vice-Chancellor, Sir Henry Miers, presided, and after a short but impressive memorial service the commemorative address was given by the Master of Peterhouse, Sir A. W. Ward, who was formerly Principal of Owens College and Vice-Chancellor of the University. After paying a warm tribute to the men and women of the university who have so freely given their services in connexion with the war, he recalled the fact that the earliest idea of founding a university in Manchester came from Henry Fairfax, who shortly before the Civil War petitioned the Long Parliament for the establishment of a northern university, and specially designated Manchester as the most fitting place, partly because it was the centre of the northern parts and partly because of the foundation of the college already built there—that is, Hugh Oldham's Grammar School. The petition was not, however, granted, as Cromwell founded the University of Durham, for which the sequestered revenues came in very conveniently. In 1783 Dr. Thomas Barnes, with the support of the Literary and Philosophical Society of Manchester, advocated a scheme for establishing a Manchester Academy on university lines. This also came to nothing, and it was not until the foundation of Owens College that any further advance in the direction of a university was made. From the commencement the idea of Owens College foundation was not to allow the instruction given to lean unduly either to the faculty of arts or sciences, and both Owens College and the Manchester University had always been true to the full significance of the university idea.

THE MANCHESTER AND DISTRICT RADIUM INSTITUTE.

A report of the work of the Manchester and District Radium Institute during the year 1916 by Dr. A. Burrows, the radiologist, deals with the first 1,000 cases which presented themselves and practically represents two years' work. It is understood that no cases are accepted for radium treatment unless a surgeon has first declared them to be inoperable; in a number of instances the disease was

much too advanced to hope for any benefit even from radium. The institute has not been open long enough for it to be said that any case has been free for more than twenty-four months. Of the 17 cases reported as apparently free from disease at the end of 1915, 5 have since relapsed, but the other 12 still remain free. The physicist, Mr. Lupton, reports that during the past year 777 ordinary emanation tubes, 338 emanation tubes for needles, and 316 flat emanation applicators were made in the physical laboratory, and a large number of growths and morbid tissues had been examined and reported on at the clinical laboratories of the various hospitals. Sixteen military patients were treated during 1916. Down to December 31st, 1916, the total attendances numbered 2,810, and 589 in-patients had received treatment. The best results appear to have been obtained in cases of rodent ulcer, as out of 101 cases, 46 were said to have been free at the end of the year; two cases which recurred after being reported free at the end of 1915 were brought under control by treatment again. A series of cases of carcinoma and sarcoma are described in detail, and it is noteworthy that over 100 cases of general and skin diseases and chronic inflammations have been treated in addition to the cancer cases. It appears that improvement was effected in 21 out of 40 cases of exophthalmic goitre and in 10 out of 15 cases of keloid, while no improvement was effected in 2 cases of diabetes. Out of 34 cases of benign tumours 18 were improved and 7 not improved. On the other hand, out of 536 cases of carcinoma, 162 were not improved, and 65 died of the disease; 174 are reported improved and 41 were free of the disease at the end of the year. Out of 54 cases of sarcoma treated, 8 were not improved, 11 died of the disease, 18 were improved, and 4 were free from the disease at the end of the year. During the year Mr. Lupton was engaged for part of his time on munition work at the university, and owing to this and the difficulty in constructing a research laboratory, the energies of the institute have been limited to the purely clinical side of its work, but it is hoped that as soon as circumstances permit an increase in the scope of its activities will be possible.

Scotland.

MOTHER AND CHILD WELFARE AND THE HOUSING QUESTION IN DUNDEE.

ON March 20th Dr. J. W. Ballantyne of Edinburgh gave an address in the Town House, Dundee, under the auspices of the Citizens' Committee of the Scottish Council of Public Morals, on mother and child welfare and the housing question. The Primus, Bishop Robberds, presided. Dr. Ballantyne referred to the figures which had been given by Dr. Maxwell Williamson in a paper read before the Scottish Labour Housing Association in January, from which it appeared that in Dundee there were 15,854 people (or 9.9 per cent. of the population) living in one-roomed houses, and 85,324 (or 53.1 per cent.) living in two-roomed houses. In all, therefore, 63 per cent. of the population lived in one-roomed or two-roomed houses. Glasgow had nearly the same (62.5 per cent.), whilst Paisley had actually 64.9 per cent. of her people so situated. He emphasized the effect such housing conditions had upon health, as shown by the infantile mortality, and more particularly the neonatal mortality (deaths in the first month of life); the latter rate he regarded as the most sensitive test of the hygiene of a great city, for in some measure it showed not only the condition of the newborn child but also that of the mother. Dr. Ballantyne also stated that the ethical could not be dissociated from the hygienic aspect of the question, and he counselled a united attack upon a number of wrong things which needed to be righted, referring especially to education as to venereal disease and the elementary facts about reproduction; to prevention in respect of disease in expectant mothers and infants by mother and child welfare schemes; to restriction of the alcohol danger; and to the betterment of the housing conditions, though he expressed the fear that the last-named could hardly be carried out on a large scale till after the war.

Ireland.

RECRUITS FOR THE ROYAL ARMY MEDICAL CORPS.

THE Central Medical War Committee has sent a v urgent appeal to the Irish Medical War Committee to all its influence to get Irish doctors to volunteer at o for commissions in the Royal Army Medical Corps. letter stated that the Central Medical War Committee informed by the War Office that the strength of R.A.M.C. was much below the establishment which be necessary for the important movements which expected during the next month or so. A very large portion of all the available doctors of military ag England, Scotland, and Wales have been called up. the circumstances it is hoped that all available I doctors of military age will apply at once for commissi in the R.A.M.C., as during no period of the war w their services so urgently required.

ROYAL VICTORIA EYE AND EAR HOSPITAL, DUBLIN.

The report presented to the twentieth annual mee of the Royal Victoria Eye and Ear Hospital, Dub stated that in the intern department 1,571 patients w admitted and that the average number of occupied b was 92.27. In the out-patient department 7,497 patients were registered, and 1,876, who had been tre in former years, returned for further treatment; 111 and wounded soldiers were admitted during the s period, but though it was satisfactory that these ca could be treated in a hospital specially devoted to a tions of the eye and ear, the opinion was expressed t the military did not take sufficient advantage of hospital. During the year the expenses of the hosp had not advanced proportionately to the advance in pr for food, coal, etc., but the financial position of the hosp was still very unsatisfactory, and under the circumsta the council had to make a special appeal to the pu Several of the medical staff were serving with the colo Deep regret was expressed at the death of Dr. P. Maxwell, who had been connected with the institu since 1897, and the death of Dr. Little and Dr. Fitzger

Canada.

ANTITYPHOID INOCULATION.

THE Department of Militia and Defence have announced that for the twelve months ending Decem 31st, 1916, only 167 cases of typhoid fever were repo as having occurred amongst the many thousands of of the Canadian Expeditionary Force in Canada, notw standing the fact that typhoid fever is endemic in all p of Canada, and is a disease especially affecting yo adults from 17 to 30 years of age. This compara freedom on the part of the Canadian Expeditionary F is seen to be most striking when it is recalled that du the Boer war one man out of every nine in the Bri forces in South Africa was invalided through this dise and that in the Spanish-American war, of 107,000 me the camps at Tampa, Florida, and elsewhere, who had left the shores of the United States, 20,000 contracted disease. The remarkable change can only be attribute inoculation. The Provincial Board of Health for Ont has supplied to date all the typhoid and paratyp vaccine used by the entire Canadian Expeditionary F (about 450,000 men). In all, nearly 600,000 doses h been supplied free of cost.

THE PAYMENT OF PENSIONS TO DISABLED SOLDIERS

Cases of hardship have been reported in which interval of time has elapsed between the discharge man from the Canadian Expeditionary Force and the of commencement of his pension. It is announced tha future no member of the Expeditionary Force will be charged until a medical board has certified that no provement in his condition is to be expected from fur treatment or hospital care. He will not then be discha until a notification has been received from the pen commissioners that the amount of his pension has

determined and the date upon which the first payment will be made. Thus his pay and allowance will continue until his pension commences. It has also been provided that if a discharged man is found to require further treatment for some disability that has been caused or aggravated by active service, he may, upon the recommendation of the medical board, be reinstated as a member of the Expeditionary Force and again receive his pay and allowance, the pension being discontinued. When the necessary treatment has been given, the man will be re-examined by the medical board and the amount of his pension again determined according to the state of his health at the time of the second examination. In the event of soldiers with dependants being killed in action, dying on active service, or being reported missing, assigned pay and separation allowance will be continued until the amount of pension and date of its commencement have been determined.

FUNCTIONAL TRAINING AND RE-EDUCATION OF SOLDIERS.

The great importance of securing occupation for an injured man is realized by those in charge of the training and re-education of returned soldiers, both during convalescence and after the pension has been allotted. It is essential that he should choose an occupation in which he may become so proficient that he will be able to demand equal wages with the men who are his competitors. In order to assist returned disabled soldiers in their choice of work in which to be trained by the Hospitals Commission, Disabled Soldiers' Training Boards have been established in different parts of the country composed of men who understand the trend of the labour market and the present conditions of labour in their own locality; they will give advice to soldiers desirous of settling in that locality and direct the instruction and training of such men. Other things being equal, Government employment will be given to disabled soldiers or to their dependants; and soldiers who have completed a course of vocational training to the satisfaction of their instructors will be provided with certificates of capacity, so that employers need have no hesitation in giving positions to such men. In giving such certificates a high standard of efficiency will be maintained. The danger of placing returned soldiers in a separate class as regards labour is fully recognized, and everything possible is being done to equip such men so that they will be able to command the same wages as others on the merit of the work they are able to do alone. Were they classed by themselves they might be sure of employment for a few years, but later on the tendency would be to consider them as an inferior class of labour worth inferior pay. A plant for the manufacture of artificial limbs has been established in connexion with the Central Military Hospital in Toronto. Here returned disabled soldiers will be treated, re-educated, trained, and provided with artificial limbs.

Correspondence.

MOBILIZATION OF THE PROFESSION.

SIR,—The resolution passed by the Royal Faculty of Physicians and Surgeons of Glasgow, published in the SUPPLEMENT of March 17th, p. 50, will appeal to most members of the profession.

From what has appeared from time to time in the JOURNAL, compulsion is apparently to be applied to the medical part of the community, but so far no details of the proposed scheme have been published.

There is a strong feeling in many parts of the country that the profession as a whole should be consulted before any legislation is passed, for, judging from recent events, we shall get very little consideration from the party politicians. We have been betrayed by them more than once, and it is hoped those in charge of our interests will demand as a right that the scheme be thoroughly discussed by the Divisions before it takes definite shape and is passed into law.

A little more light upon the subject in the JOURNAL would be grateful.—We are, etc.,

GEORGE ALEXANDER,
A. E. THOMPSON,
Honorary Secretaries, Furness Division.

Barrow-in-Furness, March 26th.

THE PROPHYLAXIS OF VENEREAL DISEASES.

SIR,—"Prostitution is not at the present time a crime at common law." Nevertheless, such actions as loitering and solicitation are punishable, though these actions are to the trade of prostitution what advertisements are to other trades.

It is commonly said that it is useless to make laws against prostitution "because there have always been prostitutes," or "because prostitution is human nature." Let us grant that many men and women have not yet reached the level of most birds (other than those of the Gallinaceous family), we still have to face the fact that prostitution as understood in cities is different from anything found among lower animals, inasmuch as it implies a trade. In all the discussion on the prevention of venereal diseases this element of trade, so far as I have observed, has not been reckoned. I have heard it said that so long as promiscuous intercourse occurs, it is of no consequence medically whether or not it is practised as a trade; but can it be doubted that if economic advantage were eliminated a diseased woman would be much less likely to solicit?

At present, if a woman is imprisoned for brothel keeping, solicitation, etc., no steps are taken to ascertain whether or not she is able to earn her own living by means other than prostitution. I recall the case of a woman imprisoned for brothel keeping who had her child removed from her care, and was required after her term of imprisonment to pay a weekly sum for its support. So far as the law was concerned no steps were taken to ascertain how she was to earn the money. Such a penalty can only urge a woman to pursue the trade of prostitution with greater assiduity. In proportion as a woman depends on prostitution for her livelihood she is unfitted to earn her living by any other means, and to punish her can therefore only make her careful to avoid the policeman; it cannot induce her to relinquish prostitution. There is reason to think that hitherto the community has not in its heart wanted the trade abandoned. There has been a belief that "the prostitute is the guardian of the home." Perhaps we have, even now, not passed "Seraglio Point." To those who have, this belief seems an amazing superstition. Once free of this idea, would it not be possible when the law lays its hand on "an unfortunate" to give up all thought of punishment, and, recognizing that she is "unable to manage herself and her affairs," commit her to supervision under the Act for the Care of the Feeble-minded? Let her be trained to earn her living, or, if she is not capable of this, let her remain permanently under supervision, either home or institutional treatment being provided as may best meet the needs of the individual case, keeping in mind that the object of treatment shall be habilitation, or, if this is not possible, protection and supervision.

Without making any law against prostitution in the sense of promiscuous intercourse, is it not possible that the trade of prostitution shall no longer be regarded as lawful—at least, for those under 21 years?

Parents and teachers recognize, and therefore the law also should recognize, that the girl who physically grows rapidly and matures early is the more immature mentally; she who being 14 to 18 years looks 18 to 21 years is one who is faced with the temptations of an adult while she has still only the judgement and self-control of a child. These are they who really need protection from themselves until they are fully grown in mind. Some remain permanently immature in mind.—I am, etc.,

Cardiff, March 18th. ERIC EVANS.

SIR,—May I once more request space for a few remarks in reference to Sir Bryan Donkin's letter on the above question in your issue of March 24th? I may not have made my point sufficiently clear, but when I wrote "if Sir Bryan Donkin and Mr. Elliot leave alcohol out of their scheme of scientific prophylaxis, they will be disappointed in the results," I referred to alcohol not as an excitant, as Sir Bryan Donkin reminds us it is, of sexual desire, but as a factor capable of seriously diminishing, if not frequently nullifying, the efficacy of the scientific prophylactic procedures advocated by Sir Bryan Donkin.

I asked Sir Bryan Donkin no double-barrelled question, such as he ascribes to me, but if he will refer to his letter of January 27th, he will find that he then said that the subject—the prophylaxis of venereal disease—was one

"which, essentially medical though it is, is of high concern to the whole community," and that "the question is, and should be regarded as exclusively medical."

His letter does not answer my two separate and distinct questions on these points, but I think it contains enough to show that Sir Bryan Donkin is not prepared to adhere to these formerly expressed opinions, and has changed his ground. Dr. Otto May's letter of March 17th is sufficient refutation of Sir Bryan Donkin's statement, in his letter of February 14th, that Dr. May "urged that the question of prevention was a purely medical one," and the closing paragraph of Dr. May's letter must appeal strongly to any man who takes a serious and broad-minded view of the question.

There is, perhaps, no subject of present and urgent national importance in which certain of the dangers of medical specialism and professional exclusiveness of view should be more carefully avoided.—I am, etc.,

Inverness, March 26th. T. C. MACKENZIE.

A CIVIL RESERVE FOR ARMY NEEDS.

SIR,—We have arrived once more at a period when we are told by the military authorities that the need for medical men in the army is acute.

Already the ranks of civilian practitioners have been seriously depleted, and the question of "mobilization of the medical profession" is being discussed, while "compulsion," to say the least, is openly hinted at.

Seeing that the needs of the civil population must always remain a grave consideration, it behoves us to cast about and inquire whether some scheme cannot be worked by which the paramount requirements of the services may be met without prejudicing our patients at home. As a late lieutenant in the R.A.M.C. who spent some nine months serving abroad, and who, therefore, has some knowledge of the life in this section of the forces, may I be permitted to make the following remarks and suggestions?

The work of many medical officers in the R.A.M.C. is far lighter than that of a busy—let alone an average—general practitioner. Often it consists of a few hours a day only.

It is notorious that a commission in the R.A.M.C. is looked upon as a "holiday" as compared with the life of a general practitioner. Now many, if not most, of these medical officers were once general practitioners, and surely could not cavil if their work was temporarily considerably increased. Parenthetically I would add: "Gentlemen will not, others must not, complain if asked to put in something like the same amount of work as was their wont in civil life."

In my own practice I work pretty hard in the daytime, and not infrequently also at night (just recently I was called out of bed five times in four consecutive nights), and if I can do this, why should it not be the lot occasionally of all medical officers in the R.A.M.C.? I maintain that it could not be considered a hardship for them to forego now and again the easy-going routine to which they are so usually accustomed.

Now I take it that a great increase of medical officers will be required on the Western front, and this, be it noted, is separated from us by a few short hours, especially the large base area. Therefore, if a great push comes and the need arises, would it not be possible to transfer a large contingent of medical men from this country to the bases in France within a reasonable time to meet the need? I admit that during those first few hours—it might be twenty-four—the medical officers on the spot would be heavily overworked, but not unduly, in comparison with their civilian colleagues. And surely these medical officers could carry on until relieved by the reserve which would be rapidly sent across from this side. If, then, a reserve could meet the case, is it practicable to have such a reserve ready to hand? I submit that it is.

My suggestion is that doctors who feel that in an emergency their urgent home work could be carried on by colleagues around should hand in their names to the D.M.S. or some other authority and be given a temporary commission without payment. They should, however, be furnished with uniform and limited kit, and must hold themselves ready to proceed at six hours' notice to any seaport or other centre where they would automatically become acting medical officers in the R.A.M.C. Such men should be required to acquaint themselves beforehand—a matter of a few hours' study which any keen man would willingly undertake—with the more important routine obligations and technicalities of the office they will be called upon to fill. They would have previously arranged with their friends in the various neighbourhoods to carry on for them as best they could in their absence, and their sudden call to military duty would be received by the latter with no more concern than other inconvenient but necessary summonses to undertake additional responsibilities. This reserve would form a mobile column available for duty in any locality, but presumably in France for the reason I have given earlier. There are many medical men in the large towns who could join such a reserve if they felt that their services would only be requisitioned when urgently needed. It might, indeed, be possible, say after some big engagement or series of engagements, when the stress was relieved, to return some, if not all, to their practices at home to be ready again for a further call. By some such scheme the work in England could be carried on with the least disturbance and the large amount of unused time among medical officers obviated.

I am fully aware that my suggestion is unorthodox, and much red tape would have to be cut in order to run it, but surely with keenness on the side of the doctors and intelligent sympathy on the part of the military authorities some such working arrangement could be evolved for the mutual benefit of the army and of the civil population.—I am, etc.,

March 26th. LATE LIEUT. R.A.M.C.

OLDEST AGE OF PARTURITION.

SIR,—The following may interest some of your readers as well as Dr. Fred. J. Smith, to whom I have sent proof. M. L., born February 13th, 1820, baptized April 9th, 1820, married October 1st, 1840. The foregoing were taken from a local church register, and given to me by the Rev. H. P. Robinson. She had eleven children, the youngest, J. L. S., born April 21st, 1871, still living and a fine healthy man. M. S. died March 25th, 1900. These two dates are verified by the superintendent registrar.—I am etc.,

Gomersal, March 21st. E. R. F. MASON.

Obituary.

ROBERT ROXBURGH, M.B., F.R.C.S.EDIN.,

WESTON-SUPER-MARE.

THE unexpected death of Dr. Robert Roxburgh of Weston-super-Mare on February 16th, in his 64th year, came as a great sorrow to his numerous friends. Educated at the universities of Glasgow and Edinburgh, he graduated M.B.Edin. in 1876, took the diploma of L.R.C.S.Edin. in the same year, and the fellowship four years later. In 1880 he succeeded to the private practice of his brother-in-law, Dr. Gourlay, at Weston-super-Mare, and also became physician to the General Hospital and consulting physician to the Royal West of England Sanatorium, offices which he retained to the time of his death. He was president at various times of the Bristol Medico-Chirurgical Society and of the Bath and Bristol Branch of the British Medical Association in 1912, and a Justice of the Peace. He had never completely recovered from an attack of pleuro-pneumonia with heart complications in 1902, after which he spent a year in going round the world. On his return he married Miss Fanny Peake, who died four years ago. At the funeral service there was a large and representative gathering.

Dr. THOMAS R. RONALDSON (Edinburgh), under whom he served as clinical clerk at the Edinburgh Royal Infirmary and with whom a strong friendship existed from 1877, writes: Earnestness and seriousness of purpose in all he undertook were the foundation of a constant reliability. His professional ideals were of the highest. Scientific surgery and medicine had a great attraction for him, but the human element in his patients ever received tender and kindly consideration. His relationships with them and with his fellow workers were of the most cordial character

Nothing mean or unworthy could live in his presence. The esteem of his fellow students and the respect they had for his professional attainments were evidenced by his election to be senior president of the Royal Medical Society, the oldest of student societies. That his teachers had an equally high opinion of him is shown by the fact that he was chosen by Lord Lister and Sir Patrick Heron Watson to be their house-surgeon in the Royal Edinburgh Infirmary and in Chalmers's Hospital.

After holding these appointments he studied for some time in various German medical schools. Gifted with a happy nature and a keen sense of humour, he recounted well the many amusing reminiscences with which his retentive memory was stored. He had an intense enjoyment of life, of all the best things in it, and no one who ever spent a holiday with him, especially in his beloved western highlands of Scotland as he steered his yacht among its lovely scenery or walked along its picturesque shores, will ever forget his happiness. Yet life had for him, as for all, its shadows and its serious questions, but his pure and strong faith and a deeply religious nature, combined with a wide mental outlook, enabled him to live above all its difficulties, and three weeks before his quiet passing he said, "I am looking forward with intense interest and expectation to the life beyond the grave."

Dr. GEORGE ROSSITER (Weston-super-Mare) writes: If ever any one really loved and enjoyed his profession, both as a science and an art, it was Robert Roxburgh. It was a treat to hear him when he discussed a physiological or pathological problem, and still more when he held forth on the "romance" of the work of his venerated chief, Lord Lister, whom he had served during the early and eventful stages of the battle of antiseptics, or, again, on the triumphs of Patrick Manson, Almroth Wright, and others. He was an accomplished physician, of excellent judgement and rich experience; his wide reading helped to keep him well abreast of the times, and he was constantly called in consultation by his colleagues. His sympathetic kindness, patience, and tact commanded and kept the confidence and affection of his patients, whilst his cheeriness and sense of humour served to brighten their outlook on life. It was quite as much by what he was and did outside his profession that his memory will long be cherished. He had the courage of his opinions, and was fearless in expounding and acting on them; his gift of clear and felicitous expression and uplifting ideas seldom failed to carry conviction and willing co-operation. He was treasurer of the Y.M.C.A., one of the founders of the local Charity Organization Society and the local branch of the Society for the Prevention of Cruelty to Children, the working boys' club, and other kindred institutions. For some years he was vicar's warden at Holy Trinity Church. For more than a quarter of a century president and moving spirit of the Philharmonic Society and local representative of the Royal Colleges of Music, his fine and cultured voice was constantly in request, and only three days before his death from angina pectoris he sang in a duet at a patriotic meeting in the Town Hall in connexion with the war loan, with all the refined execution and verve with which we had been familiar for nearly forty years. His patriotism was both ardent and practical, and at one time he commanded the local detachment of Royal Naval Volunteers.

WE regret to record the death of Dr. WILLIAM MURDOCH of Annan, which took place on March 9th. His health had not been satisfactory for some time, but in spite of this he had been able to undertake a considerable share of work, and three days before the end came he went out to see some patients. It was a bitterly cold day, and in the evening he was seized with severe illness which ran a rapid course. Dr. Murdoch was a native of Elgin, the son of a solicitor in that town, and he spent some years in his father's office, but after his father's death he went to Edinburgh, where he came under the influence of Lister for whom he had the most profound admiration. He graduated M.B. and C.M. in 1877, and M.D. with honours in 1885. He made several voyages as ship surgeon, held two appointments as assistant medical officer in county asylums, practised for a time at Bridge of Allan, but removed to Annan about thirty years ago where he took over the practice of Dr. Rowan and also succeeded him as surgeon to the volunteers attending several training camps and in charge of the field ambulance. As a family doctor he was much respected, being cautious and painstaking, and keeping himself thoroughly conversant with recent advances in medicine. He was for many years medical officer of the Annan District Combination Hospital, and took an active part in the work of the Border Counties Branch of the British Medical Association. He was a member of the Branch Council from 1904 to 1910, was elected President of the Branch in 1909, and was Chairman of the Scottish Division of the Branch in 1907. In his inaugural address on accepting the last-named office he gave a graphic account of his personal experience of sanatorium treatment which he underwent for pulmonary tuberculosis, and which resulted apparently in a complete cure. He retired from the Association as a protest against the policy adopted by it in connexion with the Insurance Act. Dr. Murdoch is survived by his widow, two sons, and a daughter, with whom much sympathy is felt by a large circle of friends and patients. His two sons are serving in France; the elder is a captain in the R.A.M.C.; the younger, who was severely wounded in Gallipoli, now holds a commission in the K.O.S.B.

DR. FINLAY MCDOUGALL of Runcorn died on February 16th in his 83rd year. He was a native of Argyllshire, and received his medical education at Anderson's College and the University of Glasgow. He took the diplomas of L.R.C.P. and L.M.Edin. in 1866, and that of F.R.C.S.Edin. in 1886. For a short time he practised in Staffordshire and then removed to Runcorn, where he practised for nearly half a century. He was appointed medical officer of health for Runcorn and superintendent at the Isolation Hospital, a post which he held for over a quarter of a century, and on his retirement was presented with a silver rose bowl. He became a Justice of the Peace in 1907, and was a regular attendant on the bench. A few years back Dr. McDougall purchased an estate on the banks of Loch Avich in Argyllshire, near his birthplace, where he was able to enjoy his lifelong hobby of fishing. He did not however, sever his connexion with Runcorn, but built for himself a small cottage in Halton Road, Runcorn, where he died.

DR. JAMES CORNS died at Southport on March 20th. He was born in Edinburgh, and received his medical education at the university of his native city, where he was a student under Syme, and graduated M.D. in 1865. After acting for a short time as an assistant at Rochdale he commenced practice for himself in Oldham, and continued to practise there until about eighteen months ago, when failing health compelled him to retire to Southport. He was surgeon to the Oldham Infirmary from 1875 to 1913, when he was elected consulting surgeon, and was also a trustee of the institution from 1904. He was president of the Lancashire and Cheshire Branch of the British Medical Association in 1901–2. Dr. Corns was very fond of travelling, and had visited most European countries.

DR. GEORGE ISLES SWANSON, who died at York on March 16th, was born in Edinburgh in 1840 and was educated at the High School and the University of Edinburgh, where he graduated M.D. in 1861. He left his native city in 1876 to commence practice at Thirsk and subsequently removed to York. He was honorary consulting medical officer to the York Dispensary, a vice-president of the Yorkshire Branch of the British Medical Association and of the York Infant Welfare Association, an ex-president of the York Medical Society, and a member of the Medico-Psychological Association. Dr. Swanson was a staunch Conservative, and from 1881 to 1896 was chairman of the Walmgate Ward Conservative Association.

DR. GIOVANNI ARGENTO, professor of surgical pathology and clinical surgery in the University of Palermo, died recently a few minutes after delivering a vigorous speech at a patriotic ceremony. He was born at Palermo in 1847. He was a careful and successful operator, and has left a number of contributions to surgical literature. He was keenly interested in questions of sanitation and hospital hygiene, and filled many public offices.

The Services.

EXCHANGES.

CAPTAIN in field ambulance in France desires to exchange with an officer in training centre or hospital at home.—Address No. 1050, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Recruiting Medical Officer, Birmingham, desires an immediate exchange with one holding similar appointment in London area.—GALLETLY, Captain R.A.M.C., Curzon Hall, Birmingham.

M.O., Divisional Train, would like to transfer to some unit in a Scottish Division, preferably 15.—Address, No. 1049, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF ABERDEEN.

AT the graduation ceremony on March 23rd the following degrees were conferred:

M.D.—*J. C. Bell, *G. Riddoch.

M.B., CH.B.—‡A. G. Lumsden, †G. R. McRobert, W. F. W. Betenson, J. S. B. Forbes, ‡R. R. Garden, ‡A. C. Irvine, W. C. MacKinnon, §C. G. S. Milne, Maggie J. Moir, J. M. Morrison, W. W. Nicol, F. M. Rorie, C. Shearer, A. P. Spark, §R. Thom, T. D. Watt, Jean Yule, V. T. B. Yule.

* Honours for Thesis.
† With second class honours.
‡ Passed fourth professional examination with much distinction.
§ Passed fourth professional examination with distinction.

UNIVERSITY OF MANCHESTER.

THE following gentlemen have obtained the Diploma in Public Health: T. C. Mackenzie, S. N. Mitra.

Medical News.

MAJOR H. MACCORMAC, R.A.M.C., will read a paper on April 19th, at 5 p.m., before the Dermatological Section of the Royal Society of Medicine, 1, Wimpole Street, W., on skin diseases under war conditions in France. A discussion will follow.

A BILL allocating £50.000 for the establishment of a national home for lepers passed the United States House of Representatives on May 4th, 1916, and the Senate on January 25th, 1917. It provides a national institution for the care and treatment of lepers, and thus, it is hoped, will prevent the spread of leprosy in the United States.

THE arrangements of lectures at the Royal Institution after Easter include two by Professor C. S. Sherrington, on tetanus: its prevention, symptoms and treatment; and on rhythmic action in muscle and in nerve. Professor D'Arcy W. Thompson will give two lectures on laws of growth and form; and Professor William Bateson two on heredity. Among the Friday discourses (5.30 p.m.) will be one on the organs of hearing in relation to war by Dr. Dundas Grant, another on the complexity of the chemical elements by Professor Soddy, and one on breathlessness by Mr. J. Barcroft.

THE meeting of the Poetry Society on March 23rd, to hear the poems of Sir Ronald Ross, was well attended. Sir Herbert Warren, who was in the chair, paid a tribute to the poetry as instinct with "the passion of the head," and as affording a rare example of high scientific combined with high poetical achievement. The poems, read by the poet assisted by Miss Miriam Lewis and Mr. William Stack of the St. James's Theatre, were representative of the graver side of his work. It was announced that Sir Ronald Ross will shortly succeed Sir Herbert Warren as president of the society.

ON February 19th Dr. Stephen Smith, the doyen of American hygienists, celebrated his 94th birthday. He took his degree at the New York College of Physicians and Surgeons in 1850, and devoted himself to the study of sanitary questions. He took a leading part in establishing the Health Department of New York, of which he was the first Commissioner. He was the founder and first president of the American Public Health Association. He still takes an active part in the work of the New York State Board of Charities.

THE report of Dr. Becerra, Director-General of Sanitation of the Republic of Ecuador for 1915–16, states that during that year the mortality from tuberculosis was 1,970, being 11.7 per cent. of the general mortality. Yellow fever caused 682 deaths, dysentery 255, typhoid fever 209, diphtheria 9, typhus 4; there was no death from small-pox. Ankylostomiasis robs agriculture of hundreds of labourers, and syphilis constitutes a difficult social problem. But one of the principal causes of the stagnation of Ecuador is said to be the failure of immigration, due partly to the lack of guarantees to immigrants.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

INCOME TAX AND THE WAR LOAN.

THRIFT asks for information as to the liability to income tax of interest paid on War Loan secured by a policy taken out under a special scheme with a company.

*** It is difficult to answer this question fully without precise details of the scheme, but if we may assume that the War Loan stands in his wife's name, then the interest paid thereon is *prima facie* liable to tax to be assessed on him. In effect, the interest would be paid to her benefit in that it would, *pro tanto*, reduce her accruing indebtedness to the insurance societies. If annual interest be paid to the latter, then income tax may be deducted therefrom on payment. As regards the quarterly premiums, the usual income tax allowance is due provided that the policy is "for securing a certain sum on death." There are of course other conditions, but these are no doubt complied with in this case. We may perhaps add that in connexion with another case of War Loan interest, we understand that the view of the income tax authorities is that, as the basis of assessment is the amount of untaxed interest received in the year preceding the assessment year, the first liability arises in the year 1918–19, and is determined by the amount received in the year 1917–18.

LETTERS, NOTES, ETC.

GENERAL DE GALLIFET'S "SILVER BELLY."

THE late Marquis de Gallifet, one of the finest cavalry leaders France has ever had, and a highly capable Minister of War, had a great part of his abdominal wall torn away by a shell in Mexico. The wound never completely cicatrized, and for the rest of his life he had to wear a protective cuirass. The general was, like many good soldiers, something of a dandy, and there used to be a good deal of curiosity about what irreverent persons called his silver belly. Now we learn from the *Chronique Médicale* that Ernest Guibal, formerly *prévot d'armes* in the French army, who recently died at Berne, used to tell his pupils that he had seen the cuirass a hundred times. The general, when he came for fencing practice, always took it off. Guibal described it as a kind of coat of mail made of very thin silver plates. It was oval, measured nearly 20 cm. in width by 30 cm. in length, and was fixed round the loins by a leather strap. The wound was covered only by a very thin integument, and for this reason the marquis was advised by his doctors to protect the part by an artificial covering. In this connexion we may recall the case of Jean de Mirabeau who was left for dead at the battle of Casano with twenty-seven wounds, one of them made by a bullet which "severed the tendons" in the throat and divided the jugular vein. He lived however to beget the dour old "Ami des Hommes" who in time begat Gabriel Honoré, the Mirabeau of the Revolution. Jean had to support his injured neck with a silver stock and hence was nicknamed *col d'argent*.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

CONCERNING THE PATHOLOGY AND ETIOLOGY OF THE INFECTIOUS JAUNDICE COMMON AT THE DARDANELLES, 1915.

BY

LIEUT.-COLONEL C. J. MARTIN, F.R.S., A.A.M.C.,

PATHOLOGIST TO NO. 3 AUSTRALIAN GENERAL HOSPITAL, LEMNOS.

DURING the autumn of 1915 troops at Gallipoli, and to a lesser extent in Egypt, suffered from a nearly non-fatal form of infectious jaundice, usually without complete obstruction to the entry of bile into the intestine, and not associated with any tendency to haemorrhages. It appeared to be markedly infectious; some units had 25 per cent. of their strength affected, and many cases occurred amongst patients in hospital for other complaints.

The first case occurred in the French lines about August 10th; during September the epidemic spread slowly until the end of that month, when it rapidly extended, reaching its maximum in October. During November it rapidly declined, and was practically over by the end of the year.

The following is an account of a case of moderate severity. All variations between this and mild jaundice without any obvious signs of illness were common.

The onset is characterized by lassitude, loss of appetite, headache, and often suffusion of conjunctivae. It is ushered in with a brief period of pyrexia, temperature 101–102°, and generally some pain in the upper abdomen. The liver becomes slightly enlarged, can be felt below the ribs, and is tender to the touch. The spleen is sometimes enlarged, but not tender.

Although the temperature may have returned to normal, these symptoms continue for three to five days, when jaundice occurs and lasts one to two weeks, or longer. The urine is bile-stained and the pulse often slow whilst jaundice is present.

By the time that jaundice is developed the patients generally feel better, but weakness continues, with rapid pulse and breathlessness on the least exertion.

Seven to ten days after the onset of the disease a distinct increase in the area of cardiac dullness may be made out.* Slight albuminuria is not uncommon.

Convalescence is slow and the patient is not good for much for a month or longer.

According to the accounts of the disease published by Sarrailhé and Clunet (1916), Willcox (1916), and by Hurst (1916), the gall bladder is often, or generally, palpable and tender. Specific enlargement of the gall bladder was not discoverable in the cases I saw, nor was this the case in the experience of my colleagues. Sarrailhé and Clunet also record two cases of "ictère grave" which developed in forty-eight hours with high temperature, speedy collapse, purpura, haemorrhages, and death. They do not mention the existence of nephritis in these.

In opening the discussion on cases of jaundice at Alexandria in November, 1915, Professor Kartulis gave a brief survey of the varieties met with in Egypt and the Levant. He described two types of epidemic jaundice as not uncommon. The first is a severe disease of sudden onset with rigor, high temperature, intense headache, vomiting, and prostration. The liver becomes enlarged and tender, and the urine contains albumin and casts. On the fourth or fifth day jaundice appears. Epistaxis, haematuria, and petechial haemorrhages are characteristic features. The urine diminishes in amount and the patient becomes unconscious or delirious. Death occurs in 30 per cent. or upwards of the cases from uraemia, haemorrhages, or secondary infections. Convalescence is very prolonged.

The milder type described by Professor Kartulis resembles the disease encountered at Gallipoli as described above, but in the Egyptian cases nephritis, epistaxis, and petechial haemorrhages would appear to be usual symptoms.

Professor Kartulis had by means of various microscopical and bacteriological methods searched for the pathogenic agent in both classes of infectious jaundice, but hitherto in vain. He suggests that it must be invisible, like that of yellow fever.

The severe form resembles very closely the infectious jaundice prevalent in certain coal mines in Japan which, towards the end of 1914, was shown by Inada, Ido, Hoki, Kaneko, and Ito (1916) to be caused by a spirochaete. They accordingly named the microbe *Spirochaeta icterohaemorrhagiae*, and the disease spirochaetosis icterohaemorrhagica. Later Ido, Hoki, Ito, and Wani (1916) found the spirochaete in 39 per cent. of the rats in the mines, and they suggest that the miners became infected from these rodents.

Spirochaetosis icterohaemorrhagica has been also described by Hübener and Reiter (1916), Gwyn and Ower (1916), Stokes and Ryle (1916), and Martin and Pettit (1916), as occurring in the German, British, and French trenches.

In the spirochaetal disease, in addition to hepatitis and jaundice, haemorrhages and an acute nephritis occur. It has a mortality of 20 to 30 per cent., and is apparently dependent upon man's association with rats for its propagation. As described above, the Gallipoli disease was much milder, was apparently more infectious, and there was no reason to suppose that rats contributed to its dissemination. Nevertheless certain striking analogies occur, and the milder types of cases described by Kartulis show many characters intermediate between our comparatively mild disease and spirochaetosis icterohaemorrhagica.

SEARCH FOR THE CAUSE OF THE DISEASE.

At Lemnos in the autumn of 1915 I was not in a position to make animal experiments. I hunted for parasites in the blood of early cases, using dark-ground illumination with fresh films and also preparations stained with Giemsa's stain, but without success. I also made blood cultures in eighteen cases, but the only positive result was that I once isolated *B. typhosus*. This patient subsequently went through an ordinary attack of typhoid fever.

The experience of Captain Campbell (1916) at Cape Helles was similar. He made sixty-four blood cultures in non-febrile cases of jaundice and obtained negative results. On the other hand, from nine blood cultures of cases running a continuous temperature he recovered paratyphoid bacilli. In five instances the organism was *B. paratyphosus* B.

Sarrailhé and Clunet had, I understood, found an organism resembling *B. paratyphosus* in the blood in a number of cases of jaundice at Cape Helles, and were of opinion that the jaundice was merely a manifestation of paratyphoid fever. I therefore tested the serums of 37 cases two or three weeks subsequent to the onset of an attack of jaundice. Fifteen of the cases had had continuous fever for some time. Out of the 15 the serums of 7 agglutinated *B. paratyphosus* A and 2 *B. paratyphosus* B. The serums of the remaining 22 cases which had had no continuous fever gave no agglutination with either of the paratyphoid bacilli in a dilution of 1 in 50.

As both jaundice and paratyphoid fevers, especially paratyphoid A, were very common at the Dardanelles during October and November, 1915, it is not unreasonable to suppose that in some instances the two diseases were superimposed. As previously mentioned, a number of patients contracted jaundice in the hospital. In some cases the jaundice may have supervened as a complication of paratyphoid, cholecystitis being a not uncommon sequela of this disease. Jaundice, however, is rare.

Another line of inquiry was undertaken at Major Hurst's suggestion, and with his help. Having with him an Einhorn's evacuator, Major Hurst persuaded patients to swallow it, and, when it had passed on into the duodenum, aspirated a few cubic centimetres of the duodenal contents, which were submitted to bacteriological examination forthwith. Duodenal samples from 8 cases of jaundice and from 4 normal individuals, including Major Hurst and myself, were examined; 0.02 c.cm. of the material was plated out upon MacConkey's bile salt agar, and also upon ordinary nutrient agar. Specimens of the different types of colonies were picked off, sown upon agar slopes, and subsequently investigated. The investigation of the cultures was carried out by my colleague, Sister F. S. Williams, for which, and for much other help with the

* This was first pointed out by Lieutenant-Colonel Willcox.

observations in this inquiry, I am deeply grateful. The results were as follows:

Three of the plates were sterile—two jaundice and one control.
Nine of the plates grew organisms varying from 10 to 300 per plate.
Five types of bacilli were isolated.
Four types of cocci were isolated.

Only one type of microbe was universally present, and accounted for the great majority of the colonies. This was a small, non motile, Gram-negative bacillus, which fermented no sugar, and did not form indol. This bacillus was present in all six of the plates from jaundice cases which grew anything at all, and three of the controls. It is apparently a non-motile member of the *faecalis alcaligenes* group common in the upper part of the alimentary canal. On first culture some of these colonies were much denser than others, but on subculture this difference tended to disappear.

The remaining types of bacilli were also all Gram-negative. Their characteristics are given below. Two of these types occurred in Case V, one in Case II, and one in Case VIII.

TYPES OF MICROBE CULTIVATED FROM DUODENUM.

Bacilli.

Appearance of Colony.	Appearance of Bacillus.	Fermentation of Sugars.					Indol.
		Lactose.	Glucose.	Mannite.	Dulcite	Saccharose.	
A. Translucent	Short non-motile	A	A	A	0	0	0
B. Translucent	Short motile	0	0	A	0	0	0
C. Dense white	Short motile	A G	A G	A G	0	A G	0
D. Dense white	Short motile	0	A	A	0	0	0

Cocci.

The cocci were all Gram-positive with a tendency to form diplococci; two types occurred in Case IV, one in Case II, and one in Case V.

Appearance of Colony.	Appearance of Microbe.	Fermentation of Sugars.					Indol.
		Lactose.	Glucose.	Mannite.	Dulcite.	Saccharose.	
A. Dense white ...	—	0	0	0	0	0	0
B. Small glistening	—	0	A	0	0	0	0
C. White	—	0	A	0	0	A	0
D. Large yellowish	—	A	A	A	0	A	0

The only organism showing any general association with jaundice was the bacillus of the *faecalis alcaligenes* group and that was equally abundant in the controls. The other microbes were distributed haphazard, so that the results lend no support to the view that the jaundice is due to a microbial infection of the duodenum extending up the bile ducts.

MORBID ANATOMY.

As mentioned above, jaundice at Gallipoli was rarely fatal. Three cases died in No. 3 Australian General Hospital, in whom jaundice was still present at the time of death. In two of these the cause of death was cardiac syncope occurring some weeks after the onset of the illness, in the other jaundice supervened during an attack of paratyphoid B fever. *Post-mortem* examinations were made upon these cases by my colleague Major Upjohn, but as in two patients death occurred during convalescence, and in the case of the third the jaundice might have been a complication of his paratyphoid fever, one cannot expect to derive therefrom much information as to the essential pathology of the disease.

The following is a brief epitome of the notes made by Major Upjohn at the autopsies.

CASE I.

A young Maori admitted October 3rd, 1915, with fever, diarrhoea, abdominal pain, and vomiting. Symptoms maintained until October 10th, 1915, when he became delirious and violent, and died on October 11th. Slight jaundice developed a few days before death.

Post mortem: Heart and lungs normal; spleen enlarged. Liver enlarged, yellow, tough; excess of fibrous stroma. Gall bladder full of bile, which could, however, be slowly emptied into the duodenum by slight pressure. Small intestine injected, especially Peyer's patches in lower portion, no ulceration. Brain normal. *B. paratyphosus* B was recovered from the spleen and gall bladder.

CASE II.

Pte. C., aged 41, admitted October 25th, 1915, with slight rise of temperature, pain and tenderness over liver, jaundice, and great lassitude. On November 7th he was convalescing slowly, still weak and breathless. On November 21st he died suddenly during slight exertion.

Post mortem: Mildly jaundiced. Heart dilated, flabby, muscle light in colour. Liver usual size and consistency; olive brown in colour, gall bladder empty. Spleen normal size and appearance. Intestines normal. Spleen and bile sterile.

CASE III.

Pte. McP., aged 35, suffered from jaundice some weeks previously. Admitted from a convalescent dépôt, where he had been taken suddenly ill with rapid pulse and breathlessness, and pain in right hypochondrium. He died four hours after admission.

Post mortem: Heart dilated and flabby, muscle pale. Liver large, greenish, friable; gall bladder contained a small amount of bile. Spleen enlarged, soft. Kidneys pale, enlarged, and friable. Bile and spleen sterile.

Morbid Histology of the Liver.

The histological changes in the liver of both the cases which died some weeks after the onset of the jaundice attack were similar. Sections stained with logwood and viewed with the naked eye or a hand lens presented a marbled appearance, the outer portion of the lobules being stained, the inner colourless. Small deeply-staining areas where compensatory hypertrophy of liver tissue had occurred were scattered throughout the sections.

In each portal area there was small celled infiltration, with young fibrous tissue, and large cells full of pigment granules. The epithelium cells of the small bile ducts were proliferated, and many of the ducts appeared not to be patent. Deposits of the same pigment granules existed between the cells.

The outer half of the liver cells of the lobule appeared normal, but the inner half were more or less damaged. The cells adjacent to the intralobular veins were necrosed and indistinguishable as liver cells; more peripherally they were vacuolated. They did not contain fat. Amongst the degenerated cells were a number containing pigment granules. The distribution of this pathological change was not uniform, some groups of lobules being more severely affected than others. There was no dilatation of the blood capillaries. No bacteria were seen.

Small portions of the liver of both patients were treated by Levaditi's silver method for demonstrating spirochaetes. In neither case was there any suggestion of their presence.

The gist of the above results was communicated at the discussion on jaundice at the Anzac Medical Association, Cairo, on February 6th, 1916. At that time it did not seem worth while putting them on record, as I expected to encounter the disease again in Egypt the next autumn, and to be able to carry out experiments on animals. The disease did not, however, reappear among troops in epidemic form during 1916, so that I had no chance of completing the inquiry.

My object in recording them at this juncture is two-fold. First, the information may direct future investigators along more fruitful lines of inquiry; and secondly, because in the meantime conclusions regarding the etiology and pathology of the disease have been published which seem to be open to question.

MM. Sarrailhé and Clunet (1916), the pathologists to the French force at Cape Helles, conclude that the epidemic jaundice at Gallipoli was merely a manifestation of paratyphoid A fever. These gentlemen were in the habit of making blood cultures of suspected cases of enteric, and up to the end of August they recovered only *B. paratyphosus* B and *B. typhosus*. At this time they noticed a clinical modification of the (enterica) epidemic. Cases of gastric derangement with fever became less numerous and less severe, many were accompanied by "extension to the biliary passages," and numerous cases of jaundice occurred. Coincident with this modification in clinical type the

nature of the microbes isolated by blood culture changed. The organisms they now recovered corresponded in general characters to paratyphoid bacilli, but would not agglutinate with either their paratyphoid A or paratyphoid B serums from the Pasteur Institute. They provisionally regarded it as a new type, *B. paratyphosus* "D" (= Dardanelles). They state that from nearly all their cases of jaundice, and from those of "gastric derangement with fever" during the jaundice epidemic they found no longer *B. typhosus* and *B. paratyphosus* B, but this atypical variety.

In a later paper (1916) the authors report the result of the examination of ninety-four of the aberrant strains at the Pasteur Institute. Eighty-four strains were declared to be *B. paratyphosus* A, six *B. paratyphosus* B, and four *B. typhosus*. However, MM. Sarrailhé and Clunet see no reason to modify their opinion that "camp jaundice is merely a hepatic manifestation of the paratyphoid epidemic."

The main epidemiological features described by MM. Sarrailhé and Clunet as occurring in the French lines were repeated at Lemnos, but the same close relationship between jaundice and paratyphoid A was not observed either clinically or in the bacteriological laboratories.

Captain Archibald and his colleagues (1916) at Mudros East found that in September and October the incidence of paratyphoid B steadily rose and was the prevailing type, but about the middle of November the number of cases of paratyphoid A shot up, while that of paratyphoid B rapidly fell, the typhoid cases, as before, remaining low. Our experience at No. 3 Australian General Hospital at Mudros West indicates a more gradual and later change of type. During October, November, and December the number of bacteriologically diagnosed cases of paratyphoid A was 83, 76, and 45; of paratyphoid B 34, 40, and 18 respectively, but after the third week in December only paratyphoid A was met with. Jaundice was first observed in September. In October the number of cases admitted rapidly increased. During the later weeks of October and early weeks of November it was extremely common amongst troops and hospital personnel stationed at Mudros, and numbers of patients contracted the disease in the hospital.

Judged by admissions to No. 3 Australian General Hospital, the epidemic of paratyphoid A was in full swing when jaundice appeared. Some patients suffering from the former undoubtedly had jaundice, but the same was the case with patients suffering from typhoid, paratyphoid B, and dysentery, and the impression made upon us was that we were in the presence of two widespread epidemics, one of which was occasionally superimposed upon the other. The same conclusion was arrived at by Lieutenant Campbell (1916) from his experience at Cape Helles.

The experience of MM. Sarrailhé and Clunet was evidently different from ours, and it is difficult to disprove their contention. I can only point out that the prevalent type of jaundice at No. 3 Australian General Hospital, which is described at the commencement of this paper, was not accompanied by a continuous fever, and that paratyphoid bacilli were not recovered from such cases, nor did their serums agglutinate *B. paratyphosus* A or B, although the strains of both of these organisms which we employed were readily clumped by the serums of patients suffering from these diseases. Instances such as they record did occur, but can, I submit, be more reasonably interpreted as double infections. Paratyphoid fever has been abundantly studied in different parts of the world since its first differentiation by Achard and Bensaude in 1896, but jaundice is surely a rare symptom, for I cannot discover a single recorded instance of its occurrence in the literature.

Another account of the disease given by Major Hurst (1916) seems to me to accept too readily one possible view of its pathology. According to this observer the jaundice is caused by an extension of a catarrhal process from the duodenum, and the enlargement of the liver "must be due to a general infection secondary to that of the alimentary canal." I am not clear exactly what Major Hurst had in mind in framing the first part of the sentence, but the latter portion is unmistakable. However, Major Hurst is evidently not entirely satisfied with this view, for on p. 106 he admits that it is uncertain whether the primary infection is duodenal or through the blood.

Willcox (1916) also inclines to the opinion that the epidemic jaundice of campaigns starts as a gastro-intestinal infection, and that cholangitis follows from spread from the duodenum. This view leads both Willcox and Hurst to the conclusion that infection is conveyed by the alimentary tract.

It is with trepidation that I enter the arena against Lieutenant-Colonel Willcox and Major Hurst when the combat is over matters largely clinical, but it seems to me unfortunate that, in the absence of definite knowledge of the etiology of the disease, these gentlemen should thus light-heartedly throw the weight of their authority in favour of one possible interpretation of its pathology and method of spread. I submit that the picture presented by the infectious jaundice at Gallipoli, and the morbid anatomy, meagre as it is, are more consistent with the view that we are dealing with a hepatitis following a systemic infection than with that of a catarrhal jaundice from plugging of the bile ducts from extension of an inflammatory process from the duodenum.

The reasons which influence me in arriving at this conclusion are briefly:

1. The illness is ushered in by a febrile attack like influenza, but usually of shorter duration.
2. Jaundice does not occur for some days, and is preceded by swelling and tenderness of the liver.
3. Bile is rarely completely prevented from entering the intestine.
4. The spleen is often enlarged.
5. Albuminuria is not uncommon.
6. Notwithstanding the comparatively slight initial illness the existence of a serious toxaemia is indicated by lassitude, which endures for some weeks, and evidence of myocardial poisoning.
7. Histological evidence of necrosis of liver cells and inflammation around the portal areas.

SUMMARY AND CONCLUSIONS.

1. No parasites were discovered in blood films taken during the disease.
2. Blood cultures were sterile unless the jaundice supervened during an attack of typhoid or paratyphoid.
3. The observations made at No. 3 Australian General Hospital at Mudros do not support the conclusion of MM. Sarrailhé and Clunet at Cape Helles that the jaundice was merely a manifestation of paratyphoid fever.
4. Bacteriological analysis of duodenal contents removed from patients affords no justification for the view that the jaundice was due to a bacterial infection spreading up the bile ducts.
5. The livers of two patients who succumbed during the convalescent stage of jaundice showed microscopical evidence of hepatitis with necrosis of liver cells.
6. It is pointed out that the infectious jaundice of Gallipoli, although much milder, presents analogies to the severer form spirochaetosis icterohaemorrhagica, and it is contended that the symptomatology and morbid histology are consistent with the view that it is primarily a systemic infection.

BIBLIOGRAPHY.

Archibald, Hadfield, Logan, and Campbell (1916): Reports of the M. and H. Laboratories dealing with diseases affecting troops in the Dardanelles, *Journ. of the Royal Army Med. Corps*, 1916, p. 1.

Campbell (1916): See Archibald, Hadfield, etc., above.

Gwyn and Ower (1916): Infective Jaundice (Spirochaetosis icterohaemorrhagica), *Lancet*, ii, 1916, p. 518.

Hubener and Reiter (1915): Beiträge zur Aetiologie der Weilschen Krankheit., *Deut. med. Woch.*, 41, No. 43, p. 1275.

Hubener and Reiter (1916): Beiträge zur Aetiologie der Weilschen Krankheit., *Deut. med. Woch.*, 42 Jahrgang, S. 1 und S. 131.

Hurst (1917): *Medical Diseases of the War*, London, Arnold, 1917.

Ido, Hoki, Ito, and Wani (1916): Prophylaxis of Weil's disease (Spirochaetosis icterohaemorrhagica), *Journ. of Experimental Med.*, xxiv, p. 470.

Inada, Ido, Hoki, Kaneko, and Ito (1916): Etiology, mode of infection, and specific therapy of Weil's disease (Spirochaetosis icterohaemorrhagica), *Journ. of Experimental Med.*, xxiii, p. 377 (contains a bibliography of the original Japanese publications).

Kartulis (1915): A discussion on Cases of Jaundice in the Military Hospitals of Alexandria (November 7th, 1915), BRITISH MEDICAL JOURNAL, 1916, vol. ii, p. 320.

Martin and Pettit (1916): *Bull. de l'Acad. de Méd.*, October 10th, 1916.

Sarrailhé and Clunet (1916): La "jaundisse des camps" et l'épidémie de paratyphoid de Dardanelles, *Bull. et mém. de la Soc. Méd. des Hôp. de Paris*, 1916, 3 Sér., 32me Année, pp. 45 and 563.

Stokes and Ryle (1916): Note on Weil's disease (Spirochaetosis icterohaemorrhagica) as it occurred in the Army in Flanders, BRITISH MEDICAL JOURNAL, ii, 413.

Willcox (1916): The Epidemic Jaundice of Campaigns, BRITISH MEDICAL JOURNAL, i, 297.

INFECTION OF HAEMOTHORAX BY ANAËROBIC GAS-PRODUCING BACILLI.

BY

LIEUT.-COLONEL T. R. ELLIOTT, F.R.S., R.A.M.C.,

AND

CAPTAIN HERBERT HENRY, M.D., R.A.M.C.

(A Report to the Medical Research Committee.)

(*Concluded from p. 418.*)

THE MAIN CLINICAL TYPES.

THE forms in which infections of a haemothorax by anaërobic gas bacilli may present themselves fall clinically into five distinct groups, which are differentiated by the predominance of *toxic* symptoms or of the features of *gas formation* respectively. These cannot, so far as we know at present, be correlated with particular varieties of the infecting bacilli, though they are to some extent governed in their development by the admixture of anaërobes with streptococci and other organisms.

The groups comprise the following:

Acute or Fulminating.

These may develop to a fatal issue two or three days after the wound.

1. The *acute pneumothorax type*, in which gas is formed with overwhelming abundance, and to some extent overshadows the toxic features of the illness.

2. The fulminating septic type with jaundice or delirium.

Progressive.

In these the infection becomes evident from the fourth or fifth day onwards.

3. The *pneumothorax type*, in which the chief feature is a localized or free collection of malodorous gas within the pleural cavity, while the toxic features are relatively mild.

4. The *toxic* forms are characterized by: Jaundice, epistaxis, and fever; restlessness, pain, and delirium; tachycardia, fever, and a hectic flush of the face.

Chronic.

5. These develop simply as an ordinary empyema, without marked features of sepsis or the liberation of much gas.

The cases described below as illustrations of these various clinical types were all seen, by the courtesy of the various medical officers concerned, in the military base hospitals at Boulogne.

ACUTE PNEUMOTHORAX TYPE.

CASE I.—*Early Death from Infection which was Wrongly Regarded as a Simple Pneumo-haemothorax.*

Pte. T. April 25th, 1915. Wounded in chest by shell.

Second day: Admitted to base hospital; cyanosed and collapsed. Temperature 98.6°, pulse 118, respirations 28. Heart displaced two inches to the left, and signs of extensive pneumo-haemothorax on the right side.

Third day: Heart not displaced any further. Constant irritable cough. Temperature 98.6°, pulse 120, respirations 36. Slight tendency to mental wandering. Death.

Autopsy found very foul gas and blood in the pleural cavity. The middle lobe was perforated by a ragged wound, and the lung was covered with septic clot which was pitted with raindrop markings from the development of gas within its substance. (Specimen in War Office collection.) There was early suppurative pericarditis and a necrotic laceration of the liver.

The clinical opinion, on account of the absence of fever, was that the haemothorax was sterile and that the wound had caused death by progressive haemorrhage and escape of air into the chest. The rapid pulse and the tendency to delirium should have corrected this wrong diagnosis. Probably the infection was so serious that the man's life could not have been saved. Without an autopsy to prove the infection, opinion would naturally have regarded this early death as due to an ordinary ppeumo-haemothorax, which had been aggravated by the journey to the base on the second day.

CASE II.—*Septic Case, Mimicking Acute Pneumo-haemothorax: Rib Resected: Recovery.*

Sapper H., R.E. June 5th, 1915. Wound of right chest by rifle grenade.

Seventh day: Moved to base hospital. Dyspnoea increased rapidly in the train, and the patient arrived almost pulseless.

Eighth day: Very ill, but perfectly conscious. Slight cyanosis. Body bathed in icy cold sweat. Tongue clean, but tremulous. Temperature 100°, pulse 132, respirations 40. Heart displaced 2½ inches to left and signs of large pneumo-haemothorax on right. Except for the toxic sweat, the patient's condition was exactly what would have been expected from a supposed leak of air and blood caused by the journey. Explored: Foul gas and dark purple blood, which was teeming with *B. sporogenes*. Intercostal drainage at once, since the patient was too collapsed to endure a fuller operation.

Tenth day: Rib resected.

Twenty-fourth day: Recovered well. No secondary fever. Heart back to normal position, but right lung still much collapsed. Patient discharged to light duty at end of three months.

CASE III.—*Large Gas Pneumo-haemothorax: Recovery by Drainage, but Death from Secondary Haemorrhage.* (See Chart 1.)

Pte. B., Shropshires. June 4th, 1916. Wounded in back of chest by shell fragment. Haemoptysis.

Eleventh day: Arrived at base, extremely collapsed. Temperature 97°, pulse 120, respirations 40. The orderly officer on night duty at once aspirated 20 oz. of foul blood. A few hours later, the patient was still desperately ill, and slightly delirious, but not jaundiced. The left side of the chest was immobile, and bulged outwards by an enormous intrapleural collection of gas. The heart was displaced beyond the right nipple, and the veins of the neck were distended. Part of a rib was now resected under local anaesthesia, and clots of blood had to be pushed aside in order to liberate the foul gas from within. The organisms were not identified.

Fifteenth day: Heart almost back to normal position.

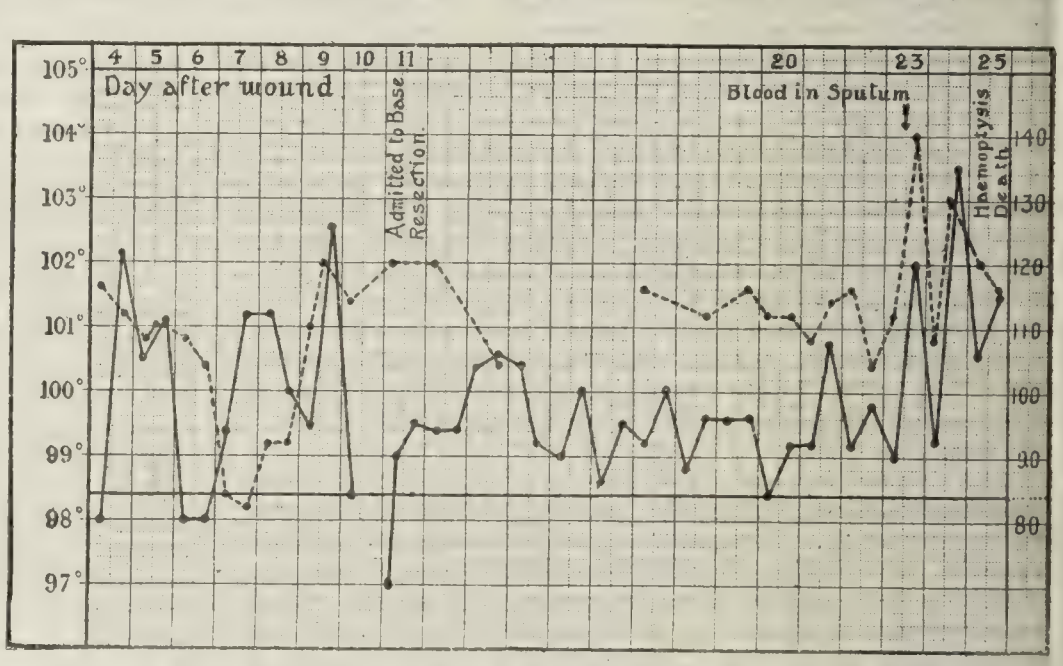


CHART 1.—From Case III. commencing on the fourth day after the wound. The pulse-rate per minute is shown on this and all succeeding charts by the heavily dotted line, and the readings of this curve are given by the numbers on the right hand side of the chart. The paper upon which these charts are drawn gives slightly wider spacing vertically, and therefore a greater magnification of the curves than that given by the ordinary Army Form B 181.

Patient very comfortable and looking well. Temperature 100°, pulse 110. Eusol lavage of pleural cavity.

Twenty-second day: Patient so well that evacuation to United Kingdom was promised in a couple of days' time.

Twenty-third day: A little fresh blood appeared in the sputum. Temperature rising to 102°. Patient complained of "gassy smell in his mouth and a feeling like a football in his chest."

Twenty-fifth day: Haemoptysis of 2 oz.; then sudden blanching and collapse of patient, with death in half an hour.

Autopsy found that the empyema cavity was filled with a completely moulded massive clot from recent haemorrhage. There was blood in the left bronchus, and the stomach was filled with blood. An irregular piece of shell, 1 in. in length, was found in a septic cul-de-sac in the lung, which expanded into a gangrenous cavity about 2 in. across. This was lined by pyogenic membrane, and was full of most offensive pus. From the cavity a channel opened on to the pleural surface of the lung, and a small aneurysm in the wall of the latter had ruptured. (Specimen in War Office collection.) The wound in the chest wall was cleanly healed throughout its track, although the head of the tenth rib had been comminuted.

The retention of the foreign body within the lung was undoubtedly the cause of this secondary haemorrhage and of death. It will be observed that in this case, where the bleeding occurred into a relatively immobile empyema cavity, the blood formed a clotted mass without that separation of fluid which is seen in the ordinary traumatic haemothorax. Also it should be noted that the bleeding was so rapid that the blood had drained down the oesophagus and filled the stomach. Had death not occurred, this distribution might later have led to haematemesis and melaena with difficulty in deciding whether the blood was derived from the lung or from a traumatic gastric ulcer. (Cp. Elliott and Henry, BRITISH MEDICAL JOURNAL, April 8th, 1916, p. 523.)

ACUTE TOXIC TYPE.

CASE IV.—*Early Jaundice and Delirium: Shell Fragment Embedded in the Lung.*

Pte. C., Notts and Derbys. October 7th, 1915. Penetrating shell wound of left chest. No haemoptysis.

Second day: Arrived at base hospital; restless and slightly delirious. Jaundice commencing; dyspnoea and pain in side; signs of large left haemothorax, but patient so ill that no exploration was attempted. He died on the following day.

Autopsy: Left lung in contact with anterior chest wall as far down as the fourth rib in front. Below that level lay a malodorous collection of blackish-purple blood, in which abundant bacilli were found. There was no free gas and no obvious pus. Shaggy clot covered the lung. A shell fragment surrounded by foul-smelling clot lay inside the lung, which was widely infarcted. (Specimen in War Office collection.) The base of the right lung was very oedematous. The body showed signs of universal septicaemia by gas bacilli and the liver veins were blown out with gas.

PROGRESSIVE PNEUMOTHORAX AND TOXIC TYPES.

CASE V.—*Slow Development of Large Gas Pneumothorax, Non-toxic Type.* (See Chart 2.)

Pte. W., Royal Fusiliers. August 6th, 1916. Shell wound of left chest, through first space in front with foreign body lying deeply below left edge of sternum.

Third day: Arrived at base hospital.

Thirteenth day: Continued fever, but no marked tachycardia. Patient looks and feels well. Physical signs of simple haemothorax, which was aspirated, yielding 40 oz. of fluid with deep haemolysis and a purulent deposit on centrifugalization. No gas was found. A few degenerated bacilli were seen in films, and anaërobic culture revealed a stout Gram-positive bacillus which resembled but was not identical with *B. perfringens*.

Nineteenth day: Almost afebrile and feeling very well; but the physical signs now indicated a large collection of gas extending up to the second rib in front with a very little fluid behind. The gas was found to be offensive. Rib resection, and drainage tube sewn in by Captain Fitzmaurice Kelly. Suction applied up to −4 cm. mercury for five days, so as to expand the lung.

Twenty-sixth day: Ordinary tube drainage.

Thirty-eighth day: *X* ray showed that the empyema cavity was now quite small.

At the eleventh week the patient was up and about in an English hospital, but the sinus was not yet closed.

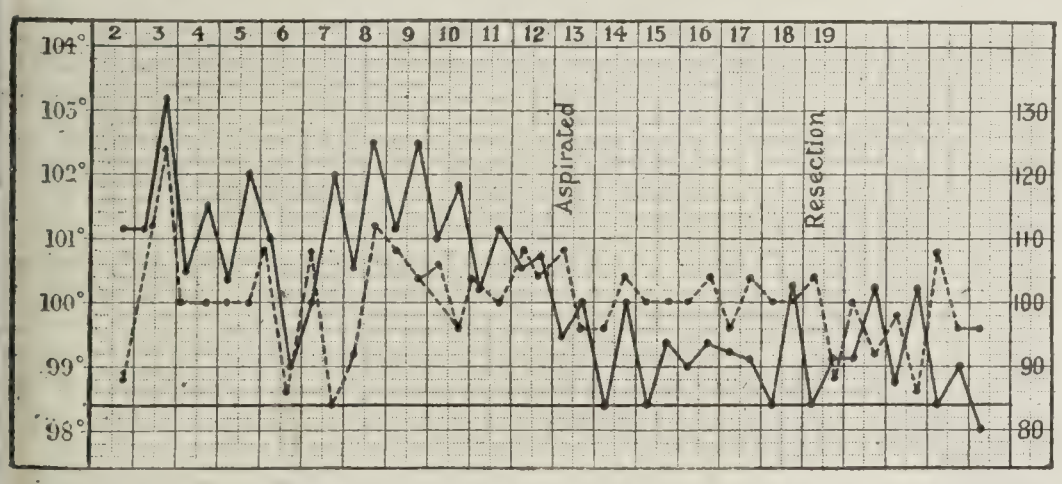


CHART 2.—From Case V. The figures at the top of the chart give the day after the wound. It will be noted that the pulse-rate was low relatively to the temperature, but that it remained near 100 when the temperature sank to 99° after the first aspiration.

This case illustrates the slow development of gas by the action of an unknown anaërobe that was relatively non-toxic. The chief disadvantage of the infection was that resulting from the collapse of the lung, and for such a case suction drainage was particularly well adapted. The foreign body was left *in situ*.

CASE VI.—*Rapid Displacement of Heart: Localized Collection of Gas.*

Pte. A., Scottish Fusiliers. March 12th, 1915. Shell wound of right chest.

Third day: Heart displaced half an inch, and signs of moderate haemothorax. Tongue lightly coated with creamy fur. Temperature 100°.

Fifth day: Flushed and cyanosed; slight icterus. Temperature swinging, 99° to 102°. Increased dyspnoea. Pain in right axilla. Cardiac impulse much more displaced, two inches to left of nipple. Patch of tympanitic percussion note at angle of scapula behind, where previously it had been dull. Exploration over this resonant area yielded gas that smelled like rotten eggs, and purple blood infected with *B. perfringens*. Rib resected at once. No pus found, but only blood clots and dark fluid which coagulated to a jelly as it escaped from the chest. Except for the smell and the dark venous colour, what was found at resection resembled the contents of an ordinary sterile haemothorax.

The patient acquired secondary infections of the cavity, and recovery was delayed until the fifth week, but ultimately was satisfactory.

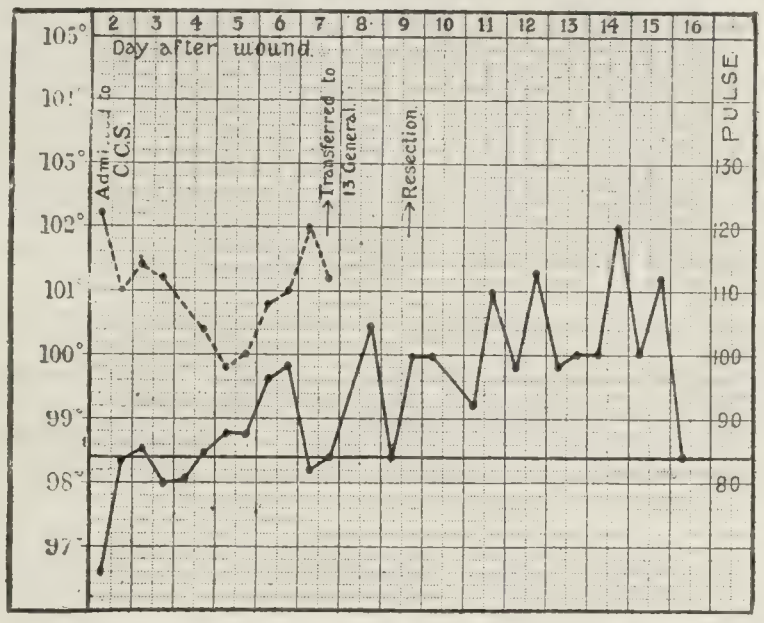


CHART 3.—From Case VII. The early tachycardia despite the absence of fever or of clinical features of collapse is the notable feature.

CASE VII.—*Mixed Infection by Anaërobes and Cocci; yet Clinically a Non-toxic Type.* (See Chart 3.)

Pte. R., Royal Warwicks. June 27th, 1916. Wound of left chest by shell.

Seventh day: Arrived at base hospital. Afebrile, but always a rapid pulse, 100 to 110.

Ninth day: Looks well. Clean tongue. Pain and tenderness of left side of chest, which was associated with traumatic herpes zoster over the eighth thoracic skin segment, and was therefore of uncertain indication. Temperature rising to 100°. Heart displaced nearly to right nipple, and physical signs of large and complete pneumo-haemothorax. The clinical appearance suggested that this was sterile. Aspirated; pressure +5 cm. water. Foul gas removed, and haemothorax fluid with a heavy deposit of pus containing anaërobe bacilli, staphylococci, and streptococci. Resected same night.

Fourteenth day: Temperature higher, but the patient remained very well, and never exhibited a toxic aspect. Normal recovery.

Combined infections of streptococci and anaërobic bacilli are often most virulent and grave. Yet the only features indicative of sepsis in this case were the tachycardia and the pain in the side.

CASE VIII.—*Toxic Type. Localized Gas at first, and later a Haemolytic Jaundice developing while the Infection was being treated by Eusol Lavage without Rib Resection.* (See Chart 4.)

Gunner H., Northumbrian R.F.A. February 13th, 1916. Wounded in back of right chest. Shrapnel ball removed from under skin of right axilla next day.

Third day: Arrived at base hospital.

Sixth day: Typical clinical picture of moderately severe infection of haemothorax by anaërobes. Flushed face. Pulse 100, temperature 101°, respirations 40. Heart displaced half an inch to the left; "cracked-pot" percussion note just below angle of scapula. Explored: Foul gas; reddish blood, not purple, and a little purulent deposit with abundance of *B. perfringens* in films. Aspirated: Pressure −0 cm. volume, 10. oz. of blood and also some foul gas. Washed out with 0.25 per cent. eusol. The cavity was small, for when the contained volume of eusol was reduced by aspiration from 18 to 8 oz., the intrapleural pressure fell from +7 cm. to −5 cm. water.

Seventh day: Aspirated: 10 oz. offensive fluid containing abundant bacilli. Flushed out with 0.5 per cent. eusol, which did not cause any phenomena of pleural irritation.

Tenth day: Tongue clean; appetite fair. No pain in side. Heart apex beat back to nipple. Aspirated: pressure found to be −5 cm., volume about 6 oz. of inoffensive reddish fluid,

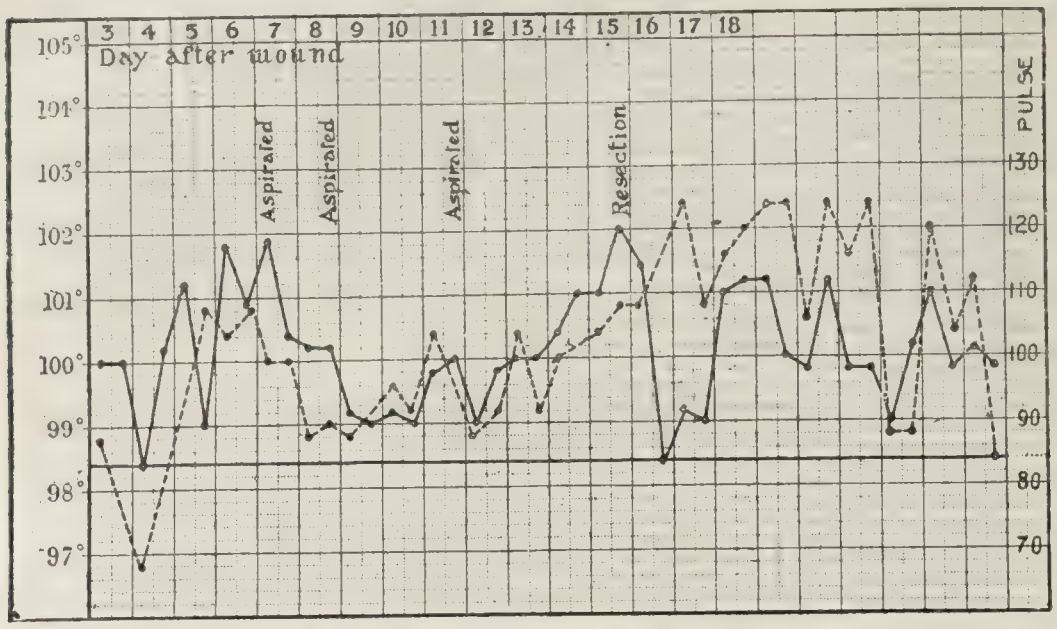


CHART 4.—From Case VIII. The pulse-rate fell together with the temperature during the time of closed lavage.

containing numerous bacilli. Flushed out with 0.5 per cent. eusol.

Fourteenth day: Severe epistaxis. Patient shows definite icterus. Serum of blood withdrawn into capsule exhibits yellow tint. Rib at once resected.

Nineteenth day: Icterus vanished. Straightforward recovery, though on the fifteenth and sixteenth days the patient was gravely ill.

The case is of particular interest. The toxic features of haemolytic jaundice developed from a septic haemothorax, which was found by repeated aspirations to contain nothing but anaërobic bacilli.

CASE IX.—*Delayed Proof of Bacteriological Infection. Air Pneumothorax Lying Above and Separated from a Septic Haemothorax Clot.* (See Chart 5.)

Pte. L., D.L.I. December 26th, 1915. Wound of right chest behind by shrapnel ball, which remained embedded close to hilum of lung. Walked one hundred yards, and then felt urgent dyspnoea. Haemoptysis next day.

Fifth day: Arrived at base hospital, under care of Captain Stratton.

Tenth day: Temperature rising. Physical signs at left base (P.N. dullish, V.R. increased, B.S. almost tubular, but no râles) of either contralateral pneumonia, which might have caused the fever, or of massive collapse. On the right side a large mobile pneumo-haemothorax. Explored at right base: Dark-red odourless haemothorax fluid, containing many pus cells, but sterile in films and on culture.

Twelfth day: Fever increasing. Tongue clean. No tachycardia. Aspirated: well forward in axilla; pressure = 0 cm.; inoffensive air removed and 25 oz. reddish turbid fluid, which

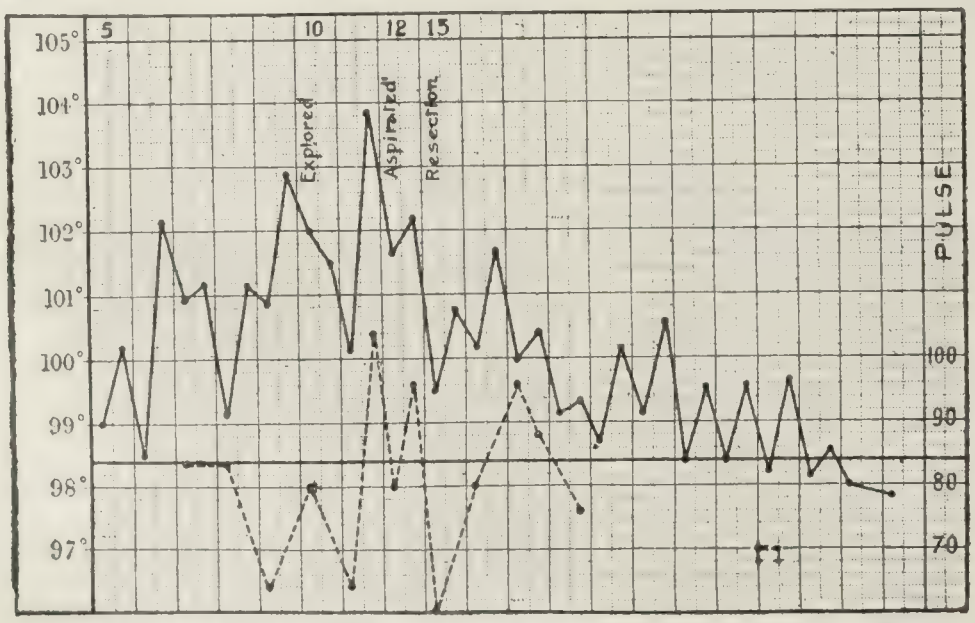


CHART 5.—From Case IX. The low pulse readings are a striking feature when taken in contrast with the high fever.

contained polymorphs and gave a full secondary gelatinous clot, but was sterile. The trocar was then pushed through an area of resistance at the back, when it drew off 6 oz. of purple-red offensive blood, which was full of *B. sporogenes*.

Thirteenth day: Rib resected behind; blood clot not dislodged, and tube introduced only a short distance.

Twenty-second day: Afebrile and very well. Heart apex beat back to nipple. Draining only bloody serous fluid and no pus.

The ball was never removed. The sinus did not close until the seventh month, and the patient was discharged unfit for service; ultimately a poor result.

Since the free fluid below the pneumothorax was sterile, it seems almost certain that this anterior collection was caused by an air leak from the lung. *B. sporogenes* always produces an offensive smell in its growth. The case illustrates the advantage of a preliminary aspiration, for by this means the lung was expanded and the spread of infection over the whole pleural cavity was avoided.

CASE X.—*Toxic Type without Jaundice. Death due to Postponement of Resection on Account of Delay in Bacteriological Proof of Infection.* (See Chart 6.)

Pte. U., R.A.M.C. April 18th, 1915. Shell wound perforating left chest.

Third day: Arrived at base hospital.

Fifth day: Looks well. Fresh red haemoptysis. Signs of moderate left effusion.

Ninth day: Effusion larger. Pain in left side. Pulse 110, and persistent fever at 100° to 101°.

Twelfth day: Flushed face; feels ill. Temperature rising to 102°, pulse 120. Aspirated posteriorly below the angle of the

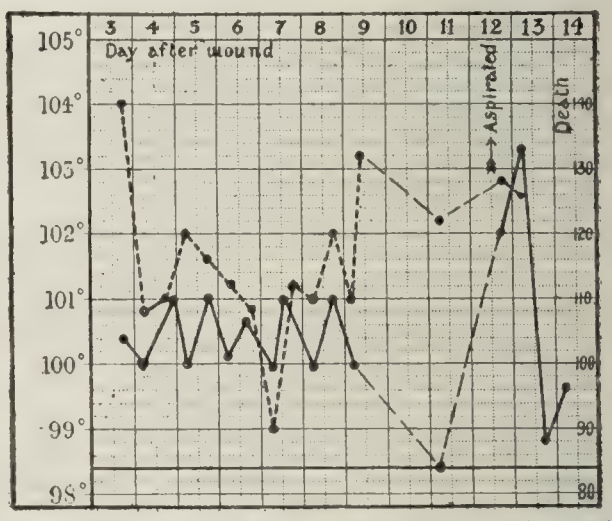


CHART 6.—From Case X. The rapidity of the pulse, out of all proportion to the temperature, should have been recognized as indicative of sepsis and should have led to earlier and more successful treatment of this case.

scapula; 30 oz. odourless, dark carmine fluid with crimson clot. Polymorphs in excess, but no organisms seen in films. The clinical opinion desired resection, but this was delayed on account of the bacteriological report.

Fourteenth day: Tongue dry in centre. Pulse 126; face very flushed. Said that he felt ill, and shortly afterwards died. *B. perfringens* was found on this day in the cultures from the twelfth day sample.

Autopsy found a pool of malodorous blood in the left rib hollow, and the posterior aspect of the lung was covered with shaggy septic clot. No pericarditis; no retained foreign body.

The delay in bacteriological proof of infection that has been discussed earlier in this paper is sufficiently illustrated by Cases IX, X, and XII, in which *B. sporogenes* and *B. perfringens* were both proved to be capable of lying hidden in this way.

CASE XI.—*Toxic Form. Jaundice and Epistaxis: Death.*

Pte. H., 67th Canadians. September 5th, 1916. Shell wound over sixth dorsal spine, and *x* ray subsequently showed a fragment close to vertebral column in the seventh intercostal space on left side.

Second day: Arrived at base hospital.

Sixth day: Epistaxis commenced. Temperature upheld at 101°.

Seventh day: Jaundice noticed.

Eighth day: Renewed epistaxis. Very yellow icterus. Temperature 101°, pulse 108. Says that he feels well, but talks as though verging on light delirium. Explored at once on left side; dark purple blood infected by *B. perfringens* and *B. sporogenes*. Resected a few hours later.

Ninth day: No vomiting. Now a waxy-white colour, and extremities very cold. Temperature 98°, pulse 108 and very small. Eusol was injected intravenously, and produced a temporary recovery with each injection, but apparently only as a result of the volume of fluid infused. Death took place on the following day.

Autopsy showed that the left pleural cavity was perfectly drained, while on the right side contalateral massive collapse was found in its usual anatomical distribution throughout the middle sector of the lower lobe. The heart was normal.

The importance of epistaxis and of jaundice as a danger signal was not recognized as soon as these features appeared in this case. Consequently, exploration and rib resection were delayed for two days, and the patient passed beyond the chance of recovery. In other septic cases with similar features of toxic jaundice earlier resection was followed by a perfectly satisfactory recovery.

CASE XII.—*Toxic with Inoffensive Gas; Semi-delirious, but of the Rarer Pallid Type. Delayed Bacteriological Proof.*

Cpl. J., Gloucesters. July 3rd, 1916. Septic shell wound of back of right chest; did not bleed much externally.

Third day: Arrived at base.

Fourth day: Ill, restless, and semi-delirious; but of pallid white aspect, being neither cyanosed nor flushed. Temperature 100° to 102°, pulse 90, respirations 32. Physical signs of contralateral collapse of left base, and a fairly large effusion on right side with tympanitic percussion note close to angle of scapula amid the area of dullness. Explored behind: Inoffensive haemothorax fluid, yielding a slight excess of polymorphs on centrifugalization and no organisms in films. Abundant growth of *B. perfringens* in twenty-four hours' culture.

Fifth day: Pain in right side; more restless. Clean tongue; pulse 90. Neither jaundice nor hectic flush. Explored: Inoffensive gas; more pus in fluid, but still no organisms in films. Rib resection.

Eighteenth day: Heart back to normal position. Pulse never rose above 90 throughout the illness. Recovery was delayed because the drainage hole was too high.

These septic cases with pallor are very rare in our experience. The semi-delirious state and the pain indicated the infection before it could be proved bacteriologically. It is noteworthy that the pulse never rose above 90, though the infection was so serious and the temperature raised. Probably the gas was an odourless product of the growth of *B. perfringens*, and not ordinary air.

CHRONIC TYPES.

CASE XIII.—*Slow Development of Empyema by Infection with B. perfringens, though the Shell Fragment which Introduced the Sepsis was Aseptic in its Final Resting Place.*

Pte. M., Gordons. May 10th, 1915. Shell wound penetrating back of left chest at angle of scapula; fragment could be palpated deeply in second space in front below left costo-chondral junction. No haemoptysis.

Twenty first day: Fever rising to 103° for last week. Pulse 120, respirations 28. Tongue clean; not very ill. Explored at base behind; no collection of fluid found.

Thirty-sixth day: Fever still persisting, but at lower level and now swinging from 99° to 102°; pulse 94 to 100. Feels and looks well. Heart displaced to the right, and evident physical signs of effusion at base. Explored: Offensive gas and pink purulent fluid with heavy infection of *B. perfringens*.

Thirty-seventh day: Resection. A little gas and much pus found between diaphragm and lung. The shell fragment was removed at the same time from the front of the chest, where it was found to be lying in a perfectly clean aseptic bed. The patient's temperature fell at once to normal, and he made a straightforward and rapid recovery, being able to join a reserve battalion in five months after his wound.

This is the fifth case quoted in this series (Cases VI, VIII, X, XII, and XIII) in which *B. perfringens* was identified as the chief infecting anaërobe. It will be noted that the clinical features were different in every case. One had jaundice; one was pallid and delirious; two showed the usual hectic flush and febrile aspect; and the fifth was a mild chronic suppuration.

CASE XIV.—*Apparently an Ultimate Extinction of an Infection which had Caused the Development of Foul Gas and Chronic Suppuration.*

October 31st, 1914. Penetrating shell wound posteriorly over the tenth right rib. Under the care of Captain Clementi-Smith, R.A.M.C.

Eleventh day: Persistent fever, 102° to 103°; pulse 120. Aspirated 30 oz.; no examination made.

Twenty-third day: Aspirated 15 oz.; no examination made.

Thirty-eighth day: Physical signs of pneumo-haemothorax. Aspirated 10 oz. brown purulent fluid and some offensive gas. Pus abundant, but no organisms found.

Forty-fifth day: Aspirated 30 oz. of same character as before. A few Gram-positive bacilli were found in the purulent débris, but they could not be grown.

Fifty-seventh day: Afebrile, but of pallid, wasted appearance. Sent to England. Rib resected shortly afterwards at home, and cavity drained. The patient then rapidly regained health, and the sinus closed in the seventh month after the wound.

GENERAL TREATMENT.

Diagnosis.

The chief need is for a greater readiness to suspect sepsis, and a prompt action in putting this suspicion to the test by exploratory puncture. Even a day's delay in order to watch the development of the case may in the most virulent types of infection mean that the patient is allowed to pass into a state of such gravity that surgical treatment is almost without hope.

If the needle has obtained an honest sample of the haemothorax—lung or liver blood can always be recognized by the fact that it clots massively in the syringe or test tube, whereas haemothorax fluid never does so—and if this fluid is found under the microscope to be sterile, then it is generally safe to wait and watch developments. It is *never* justifiable to resort at once to rib resection and drainage merely because the patient presents all the clinical appearances of severe sepsis. If the patient does not improve, a second exploration in a different place should be made on the following day. A later exploration is nearly always required if the fluid first withdrawn yields an unusually rich field of polymorphonuclear cells on centrifugalization, but is none the less sterile. Such an increase of polymorphs has again and again been noticed to be a premonitory feature in cases of delay in the dissemination of bacilli through a haemothorax.

An offensive odour in the sample withdrawn justifies surgical treatment at once without waiting for a bacteriological report.

In all infected cases, except those of a simple through-and-through wound, a skiagram should be taken, if the patient's condition will permit it, so as to localize any retained foreign body. For this purpose the patient should be lying down and not in the sitting posture that is needed for screening a haemo-pneumothorax.

Principles of Treatment.

The ideal treatment of an infected haemothorax would succeed in satisfying all the following conditions:

1. Removal of the gas and infected fluid from the pleural cavity.
2. Removal of the septic blood clot.
3. Extinction of the infecting organisms.
4. Removal of the foreign body.
5. Provision to induce rapid re-expansion of the collapsed lung, and to prevent secondary infection of the pleural cavity by other organisms that might be introduced by methods adopted to secure the first four requirements.

In practice this complete ideal has not been attained, and the surgical treatment of these cases still remains near the primitive level where it is perforce content merely to save life.

Many of these examples of anaërobe infection show a long latent period, during which the bacilli introduced with a shell fragment are seeking to establish their foothold and have not yet burst throughout the haemothorax. The organisms do not flourish in fresh blood or in contact with uninjured live tissues. Hence it would appear to be possible in some cases to open a wounded chest at once, wash out all the clot, remove the foreign body, and close the chest again, in the hope of eradicating the infection before it obtained the mastery over the resistant powers of the vital tissues. Major G. E. Gask has planned such a line of treatment, and already proved it to be practicable in certain selected cases. But the conditions of military surgery make it unlikely that this preventive method of treatment will be found to succeed in general, and therefore the problem to be dealt with, at the base hospitals at any rate, must be accepted as that of a fully established infection in a haemothorax.

Attempts have been made by us to avoid opening the pleural cavity, and to treat the infection by repeated aspirations combined with lavage by some antiseptic agent. This might appear to be a hopeful method, because many of the anaërobes tend to die down in body fluids. Oxygen was tried as an intrapleural injection, but with no good result. Eusol was also used for closed lavage (see Case VIII), and it was equally useless. Probably most of such attempts are foredoomed to failure, because they

cannot deal with the masses of septic clot lying in the pleural recesses. The latter have become foreign bodies just as much as is a shred of clothing or a fragment of metal; and all these, if septic, must be removed.

In a few cases the infection that is reported to be present by the bacteriologist is not a vigorous or extensive one, and the purulent reaction is slight. The body may overpower the organisms if it is aided by aspiration of the dead fluid and if the blood clot chances to have escaped infection. In such cases simple aspiration may suffice to cure.

We were particularly struck by the power of the pleura to dispose of infection, in an example of pulmonary actinomycosis which came under our observation. The left pleural cavity was widely infected, and it had to be emptied by aspiration on three occasions, the last evacuation amounting to nearly 80 oz. of thick pus, which contained abundant actinomyces, but no other organisms. The patient made a slow but complete recovery without drainage, and the chest ultimately showed no abnormal physical signs. French writers[1] have laid stress on the possibility of this simple method of treatment for infection of a haemothorax by cocci when the aspirations are commenced at an early date.

Each chest wound must be judged on its own merits, and in the milder forms delay in drainage is admissible, provided that the patient is continually watched for the development of toxic symptoms. But drainage is the rule for safety, and we regard it as an unavoidable necessity in the vast majority of cases because the clot is infected.

The pleural cavity must be opened, clots detached or washed away by very light manipulation, and the foreign body removed if it is accessible. After such cleansing it is conceivable that it might be possible in certain cases to douche the cavity with an antiseptic agent, and then close up the chest completely, trusting that the natural powers of defence of the body will combat what is left of the infection. But no satisfactory means of arriving at this result has yet been found, and for the present it still appears to be necessary to provide for continual drainage away of the suppurative fluids.

This drainage must be planned so as to empty the lowest recesses of the cavity. When a rib has been resected at too high a level, and a long tube is introduced in an upward direction, while the patient is kept propped up in bed, an offensive cesspool, with all manner of secondary infections added to it, is likely to be established in the bottom of the pleural cavity, and this will continue to poison the patient until it is properly emptied.

In cases of large empyemata, when the toxic features are not very marked, it is an advantage to employ airtight drainage, so as to avoid secondary infections and help in the re-expansion of the lung by suction upon it. The parietal pleura is sewn together tightly around the tube, and the muscles and skin are also sewn together in successive layers. This procedure adds at least fifteen minutes to the time taken for the operation, for it is not an easy matter to sew up the inelastic pleura. The free end of the tube may dip below the surface of a bottle of weak disinfectant fluid placed on the floor, so as to maintain a slight negative pressure after each cough. Or the tube may pass into a collecting flask for the pus, upon which suction is steadily maintained at a known pressure by an automatic aspirating bottle.

These methods are occasionally an advantage, and they add to the comfort of the patient for the first week until the sutures break down, because the dressing on the wound remains dry, and does not become a pus-soaked mass that requires frequent changing. The suction helps a little towards the expansion of the collapsed lung; but the respiratory movements of the patient will do far more in this direction if they are deliberately practised.

So soon as open drainage is resorted to, it should be the aim of the surgeon to get rid of the tube as early as possible. If sloughing clots have been removed there is little need to keep the tube in place for more than a few days. An offensive discharge requires daily lavage with eusol or some other antiseptic, such as carbolic acid combined with weak hydrogen peroxide, in order to dislodge clot if the cavity could not be emptied at the time of the operation. Any retained piece of metal should be removed if it is accessible. Those within the substance of the lung in septic cases may ulcerate their way to the surface without harm, but there is real risk of their opening up a vessel in this process, and causing death by secondary haemorrhage. We have, however, met with only three fatalities of this nature (cp. Case III) out of all the number of chest wounds that have been seen by us, which must aggregate well over a thousand, so that the danger is not a serious one in the first stages of recovery after such wounds. We have not enough experience to enable us to state whether the danger attendant upon searching in the presence of a septic haemothorax for a foreign body embedded in the lung will outweigh the advantage of avoiding a chance secondary haemorrhage by its early removal.

The Treatment Appropriate to Various Clinical Types.

1. *The Acute Pneumothorax Type.*—These patients are suffering from extreme mechanical disturbance of the thoracic contents by the accumulated gas, and they are so critically ill that they cannot tolerate much surgery. It is sufficient to insert a tube through an intercostal space in the axilla under a local anaesthetic, and then to complete the drainage by rib resection at the lowest possible place behind as soon as the patient has recovered a little. The prognosis is good.

2. *The Acute Septic Type.*—These cases are generally hopeless on account of the overwhelming effect of the poisons, and many of them are subsequently found to have been suffering from complicating wounds of abdominal viscera, which made their chances of recovery still more desperate. Rib resection may none the less succeed in saving life.

3. *The Gradual Pneumothorax Type.*—A preliminary aspiration may be made so as to expand the lung if the collection is very large. Sooner or later the pleural cavity must be opened and cleansed. In mild infections airtight drainage and suction may be employed with advantage, and in some cases (cp. Case IX) it may be possible to deal separately with a sterile collection by aspiration, and with a localized clot abscess by rib resection.

The points which determine immediate resection are the development of jaundice in the patient, or an abundant deposit of pus in the fluid withdrawn. The presence of only a few anaërobes and the absence of other organisms from the fluid may be allowed to justify a vigilant delay, for under these conditions the patient will not suffer if the fluid collection is kept small by repeated aspirations. But in our experience it has always been necessary in the long run to drain chests with purulent infections.

We have tried the method of drainage through an intercostal slit without introducing a tube, in the hope that it would facilitate the expansion of the lung. It was not generally satisfactory, and was little more than a safety valve allowing gas to blow off and prevent its accumulation under pressure.

4. *The Progressive Toxic Type.*—In the jaundiced or delirious forms of intoxication the pleural cavity should be explored without an hour's delay and opened as soon as infection has been found. It is most important to resect at the lowest rib that will give access to the collection. On account of the possibility that the diaphragm may be fixed up in a high position, the exploring syringe must always be used again in the operating theatre as a preliminary to rib resection in order to ascertain the lowest limit of the haemothorax, and the pleura should be incised carefully for fear of cutting through an adherent diaphragm.

The forms with simple fever admit of a little longer consideration, for these clinical features may be caused by many other conditions than that of infection of the haemothorax. But if contralateral pleurisy or pericarditis are detected, these signs should be regarded as presumptive evidence of a dangerous infection, and exploration should be followed as soon as possible by rib resection, if the supposition is proved to be true.

5. *The Chronic Type.*—These cases recover so smoothly after rib resection, that one regrets that it is not possible to leave all septic cases to pass into this chronic state before surgical interference.

PROGNOSIS.

Life can be saved in nearly all cases except those with complicating wounds of the abdomen, or with virulent and mixed infections. A dry tongue is indicative of the latter. So long as the tongue remains moist the patient ought to recover.

Death from sepsis practically never occurs after the end of the second week following the wound. There is no long drawn-out fight with an ultimate and inevitable surrender, such as may be seen at times when the abdomen, the brain, or shattered bones are infected. Out of the last fifteen cases of death among examples that we have seen of haemothorax infected by anaërobe bacilli, fourteen died simply from the sepsis. One, the case related as No. III, died from a late secondary haemorrhage from a deep lung abscess round a retained piece of shell. Pericarditis was proved to be present in eight of the other fourteen fatally septic cases. Jaundice was noticed in seven, of whom two died without pericarditis. There were no instances of death from purulent bronchitis in this series.

None the less purulent capillary bronchitis with thick greenish-yellow airless sputum is a dangerous complication; and it appears to develop with greater severity in infected cases that have been left for many days without drainage. It may be the exacerbation of a cold that was present before the man was wounded; and a history of exposure on the battlefield after the wound is often given by patients suffering from this complication. The bronchi of the uninjured lung are more extensively infected than those on the wounded side, where collapse and immobility tend to restrict the spread of infection along the air tubes. Autopsy reveals thick plugs of green pus rising up from the orifices of every cut bronchiole, and there is sometimes a bronchopneumonic spread of the infection into surrounding lung tissue.

So soon as this character of the sputum is recognized stimulating expectorant medicines should be given freely, for this condition demands a treatment contrary to that usually practised in order to lessen cough in chest wounds. Its presence requires that the haemothorax shall be aspirated or drained away as soon as possible, so as to throw more lung tissue into active respiration. There is no evidence that such treatment introduces further danger by extending the bronchial infection along tubes that were previously collapsed.

Fever that continues for more than a week after rib resection, if not due to purulent bronchitis, is usually caused by inadequate drainage of the empyema. The pleural cavity should be explored by the finger to ascertain whether pus is accumulating in any recess below the level of the drainage tube. It this is found to be the case, a piece should be resected from a lower rib to improve the drainage, or a large catheter should be inserted and suction applied to it by some apparatus, such as the Sprengel pump. Drainage is improved by keeping the patient recumbent in bed.

Sooner or later the lung expands fully in practically all the cases, and the sinus closes without the need for any elaborate surgery. We have learnt the after-histories in England of thirty of our cases, whose chests were drained for infection of a haemothorax, some for anaërobe infections, and others for streptococci, etc. The sinus became closed in the majority during the third or fourth month after the original wound, and some of the men were at once classified as fit for duty. In only eight of the cases was the sinus open as late as the sixth month. There was only one case of chronic empyema cavity in which at the fourth month a minor Estländer operation was performed for its obliteration; and there were two cases in which small operations were needed for the drainage of a loculated collection of pus.

SUMMARY.

1. Infection by anaërobic bacilli occurs in about 10 per cent. of all cases of haemothorax from gunshot wounds of the chest that are seen in base hospitals in France.

2. The infection leads to the development of malodorous gas which may occasionally be so abundant as to simulate a large air pneumo-haemothorax, while the toxic features of the infection for the time being remain in the background.

3. In the majority of cases the septic features are much more prominent than gas formation. The most serious of these features are jaundice, a rapid pulse (which may be the index of commencing pericarditis), and semi-delirious restlessness. Less dangerous is the febrile type with a brilliant hectic flush on the cheeks.

4. Diagnosis depends on exploratory puncture. In cases with the clinical aspect of sepsis it may be necessary to repeat the exploration on successive days, because it is a characteristic of anaërobe infection that the bacilli frequently fail to spread at once throughout the haemothorax, so that their presence is often missed at the first searching.

5. Life can be saved in at least four-fifths of the cases if the infected blood is promptly drained away. A day's delay in putting such treatment into force, when once the infection is well established, may mean death to the patient.

6. The clinical pictures caused by the sepsis vary widely in the individual cases of infection, but these differences cannot yet be correlated with the various forms of anaërobic bacilli that are proved to be present in each particular case.

REFERENCE.

[1] E. Foisy: *La pratique de la chirurgie de guerre*, Fascicule ii, 1916, p. 185.

A CASE OF SPIROCHAETOSIS ICTERO-HAEMORRHAGICA.

BY CAPTAIN R. RIMMER, R.A.M.C.,
M.O. I/C LABORATORY, No. — GENERAL HOSPITAL.

LITTLE evidence of epidemiological importance could be obtained from the patient whose case is here described. No previous case of jaundice had occurred on the boat, to his knowledge, and, since the boat does not call regularly at this port, no later information is available. Questioned as to the presence of rats, he was not able to state that they had been more noticeable than is usual on a ship.

A steward on H.M.T. ——, aged 27, complained of vomiting for four days, vague epigastric pain and tenderness, and headache. The tongue was coated, and his mental condition was not clear. His replies to questions as to onset and present condition were vague and rambling. The temperature was 99.8° and the pulse 100, with no special characters. There was no jaundice.

On the morning of December 1st, 1916, he was markedly jaundiced, and his mental aberration was more noticeable. There was no vomiting; his tongue was brown and very furred (centrally disposed). Temperature 97.8° and pulse 86 in the morning; temperature 98° and pulse 90 in the evening. A guinea-pig inoculated intraperitoneally with 2 c.cm. of blood on this day remained healthy for the ten days it was under observation, having no pyrexia, and increasing steadily in weight.

On December 2nd the symptoms were more marked, the patient being delirious and of a deep orange colour, which apparently varied in depth from one part of the day to another. Small cutaneous haemorrhages were present on the limbs and trunk. There was also a small amount of haemorrhage from the mucous membrane of the mouth. He had incontinence of urine and faeces. There was no gross change in the size of the liver. *Tache cérébrale* was present. Herpes was not present. The faeces showed no special characteristics. The urine contained albumin, bile, and casts, mostly granular, but no leucin or tyrosin. He did not complain of any irritation of the skin.

A guinea-pig inoculated intraperitoneally with 2 c.cm. of urine showed fever (temperature 104°) on the sixth day, jaundice on the seventh day, and died with subnormal temperature and signs of collapse on the ninth day of observation. At the *post-mortem* examination haemorrhages of various sizes were found throughout the lung tissue on the right side; at the base was a considerable area of consolidation. The liver showed small patches (2 to 3 mm. in diameter) of a brick-red colour throughout its substance. Spirochaetes were present in the liver and blood, demonstrated by prolonged staining of smears with Giemsa, by silver nitrate, and Indian ink methods. In sections of the liver and kidney treated by Levaditi's method the organism was plentiful.

A second guinea-pig was inoculated with an emulsion of liver from the first animal, and the disease ran a very similar course. On the tenth day it was markedly jaundiced (with bile in the urine), and very dull, with loss of appetite, and a subnormal temperature. It was killed on this day. The *post-mortem* examination showed the usual haemorrhage into the lungs, and the liver was enlarged, very congested, and soft in consistency. The spirochaete was present in the liver and blood as before.

A third guinea-pig, inoculated from the second, died on the eighth day, and the liver showed the same bright red areas as were observed in that of the first animal.

The patient, on the fifth day after admission (probably the ninth day of the disease), showed marked improvement, the tongue cleaning, the degree of jaundice lessening, and his mental condition becoming normal, with return of control over both sphincters. No treatment was attempted. He took nourishment well throughout, the bowels moved freely, and the pulse was always good in quality. He subsequently developed some bronchitis, and had an evening temperature for some days

before evacuation. His condition when evacuated was quite satisfactory. He was still jaundiced, wasted, and anaemic. He stated that he felt quite well, and was apparently convalescing rapidly. When last heard from, on December 27th, 1916, he was up and expecting to be discharged from hospital in a few days.

CEREBRO-SPINAL MENINGITIS.

PRELIMINARY NOTE ON CERTAIN PATHOLOGICAL FINDINGS AND THEIR BEARING ON TREATMENT.

BY

W. E. CARNEGIE DICKSON, M.D., B.Sc., F.R.C.P.E.,

PATHOLOGIST TO FULHAM MILITARY HOSPITAL, ETC.

OVER a year ago the results of *post-mortem* examinations on our fatal cases of cerebro-spinal meningitis gradually impressed upon my colleague, Captain A. Charles E. Gray, R.A.M.C., and myself the importance not merely of the mechanical blocking of the outflow of cerebro-spinal fluid from the cerebral ventricles by fibrino-purulent exudate in the region of the foramen of Magendie, but also of the actual, and in many cases widespread, involvement of the ventricles themselves in the inflammatory process. In practically every fatal case so examined the cerebro-spinal fluid in the whole chain of ventricles was found to be turbid—often considerably more so than the fluid outside the brain and in the spinal canal. Flakes of fibrino-purulent material were often present in the fourth and lateral ventricles, even in cases where little dilatation had yet occurred, whilst in cases in which hydrocephalus was supervening the inflammatory process was frequently more marked than on the external meninges. Microscopical examination of the fluid and fibrino-purulent exudate from the various ventricles usually showed large numbers of meningococci, sometimes in such numbers as to suggest the appearance of a "culture" of the organism. In many of these cases meningococci had become scanty or had disappeared from the fluid obtained by lumbar puncture during the clinical course of the case, and the important bearing of this finding upon treatment was early impressed upon us. After careful discussion with us, Major Lee, surgeon to the hospital, a year ago performed ventricular puncture upon several of the most serious cases, with a view to relieving the ventricular condition, and giving the patient a last chance of recovery. In the ventricular fluid so obtained meningococci were found in large numbers.

A second point of interest in connexion with the blocking of the outflow of fluid from the ventricles is that congestion and swelling of the brain substance, as well as blocking of the foramina in the roof of the fourth ventricle, may play a part in its production by forcing down the cerebellum into the foramen magnum around and in close apposition to the medulla, so that the foramen is sometimes blocked up as by a cork. The more the swelling of the brain increases, and with hydrocephalus also supervening, the more firmly is this "cork" forced down into the foramen, and the less possibility is there of relieving the pressure by lumbar puncture or any form of spinal drainage. In such cases I would strongly urge the advisability of ventricular puncture and drainage, as well as the introduction of antimeningococcal serum directly into the lateral ventricle, a procedure which Major Lee contemplates carrying out on a more extensive scale than heretofore. This should be done not merely in moribund cases as a last resort, but be thought of in cases in which, often after a preliminary improvement, cerebral symptoms increase. In such cases the examination of the fluid obtained by lumbar puncture alone may lead to an erroneous impression of improvement. Inflammatory cells may become less numerous and more mononuclear in character, meningococci may disappear, and yet the cases do not improve in a corresponding degree. *Post-mortem* examination may show in such cases a "clean" spinal cord but the ventricular infection above described. Nor need there be actual complete blocking by exudate of the foramina in the roof of the fourth ventricle to produce this result, though of course it is a common factor. Captain Gray has occasionally observed that relief of the cerebral pressure, probably by amelioration of the condition and subsidence of the swelling of the brain tissue, may allow of fluid being drawn off by lumbar puncture where previously little fluid could be obtained—possibly by releasing the cerebellar plugging of the foramen magnum. It appears possible that in certain cases of this nature, while the pressure within the skull remains high, drawing off fluid from below may actually aggravate the condition by pulling the cerebellum still further down against the medulla.

Another point which we investigated over a year ago was the facility with which fluid introduced by lumbar puncture gained access to the meninges and ventricles. In several cases of meningitis and also in non-meningitic cases, as soon after death as possible, we injected a strong solution of methylene-blue by lumbar puncture, under conditions as regards amount, pressure and position as closely as possible approximating to the clinical injection of anti-meningococcal serum. We found that, in non-meningitic cases and in meningitic cases without blocking of the openings in the epithelial and pial roof of the fourth ventricle, the 30 c.cm. of fluid injected at 15 in. of water pressure ran readily up the spinal canal and over the surface of the brain to the vertex and inner aspects of the cerebral hemispheres, and also into the chain of cerebral ventricles, reaching to all the tips of the horns of the lateral ventricles. On the other hand, where the foramina were blocked, the methylene-blue either penetrated only very slightly into the fourth ventricle or not at all, even though the surface of the brain was reached by the fluid. In one case, where there was extensive basal fibrino-purulent exudate and "corking" of the foramen magnum, scarcely any staining of the cerebellar and cerebral meninges occurred.

In a large number of cases examined *post mortem*, extensive softening of the spinal cord was found—most frequently in the upper dorsal, or upper dorsal and lower cervical region.

Several cases of the "serum reaction" which occurs in the cerebro-spinal fluid in non-meningococcal cases (tuberculous and syphilitic) in which antimeningococcal serum had been administered have come under my notice. These were punctured outside the hospital, and the serum administered before admission. On the day following such injection of serum the cerebro-spinal fluid withdrawn by lumbar puncture was turbid (in the tuberculous cases markedly so), and on microscopical examination was indistinguishable cytologically from the exudate of cerebro spinal meningitis, a well marked polymorphonuclear reaction occurring early, followed by progressive increase of mononuclears and phagocytic phenomena, etc., completely masking the real pathological condition. It was usually a matter of difficulty to obtain a sample of the first lumbar puncture fluid removed outside, but when this was possible the comparison was interesting and instructive, and often cleared up the doubtful diagnosis. The serum reaction of the cerebro-spinal fluid in meningococcal cases is also very interesting and important, but is beyond the scope of the present note, and I merely mention one of the most outstanding phenomena—namely, the bringing out into the fluid of a fresh "crop" of cells, mainly polymorphs, so that one can distinguish what I have termed double or even triple "broods" of cells—one fresh and undegenerated, staining well, another degenerated and undergoing "phagolysis" in various ways, and perhaps the third almost disintegrated—these crops corresponding to the reactions following the various injections of serum. This reaction appears to vary somewhat with the special brand of serum used.

In addition to the injection of antimeningococcal serum, washing out with saline, etc., we have on various occasions experimented with the injection of sodium citrate with a view to the prevention of the formation of fibrin, and of eusol as an antiseptic, but our results have not so far been sufficiently encouraging to allow of our publishing details. We hope to try the effect of flavine injections as soon as a sample of that substance is at our disposal.

NOTE.—Since the above was written Captain Gray has injected several cases with flavine. The results will be published later.

ON March 7th the American Codes Committee threw out bills intended to legalize the dissemination of birth control literature throughout New York State.

A CASE OF TRAUMATIC PNEUMONIA.

BY

JOSEPH GEOGHEGAN, M.B., CH.B.EDIN.,

GOVERNMENT MEDICAL OFFICER, TURKS ISLANDS; LATE DISTRICT COMMISSIONER AND GOVERNMENT MEDICAL OFFICER, CAICOS ISLANDS; HOUSE-SURGEON, GENERAL HOSPITAL, YARMOUTH, ETC.

INVOLVEMENT of the pleura as a result of injury of the chest wall, either by direct violence or by the indirect effect of a force, such as a strain, probably happens more often than is observed. The small area of the probable lesion and the slight constitutional disturbance minimize the importance of such a pathological process, but perhaps explain the occurrence of isolated fibrous bands between the pleurae, as seen in the *post-mortem* room. Involvement of the lung, as contusional or traumatic pneumonia, though well known to happen, is still less frequently noted. Parkes Weber[1] refers to haemorrhagic infiltration in this condition, and interesting speculations may be introduced as to lesions of small vessels, the latency of the organism, the frequency of the common pneumococcus in the mouth, and the atypical features possible.

The following notes on a case lately seen present certain well-marked points: (1) The definite injury, associated at the time, it may be, with a slight attack of influenza. (2) The acute pain, but total absence of any pleuritic signs, unless, as has been suggested, the minute crepitations first heard are not moist sibili, but a fine pleural friction. (3) The irregularities noted; the curiously low temperature and the fall by lysis, the slowness of the pulse, the area of lung involved, and the lateness of the sputum.

R. G., aged 27, a strongly-built coloured labourer, received on March 26th, 1916, a heavy fall while engaged in some horseplay. There is a trick practised in irregular combat which consists of suddenly catching hold of the loose lower front ends of the opponent's trousers and throwing him headlong. Done with a deft celerity, it results in a heavy fall. R. G. was treated in this fashion and suffered afterwards from some pain in the right side, but not to any marked extent. He further states that at the time he was troubled with a "cough and cold," probably an attack of mild influenza which had been epidemic.

Four days later, on March 30th, between 10 and 11 a.m., he was suddenly seized with severe pain in the right side just below and outside the nipple, and came first under my hands on the afternoon of the same day. Breathing was rather hurried, short, and restrained; the chest wall was rather rigid on the affected side; no abnormality could be detected on physical examination, the temperature was normal, and the pulse 78. Pleuritic possibility was kept in mind in prescribing the treatment.

Nothing more was heard of him for four days, when, on April 3rd, he returned obviously ill. He stated that he had had great pain in the right side at the same spot, with a short hacking cough, for the two preceding days, and had felt very ill. There was no history of rigor or vomiting. Respirations were 32, short and restrained; there was rigidity of the whole chest and inability to take a deep breath. Vocal resonance and fremitus appeared somewhat increased on the right side posteriorly. No change was noted in front, but on the back (right side) some impairment of note, the breath sounds having a blowing character over the same area with some fine crepitations at the end of inspiration and lengthened expiration in front. There were no friction sounds. The second sound of the heart was accentuated, with a tendency to reduplication of the first in the aortic region. There was no enlargement of the spleen, but some liver tenderness. Temperature 100.2°, pulse 78.

Next day an area of dullness was noted on the right side posteriorly extending along the base of the lung, the upper limit (rather indefinite this day but confirmed the next) starting from close to the mid-axillary line, rising to the scapular margin at the sixth rib, and thence passing transversely across the back. Respiratory sounds over this area were approximately equal in length, more particularly at the upper edge of the dullness. There was a short, dry, painful, and infrequent cough. There was no herpes on the lips at any time. There was yellow discoloration of the conjunctivae. Urine acid, specific gravity 1026, no sugar, faint trace of albumin, deeply stained with bile.

On April 5th the temperature was 101.2°, the pulse 98, and the respirations about 30. The following day the temperature fell to 100.3° and the pulse to 84. Some sputum now appeared, frothy and white, with no viscidity or green or rusty discoloration, in quantity small, and rather similar to the bronchitic type. On April 7th the temperature had risen to 102.8°, pulse 100; jaundice less and albumin absent from urine. On the 8th the temperature was 101.8°, pulse 88, and respirations 32; on the 9th, temperature 100.5°, pulse, 100, respirations 30. The next day the temperature had fallen to 99.3° and the pulse was 84; all over the affected area were crepitations of various degrees; dullness, fremitus and resonance were diminished, but there were still blowing bronchial sounds in the area.

On April 11th the temperature was 97.4°, pulse 78, and respirations 26. On this day a definite green colour suddenly appeared in the sputum, which was very viscid, almost nummular. The breathing was free and there was a frequent soft cough. There was a distinct movement of the chest wall. The subsequent progress to recovery was uneventful.

The patient's illness was treated in a small wooden hut about 20 ft. by 12 ft., with such nursing as his friends and relatives could give him. The temperatures, etc., recorded are those of the evening.

The ordinary treatment was given, with the use of calcium chloride, creosote, and potassium iodide, in suitable doses.

Little of the usual anxiety, as can be seen by the brief notes given, was aroused, owing to the full pulse, the generally easy, though nervous look, and the absence of the more serious signs or symptoms.

REFERENCE.

[1] Parkes Weber, quoted in the *Medical Annual*, 1911, p. 517.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RECURRENCE OR REDEPOSIT OF CANCER?

MR. TILLEY'S question in the JOURNAL of March 31st (p. 424) sent me to my notes on the medical aspects of carcinoma of the breast, two series of cases of which I have already published (*American Medicine*, 1901, and BRITISH MEDICAL JOURNAL, 1906, i). The following statements seem warranted:

There is no time limit to the primary growth, which may persist from ten, fifteen, or twenty years before metatases occur; or the patient may die of some other malady.

Secondary growths, even multiple, may become quiescent or even disappear (Cases v and vi).

A primary mass with metastases may remain stationary for years.

Years after removal there may be local recurrence, as illustrated by Mr. Tilley's cases.

Years after removal of the original growth there may be extensive internal (without local) recurrence.

Though no time limit exists for recurrence the modern complete operation has been followed by good health for periods long enough to justify the use of the word "cure." Is there an instance of return twenty years after the complete operation?

Oxford. WILLIAM OSLER.

BRILLIANT GREEN AS AN EPITHELIAL STIMULANT.

THE minor ailments of the soldier may not in themselves be dangerous either to life or to limb, but are sufficient to incapacitate a man, rendering him useless as a fighting force, a source, may be, of infection to his friends and an encumbrance to a medical unit where space and time are of paramount importance.

A casualty clearing station affords a unique opportunity of meeting these cases—impetigo, indolent ulcers of various kinds but principally of traumatic origin, superficial shell wounds involving only the skin, raw unhealthy areas due to the bursting or unscientific removal of the skin forming a blister, and such like. Apart from actual wounds caused by the enemy, cases of this description comprise from 40 to 50 per cent. of the total walking cases

treated by us. Realizing the enormous military importance of returning these men to duty in as short a time as possible, we have for some time been using various treatments and striving, if possible, to pick out that which was best.

In our opinion, the best results obtained were from the daily application of an ointment containing 1 to 2 per cent. brilliant green. Although the ointment appears to be non-toxic in any percentage, we have found that, if used in greater concentration than 5 per cent., it produces severe smarting, which, although it ultimately passes off, may occasion discomfort for as long as three hours.

The ointment is non-irritating, antiseptic, and possesses powerful auxetic properties. After one or two applications the diminution of the itching and the rate of growth of the edges of the wound are very striking and so noticeable as to attract the patient's own attention. A few days later on looking at the ulcer it will be noticed that an appreciable change has taken place. The slightly raised margins of the wound or ulcer are seen to be composed of new, healthy, pink, firm-growing epithelium, the granulation tissue forming the base of the ulcer is bright red, firm, and non-oedematous, and the discharge has diminished considerably in amount. In fact the ulcer is healing.

Some slight difficulty was experienced in making the ointment for the first time. The following procedure was, however, adopted with success. Brilliant green (8.75 gr.) was dissolved in rectified spirit (15 minims) and then incorporated with 1 oz. of soft paraffin, which experience has shown us to be the most serviceable base, thereby making a 1 per cent. ointment. The method of application is simple—all crusts or scabs are removed before the ointment is applied, smeared on lint cut so as to fit the raw surface accurately. If spread indiscriminately over the adjoining skin it leaves a stain, bright green in colour, which is rather difficult to remove, though this can be done by the use of soap and water, but a little patience is required.

We have used brilliant green ointment on a considerable number of cases which have resisted treatment in some instances for as long as fourteen days, and it has been with pleasure that we were able to discharge them as fit for duty in a remarkably short time. The rapidity of healing can only be attributed to its use, as, beyond its daily application and good food, no other treatment was used.

R. W. HODGSON-JONES,
Captain R.A.M.C.(T.C.).

Casualty Clearing Station, B.E.F.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

GLOUCESTERSHIRE BRANCH.

AT the monthly meeting of the Gloucestershire Branch of the British Medical Association, held at the General Hospital, Cheltenham, on March 22nd, when Mr. HOWARD MARSHALL, President, was in the chair, the following cases and specimens were shown:

Mr. HOWELL: (1) Myeloma of the upper end of the humerus, with heterogeneous graft. (2) Sarcoma of orbit treated by radium.

Dr. HEBBLETHWAITE: (1) Cerebro-spinal fever after eighteen lumbar punctures. (2) Locomotor ataxia.

Mr. BRAINE-HARTNELL: (1) Key 2¼ in. long removed from the transverse colon of a child aged 2½ years. (2) Solid tumour of ovary. (3) Various splints. (4) Child with fractured femur and large spina bifida. (5) Epithelioma of tongue following gumma.

Dr. H. POWELL: Man with large tumour on left side of abdomen (for diagnosis).

Mr. PIKE: (1) Post-cricoid epithelioma of larynx. (2) Large maxillary antrum polypus.

Mr. HOLMES: (1) Extirpation of penis for epithelioma. (2) Enterectomy for strangulated gangrenous femoral hernia in a woman of 86; recovery.

Dr. AFFLECK: Mediastinal neoplasm in a man of 35 treated by mercury succinate intramuscularly and organic iodine, with steady improvement.

ON December 28th the Havana Society of Clinical Studies appointed a committee, consisting of Drs. Aristides Agramonte, Juan Santos Fernandez, and Francisco Solano Ramos, to take steps for the formation of a league to carry on a campaign against venereal diseases, and the causes which directly or indirectly favour the dissemination of such affections in Cuba.

Reports of Societies.

UNDIAGNOSED CANCER OF THE CERVIX.

AT a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on March 1st Dr. HERBERT SPENCER read a paper on two cases of supravaginal amputation for sarcoma mistaken for myoma. The patients recovered, but the disease recurred. The operations were performed seventeen and twenty years ago. These two mistakes in diagnosis had led him to study the literature and the relative advantages of amputation and total hysterectomy, and to decide very strongly in favour of the total operation. His two cases occurred amongst thirty cases of supravaginal amputation for "myoma" (that is, in 6.6 per cent.). Sarcoma, though rare, was much commoner than was thought by those who did not harden and examine all tumours removed. He had met with over a dozen other cases.

Dr. Herbert Spencer also read a paper on four cases of undiagnosed cancer of the cervix in 200 total hysterectomies for myoma. All were instances of squamous carcinoma; two were very early cases and high up in the cervical canal; the others more extensive, but out of reach on account of the presence of pelvic tumours (in one a cervical myoma weighing 10 lb.). The first (an early case) died of heart disease within a year of the operation; the second remained well after six years; the third remained well for five years, but died of recurrence after nearly six years; the fourth recurred within a few months. He appealed to the advocates of supravaginal amputation for a record of 100 or 200 cases followed up *and examined* for five years after operation. He had not performed the operation for the last sixteen years, and the evidence now advanced was offered as showing two points of superiority in the total operation. It had other points of superiority which would be dealt with in subsequent papers.

The President, Dr. G. F. BLACKER, said that the question whether total hysterectomy or subtotal hysterectomy was the best operation for the removal of fibromyomata of the uterus was one of great importance. With sarcomatous degeneration of such a tumour, however, the question was not so important as it was when a carcinoma developed in a fibroid uterus. The specimen exhibited showed that a patient might remain free from recurrence, even when the body of the uterus had been removed and the cervix left, in the case of a sarcoma mistaken for a myoma. The cases recorded in the literature showed, he believed, that the chances of recurrence were equally great whether the cervix was retained or not. He asked whether the recurrence had involved the cervix in the two cases recorded by Dr. Spencer.

Dr. RUSSELL ANDREWS did not think that Dr. Spencer had made out a strong case for panhysterectomy for fibroids. Could he bring forward any evidence that sarcoma was likely to recur in the cervix after subtotal hysterectomy? Two of the four cases of carcinoma were hardly worth inclusion, as in one the cervix could not be felt and in the other Dr. Spencer had been suspicious of the cervix. Dr. Andrews had at one time performed panhysterectomy as a routine operation for fibroids, but for the last ten years had removed the whole cervix only in cases in which laceration and eversion of the cervix made it probable that there would be persistent discharge if the whole cervix was not removed. His practice was to scoop out most of the cervix, and in doing this he had only once found unexpected carcinoma, although he had removed many uteri which contained both fibroids and carcinoma. During the last eight years 761 hysterectomies for fibroids, chiefly subtotal, had been performed at the London Hospital. Dr. Andrews and the late Dr. Maxwell had for many years been on the look-out for carcinoma occurring in a cervix that had been left behind, but no such case had been seen at the London Hospital. Dr. Andrews had seen very many patients who came to the London Hospital to seek advice for ailments, some gynaecological, and some having no connexion with gynaecology, after subtotal hysterectomy for fibroids, but had never seen carcinoma of the cervix among any of them.

Dr. T. W. EDEN said that Dr. Spencer seemed to contend that the cervix should be removed because it might at the

time be the seat of undiscovered cancer, or alternatively that it might later become cancerous. But two of Dr. Spencer's cases, although in a very early stage of the disease, died of recurrence, and it could not be doubted that an extended hysterectomy (Wertheim) would have given them a better chance. To be consistent, Dr. Spencer should advocate Wertheim's operation instead of panhysterectomy. Again, did Dr. Spencer conserve the ovaries in operating for fibroids? These organs also sometimes became the seat of primary cancer. It was very difficult to see at what point these precautionary measures should stop.

Dr. J. D. MALCOLM said that for many years he had removed the whole uterus in operating for fibromyoma, because in two cases he had seen reason to attribute septic trouble to a spread of infection from the cervix uteri. Recently he had on two occasions left the cervix. In one case the removal would have been unusually difficult, and the patient's condition was so serious that time was of importance. Death was due to gangrene of the cervix. In one case of irremovable cancer of the cervix uteri the uterine body, as far as the evidence could be trusted, had been removed for fibromyoma.

Mr. T. G. STEVENS said that in his opinion Dr. Spencer's first two cases were not cases of cancer of the cervix at all. The appearances seen in the microscope sections constituted a proliferation of the vaginal epithelium around the openings of glands, and constantly occurred in erosions. They were not of the nature of a carcinoma, and never gave rise to a carcinoma.

Dr. HERBERT SPENCER, in reply, said that he had dealt with two questions only—the frequency with which sarcoma was mistaken for myoma and undiagnosed cancer occurred in operating for myoma, as points in determining the partial or complete operation. He was unable to say whether in the case he had reported recurrence took place in the cervix. In one the vagina was full of growth, which probably affected the cervix; in the other there were numerous metastases, some in the pelvis; but, as no *post-mortem* examination was made, it was not possible to say with certainty whether the cervix was involved in these cases. He could not accept the statement that uterine sarcoma did not recur in the cervix; there were comparatively numerous instances on record. Large figures did not carry weight unless they were based on thorough examination, and Kelly and Cullen's 1,400 cases of myoma were admittedly not thoroughly examined in the early years. They gave seventeen cases of undoubted sarcoma and seventeen suspicious cases. No one could deny that recurrence took place after the partial operation. Total hysterectomy would not, of course, always cure a case of myoma complicated with cancer. The important question was: Which was the better operation for such a case? He did not agree with Dr. Eden that the total operation involved more risk, but that was not the subject of his present communications.

OPERATIVE TREATMENT OF FIXED BACKWARD DISPLACEMENT OF THE UTERUS.

AT a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland on March 2nd Dr. ALFRED SMITH said that he found the behaviour of the uterus in operations for fixed backward displacement varied in different cases after the separation of the adhesions. In some the uterus came easily up to the abdominal wall, showing a certain amount of relaxation of its supports; in others some considerable degree of force was necessary to draw it up into position. He divided his cases into two groups—(*a*) the uterus with relaxed supports, (*b*) the uterus with unrelaxed supports. The uterus with relaxed supports must be suspended or fixed. On freeing uteri with unrelaxed supports three types were met with: (1) where the uterus righted itself automatically; (2) where manual replacement was necessary; (3) where, owing to a thickened and shortened utero-sacral ligament, the uterus could not be brought into the normal position of anteflexion. Types (1) and (2) should neither be suspended nor fixed, as they had little tendency to fall back. With type (3) he freed the uterus from its entanglements, straightened out the tubes, released the ovaries, and left the case to nature. He urged the importance of determining the limitations of suspension or fixation, and of finding the principle by which gynaecologists should be governed in their treatment of fixed backward displacement.

Dr. HASTINGS TWEEDY said that he too had found great difficulty in dealing with the class of case described by Professor Smith. They usually showed a shallow pouch of Douglas and very hard and unyielding sacro-uterine ligaments. The condition arose from a previous perimetritis, and affected the structures included between the sacro-uterine folds. He was in the habit of cutting these folds down to their basement connective tissue. In this way the uterus was freed without injuring the uterine support, for the uterus owed its entire stability to the utero-peritoneal connective tissue lying at the bases of the so-called ligaments. The fibrous bands were intimately connected with the uterine muscles, and formed tendons to them.

The PRESIDENT said that the subject owed its importance to the frequency of its occurrence amongst the serious sequelae of parturition, the impairment of general health which often attended it, and the partial success which was all that sometimes followed treatment of it. Dr. Smith's classification of such cases was useful and practical, calculated to aid in selecting the treatment best suited to each case.

Dr. BETHEL SOLOMONS thought that in all cases of fixed backward displacement treated by operation the uterus should be suspended in the manner suitable to the case. He considered that the mere loosening of adhesions, as suggested by Dr. Smith, was not enough to bring about a permanent cure. Where there was a tendency for utero-sacral ligaments to exert tension on the uterus which was suspended, tamponnade, by means of medicated vaginal plugs, would cure this inflammatory condition. He deemed it advisable to curette the uterus in addition to correcting the malposition.

The President of the Section, Dr. GIBBON FITZGIBBON, said that the classification which had been made was very necessary in the treatment of cases. He had adopted the method of suspension of the uterus to the abdominal wall for some time, but came to the conclusion that it was unsatisfactory to bring the fundus forward to a fixed degree in all cases, and now performed a modified Gilliam operation, as thus the fundus could be brought forward sufficiently to prevent retrogression without putting undue tension on those uteri which would not come into complete anteversion. He also considered it most essential when the uterus was brought forward to see that the appendages did not fall back again, as they often had loose ligaments. The Gilliam operation had the advantage that it took up some of this slack of the broad ligaments, but if not sufficient the ovary should be fixed to the top of the broad ligament.

Reviews.

MORBID ANXIETY.

AN elaborate analysis of anxiety in health and disease has been written by Drs. DEVAUX and LOGRE, and has been furnished with a preface and introduction by their teacher, Dr. DUPRÉ.[1] The book is for the most part clinical, and begins with a discussion of what may be described as the anxious temperament—the temperament, that is, which is exhibited by the fussy and meticulous described as old women of both sexes. Sufferers from the anxious temperament must be distinguished from neurasthenics, melancholics, and the obsessed; in the same way anxiety must be distinguished from boredom, depression, despair, and other kindred solaces of the pessimist. The occurrence of anxiety in the different forms of insanity is described in detail. The treatment of anxiety should be based on its etiology; in many forms of psychosis it will be relieved by warm baths and by lumbar puncture, while in others rest, isolation, psychotherapy, sedative drugs, and restraint will be indicated. A special chapter at the end of the volume deals with anxiety as manifested by those exposed to the dangers of war. The

[1] *Les Anxieux.* Étude Clinique par les Docteurs Devaux et Logre. Préface du Dr. Dupré. Études de Psychologie Morbide, publiées sous la direction du Dr. Dupré. Paris: Masson et Cie. 1917. (Demy 8vo, pp. 316. Fr.4.50.)

well-balanced soldier is not unduly anxious on the field of battle. But it is quite otherwise with those of anxious constitution, who are unduly emotional; here the authors define the character of the "brave coward" or pseudo-poltroon, whose anxiety makes him useless except far behind the lines, although it is not the dangers of the trenches that make him useless as a combatant. The views of these authors are well expressed and form an interesting contrast in many ways to those put forward by Dr. Bergonzoli, whose essay on the subject of *Anxiety in Mental Diseases* was reviewed in the BRITISH MEDICAL JOURNAL of January 27th last (p. 122).

WELFARE WORKERS.

"WELFARE work consists of voluntary efforts on the part of employers to improve, within the existing industrial system, the conditions of employment in their own factories." So, in the opening pages of her book on *Welfare Work*,[2] Miss E. D. PROUD defines a movement only quite recently discovered by the general press, but which, already firmly established in our midst and dignified by Government sanction and adoption, is making rapid strides. Miss Proud notes in her preface that since the completion of her volume the largest employer in the land—the Ministry of Munitions—has established a welfare department. Several of the universities have arranged special courses of study for the training of the increasing number of candidates of both sexes for what may fairly be described as this new profession. Miss Proud, whose book enjoys the honour of a commendatory letter from the present Prime Minister—then Minister of Munitions—has qualified for her task by "many years of patient inquiry and research into the conditions of welfare work as carried out in the factories of the Australian Commonwealth and of Great Britain." Of the influence of the war in stimulating endeavours along this line Mr. Lloyd George remarks that "it is a strange irony, but no small compensation, that the making of weapons of destruction should afford the occasion to humanize industry. Yet such is the case. Old prejudices have vanished, new ideas are abroad; employers and workers, the public and the State, are all favourable to new methods. The opportunity must not be allowed to slip."

The duties of welfare workers have a twofold but not necessarily conflicting aspect; on the one hand, as representatives of the employer they have to suggest improvements in the conditions of work, to initiate social work of any promising kind, and to compensate by their interest in the employees for the impersonality of the relation between the modern firm and its workers; while as representatives of these workers it is their business to keep in personal touch with them, to gain their confidence, to gauge and voice their grievances, to help them in the organization of clubs or classes, and to be accessible in all matters requiring sympathy or advice. An important fact emphasized by Miss Proud is the remunerative tendency of welfare work; work done under the best possible conditions pays better than work done under bad ones. And this fact that "it pays," together with a traditional dislike of anything suggestive of patronage or paternalism, has in some instances led the workers to look askance upon the efforts of genuinely philanthropic employers. Many interesting problems in social psychology are set by the advent of welfare work, and these and all other aspects of her important subject are ably dealt with by Miss Proud in what, we agree with the Prime Minister, is likely to become the standard work upon it.

PHOTOGRAPHY IN COLOUR.

PHOTOGRAPHY in colours has nowadays developed so far as to be the hobby of countless amateurs as well as a sound business proposition. If he does not own it already, the amateur colour-photographer will find the third edition of Dr. G. L. JOHNSON'S book[3] on the subject a first-rate guide to the science, technique, and art of colour photography, with chapters on kinematography, by means of coloured lights and other side issues. The book has been planned and executed by the author in a thoroughly scientific spirit. The first chapter gives a general account of the physics of light and colour, the second contains a sketch of the history of colour-photography, and the third is devoted to the subject of the sensation of colour. Here Dr. Johnson inserts a most interesting coloured plate, showing the colours of the spectrum as seen by each eye of a patient "suffering from a form of creeping paralysis, which gradually affected the limbs of the left side," and was associated with gradual loss of colour vision in the left eye. The plate shows the spectrum seen by the patient's right eye as normal; that seen by the left eye is a grey monochrome. The patient was a good water-colour painter, and made the drawings of these spectrums himself. Next follow chapters on photography in colours, with special attention to the practical working of single colour-screen plates, of which there are many makes on the market. Subsequent chapters contain accounts of three-plate and two-plate colour photography and colour printing; there is also a discussion of colour photo-micrography, and here the author acknowledges the help he has received from Mr. Walter Severn of Capetown.

Comparing the latest edition of Dr. Johnson's book with earlier manuals of colour-photography, with C. Ruckert's *La Photographie des Couleurs*, published in the year 1900, for example, one is struck with the great advances that have been made in both the science and the practice of the art during the intervening years. Dr. Johnson writes clearly, and it is obvious that he has a great knowledge of his subject. The book is well illustrated, and it may be cordially recommended to the attention of all photographers, whether professionals or amateurs, who feel inclined to take up a new and entrancing branch of their art or hobby.

NOTES ON BOOKS.

THE sixth edition of Dr. LEFTWICH'S well-known *Index of Symptoms*[4] is an improved exemplar of the fifth edition, which received notice in the BRITISH MEDICAL JOURNAL of July 24th, 1915, p. 140. The new edition has been brought up to date generally, and has been amplified by the addition of two new sections that should render it more self-contained than it was. The first of these additions consists of brief descriptions of some seventy more or less rare diseases unfamiliar to the general practitioner. The second is a most serviceable list of eponymous signs. The book is purely a book of reference, and it should be in the hands of all senior students of medicine and medical practitioners. It will be found a very present help in trouble in those cases—unfortunately so frequent—in which a diagnosis is not made for lack of no more than a little clear thinking.

Domestic Economy[5] is a textbook for teachers and students in training to be housewives. The first volume is devoted to the theory, the second to the practice and teaching of housewifery; the housewife may be defined as one who turns a house into a home. The first volume contains chapters on such subjects as bacteria, fresh air, clean water, foods, and cooking. In the second, foods receive further extensive consideration, and one is reminded of the old lady's sage advice to the bride, "Feed the brute." There is also a long and sound chapter on practical housekeeping. These volumes contain much valuable information, and should be of great service to intelligent persons.

Hints for Hospital Orderlies, by Dr. N. C. FLETCHER,[6] is a well written booklet for the direction of those who are called to do orderly service in military hospitals. The first two chapters are introductory and general; the next three deal with the orderly's duties towards the ward, the patients, and his own health; the last chapter gives briefly the details of orderly duties.

---

[2] *Welfare Work.* By E. Dorothea Proud, B.A.Adel. With a Foreword by the Right Hon. D. Lloyd George, P.C., M.P. London: G. Bell and Sons, Ltd. 1916. (Demy 8vo, pp. 383. 7s. 6d. net.)

[3] *Photography in Colours.* By G. L. Johnson, M.D., F.R.C.S. Third revised edition. London: G. Routledge and Sons, Ltd. New York: E. P. Dutton and Co. 1916. (Cr. 8vo, pp. 316; 14 plates. 4s. 6d. net.)

[4] *An Index of Symptoms, with Diagnostic Methods.* By R. W. Leftwich, M.D. Sixth edition. London. Smith, Elder and Co. 1917. (Cr. 8vo, pp. 567; 14 figures. 10s. 6d. net.)

[5] *Domestic Economy: A Textbook for Teachers and Students.* Part I. *Theory*, by Marion G. Binder. Part II, *The Practice and Teaching of Domestic Economy*, by Florence Baddeley. Cambridge: The University Press. 1916. (Post 8vo, pp. 173 and 195. 2s. 6d. per volume.)

[6] *Hints for Hospital Orderlies.* By N. C. Fletcher, M.B., B.A., B.C.Cantab., M.R.C.S.Eng., L.R.C.P.Lond. London: J. Bale, Sons, and Danielsson, Ltd. 1917. (16mo, pp. 58. 6d. net.)

British Medical Journal.

SATURDAY, APRIL 7TH, 1917.

THE "SOLDIER'S HEART" AND THE "EFFORT SYNDROME."

DURING the first eighteen months of the war a very considerable number of men were invalided on account of heart troubles. Of these cases the most frequent were classed as "disordered action," and briefly labelled D.A.H., while the more definite cardiac lesions were lumped together as "valvular disease" and marked as V.D.H. With this rough classification they were somewhat promiscuously distributed among the hospitals in various parts of the country.

Early in 1916 the Director-General of the Army Medical Service decided to set up a military hospital for the study and treatment of heart disease as occurring in soldiers, with a view to weeding out the men really incapacitated by definite heart lesions and dealing with the cases of so-called irritable heart in a rational manner, after proper investigation of their actual condition. The Mount Vernon Hospital at Hampstead being available, it was taken over for the purpose and properly equipped for the special study of cardiac conditions and staffed by skilled experts under the lead of Dr. Thomas Lewis, who was appointed whole-time director of the work.

Already some valuable reports have been issued, and many more are already ripe for publication, but the Committee has thought well to instruct Dr. Lewis to prepare a report[1] on the work as a whole, embodying much of the special evidence obtained by his fellow workers, in order that the knowledge already acquired may be at the service of the profession without delay.

Much of this evidence is elaborate and the result of experiment, but one main point, insisted upon over and over again, contains the chief lesson that needs to be thoroughly appreciated by all who are called upon to diagnose the relative importance of a supposed cardiac lesion. It is not in the presence of a murmur or even a change in the heart's shape that cardiac inefficiency can be determined, but only by observing the action of the organ under the stress of exertion. In dealing with large numbers it is necessary in the first instance to sort out those who fail to pass a test of graduated exercise and who exhibit the series of symptoms to which Dr. Lewis would apply the term "effort syndrome." Some of these patients display no physical evidence of cardiac abnormality, whereas many of those who are not affected by the test may be found to have enlarged organs, irregular action, or valvular murmurs. These latter conditions are often quite compatible with full working power. But it has been the custom to label such cases as D.A.H. or V.D.H., and these labels have stuck only too firmly as the patient has been drafted from one institution to another.

Thus it has happened that far too many men have spent the greater part of their period of service either in light duty, inefficiently performed, or actually in hospital, on the strength of presumed heart disease. By careful selection and appropriate treatment at the Hampstead Hospital it has been proved possible to restore many such cases to full working capacity. No ill results have followed the application of graduated exertion, and about 50 per cent. of all cases examined are ultimately returned to duty of some kind, and of these about half are able to resume full duty.

In the second part of his report Dr. Lewis examines minutely into the value of the clinical evidence which has been accumulated, and discusses individual symptoms in detail. He has been impressed with the harm which may result from the careless use of the word "heart," and still more so by the indiscriminate labelling to which we have referred. At Hampstead the patients are led as far as possible to forget about their hearts. They are seldom allowed to remain in bed, but are treated more as convalescents than as patients, every effort being made to give them interests and occupation.

The detailed account of the blood changes observed, and the light that has thereby been thrown upon the causation of dyspnoea, deserve thoughtful consideration, but a still more practical series of observations upon the indications of the pulse-rate should engage the attention of every one who may have to deal with a soldier's heart. The most reliable criterion of a man's fitness to return to duty is to be found in the behaviour of his pulse-rate after exertion. By careful comparison with controls it has been found that a fairly constant fall takes place if no symptoms of cardiac insufficiency are present, whereas the fall takes about five times as long to occur where the "effort syndrome" is in evidence.

Another important observation, negative rather than positive in its application, relates to the use of digitalis and strophanthus. In the hurry of routine work and in the face of a previous diagnosis of D.A.H., it is probable that digitalis would be prescribed in a vast majority of such cases. Careful investigation of pulse-rate, blood pressure, respiration, and other symptoms before and after a course of digitalis, resulted in the verdict that the effects of the drug were negligible or non-existent

With respect to the significance of the systolic murmur, a long series of observations made it clear that its presence or absence was of no value in estimating the soldier's capacity for work. This conclusion holds "irrespective of the character, conduction, or point of maximum audibility of the murmur in question." An interesting observation as to the effect of exercise upon the size of the heart is recorded. Normally, active exercise should result in a decrease in the diameter of the heart amounting to about one centimetre, but in the case of patients in whom the exercises induced breathlessness, pain, or vertigo—some of the symptoms included under the heading of "effort syndrome"—such decrease was not observed. Dilatation was not noted, but the absence of the normal diminution in the heart's size would seem to amount to it. The elaborate methods of examination by the electro-cardiograph and the string galvanometer do not appear to have yielded any conclusive evidence as to fitness for duty, or the reverse.

Turning now to the etiological aspect of the question, it may be noted that the proportion of patients returned to duty who were affected before joining the service was considerably less than of those who developed their "effort syndrome" during their training. The onset of the symptoms was, in most of the latter cases, more rapid, but the recovery equally so. With respect to the previous occupations of patients recruited from all sources, it was found that those who had been used to heavy work made the more satisfactory convalescence. Clerks and

[1] Report upon Soldiers Returned as Cases of "Disordered Action of the Heart" (D.A.H.) or "Valvular Disease of the Heart" (V.D.H.). Medical Research Committee. 1917.

others, accustomed only to sedentary work all day, and with only limited opportunities for exercise, have been, and probably often still are, expected to fall in at once with the rough routine of drill and long route marches. Many such men had already found themselves unable to undertake active games or other forms of exertion before enlisting, and when faced with the comparative hardships of military training, have broken down. The obvious conclusion to be drawn from these facts points to greater care in selection, after inquiry into antecedents, and more gradual methods of starting the training of recruits. The "effort syndrome" is often found to have arisen as an immediate sequel of infectious or other disease, and the occurrence of these in patients who are already the subjects of the cardiac trouble is apt to increase the symptoms of the latter. The influence of the many risks and dangers of the firing line, shell shock, gassing, burial, and other accidents, are all passed in review in Dr. Lewis's report.

Many of the conclusions referred to will come as a surprise to practitioners who have accepted the traditions of past times; but modern research has opened up new ideas in cardiology which have an intensely practical bearing upon the future well-being of young adults. The experience derived from the researches carried on by Dr. Lewis and his staff at Hampstead has now been brought within the reach of the whole profession, both military and civil, and will doubtless lead to improvements in our methods of classification and treatment in the future.

"BLASTOMYCOSIS."

A RECENT paper by Drs. Stoddard and Cutler[1] contains a general discussion of the rare cases in which yeasts or yeast-like organisms produce pathological lesions in man. Much confusion obtains in the literature and nomenclature here. No clear distinctions have been drawn between the infections caused by such different organisms or groups as *Coccidioides immitis*, blastomyces, oidium, torula, and true yeasts. Terms such as coccidiosis, blastomycosis, oidiomycosis, saccharomycosis, and torula infection, have been employed confusedly. In spite of much cultural and experimental study there has hitherto been lacking a satisfactory basis for the differentiation of these rare pathological conditions; to supply this basis has been the object of the authors named above. Dealing first with coccidiosis, they argue that it is a disease practically occurring only in males who have lived in the San Joaquin Valley, California, and is almost invariably fatal. The specific organism, *Coccidioides immitis*, never buds in the human tissues, but sporulates and develops hyphae; it produces granulomatous lesions like those of tuberculosis, and exhibits forms up to 30 or 40 μ in size containing many small ascospores; it is highly pathogenic for experimental animals, and grows mycelium and aërial hyphae in cultures. Patients with coccidiosis are not benefited by the exhibition of iodides. Drs. Stoddard and Cutler show, as others have shown before them, that coccidiosis can be clearly distinguished from the other varieties of what has been called blastomycosis, in which true budding of the infecting organisms is constantly present and sporulation is never observed. Excluding coccidiosis, therefore, the unsatisfactory term "blastomycosis" connotes infections with true yeasts, with torulas, and with oidiums. Each of these varieties has distinguishing points that separate it from the others.

True yeasts are distinguished from torulas by the fact that they form endospores under certain cultural conditions; Buschke has reported on two cases of cutaneous and systemic infection with true yeasts, but Drs. Stoddard and Cutler do not seem to have succeeded in finding any more instances in the literature. Injected into experimental animals the true yeasts are but little pathogenic.[2] Torula infections of human beings are commoner. The organism reproduces itself by budding and never produces a mycelium in cultures. In human tissues the torulas have around them a clear zone composed of gelatinous material. They destroy the cells in which they are enclosed with the production of vacuoles, enveloping themselves in a zone of chronic inflammatory reaction. The lesions produced are nodules composed of epithelioid cells, giant cells, and lymphoid cells, with or without caseation, and free from collections of polymorphonuclear leucocytes. Torulas are highly pathogenic for mice and rats. Cases of human oidiomycosis, usually termed blastomycosis, are not rare. The oidiums reproduce themselves in the tissues by budding, and in cultures sooner or later develop a mycelium. No gelatinous material is produced in the tissues, no large vacuoles are produced in the cells, and the lesions to which oidiums give rise are nodules with or without caseation, and deep and superficial abscesses. The pathogenicity of oidiums for experimental animals is slight, or even *nil*.

From the clinical point of view the three infections are not so readily distinguishable. The two cases of infection with true yeasts presented pictures of chronic pyaemia with skin lesions and abscess formation. Torula infection, of which six instances are known, appears as a chronic disease of the nervous system without constant or high fever and without leucocytosis; the organs affected are the brain, meninges, lungs, liver, spleen, and kidneys, but not the skin or the bones. Oidiomycosis is a less rare disease; there are over thirty recorded instances of systemic involvement, and more numerous cutaneous cases. It exhibits itself either as a chronic skin disease with miliary epidermic abscesses, or as a general or brain infection with fever and leucocytosis, the skin and all the organs being affected. The condition is usually improved by the administration of iodides; it is not known whether the iodides have any curative action in either torula or yeast infections.

From the botanical point of view there is still considerable uncertainty as to the classification of these various infecting agents. The true yeasts are usually classed as ascomycetes on account of their endospore production. The torulas do not form endospores, and often lack the power to ferment sugars possessed by true yeasts; they produce mycelium in cultures, and so are, botanically, oidiums. The oidiums have no characteristic method of fructification, and hence their systematic position is obscure. *Coccidioides immitis* is an ascomycete producing endospores and hyphae, and is, biologically speaking, a close relative of the yeasts.

Discussing the nomenclature of the diseases produced in man by these four organisms, Drs. Stoddard and Cutler remark that the term blastomycosis signifies no more than a disease caused by a budding organism. Hence it is not applicable to coccidiosis at all. It obscures the real differences existing between true yeast infections, torula infections, and oidium infections, and so should be discarded

[1] *Torula Infection in Man.* By J. L. Stoddard, M.D., and E. C. Cutler, M.D. Monographs of the Rockefeller Institute for Medical Research, No. 6. New York: The Rockefeller Institute for Medical Research. 1916. (Imp. 8vo. pp. 98; 9 plates.)

[2] W. P. H. Jensen, *Undersögelser over patogen gaer.* Copenhagen, 1903.

A MINISTRY OF HEALTH.

In a leading article in our last issue we referred briefly to the proposals for the setting up of a unified central health department, or Ministry of Health, which have been so much in the air lately. During the past week popular interest in this matter has been stimulated by the appearance of a pamphlet edited by Major Waldorf Astor, M.P., and by a crop of articles in the lay press, some of which were evidently inspired and others very much the reverse. Major Astor's contribution consists of a report, under the title of *The Health of the People*,[1] by a body of Unionist members of Parliament, which has occupied itself with questions of public health at intervals since the beginning of 1914, and of which he is the chairman. It is a serious political tract pointing out in plain language the "fragmentary, confused, inefficient, and wasteful" condition of the existing public health services, both central and peripheral. The report first discusses the general principle that the care of the public health is a primary duty of collective authority. This is at present exercised by many widely different bodies, which should be co-ordinated and directed by a single department of State. The controlling mechanism at the centre being disjointed, local confusion and waste of effort are inevitable. There is thus a grave dissipation of energy from top to bottom of the present machinery. This is the argument of the report. The subject has engaged the attention of the medical profession for a long time past. The need for unification at the centre by the establishment of a Ministry of Health was definitely recommended by a committee of the British Medical Association which sat in 1868 conjointly with representatives of the National Association for the Promotion of Social Science.[2] This proposal was endorsed by the Royal Commission of 1869, but was not adopted in the Public Health Act of 1875. Again, in 1904, the British Medical Association tried to bring this important matter up for reconsideration by Parliament, and drafted a short bill, the effect of which would have been to make the head of the Local Government Board a secretary of State advised by a board of expert commissioners. The Association at that time took the view, which is now the policy adopted by Major Astor's committee, that evolutionary reform of the existing department most directly concerned already in the matter was the most expedient, though by no means the ideal method of central co-ordination. The authors of *The Health of the People*, while recognizing in so many words that eventually all public health matters should be under one department, have thus reached the position occupied by the British Medical Association thirteen years ago—namely, that the most practicable step towards reform would be to remodel the Local Government Board rather than to set up an entirely new authority. As to this, it should be observed that since 1904 the number, variety, and scope of legislative measures concerned with the public health have increased at an unprecedented rate, and many new issues have arisen. In this connexion a statement by Mr. Kingsley Wood, L.C.C., a member of the National Health Insurance Advisory Committee, is of some significance. Speaking on March 31st at a conference of representatives of approved societies and insurance committees, he is reported to have said that Mr. Lloyd George's great ideal when he launched the national insurance scheme was that it should be the foundation of a Ministry of Public Health, declining to associate it with the Poor Law administration and the taint of pauperism. With the author of the Insurance Acts as Prime Minister there was, he believed, an excellent prospect of the co-ordination of all existing health departments and agencies. The context of this expression of opinion would suggest that the reconstruction of the Local Government Board as the basis of a great health department is not regarded by the Premier as the right solution of the problem.

[1] *The Health of the People: A New National Policy.* Printed by the Argus Printing Company, Ltd., 10, Temple Avenue, E.C.4. (3d.)
[2] BRITISH MEDICAL JOURNAL, August 2nd, 1868, p. 194.

MEDICAL INSPECTION AND TREATMENT FROM 14 TO 18.

THE Departmental Committee appointed by the Board of Education to report on juvenile education in relation to employment after the war has presented its final report. The Committee was instructed to consider what steps should be taken to make provision for the education and instruction of children and young persons after the war, regard being had particularly to the interests of those who have been abnormally employed during the war, those who cannot immediately find advantageous employment, and those who require special training for employment. The main recommendations are two: The first is that a uniform elementary school-leaving age of 14 should be established by statute for all districts, urban and rural, and that all exemptions, total or partial, from compulsory attendance below that age should be abolished. The second is that it should be compulsory for all young persons between 14 and 18 years of age to attend day continuation classes prescribed for them by the local education authority, during a number of hours to be fixed by statute, which should not be less than eight hours a week, for forty weeks in a year. There would be certain exceptions to this second provision; young persons aged not less than 16 years who have passed the matriculation examination of a British university, or completed a satisfactory course in a secondary school recognized by the Board, would be exempt, as would young persons under efficient full-time instruction in some other manner than in a day continuation class. Most of the other recommendations are consequential; for example, the duty is imposed on local education authorities to provide continuation classes, and it is advised that where there is already a statutory limitation upon the hours of labour, the permitted hours should be reduced by the number required for the continuation classes. These classes should, it is advised, include general, practical, and technical instruction, and provision should be made for continuous physical training. The Committee lays stress upon the importance of physical training, and it is partly to make room for it that it desires the extension in the time given to continuation classes to be planned upon the basis of eight hours, rather than of six hours. The introduction of physical training, it is said, "should carry with it the extension to the whole adolescent period of the advantages of a school medical service, and also of clinical treatment, except in so far as that is rendered unnecessary in the case of young persons in employment who have already become eligible for medical benefits under the National Insurance Act." The Committee mentions, without, so far as we gather, directly endorsing, Sir George Newman's opinion that it will probably be desirable to arrange for the medical inspection of all young persons at the age of 16, and again shortly before the age of 18. In connexion with this matter the Committee advises that the Board of Education and the Home Office should consider the desirability of transferring the work of certifying as to the physical fitness of children for employment under the Factory Acts to the school medical officers. With regard to finance, the Committee estimates that, apart from the provision of premises, by 1921, if all young persons between 14 and 18 not otherwise educated came within the operations of its scheme, there would be 2,600,000 pupils to deal with, who would require about 32,000 full-time teachers. It puts the gross maintenance cost at anything from six millions to eight millions a year, in addition to the one million, or thereabouts, now spent upon the evening classes for juveniles. How much of this should be imposed upon the rates and how much upon taxes the Committee does not decide. It realizes that the smaller the burden the change imposes upon the rates the more readily will it be accepted by the councils and the ratepayers, and winds up by recommending "that the State grants-in-aid of present as well as future expenditure on education be simplified and very substantially increased."

A HOME RESERVE.

A LETTER published last week on a civil reserve for army needs, from a correspondent who described himself as late lieutenant R.A.M.C., contained the germ of an idea that may prove to be of value. We do not, however, think that this lies in the suggestion that a reserve should be formed here for service in France if and when fighting there becomes intense. This ignores the submarine menace, and assumes that the Channel will be open at the critical moment. The Germans cannot be supposed to have overlooked the advantage to them of closing the Channel against supplies and the transport of reinforcements and wounded, even for a few days, at a time of heavy fighting on the Western front. From which side the initiative came would not make very much difference in this connexion. If we take a wider view of the Western front and assume it to include the North Sea and the coasts of Great Britain, as in fact it does, it becomes apparent that a medical reserve at home may be a very necessary asset for the defence of the realm. It seems pretty clear that whatever may be the case in France, the initiative in the North Sea rests with the Germans. There is nothing new in this. So far as the soil of Great Britain is concerned, we have ever been on the defensive from the days of Elizabeth. Hitherto we have always contrived to fight our land battles on foreign soil; but though an invasion of Britain may be a very difficult military operation, it is clear that the naval and army advisers of the War Cabinet do not consider it impossible, for they take precautions. Military experts in less responsible positions have expressed their belief that the attempt will be made unless the German Staff is convinced that our arrangements here are so complete that any overseas invasion must inevitably fail. Even a limited landing which ended in failure might be thought worth the cost, because it would be a stab at the heart of the coalition which is opposing Germany, and by making our people feel what "unlimited" ruthlessness means, would help to satiate the hate for us with which the muddy-minded German has allowed himself to be imbued by his home tyrants. The military medical authorities have no doubt given attention to this possibility when making demands on civil medical practitioners in this country for service abroad, but it may be deserving of more than it has yet received. The question really is, Has the Army Medical Service now drawn very nearly as many men over 41 as it ought to have, even on military grounds alone, for service abroad? If there be need for an adequate home reserve to meet possibilities of the future—perhaps the near future—its organization might help to solve some difficulties while gratifying the ardent desire of many to do something for their country in a military capacity. This seems to be another matter calling for frank and friendly discussion between the two sides of the medical profession—military and civil.

SUSCEPTIBILITY AND IMMUNITY TO RAT SARCOMA.

AT the meeting of the Royal Society on March 22nd a paper by J. C. Mottram, M.B., and S. Russ, D.Sc., describing observations and experiments on the susceptibility and immunity of rats towards Jensen's rat sarcoma was read. Observations upon the modes of growth of Jensen's rat sarcoma following inoculation showed that there was a gradual transition from those cases in which the tumours spontaneously disappeared to those in which they grew in a uniformly progressive manner. The spleens of animals exhibiting various grades of active immunity were examined, and it was found that a marked accumulation of lymphocytes and plasma cells occurred in the spleen of an animal which would not support the growth of the tumour. Intermixture of such spleen cells and tumour cells before inoculation led to a diminished growth of the latter. The immune condition could be brought about experimentally in several ways. Animals made refractory to the growth of the tumour had been given various doses of x rays; the effect of such irradiation upon the blood was to cause a marked reduction in the number of lymphocytes. Under suitable conditions of exposure it had been possible to destroy the immune condition and thus convert refractory into tumour-bearing animals. There was a tendency for the immune condition to be restored. Histological and other evidence was brought forward which indicated that the failure of sarcoma cells to grow in an immune animal was due to an active resistance thereto on the part of the host.

DEMINERALIZATION OF MUSCLE IN PHTHISIS.

PROFESSOR ALBERT ROBIN has reported to the Academy of Sciences (*C. R.*, February 5th, 1917) the results of his investigation of the phenomenon of decalcification in phthisis. Briefly stated, he found by analysis that the diseased parts of the phthisical lung contained less and the healthy parts more mineral constituents, and he regarded this surmineralization of part of the lung as a defensive phenomenon. He argued that if the surmineralization were due to functional activity, the heart muscle, which never rests, ought to be richer in mineral constituents than other muscles, and this he found to be the case in healthy subjects. In the first subject the heart had 1.247 grams mineral constituents to 23.200 grams of total residue, while the soleus muscle had 1.152 grams for 25.600 grams of total residue. In the second healthy subject the proportion of mineral constituents in heart muscle rose to 1.597 grams for 26.627 grams of total residue and in ordinary muscle to 1.299 grams with 27.446 grams total residue. In cases of rapid acute phthisis the mineralization of the heart was markedly lower, though it tended to increase with the duration of the disease. In the chronic form, on the contrary, it was about equal to that of the healthy subject. The mineralization of ordinary muscle was found to be less diminished, but it decreased in the chronic form instead of increasing, as was the case of the heart. The total nitrogen of the heart only underwent trifling variations and reached its maximum in the cases of chronic phthisis, whereas in muscle it was in the chronic cases that the total nitrogen was most lowered. Professor Robin considered that these facts might be of value in treatment. In acute phthisis, where the resistance of the tissues was overcome by the infection, where the heart, the active muscle, was demineralized more rapidly than the inactive muscle, absolute rest was indispensable. In chronic phthisis analysis showed that mineralization of the heart was about normal, while in the other muscles it was diminished. The indication was therefore to give these subjects moderate exercise within the limits of their powers instead of insisting upon rest, which diminished the sum of resistance.

CERTIFYING SURGEONS AND COMPENSATION FOR LOSS OF INCOME.

CORRESPONDENCE has passed recently between the Association of Certifying Surgeons and the Home Secretary on the possibility of compensation being granted to those surgeons who, in consequence of the abolition of accident investigations, are able to show some definite loss of income. This Home Office war economy has meant a loss of £12,000 per annum to the profession, and most of this has naturally fallen upon surgeons who hold large and important appointments in manufacturing districts, quite a number suffering to the extent of between £200 and £300 a year. It was pointed out to the Home Secretary that surgeons holding the larger appointments had given up other work by arrangement with the department, some devoting their whole time to the office, and that a number combined the duties with those of other public appointments, such as medical officer of health, and also that in these cases the loss could not be made good by taking

fresh work. A strong point was made of the fact that when public officials holding appointments on similar terms have been dispossessed, compensation invariably followed. The Home Secretary was of opinion that the terms of appointment precluded compensation and that the establishment of new duties with consequent increase of remuneration during late years should counterbalance the loss complained of. In reply the Association of Certifying Factory Surgeons explained that the request had been made on the grounds of equity and custom in analogous cases, and also showed very clearly that the new duties referred to had been of very little monetary advantage to certifying surgeons outside the pottery districts, the most remunerative work of the kind instanced (that of appointed surgeon under special rules) being open to the whole profession. The Home Secretary, however, in spite of the faulty nature of the excuse provided by his advisers, has not seen his way to grant compensation.

The Secretary of the Royal Society of Medicine is anxious to make a complete collection of the periodicals published by many military hospitals in this country and abroad. He undertakes that they shall be carefully bound and preserved and always kept available for reference in the library of the Society. Communications should be addressed to Mr. J. Y. W. MacAlister, Secretary, Royal Society of Medicine, 1, Wimpole Street, London, W., who adds that he would like, if possible, to have two sets of each periodical.

Medical Notes in Parliament.

The Military Service Bill.

Several important statements were made by Mr. Bonar Law in the debate on the Military Service Bill in the Commons on March 29th.

The cardinal proposal of the measure being the re-examination of the exempt, Mr. Hogge was able to renew his demand that the Government should accept full responsibility in regard to pensions for such men as were accepted for service by the army medical authorities and discharged through disability not due to wilful misconduct. It will be remembered that as the Pensions Scheme left the House of Commons a fortnight ago, the pensions line was drawn at men discharged on account of disability suffered in service or aggravated by service. Other men whose disability was in no way affected by service—men, that is, who had been passed into the service in error—might receive a gratuity not exceeding £150, the award to be determined by the Pensions Department.

Mr. Hogge and others argued that as under this bill men who had already been medically rejected and men who had been discharged from the army as disabled were to be brought into the army again, the matter was still more serious. Touching upon the "eccentricities of doctors and tribunals and of other authorities," Mr. Asquith said that so long as human nature was "fallible and variable," differences must occur. He was not at all sure that an equal number of men had not been passed into the army who ought to have been rejected to those who had been rejected and ought to have been passed. He suggested that when men had been re-examined, perhaps more fully, there should be generous treatment as to pensions.

Mr. Bonar Law, in his reply, promised to consult the War Office as to whether it was not possible to make the medical examination so perfect as to run no risk. To meet Mr. Hogge's pressure on the question of the gratuity part of the proposals, Mr. Law said he could not commit himself, but he thought there was a case that in all instances where a gratuity was given and nothing more the decision should be reviewed by a tribunal independent of the Pensions Department to ascertain whether the man should have gratuity or pension.

In Committee on the bill on March 30th there was debate on an amendment by Mr. Snowden to exclude from its operation men discharged disabled from the army. Mr. Forster, for the Government, reminded the House that not only men discharged from the army during the present war on account of disease and wounds were affected by the provisions, but also men who before the war were discharged from the army or the territorial forces on grounds which would not now justify discharge. Mr. Macpherson added that the War Office believe that the men in these two categories would yield three divisions of trained men. Several members expressed anxiety as to this part of the scheme, Mr. Pringle, for instance, raising a question as to the risk of recalling to the colours men who had been discharged on account of nervous breakdown. Ultimately the amendment was rejected by 150 votes to 60. Mr. Macpherson declined to accept an amendment to provide that the examination of a man should be by a Medical Board of not less than two doctors, one of whom should be the man's own doctor if so desired; but he agreed that a direction should be given to the travelling Medical Boards to pay attention to any medical certificate supplied to a man by his own doctor. He also agreed to extend to fourteen days the time of notice to be given to a man to submit himself for re-examination, and, further, that no man should be called upon for re-examination within six months of his last rejection or discharge.

On April 2nd the Committee on the bill was resumed. Mr. Nield pressed that an amendment should be inserted so as to secure definitely that attested men, equally with unattested, should have right of appeal to a tribunal on the question of their health. He said that many obviously unfit had produced certificates from private practitioners, but the military representative had objected that the tribunal had no right to entertain an appeal on health grounds, because the man had attested, and had therefore precluded himself from raising the question. Mr. Macpherson, speaking for the Government, said that as the bill referred to men who had been rejected, the old distinction did not any longer exist, and therefore there was no need for the amendment. Mr. Nield was satisfied with this assurance, but a number of other members were not, and Sir John Simon suggested that certain words should be inserted giving explicitly the rights of appeal. Sir F. E. Smith expressed his willingness to make this addition on report. The Committee, however, divided (Mr. Nield not having been allowed to withdraw his amendment), and this amendment was rejected by 159 against 57.

Another amendment was moved by Sir Charles Hobhouse to exclude from the operation of the bill any disabled soldier who, owing to the loss of a limb, was permanently unfit for any military service. On this, Mr. Macpherson promised an amendment on report to cover the cases of soldiers disabled by battle wounds. Sir William Collins urged that there were many other categories of men who ought not to be put to all the trouble of being called up again for examination, and quoted an instance of night blindness due to structural changes. Sometimes unkind things had been said in regard to medical examination. Many of them were unjust and unfair; but there had been unfortunate mistakes in the past, and he hoped the assurance of Mr. Bonar Law that some improvement would be made in Medical Boards in the future would be carried out, that opportunity would be given to resort to specialists and experts, and that certificates produced by the individual's own doctor would not be disregarded. On Mr. Macpherson's assurance, Sir Charles Hobhouse withdrew his amendment.

Mr. Macpherson accepted an amendment by Mr. King, providing that when a man had had one month in the army or navy he should not be called up for examination until a year after he had left the army, and also agreed to insert one providing that a man who on re-examination was not accepted "on the ground of permanent and total disability for service" should receive a final discharge.

On April 3rd, in fulfilment of pledge, the Solicitor-General moved an amendment definitely securing for voluntarily attested men (who had been rejected) the same rights of appeal as belonged to the attested called up under the Compulsory Service Act. This was done in order to make clear that these men might appeal on grounds of physical unfitness. The provision was approved.

Mr. Macpherson next moved an amendment to exempt men discharged from the army on account of wounds received in action or on account of illness caused by poison gas. Mr. Butcher wished to broaden the exemption so as to include all men discharged from the army because of ill health. He urged, for instance, that men discharged on account of suffering from shell shock, or because of

rheumatism brought on through standing in wet trenches, should have the same relief. Mr. Macpherson said that such a wide enlargement would make the clause practically a dead letter, and Mr. Butcher's proposal was defeated by a large majority.

At the instance of Sir Charles Nicholson, Mr. Macpherson agreed that among the exempt should be included sufferers from neurasthenia or allied nervous disorders, provided that a special medical board certified that the disorder was the result of military or naval service in the present war.

The Criminal Law Amendment Bill through Committee.

The Grand Committee on the Criminal Law Amendment Bill held its final sitting on March 29th, when the measure was ordered to be reported to the House as amended. Mr. J. W. Wilson presided. At the instance of the Home Secretary a new clause was added to give courts in certain cases power to order the detention of girls under 18 years of age until they attained the age of 19, or for less period, the detention to be in institutions or homes approved by the Secretary of State.

Detention of Girls.

This power would be applicable where a girl was convicted of loitering or importuning for prostitution, or other offences of a like nature, and when the court was of opinion that by reason of the girl's mode of life or associations it was expedient that, in lieu of punishment, such order should be made. In such cases, also, a girl under remand or awaiting trial might be committed to a home until in the regular course decision could be reached. But it was laid down that an institution or home should not be approved for the purpose of the section until the Secretary of State was satisfied that prostitutes of 21 years of age and upwards were not received in it.

The Home Secretary declined to accept an amendment by Mr. Rawlinson that twelve months should be made the maximum period of detention, but was willing to consider a suggestion by Mr. Burns that in some way the cases should come under revision annually. He promised, if he thought that qualification desirable, to introduce an amendment on the report stage.

Penalty for Communication of Venereal Disease.

Mr. Duncan Miller proposed another clause to the effect that where conviction for any one of several sexual offences enumerated in the Criminal Law and some other Acts brought liability to punishment up to two years' imprisonment, the court might regard the communication of venereal disease as an aggravation of the offence, and sentence the offender to penal servitude for not more than five years. Mr. Miller withdrew this proposal on a promise by the Home Secretary to introduce a clause of the kind on the report stage.

Hospital Accommodation at Sandhurst.—In reply to Mr. Evelyn Cecil, who asked a question on March 28th as to increased hospital accommodation at the Royal Military College, Sandhurst, in view of the addition to the number of cadets, Mr. Macpherson said that temporary arrangements had been made to provide extra hospital accommodation (20 beds) in the commandant's quarters at Staff College. During the recent outbreak of mumps certain of the halls of study were utilized. Further hospital improvements were under consideration. There had been two deaths, one from cerebro-spinal fever and the other from pneumonia.

CRITICISM OF THE ARMY MEDICAL SERVICE.

THE issue of the *World* for March 20th contained an article by "Medico" on the Army Medical Service, which has recently been brought to our notice. It seems to be designed to bring together all the criticisms of the Army Medical Service which have ever been made since the beginning of the war, and, though there is internal evidence that the writer's information is neither sufficiently extensive nor sufficiently recent to qualify him for the task, it may be worth while to examine some of his points in the light of such information as we possess, even though it be not on all points so complete as we could wish.

The criticism placed first and foremost is directed to red tape and excessive militarism. A military department must be conducted on military principles, but excessive militarism is, of course, bad; so is excessive red tape. We understand the expression "red tape," when used as a term of reproach, to imply the overgrowth of formal details, and confusion between the end and the means. But there must be a certain amount of red tape, otherwise the several units of organization would dissolve into chaos.

As one illustration of excessive militarism, we have the assertion that there is nothing to prevent any mediocre and touchy senior officer with antiquated notions dictating to a junior of proved capacity, the latter being obliged to obey his superior's commands, even should the patient's limb or life itself be endangered thereby. Whether anything of this kind really happened at the beginning of the war we do not know, but we do know that a system has been elaborated which ought to reduce such a defect to a minimum, if not abolish it altogether. There is in every army a consulting surgeon and a consulting physician, selected for their eminence in civil practice; in addition there are two consulting surgeons with the rank of surgeon-general, the one at the front, the other at the base in France, and there are consulting physicians with the rank of colonel both at the front and at the base. It is the duty of these officers—and we have reason to know that it is ably fulfilled—to inspect all hospitals and other medical units and to keep an eye generally on how the work is being done. In addition, large military hospitals with the forces abroad are divided into two sections—surgical and medical—with a special officer at the head of each, and a "surgical specialist" in addition, and we have yet to hear of any case in which the officer commanding a hospital, although of senior rank, has interfered with the treatment followed by the specialists. If he did, there would be the obvious appeal to the consulting surgeon. The temptation that besets the regular R.A.M.C. officer is not to interfere with treatment, but to let his mind be bent too much on evacuating the patients from the hospital under his control, which he is apt to believe is a sure way of pleasing his immediate superiors. The communications between consulting surgeons and the hospital specialists are of the nature of consultations. There may be differences of opinion as to the best method of dealing with certain classes of cases, and the consulting surgeon may hold to his until satisfied that it is erroneous, but it is a difference of opinion which exists between two practitioners specially qualified to deal with such matters. More than this, in nearly all the armies, and even in the garrison at Kut, medical meetings are held with varying frequency where every officer, of whatever rank, is expected to express his opinion freely, and out of these discussions much good has come. In some cases the experience gained by the consulting surgeons from their own observations and from these discussions has been crystallized into memorandums which have been issued for the general information of the Army Medical Service.

So far as the clinical work of the medical services with the British armies abroad goes, by far the most important point seems to us to be that great diligence has been shown in learning from the experiences of the war; but we are disposed to think that something more might be done in the way of disseminating this information through the medical press, since much of it is of immense value to those surgeons and physicians who have to treat the men in home hospitals, and it has often happened that their patients are in an acute stage of their disorder or septic infection.

We are disposed to agree that the Army Medical Service has not always used men of special training and capabilities in the particular department of practice in which their services would have been of the greatest value, but, so far as we have been able to ascertain, this defect has been eventually rectified, and more speedily now than before.

As to the alleged example of the antiquated spirit of Army Medical Service officers shown early in the war in refusing to have anything to do with motor ambulances, we can only say that it is not in accord with information in our possession, and directly contrary to facts within our knowledge. It was unfortunate that motor ambulances were not available in sufficient numbers to deal with the earliest stage of the war; but the motor ambulance was a comparatively new device, and a sufficient number were not in existence. It may be that greater provision ought to have been made during the year or six months before the war; we suspect that the explanation of any failure in this direction is to be found in what the Treasury calls economy. With these few remarks on the early part of the article, we pass on to the series of questions with which it concludes.

The first two have to do with the discharge of disabled men from the army, and the answer seems to be that many defects have been disclosed, that many of them

ve been remedied, that machinery has been set up to nedy others, and that others are now under the con-leration of the House of Commons. The sixth question cognate—whether convalescent officers are "herded gether in 'internment camps' instead of being released sick leave as formerly." We believe that convalescent icers are not sent to internment camps—whatever may intended by that term—but to special hospitals which ve been set up at large expense because experience owed that the old plan of giving sick leave, which might indefinitely extended, was open to many abuses.

Another question is whether out-patient departments in contemplation in connexion with big general hos-als. This question is not clearly worded. If military spitals are meant, we believe that it was at one time ntemplated that men suffering from injuries of an ortho-edic nature should be treated as out-patients. Whether is plan exists on any large scale at the present time we not know, but we believe not, since the policy is to nd men who no longer need hospital treatment to com-und dépôts, where they receive appropriate training.

Another question is whether beds are occupied for an necessarily long time by men who are receiving prac-ally no treatment. We believe that a good many stances could be found, especially in the smaller V.A.D. d private hospitals, in which this does occur, but we ve reason to believe that the existence of this defect is alized by the Army Medical Service, which is the first p towards remedy. Probably a good many of these institu-ns would be much more useful if they were used solely for nvalescent men who require no active medical or surgical atment. It is also asked whose evidence is relied upon to the efficacy of R.A.M.C. arrangements in provincial litary hospitals. The answer we believe to be, the idence of the consulting physicians and surgeons to the rious home commands. It is very possible, however, at they are being asked to cover too large an extent of untry, and that they need the assistance of deputy spectors. The position with regard to V.A.D. hospitals d county associations on the one hand and the Army dical Service and the consultants on the other, seems need looking into.

Two other questions may be dismissed very briefly. We lieve that a few doctors are still serving in the com-tant ranks, but, we think, all at their own desire. Very ny of those so serving at the beginning of the war ve changed over into the R.A.M.C., and the few remain-g will probably see it to be their duty to take the same urse. If there are senior students still serving in the mbatant ranks it is contrary to instructions, which ght to be, and we believe have been, brought to their tice and to that of their commanding officers.

We do not wish to be misunderstood as contending that e administration of the medical service is incapable of provement. We know of no human institution of which is could be said, and it is directly negatived by what has ppened since the war began. We then had a medical vice for an expeditionary force, for home establishments, d for India. No more than the army medical service any other nation had it any recent experience of a ropean war, much less of a war on a scale to which this s developed.

We believe that all parties will agree that we have ched a crisis in medical affairs in connexion with e present war. The profession at home has been so nuded by the demands of the army that the difficulty providing adequate medical attendance in industrial tricts, including munition districts, and for the civil pulation generally, has become acute. The difficulty st be met, and it can, we believe, only be met by nk and free discussion between the medical men the army, as represented by the senior administrative icers of the medical service at home and abroad on e one hand, and the representatives of the civil pro-ssion on the other. Economy must be practised on both les, and we are disposed to think it true that this lesson s been learnt by the civil committees more thoroughly an by the army medical staff. Past experience, how-er, of the readiness of the chiefs of that service to face fficulties convinces us that they will be prepared to take e necessary steps, and to economize their use of medical rvices so far as is compatible with the welfare and iciency of the armies which are defending this country road.

THE WAR.

THE LEUCOCYTE COUNT AS A GUIDE TO TREATMENT OF WOUNDS.

STABSARZT DR. P. LINDEMANN has drawn attention to the great practical value of the leucocyte curve as an indication for surgical interference in gunshot wounds. In such wounds the initial infection was combated in the body with a twofold result. On the one hand, where resistance was good, the activity of the infection was suppressed either permanently or for a varying period—latent infection. On the other hand, where resistance was weak, the activity of the infection persisted—manifest infection. The treatment, conservative or active, to be adopted depended on the early recognition of the nature of the infection, whether latent or manifest. As an illustration, two cases of gunshot fracture are described in which an immediate operation was performed for removal of fragments; in both there was a similar rise in temperature and pulse frequency; subsequently in the one case a suppression of the active infection, in the other its continuance necessitating another operation.

The clinical discrimination between such cases involved a loss of several days, and Lindemann claims that this could be avoided by making use of the leucocyte curve. For this purpose it was necessary that there should be a daily record, the curve being most conveniently plotted on the temperature chart. The initial leucocytosis was extremely rapid, and was completed within a few hours from the wounding, the leucocytes increasing two to four fold. During the next twenty-four hours the leucocytes as rapidly diminished, becoming normal, or almost normal, in number. If the infection had been rendered latent by this reaction no further increase took place. If, on the other hand, the infection proved to be manifest, a second sudden or gradual leucocytosis occurred. Lindemann embodied these conclusions, which were based on a study of his cases, in four types of leucocyte curve:

(*a*) Typical of latent infection. First count four hours after wounding; high leucocytosis (34,000). A few hours later almost normal; further course normal.

(*b*) Typical of latent infection, but first count twenty-four hours after wounding. No leucocytosis.

(*c*) Manifest infection. First count two and a half hours after wounding. High leucocytosis (30,000). After a few hours a fall almost to normal, with, in the next twelve to thirty-six hours, a second rise, persisting till operative interference; then fall to normal.

(*d*) Manifest infection, but first count twenty-four hours after wounding. No leucocytosis (the initial rise and fall not having been registered); a few hours later a sudden rise in the curve, persisting till relief by operation.

The indications deducible from these curves were as follows: High leucocytosis at first denoted the initial reaction; its rapid fall to the normal without further rise indicated conservative treatment. Low leucocytosis on the second day did not denote the absence of manifest infection. A steep rise on the second day strongly suggested a manifest infection, and its continuance confirmed it. A relatively low leucocyte count in spite of the presence of a manifest infection denoted a comparatively non-virulent infection.

Examples.

Bullet Wound of Arm.—A few hours later, leucocytes 19,000, temperature 39° C., pulse 110. Second day, leucocytes 22,000, temperature 38.5° C., pulse 110. The rise in the curve on the second day pointed to a manifest infection, indicating operation Bullet track laid open; suppuration; fall in leucocyte curve, and further course normal.

Grenade Wounds of Shoulder, Buttock, and Leg.—Fragments removed by operation from the two last. Second day: Leucocytes 14,200. Third day: 32,187, pointing to a manifest infection, indicating operation. The shoulder wound was opened up—suppurated, with discharge of a fragment of clothing. Fall in leucocyte curve, and further course normal.

Bullet Wounds of Cheek and Neck.—Leucocytes normal from the first count (taken twenty hours after wounding). A rapid rise of temperature on the second and third days gave no cause for uneasiness, since the blood count proved decisively that the course was uncomplicated.

Grenade Wound of Thigh.—Gas gangrene; excision of diseased tissues; leucocyte curve of type (*d*). On the twentieth day the curve again rose, and reached 30,000 on the twenty-first (the temperature showing no significant change); operation,

[1] Bruns's *Kriegschir.*, Heft 24, p. 608.

thus indicated, disclosed a subcutaneous extension of the gas gangrene; subsequent curve and course normal.

Grenade Wound of Abdomen.—Ileum perforated; laparotomy; leucocytes 26,832 two hours after wounding; rapid fall in curve. On the third day, although the pulse-rate and temperature were still high and vomiting persisted, a normal leucocyte count, 9,600, gave assurance of a favourable course; recovery uninterrupted.

In distinguishing latent from manifest infection our present criteria—fever, pulse, and the appearance of the wound—were, in Lindemann's experience, insufficient. Except for those surgeons who advocated immediate operation in all gunshot wounds, the leucocyte curve afforded information of great value.

GAS GANGRENE.

DR. L. ZINDEL [1] has written a summary of the latest views on gas gangrene, based on an examination of the recent literature of the subject. The ratio of incidence was as 1 to 5 or 6 between the upper and lower limbs. The disease rarely occurred in the trunk, very rarely in the lungs, and only with great rarity in the brain. Most observers agreed that the extensive lacerations in shrapnel wounds formed a predisposing cause; but it also followed bullet wounds, which at times produced lacerations comparable with those from shrapnel. The nature of the soil had great influence; garden earth and the contaminated soil of the field of operations were highly infective, and the humus was the most dangerous of the layers. Climatic conditions also had an influence, an increase in the number of cases usually following periods of prolonged heat, damp, or cold. As regards the classification of forms, the purely topographical divisions into epifascial and subfascial was criticized by some authors. Freund even doubted whether, on clinical and bacteriological grounds, the purely epifascial form should be regarded as true gas gangrene. Probably the most useful classification was: (1) Stage of local phlegmon; (2) stage of spreading phlegmon; (3) stage of gangrene.

The period of incubation had not been definitely ascertained. The disease usually appeared between the second and fifth day after wounding, but cases of late infections were met with, and these were equally malignant. Metastatic inflammations occurred in many cases, but no attempts appear to have been made to demonstrate the bacillus in the secondary foci.

The list of microbes which were reputed to be the cause of the disease had during the war been greatly reduced. Fraenkel's bacillus was generally regarded as the main cause; the bacillus of malignant oedema was no longer mentioned, while the *B. sarco-emphysematosus hominis* and an anaërobic streptococcus had been added to the list. The bacillus had never been demonstrated in the blood of living patients, but it was frequently present in the heart blood after death.

With regard to symptoms, many authors referred to the absence of suppuration in true gas gangrene; the lesions were mostly those of necrosis and gas formation. Fever and general symptoms were slight in the epifascial form but well marked in the severer varieties. Drowsiness was generally a marked symptom in severe cases, and denoted an unfavourable and fulminating course. An early diagnostic symptom was pain in the limb, distal to the wound, usually followed in about three hours by complete anaesthesia. The *x* rays were of great value, especially in the diagnosis of the deep forms, which could be detected in their earliest stages.

The mortality of gas gangrene varied between 12 to 53 per cent., as compared with 70 to 90 per cent. in civil practice.

With regard to treatment, prophylactic excision of the wound had been largely practised; it could, however, be adopted only in small wounds and was of most value when performed within twelve hours of wounding. Among chemical agents the local application of hydrogen peroxide and tincture of iodine were recommended. The employment of the former by injection in the general treatment of gas gangrene had been followed by death from gas embolism in five cases; whether the fatal result was due to a technical failure (injection into a vein) was not known. To the usual methods of incision and excision, accessory measures had been added such as cauterization and plugging with ichthyol-glycerine tampons. No agreement appeared to have been reached by surgeons as to the precise indications for amputation.

[1] Bruns's *Kriegschir.*, Heft 31, p. 257.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN E. ROBINSON, R.A.M.C.

Captain Edmond Robinson, R.A.M.C., was reported as killed in action, in the casualty list published on March 28th. He was educated at Trinity College, Dublin, where he graduated as M.B., B.Ch., and B.A.O. in 1915, joined the Special Reserve of the R.A.M.C. as lieutenant on August 13th, 1914, joined for service on March 29th, 1915, and was promoted to captain a year later.

LIEUTENANT D. R. KHARAS, I.M.S.

Lieutenant Darabochi Rustomji Kharas, I.M.S., was reported as killed in action, in the casualty list published on March 29th. He took a temporary commission in the I.M.S. on July 6th, 1916.

Captain M. R. Hughes, Australian A.M.C.

Wounded.

Captain P. S. Blaker, R.A.M.C. (temporary).
Captain A. B. Chapman, Canadian A.M.C.
Captain A. C. Falkiner, R.A.M.C. (temporary).
Captain E. H. Moore, D.S.O., R.A.M.C. (temporary).
Captain M. A. Nicholson, I.M.S.

Lost at Sea.

In the casualty-list published on March 31st appear the names of Captain G. L. Atkinson, R.A.M.C., drowned, and Staff Nurse J. J. Phillips, Q.A.I.M.N.S. Reserve, as "missing, believed drowned." Presumably both were lost in the hospital ship *Asturias*, torpedoed and sunk by a German submarine on the night of March 20th–21st. The number of lives lost appears to have been 43. The ship had, very fortunately, landed 900 sick and wounded shortly before she was sunk. It may be remembered that once before some two years ago, a German submarine attempted to sink the *Asturias* on the cross-channel voyage; on that occasion the torpedo missed.

CAPTAIN G. L. ATKINSON, R.A.M.C.

Captain George Louis Atkinson was educated at King's College Hospital, where he was Warneford scholar in 1893, took the diplomas of L.S.A. in 1896, and M.R.C.S. and L.R.C.P.Lond. in 1897, subsequently acting as house surgeon of King's College Hospital, and as clinical assistant at the Victoria Hospital for Children, Chelsea. He then went into practice at Hampton Hill, Middlesex, where he held the post of medical officer of Hampton Isolation Hospital. He took a temporary commission as lieutenant in the R.A.M.C. on November 23rd, 1914, and was promoted to captain on the completion of a year's service.

Died on Service.

LIEUTENANT-COLONEL MICHAEL J. WHITTY, M.D., R.A.M.C.

It is with great regret we have to record the death of Lieutenant-Colonel Whitty, which took place on March 28th. For the past four months Colonel Whitty had been unable to carry out his duties as medical inspector of recruits in the Western Command owing to cardiac disease to which he succumbed. Michael Joseph Whitty came of an old Irish stock, of which many generations had given brilliant men to the army. He was born in 1863, studied medicine at Richmond Hospital, Dublin, and Queen's College, Cork. He graduated M.D., M.Ch.R.U.I., in 1885 and immediately entered the R.A.M.C. He put in service in Ireland, Capetown, Hong Kong, and Egypt. On the death of Colonel MacSwiney, Colonel Whitty was appointed to the vacancy, and since 1906 was the chief medical recruiting officer for Liverpool. His connexion with Liverpool was cemented by his becoming a member of the Liverpool Medical Institution and surrounding himself with many medical friends. At the beginning of the war Colonel Whitty's appointment became much more onerous, and there is little doubt that the wholehearted-ness with which he unflinchingly carried out his duties undermined his health. His merit in this respect did not

ass unnoticed, for his days of illness were brightened by he fact that his name recently appeared in the *Gazette* mong those who had done valuable service during the ar. Lieutenant-Colonel Whitty belonged to the quiet ype of Irishman. Unassuming in manner, his frank ace revealed the amiability of the man. He appreciated joke, and never failed to see the bright side of life, ven when this was not so easy to discern. He often ttended the meetings of the Medical Institution, and horoughly enjoyed meeting his friends. Dr. Whitty vas assiduous in keeping himself abreast of medical cience, and never permitted the military side of his life o predominate over the medical. To his friend and nedical attendant, Dr. W. T. D. Allen, whose unremitting are Colonel Whitty had during his illness, he never tired f expressing his gratefulness. Colonel Whitty has left a vidow, and had five sons. One of the sons was killed in ction in July, 1916; another has received the Military Cross; and the third and fourth are on active service in France. The youngest is still at school. The funeral ook place on March 31st with full military honours. A memorial service was held at St. Philip Neri's Church; nany of his friends and fellow officers were present to ay their last respects to a man whom to know was indeed a pleasure.

Captain J. C. McDiarmid, N.Z.M.C.

Captain John Campbell McDiarmid, New Zealand Medical Corps, died on March 24th. He was the son of Dr. R. C. McDiarmid, of Huntly, New Zealand, formerly of Blairgowrie, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1907, subsequently filling the posts of house-surgeon and house-physician of Perth Royal Infirmary, and of physician-superintendent of the Strathmore Hospital for Infectious Diseases.

The late Major Sydney D. Rowland, R.A.M.C.

The secretary of the Officers' Mess of which Major Rowland was a member sends the following appreciation:

His brother officers who had the privilege of knowing him and working with him, and who were accustomed to depend so much on his never-failing kindness and ready help, wish to place on record their deep sense of the loss which they have sustained in his premature death. While this loss is one which science and the advance of knowledge must share—for he left a gap which cannot easily be filled—it is also a loss which is deep and personal to every one of those who were proud to call him friend. It could not be otherwise; his kindly nature, his brilliant but never caustic wit, his much more than average ability, and his transparent honesty of mind and purpose compelled and drew an admiration and affection which were freely and ungrudgingly given. To rightly appraise his character is a task beyond my powers, but two experts in human values have given to our hand eulogies which we may well apply to him whom our grief seeks to honour:

> His life was gentle, and the elements so mixed in him
> That nature might stand up, and say to all the world,
> This was a man.

Emerson, speaking at the graveside of his dead friend, David Thoreau, pronounced these words, "Wherever there is knowledge, wherever there is beauty, wherever there is virtue, he will find a home."

Of Rowland's views concerning the deeper things of life we have no certain knowledge, but all realized that his was no shallow nature, and that the countless ripples on the surface could not hide the unplumbed depths beneath. Moreover, he had the one thing that matters most, the one thing needful, without which all else is nothing and less than nothing—he had love. And though his death was not the direct outcome of any battle casualty, yet he died in the performance of his duty, and while earnestly endeavouring to reduce the sum of suffering. He gave his life for his friends, than which no man hath greater love.

Deaths among Sons of Medical Men.

Johnson, Howard Fife, Second Lieutenant East Kent Regiment, the Buffs, only surviving child of Dr. George Lindsay Johnson, M.D., F.R.C.S., of Hampstead, and of Johannesburg, killed March 9th, aged 25. He received his commission in December, 1915.

Howe, Frederick William Duncan, Private, Loyal North Lancashire Regiment, reported missing and afterwards reported wounded and missing, was killed in action on September 9th, 1916, aged 20. He was the son of Dr. Joseph Duncan Howe, of Preston, and had passed with honours the medical preliminary examination of the College of Preceptors, London.

Milligan, William Harold, second son of Dr. William Milligan, formerly of Wirksworth and later of Yardley, was killed in action in France on March 2nd. After a residence in British Columbia for some twenty years he let his fruit farm and was engaged for a year in guarding Germans interned in the Rockies and occupied in constructing roads. In November he came with a contingent to England, and was almost at once sent to the front.

NOTES.

The name of temporary Captain E. P. Satchell, M.B., R.A.M.C., appears in the *London Gazette* of March 30th among a further list of names brought before the Secretary of State for War for distinguished services rendered in connexion with the war.

Scotland.

Mobilization of the Profession.

A well attended meeting of medical practitioners in Glasgow and the West of Scotland was held on March 27th at the Hall of the Royal Faculty of Physicians and Surgeons of Glasgow, under the chairmanship of Dr. Ebenezer Duncan, President of the Royal Faculty of Physicians and Surgeons. The object of the meeting was to discuss two main points: (1) The desirability of immediate compulsory mobilization of the whole nation; (2) the desirability of such mobilization being applied to the medical profession in advance of the rest of the community.

The Chairman explained that the Central Medical Committees, which were the administrative bodies under the Military Service Acts, had decided that the voluntary system of providing medical men for the army had reached the limit to which it could be pushed. According to the secretaries of local committees all over Scotland, the districts had been almost "bled white" of medical men, and the wants of the civil population could now only be met by some method of substitution. They were of opinion that that substitution should be compulsory, and in the hands of the central authorities. These facts had been represented to the Government through the Director-General of National Service, who at present was considering what to recommend. It must be decided in Parliament by legislation. Personally he thought it would have been better if the central bodies, before going to the Director-General, had laid the subject before the profession. They had not done this, and therefore the Faculty had summoned the meeting. He agreed that the voluntary system could no longer provide the medical officers required for the army, and he thought the whole community would before long have to be compulsorily mobilized. But he knew of no argument applying to the medical profession which did not apply equally to any other profession.

Dr. McGregor Robertson proposed that the time had come when the whole nation should be mobilized for the successful and rapid conclusion of the war, so that all fit persons should be liable to be called upon by the Government to render service in naval, military, and civil departments, due regard being paid to age, training, and circumstances.

Dr. John Russell seconded, and the motion was unanimously adopted.

Dr. James Wylie moved a resolution approving the compulsory mobilization of the profession of medicine in advance of the rest of the community, and Dr. D. Newman seconded it.

Dr. Charles Robertson sounded a note of warning with regard to the constitution of any committee set up by the Government to take control of the profession.

Sir David McVail vigorously opposed the motion, and Dr. McGregor Robertson moved that the meeting, "having expressed its opinion that the whole nation should without delay be organized for war, is nevertheless strongly of opinion that to compulsorily mobilize the medical profession in advance of the rest of the community would be unjust alike to the profession and the community at large."

Dr. J. F. Lambie seconded, and Dr. McGregor Robertson's motion was carried unanimously.

Considerable discussion took place on the question of arrangements in the event of mobilization, and the composition of the present Scottish Medical Service Emergency Committee was criticized by several speakers. Among those taking part in the debate were Professor T. H. Bryce and Dr. Murray Young.

Dr. Charles Robertson proposed that the committee to be appointed by the Government in the event of mobilization of the medical profession should supersede the Scottish

Medical Service Emergency Committee, and should contain a majority of medical practitioners in active general practice.

Dr. John Ritchie moved that the present committee be retained, but, on a division, Dr. C. Robertson's proposal was carried by 45 votes to 42.

THE EDINBURGH ROYAL MATERNITY HOSPITAL.

The annual meeting of the Edinburgh Royal Maternity and Simpson Memorial Hospital was held on March 26th, when Sir Alfred Ewing, K.C.B., Principal of the University of Edinburgh, presided, and in moving the adoption of the report, stated that 1,890 cases were treated by the hospital during 1916, being an increase of 123 over 1915. The number of indoor cases (738) was again a record. The glory of such an institution was that a very large proportion of the cases it had to assist were what might be called difficult cases, in which the need for help was the greatest. The terrible loss of manhood which the war had brought about had made them realize more than ever how important it was to make good those losses by aiding and encouraging in every possible way the birth of children. Even now, though far fewer children were born, it was still the unhappy truth that about one in nine of them failed to survive the first twelve months after birth. This was due for the most part to preventable causes, and the efforts which those concerned with infant welfare were making were directed essentially towards a reduction of that figure. The Rev. Canon Stuart seconded, and the report was adopted. Dr. Maxwell Williamson, the city medical officer, referred first to the falling birth-rate, and directed attention to the fact that it had not fallen more during war years than during the forty-five years immediately preceding the war. The infantile death-rate during 1916 indicated clearly the necessity for associating a maternity with a child welfare scheme. In Edinburgh 575 infants under one year died during 1916, and of these deaths no fewer than 220 were due to prematurity and immaturity. An interesting fact in this relation was that 175 deaths occurred during the first four weeks of life, showing the gravity of the neonatal death-rate. These figures proved conclusively that much hope might be entertained from the association of the Royal Maternity Hospital and other maternity centres with the Corporation under its new scheme of mother and child welfare.

Ireland.

GRADED SCALES OF SALARIES FOR POOR LAW MEDICAL OFFICERS.

AT the last meeting of the Kilkenny Board of Guardians the application of the medical officers of the union for an increase of salary was considered. The doctors applied for an immediate increase to £150 a year, with triennial increments of £10 until a maximum of £200 a year was reached, the increases to be retrospective. Dr. Hourigan, one of the Poor Law medical officers, has a service of forty-one years and Dr. O'Gorman twenty-one years' service. After various amendments had been moved, the following scale of salaries was passed, twenty guardians voting for it and eleven against: an immediate increase to £150, with increments of £10 every four years until a maximum of £200 a year was reached. Immediately the result was declared carried one of the guardians handed in a notice of motion to rescind the decision at a future meeting. Many of the guardians warmly protested against this procedure, as, owing to the very busy times in connexion with the tillage schemes, rural guardians found it almost impossible to attend meetings. It is to be hoped that the Local Government Board will sanction forthwith the improved scale of salaries, particularly as it was carried by a majority of almost two to one at a very well attended meeting of guardians, and after ample notice had been given to all the guardians in the union that the matter would be dealt with at a certain meeting on a fixed date. One of the chief complaints made by Poor Law medical officers against the Local Government Board is that instead of immediately giving its sanction to a graded scale of salaries when passed, after ample notice, by the necessary majority of a board of guardians, it allows rescinding notices of motion, one after another, to be considered, until the guardians either become weary of passing the original scheme or fail to be present owing to pressure of private affairs, thus giving an energetic and sometimes vindictive opposition its opportunity to upset the decision of the majority. The Local Government Board's position in this matter is the unreasonable one that it does not consider itself justified in sanctioning increases of salaries until the majority is not only a majority of the guardians attending the meeting at which the increase was passed, but a majority of the guardians constituting the entire board whether they are present or absent. The action of the Local Government Board in this respect is altogether unnecessary, since it will not sanction any increase of salary unless every guardian in the union receives full and ample notice of the meeting at which the proposed increase is to be considered, so that it cannot be said when an increase of salary is granted that it was rushed without due notice.

RECRUITS FOR THE ROYAL ARMY MEDICAL CORPS.

At the spring graduation ceremony of Queen's University, Belfast, on March 27th, Dr. R. W. Leslie, the representative of the university on the Irish Medical War Committee, spoke by invitation of the Vice-Chancellor upon the pressing need for medical men in the army. He expressed the hope that those who had recently graduated in medicine would at once give the matter their earnest attention and put themselves into communication with the Secretary of the Irish Medical War Committee, when the fullest information would be given them. He extended his appeal to the medical profession throughout Ulster, and especially to those of military age, to consider what their duty was in this serious crisis in their country's affairs. The urgency had never been so great as at the present time. Ireland was exempt not only from compulsory military service but also from the combing-out process which had been applied to the medical profession in England, but Dr. Leslie thought that that very fact imposed upon Irish practitioners an obligation of honour to rise to their country's call.

Correspondence.

THE CONFERENCE WITH LORD RHONDDA.

SIR,—I hope we may shortly have some more explicit information about the results of the deputation of the British Medical Association which went to the President of the Local Government Board the other day, and as to the scheme the Association has undertaken to prepare for submission to him. I gather from the report in the SUPPLEMENT last week that the deputation went to Lord Rhondda to discuss with him the scheme or schemes of the Local Government Board adumbrated—or may I say promulgated?—before he took office. These schemes were for the establishment all over the country of maternity centres for the benefit of expectant and actual mothers, and infant or child welfare centres for their offspring. The primary object of the deputation was to urge that in any such schemes the general or family practitioner should be given his rightful place. But apparently very little was said about maternity and child welfare, for Lord Rhondda made a speech before the deputation said anything in which he opened up a much wider subject, and with that subject the conference seems subsequently to have been almost exclusively occupied. He said, indeed, that he was going on with the Local Government Board bill for maternity and child welfare centres, and he afterwards laid stress on the fact that it was to be only an enabling bill, but his speech was mainly directed to overlapping in health work, and clearly he had in mind overlapping among central government departments, since the remedy he suggested was the formation of a single central health department or Ministry of Health. The overlapping, however, is not confined to the centre, but affects the local authorities also.

Sir Clifford Allbutt, the leader of the deputation, said that the desirability of having a Ministry of Health was now generally recognized, though he did not indicate its nature or scope, and the Chairman of the Insurance Acts Committee of the British Medical Association offered on

its behalf to elaborate a scheme for utilizing the general practitioner in a unified health department.

Simplification of the work and authority of the many medical sections of central government departments is desirable, and unification may be feasible, though it will not be an easy task. But we ought to get the terms defined. What is meant by a Ministry of Health? The comments which Lord Rhondda's speech has so far elicited in the newspapers seem to take it for granted that the nucleus of such a ministry would be formed by an amalgamation of the public health and Poor Law sides of the Local Government Board with at least the medical side of the work of the Insurance Commissioners, which would leave very little over to justify the continued existence of a separate insurance department. It would appear, too, that any change of this kind at the centre would require, as a logical consequence, corresponding change at the periphery.

It seems inevitable that the scheme Lord Rhondda has in view must raise the insurance question again. The present situation has arisen out of a proposal to extend the State's responsibility for medical treatment to certain women and infants. Probably most of the women it is designed to benefit will not be insured persons, but most of those who are not will be the wives of insured men. The scheme, even in its present limited form, is tantamount to extending free medical benefit to certain dependants of insured persons in certain circumstances and at certain ages; there seems no logical reason for stopping short of its extension to all dependants of insured persons. That Lord Rhondda has something of the kind in mind may be inferred from his speeches to the deputation and from expressions which occur in an interview with him published in the *Times* of March 27th, where it is said that he "desires to make his bill . . . the charter of the general practitioners," who "are the backbone of practical medicine in this country." We may ask what bill is here meant; surely not a little enabling bill about maternity and child welfare centres already prepared? If not, then there must be in contemplation some much larger measure, not merely for a Ministry of Health (with consequential reorganization of local administration), but also for an extension and reorganization of the Insurance scheme. Otherwise, why should Lord Rhondda lay so much stress on removing the suspicions and winning the co-operation of general practitioners?

It will be interesting to see the financial proposals in connexion with any such extension of the Insurance scheme, since the magnitude of the proposition would seem to preclude any such system of payment as exists in connexion with persons at present insured.

It is a great thing that the Minister most largely concerned with public health questions should recognize that the general practitioner is the backbone of the profession and seek his help, but that being so, has not the general practitioner the right to be told frankly and fully what is in the wind?—I am, etc.,

CUNCTATOR.

SIR,—Your article concerning a Ministry of Health (p. 430) will have been read with great interest by various readers, and by none more so than by medical officers of health. You have, in fact, set us trembling with hope that at last something is about to come to pass that will rescue the M.O.H. from the undignified and impotent position that he has for so long occupied in his connexion with the local councils, who are supposed to act by his advice, and whose resolutions he is generally expected to carry out.

I notice that the main tenor of the representations made by the deputation of the British Medical Association, led by Sir Clifford Allbutt, which conferred with the Local Government Board, was on behalf of the general practitioner or family doctor. The medical officer of health is, however, always a member of the medical profession, and usually a member of the British Medical Association, and as such may expect his interests to be looked after equally by the Council of the Association in its further deliberations and representations. It is really to the interest of all parties concerned that the position of the medical officer of health should now be defined, and I believe his chief desire is rather that he may be clearly informed as to his position and powers than as to what those powers actually may be. For his peace, as well as for his potence, it is essential that all parties should be agreed as to whom and what he is, and should loyally support him in the position assigned to him. I do not suppose that there is any medical officer devoting himself to public health work who is not prepared loyally to exert himself so far as his ability and position will permit on behalf of his fellow members of the medical profession. But the claim in this regard is not one-sided. He has a right to expect as much from other medical practitioners as they have from him, and it may be that this has not always been remembered.

The sentence in your article which attributes to Lord Rhondda the limitation of present action to "an enabling bill" raises fearful visions of the numerous fatuous attempts to legislate effectively by permissory powers that have already been made. Your article refers to this matter in one part, and surely there is accumulated evidence enough at the Local Government Board to correct any tendency on the part of Lord Rhondda to a belief in the effectiveness of local councils, as at present elected and constituted, when they are left to adopt and put into execution provisions that are merely suggested in an Act of Parliament.—I am, etc.,

April 2nd. EXPERIENCE.

THE DANGER OF SMALL-POX.

SIR,—In a recent lecture delivered before the Royal Dublin Society I took occasion to warn the people of the danger arising from imported small-pox, and advised them to endeavour to protect themselves and their children by vaccination and revaccination. In a letter that appeared in the JOURNAL of March 24th Dr. C. Killick Millard avails himself of this opportunity to give renewed expression to his now well known views on the subject. These opinions he has embodied in the very ably written book to which he refers, and, despite the fact that they have failed to gain acceptance from the vast majority of those concerned in public health administration, he continues to put them forward with much dialectic skill and argumentative resource. He would have us believe that it is not infantile vaccination but modern methods of administrative control that deserve the credit for having virtually abolished small-pox from our midst. Now, I would submit that there was no sudden improvement in sanitary administration about the beginning of the nineteenth century to account for the way in which the small-pox mortality came tumbling down—literally by leaps and bounds—about that time. What improvements in sanitary administration came about in Ireland during the earlier decennial periods for which we have records that could account for such figures as the following:

Period.	Small-pox Mortality.
1841—1850	38,075
1851—1860	12,727
1861—1870	4,113
1871—1880	7,554
1881—1890	241
1891—1900	235
1901—1910	56

and no death from small-pox since 1907?

If Dr. Millard agrees that vaccination is responsible for this precipitous fall in the curve of small-pox mortality, he must surely admit that it is a powerful weapon against the disease—not merely in the individual but also in the community at large. If so, why discard it?

Dr. Millard says that improved sanitary measures can control the disease. But have they ever been tried as against a virulent type of the disease in a totally unvaccinated people? Until this has been done with success, I maintain that to neglect the most certain weapons which we have at our disposal and to place our reliance solely upon untried ones is, to say the least, a hazardous experiment.

Dr. Millard asks how it is that small-pox mortality continues to fall *pari passu* with a steady and rapid decrease in the rate of infantile vaccination. I reply that, owing to the almost universal adoption of vaccination amongst civilized nations, the supply of virus is to a large extent cut off. The still partially protected population continues to offer considerable resistance to the spread of small-pox. If, however, the number of unprotected individuals is allowed to mount up beyond a certain critical

figure, the probability is that the disease will "flare up" with disastrous results.

Dr. Millard goes on to ask how it is that in Ireland, where the proportion of children vaccinated has always been less than in Great Britain, the disappearance of small-pox has been most complete? Here Dr. Millard is misinformed. Ireland, on the contrary, is, and has been for many years, better vaccinated than England. If he looks up the figures, he will find that in 1905, when vaccination in England reached its acme, the proportion of successfully vaccinated infants to every 100 born was in England 76 and in Ireland 82. In 1913 the percentage in England was a shade over 50, whilst in Ireland it was 66. The figure is now rising again in Ireland, whilst in England it continues to fall. In Ireland we have, therefore, more children vaccinated and less small-pox than in England. Let Dr. Millard draw his own conclusions.

Dr. Millard quotes the case of Leicester, and here it may be at once conceded that under his own active administration, including, as it does, ample accommodation for the isolation of declared cases and the quarantining and observation of contacts, etc., outbreaks of small-pox have on several occasions been stamped out without recourse to compulsory infantile vaccination. But I would submit that all populous centres are not blessed with so efficient a system as Leicester nor are efficient sanitary measures and vaccination mutually exclusive. Why not use the one to help the other?

The most important point in this connexion seems to me, however, to be this—the successful results obtained at Leicester have been realized under conditions that have grown up under, and been brought about by, compulsory infantile vaccination. Leicester is surrounded by a ring fence of vaccinated populations, and many of its adult inhabitants still rejoice in the partial immunity conferred on them in childhood. The results, such as they are, do not seem to me to justify the abandonment of the weapon by the aid of which (*pace* Dr. Millard) they have been rendered possible. Small-pox is scotched, not dead. To strive to defend the community without compulsory infantile vaccination—the weapon that has proved so effective in the past—seems to me a hazardous experiment, and I sincerely trust that Dr. Millard may not some day have reason to regret having tried it.

Dr. Millard would throw on infantile vaccination the blame for the spread of epidemics, because of the mild and modified cases that occur amongst the vaccinated and may escape recognition. This, he says, may seem to some a hard saying. I would suggest that to most administrators it would seem a misleading one. By universal compulsory infantile vaccination and revaccination the community can be brought into such a state of resistance that scarcely any save modified cases occur. Would Dr. Millard prefer to see none save virulent ones? In a given case would Dr. Millard advise a doubting parent not to have his child vaccinated in order to save the community at large from this source of danger? Moreover, in some epidemics, mild cases not easily recognized occur even amongst the unvaccinated.

With regard to the outbreaks of small-pox reported from Germany, it seems not improbable that the disease has broken out amongst prisoners of war—probably from the Eastern front. The meagre references in the papers do not enable a judgement to be formed as to the extent to which the German population has been attacked. No doubt we shall soon learn the details, and meanwhile I would submit that it is a little premature to gloat, as Dr. Millard does in the second-last paragraph of his letter, over the occurrence of small-pox amongst a vaccinated and a revaccinated people. The whole tone of his reference to this matter is highly suggestive of the confirmed anti-vaccinist, and sounds strangely, coming from one who in the very next sentence declares his faith in the power of recent vaccination to defend the individual.

This letter is already too long, but I would crave permission to point out, in conclusion, that in addressing a warning to an Irish audience I was speaking to people who have, generally speaking, no strong prejudice against vaccination. True, during the past eight or ten years, owing to the wrong-headed activities of (mostly imported) antivaccinist propagandists, a small minority of sanitary authorities have neglected their duty to enforce vaccination. But, under the threat of legal proceedings by the Local Government Board, most of them have seen the error of their ways and issued instructions for the prosecution of defaulters. The result is already apparent. The latest available figures show a marked improvement in the vaccination rate. The remarks to which Dr. Millard takes exception constituted an effort on my part to assist in this endeavour to get the people vaccinated. In the absence of a well-developed system of sanitary administration, I would ask Dr. Millard what better advice could I give them? Let him remember that in Ireland we have no whole-time county medical officers of health. Let him also remember that our people in Ireland do not share that horror of vaccination which is so prevalent in the English midlands, and which seems to be based on deep-seated suspicion of the medical profession and profound antipathy to modern bacteriological methods of dealing with disease. If, by means of a little gentle suasion, practically the entire population can be induced to accept vaccination, why wait before doing so until small-pox has already appeared in our midst? Such a course seems like deferring the training of the youth of a country until invasion has actually taken place, whereas had they been previously trained invasion would have been impossible. In all seriousness I would ask Dr. Millard, would he, under the conditions that prevail in Ireland, and with the threat of imported small-pox hanging over us, advise the people not to have their children vaccinated?—I am, etc.,

Dublin, March 31st. E. J. McWEENEY.

THE NATURE OF SURGICAL SHOCK.

SIR,—With reference to the interesting experimental work described on p. 331 of the BRITISH MEDICAL JOURNAL of March 24th, may I recall some clinical observations published in my Hunterian Lecture for 1913 (*Lancet*, 1914, i, 371; also printed in my *Newer Physiology*, third edition)? I showed that in traumatic shock there is no change in the volume of the blood as evidenced by the specific gravity, but that there is a marked concentration after severe burns.—I am, etc.,

Clifton, Bristol, March 27th. A. RENDLE SHORT.

ALIEN ENEMY PRACTITIONERS.

SIR,—At a time like the present, when medical men are asked to leave their homes and their practices and join the army, is it not necessary that our Association should see that no medical men of German or Austrian nationality should be allowed to remain behind in this country and continue to conduct his practice as in pre-war times? Is it not the case that medical men of enemy origin and of military age are now practising their profession in the very heart of London?

After all that has been written of the brutal conduct of the medical men belonging to the enemy towards our prisoners, I think we ought not to allow any German or Austrian to be at large carrying on their practice and no doubt increasing their incomes by taking the patients of those medical men who have joined the army.

Our Association ought to make strict inquiries and put a stop at once to this position of affairs. Is it not possible to take from them their British qualifications?—I am, etc.,

Forest Gate, E., March 31st. ROBERT HUGH ALLEN.

Obituary.

HAMILTON WRIGHT, M.D.,

WASHINGTON.

WE regret to record the death at Washington, U.S.A., of Dr. Hamilton Wright at the age of 49. While assisting with relief work in France he met with a motor-car accident; besides breaking many ribs he suffered a great nervous shock, from which he never completely recovered. Just before Christmas he developed pleurisy and then pneumonia. He seemed to be getting better when suddenly, on January 9th, a blood clot formed in the heart, and death ensued in a few hours. Dr. Hamilton Wright was brought from McGill University to Cambridge by the late Sir Michael Foster as John Lucas Walker Scholar, and worked at the university at neuropathology. Subsequently he became assistant to Dr. F. W. Mott at the

Pathological Laboratory, Claybury. While holding this appointment he worked at the pathology of tabes, and made a number of experiments on animals with the view of demonstrating chromatolytic changes in the ganglion cells of the brain by prolonged chloroform narcosis. He was next appointed by the Colonial Office to investigate beri-beri in the Straits Settlements. By his energy and industry he induced the authorities to build under his supervision an admirably equipped laboratory at Kuala Lumpur. Here he made some notable researches on beri-beri. By his experiments and observations, extending over three years in the Kuala Lumpur gaol, he combated many theories concerning the causation of beri-beri. He objected to Braddon's theory that the disease is due to the ingestion of a specific organism which develops on growing rice by pointing out that it was not to be believed that the Siam or Rangoon rice of the gaol held an active specific organism or toxin after being steamed for two hours under two atmospheres of pressure. His own conclusion was that food, including rice, was simply an agent of transmission.

That beri-beri is due to a specific organism which remains dormant in certain localities, but having gained entrance to the body by the mouth it multiplies locally (in the stomach or duodenum chiefly), gives rise to a local lesion and produces a toxin which, gaining the general circulation, acts on the peripheral terminations of both afferent and efferent neurones to cause a bilateral symmetrical atrophy; and that, finally, the organism escapes in the faeces to again lie dormant in places.

Although the polished rice and vitamine theory holds good, it does not exclude the possibility of a micro-organismal toxin (such as Wright's experiments and researches postulates) acting as an essential coefficient.

In 1909 Hamilton Wright returned to America, and was appointed by President Roosevelt to the International Opium Commission, and attended the meeting of that Commission at Shanghai. He was deputed by the Department of State to take charge of preparations for the International Conference at the Hague in 1911. He was afterwards chairman of the American delegates to the Second Conference at the Hague in 1913. Dr. Wright prepared a bill for the suppression of the opium trade known as the Harrison bill, which passed Congress soon after the second Hague Conference. He was a member of a number of American societies, notably the Washington Academy of Sciences.

Dr. Wright was an able scientist and a cultured man with a fine presence. He possessed organizing ability which, combined with courage and common sense, led to a purposeful directness in his undertakings. His ambitions were great, and he would have attained even a higher position had he not been cut off at a comparatively early age. He published many valuable reports and monographs on medical subjects. Being an excellent public speaker he became a valuable political advocate for medical science.

Dr. Hamilton Wright early in his career married Elizabeth, daughter of the late Senator Washburn, by whom he had five children.

THE death occurred on March 22nd of Dr. LEONARD KING HAVELOCK HACKMAN of Portsmouth, the town in which he was born. He received his medical education at St. Mary's Hospital and took the diploma of L.S.A. in 1879 and those of L.R.C.P. and S.Edin. the following year. He was an active member of the Southern Branch of the British Medical Association, of which he was for some time honorary secretary. Since the outbreak of war he had done military work, being medical officer in charge of the staff and departments and families of the Portsmouth Garrison. When Portsmouth decided that its police officers and constables should be instructed in first-aid duties, Dr. Hackman became one of the most enthusiastic instructors. He was recently elected vice-president of the Portsmouth Federation of the Church of England's Men's Society, in which he took great interest. Dr. Hackman was one of the original members and founders of the Borough of Portsmouth Philharmonic Society.

DR. CABADÉ, who died recently, was in practice at Valence d'Agen till 1882, when he gained by competition an appointment as deputy professor in the medical school of Toulouse. He was successful as a teacher, but when the school was transformed into a university faculty some years later he did not obtain the chair to which he thought he had a right to aspire. Discouraged by this failure he went back to Valence, where he was welcomed by his old patients. But medicine had lost its attraction for him, and he retired to a retreat which he had made for himself on an island in the Garonne. There he gave himself up to the study of Petrarch, whose sonnets he translated. The book gained for him a considerable reputation, and Italy was so grateful to him that when Petrarch's sixth centenary was celebrated recently, Dr. Cabadé was invited to be one of the French delegates on the occasion. He was the author of a number of poems, none of which he allowed to see the light except a Hymn to the Sun, which was published in the *Journal de Médecine de Bordeaux*.

Universities and Colleges.

UNIVERSITY OF LONDON.

THE Director of Recruiting has notified that under present arrangements no member of the O.T.C. who produces a certificate from the officer commanding the contingent that he has been recommended to join an officers' cadet unit will be called up until he had attained the age of 18½ years.

Professor A. D. Waller, M.D., F.R.S., has resigned his membership of the Senate as one of the representatives of the Faculty of Science, as from March 22nd, 1917.

Applications for the Lindley studentship of £100 offered every third year, and also for the University studentship in Physiology (£50 for one year) awarded to students qualified to undertake research in physiology must be received by the Academic Registrar (from whom full particulars can be obtained) by April 30th and May 31st respectively.

UNIVERSITY OF LIVERPOOL.

THE following candidates have passed the examination indicated:

FINAL M.B., B.CH.—*E. S. Stubbs, †H. J. Lipkin, †P. B. Pinkerton, Mikhail Azer, Constance Edwards, Shaikh Mohomed Afzal Faruqi, A. J. B. Griffin, R. Nixon, C. V. Pearson, Ratt n Chaud Watts.

* With first class honours. † With second class honours.

UNIVERSITY OF EDINBURGH.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B. J. Aitken, J. Allison, R. M'M. Bowman, J. B. Hanna, J. L. Hill, R. J. M. Horne, T. J. Howell, J. E. Hurworth, Y. C. Lee, D. Lennox, J. T. C. M'Auslin, M. M'Kerrow J. M. Martin, W. R. Mathewson, C. J. van der Merwe, A. J. Muirhead, J. H. Neill, J. M. Norman, H. Patlansky, A. Robertson, Susan A. Robertson, Joan K. Rose, L. C. Rudd, R. B. Smith, C. W. Stump, C. G. Terrell, D. W. Warren.

QUEEN'S UNIVERSITY, BELFAST.

AT the spring graduation ceremony, held on March 27th, the following degrees were conferred:

M.CH.—J. W. West.

M.B., B.CH., B.A.O. *R. N. B. M'Cord, †W. L. Agnew, †J. Scott, †J. Wilson, J. Adams, S. T. Alexander, P. Clarke, J. H. Davison, J. H. B. Hogg, L. Jefferson, W. C. M'Cullough, P. J. M'Sorley.

D.P.H.—Mary G. Caskey, D. L. M'Cullough.

* With first class honours. † With second class honours.

The Vice-Chancellor (the Rev. Dr. Hamilton) in his address to the new medical graduates, said that there never was a time when the country more needed or more appreciated the services of the medical profession than at this critical period. He paid a warm tribute to the work of the R.A.M.C., and pointed out the serious responsibilities of those now entering the medical profession. In the absence of the Dean of the Faculty of Medicine (Professor W. St. Clair Symmers), the new graduates were presented to the Vice-Chancellor by Professor Sir William Whitla. A note of Dr. Leslie's speech on the need for medical recruits will be found elsewhere (p. 468).

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AT a meeting on April 2nd the President, Dr. Frederick Taylor, delivered the customary presidential address, in the course of which he said that during the past presidential year the College had lost by death six Fellows, eight Members, one extra Licentiate, and 195 Licentiates. He read a long list of the honours, military and civil, conferred on Fellows, Members, and Licentiates, and gave a summary of the principal matters which had been discussed by the College and its various boards and committees. The President then read obituary notices of the Fellows who had died during the year, and in conclusion expressed his thanks to the officers of the College for their assistance. At the instance of Sir W. S. Church, a vote of thanks was adopted, and Dr. Taylor, after returning thanks, vacated the chair. A ballot was taken, and Dr. Frederick Taylor was re-elected President.

Medical News.

DR. LEE F. COGAN, Mayor of Northampton 1911–1912, has been placed on the Commission of the Peace for the county borough of Northampton.

Knowledge, the scientific magazine founded by the late Mr. Richard A. Proctor thirty-six years ago, which has hitherto appeared monthly, will be published four times a year during the war. The price will remain 1s.

A MEETING of the Yorkshire Branch of the Society of Medical Officers of Health, which all members of the profession are invited to attend, will be held in the School of Medicine, University of Leeds, at 2.30 p.m. on April 16th, when Colonel Harrison, R.A.M.C., Rochester Row Military Hospital, will deliver an address on venereal disease in relation to health, diagnosis, and treatment.

DEMONSTRATIONS open to medical students and practitioners and first-aid and ambulance students will be given in the museum of the Royal College of Surgeons of England by Professor S. G. Shattock, Pathological Curator, on syphilis on Monday, April 16th, and on gunshot injuries on April 23rd and 30th, at 5 p.m. on each day.

THE American Society for the Control of Cancer, founded in 1913, has recently presented a report to the Congress of Physicians and Surgeons under whose auspices it was established. The main lines of the society's work are to carry on a campaign of public and professional instruction by newspaper articles, leaflets, and lectures, and to organize statistical research. Branch committees are formed in the several states and cities. Many health boards are taking an active part in the campaign. At the suggestion of the society the Director of the United States Census has ordered the publication of a special report on the cancer mortality in 1914 which is now in the press. The society has also undertaken the collection of reports of operations for cancer. The records thus obtained will be followed up at intervals of one year by inquiry addressed to the surgeon, and the results will be analysed and tabulated by statistical experts.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

SCOPOLAMINE-MORPHINE TREATMENT DURING LABOUR.

IN response to the inquiry of a correspondent, Dr. Oswald Greenwood, whose paper on this subject was published in the JOURNAL of March 17th, sends the following particulars with regard to the doses he used: The initial dose has varied, some cases having had morphine gr. $\frac{1}{4}$ + scopolamine hydrobromide gr. $\frac{1}{100}$; others having had morphine gr. $\frac{1}{6}$ + scopolamine hydrobromide gr. $\frac{1}{150}$. The subsequent doses have varied much more and have ranged from a minimum of scopolamine hydrobromide gr. $\frac{1}{400}$ to a maximum of scopolamine hydrobromide gr. $\frac{1}{100}$. The total number of doses has also varied very widely—from two in the case of a rapid multiparous labour to nine in the case of an older primipara with a slowly dilating os uteri and resistant soft parts.

LETTERS, NOTES, ETC.

THE LOUSE PROBLEM.

DR. HUGH LAWRIE, M.O.H. Ramsbottom Urban District, writes to say that he has found methyl salicylate liniment very useful in the treatment of *Pediculus capitis* infesting the heads of school children. A few drops rubbed on the hair, at first every two or three days, then about once a week, and brushed in, rids it of both lice and nits in about a week and prevents reinfestation. In the case of a young soldier home on leave last October, who had been particularly annoyed by body lice during sixteen months' continuous service in France, use of the same liniment proved of great service. The man states that when he gets a bath and a change of clean clothing he rubs his skin with the liniment, and finds that it keeps lice away. As our correspondent himself suggests, the difficulty of obtaining the salicylate derivatives may stand in the way of the use of this remedy on any large scale. Another correspondent, Dr. Francis C. Parkes (Lostock Gralam, Cheshire) states that country people steep infested shirts and underwear in a solution of alum in water for twenty-four hours and find it a most efficacious method of ridding the garments of lice. He is not able to state the strength of the solution.

SUCCESSFUL PROSECUTION OF A HERBALIST.

AT the Bath City Police Court, on March 30th, Perkins Stretton was summoned on two charges: (1) Using the title "medical practitioner," thereby giving the impression that he was registered under the Medical Acts. (2) Using the designation "M.B." without being legally qualified as a medical practitioner. Mr. W. E. Hempson prosecuted on behalf of the Medical Defence Union. The defendant, owing to ill health, did not appear, but Mr. W. F. Long, who represented him, pleaded not guilty to both summonses. According to the report of the proceedings in the *Bath and Wilts Chronicle*, Mr. Hempson, after explaining the motive of the Medical Defence Union in prosecuting, said that the defendant, Stretton, carried on business in Bath, and was prepared to treat all who came to him. The parents of a boy who was not well enough to go to school needed a medical certificate for the Education Committee. The mother received one of the usual blank certificate forms requiring a medical practitioner's signature, and took it to the defendant, who inquired about the child's condition, and signed a certificate "P. Stretton, M.Bot." above the words "medical practitioner" which appeared on the form. The certificate stated that the boy was suffering from acute bronchitis. With regard to the unauthorized use of the designation "M.B.," Mr. Hempson produced photographs of the outside of the defendant's shop, showing a lamp on either side of which was a red glass bearing the letters "M.B." with others. The whole arrangement resembled a doctor's red lamp. In the shop below was an intimation that consultations were free, and the letters "M.B." were also exhibited within the establishment. Mr. Hempson's clerk, who later gave evidence, consulted the defendant, who examined him with a stethoscope, but did not take his pulse or temperature or look at his tongue. After this investigation Stretton certified him to be suffering from acute bronchitis and asthma, and requiring a period of rest before he could resume his duties. This certificate also was signed "P. Stretton, M.Bot." The clerk, who was in perfect health, returned to town that night, and had been at work ever since. The certificate was granted him for the purpose of obtaining sick pay from his club. Mr. Hempson pointed out the necessity of the prosecution, not only in the interests of the medical profession, but still more so in the interests of the public, and he asked the Bench, if they were satisfied that the case had been proved, to inflict a smart penalty. Evidence having been given in support of the two summonses, Mr. Long addressed the Bench for the defence. He argued that defendant had for years been regarded as a herbalist, and nobody dreamt that he was a bachelor of medicine, or that he was describing himself as a medical man; the additional letters on the red glass plate should suffice to put people on their guard. He admitted that Stretton acted unwisely in signing the boy's certificate without seeing him, but asked the Bench to impose a lenient penalty. Mr. Hempson, in reply, submitted that the letters "M.B." had an accepted significance in medicine, and that with regard to the certificate, defendant had convicted himself. The Mayor said that the magistrates found the defendant guilty on both summonses. For signing the certificate there would be a fine of £10, with special costs of £7 6s.; on the other summons a fine of £15, with special costs £5 5s.—a total of £37 11s. The penalty in default of payment would be one month's imprisonment in each case. The Medical Defence Union is to be congratulated upon securing a conviction on both counts. In view of the defendant's claim to the right to use the letters "M.B." as connoting "Medical Botanist," the magistrates' finding on the second summons is of importance.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

MOUTH-WASHES IN HEALTH AND DISEASE.

BY

HELEN PIXELL GOODRICH, D.Sc.,

LATE DEMONSTRATOR IN ZOOLOGY AND REID FELLOW BEDFORD COLLEGE, LONDON, AND BEIT MEMORIAL FELLOW FOR MEDICAL RESEARCH.

SINCE writing a short paper in collaboration with M. Moseley[3] on certain parasites of the mouth in cases of pyorrhoea, I have been asked so often about the prophylaxis and treatment of this disease that possibly a few notes on my observations in these directions may be of general interest.*

In every mouth left undisturbed for some hours—for example, during sleep—a varying amount of white substance accumulates round the teeth. This is no new discovery, the substance having been noted by Leeuwenhoek in the seventeenth century, and called by him "materia alba." When examined microscopically it is found to consist of salivary corpuscles, epithelial cells, and various organisms, but chiefly the thread-like leptothrix which, if allowed to remain undisturbed, will grow rapidly and calcify to form hard masses of tartar or calculus.

There has been plenty of time for this plant leptothrix (*L. buccalis*, Robin, 1853) to become thoroughly adapted

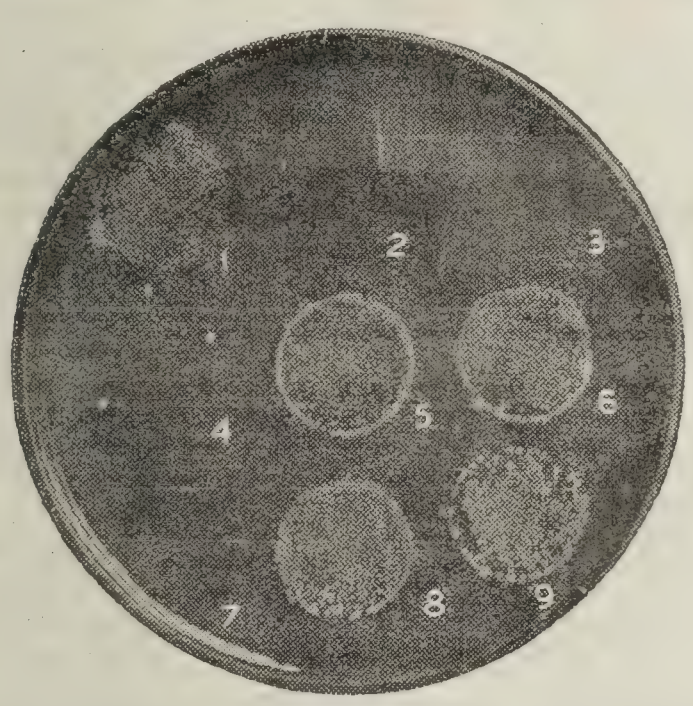


FIG. I.—1, Control; 2, 3, and 4, saturated aqueous solution of thymol for one, one-half, and one-quarter minutes respectively (2 and 3 are sterile; in 4 three colonies have grown); 5, 6, saturated aqueous solution of boracic acid for one and one-half minutes respectively; 7, 8, and 9, patent mouth-washes A, B, C used undiluted for one minute.

to its parasitic life, for it apparently inhabited the mouth of paleolithic man, not to mention the comparatively recent Egyptian mummies who were afflicted with tartar and pyorrhoea. Moreover, it occurs also in other mammalia which are subject to this disease. Some closely related algae live a free life in warm calcareous springs—a habitat somewhat similar to the saliva in the mouth.

Now the ideal to be aimed at in oral hygiene is the prevention of this growth of leptothrix altogether, there being good reason to believe that it is the cause of pyorrhoea.[3] Approximation to this ideal can be attained with a little trouble. It is obvious in the first place that there must be friction of some kind. Much should be accomplished by the tongue and lips. The tongue, if allowed to lie idle, not only fails to keep the lingual sides of the teeth free from accumulations, but also itself acts as a "forcing ground" for young colonies of leptothrix, a fact which can easily be verified by examining scrapings from a part of the tongue which does not usually rub against the teeth. Such young colonies were figured by Robin so early as 1853.[1] However, the use of a soft brush is also necessary, and with a suitable mouth-wash should be used as often as possible. It should especially be passed vertically up and down the teeth so that the bristles penetrate between them.

* The pyorrhoea work and also the experiments described here have been carried out in the Radcliffe Infirmary, Oxford, in a laboratory which the authorities of that institution have kindly placed at my disposal.

A powder or paste is only necessary once a day for polishing the teeth, but, if hard tartar has already formed, it is essential to have it removed by a skilful dentist. Great care should be taken to prevent the gums being injured by hard brushes, etc., and, if any trauma be present, mouth-washes should be used even more often than usual until healing takes place. There is no doubt that the use of mouth-washes is much neglected by people in general; and this is in great part due, I think, to the quite unnecessary expensiveness of those put before the public. It was with a view to discovering a satisfactory antiseptic mouth-wash that the following experiments were made.

Experiments to Test the Action of Certain Liquids on the Common Organisms of the Mouth.

1. The resistance of motile organisms, such as amoebae, spirochaetes, spirilla, fusiform bacilli, etc., was tested directly *in vitro* by mounting them in the liquid on a slide and observing the length of time during which the organism retained its motility. Such experiments were repeated with different strengths of the liquids, which exhibited some specificity in their actions. However, as a rule, the movement of the fusiform bacilli was most easily arrested, followed quickly by that of the spirochaetes and then the amoebae.

2. The resistance of the ordinary cocci and bacilli of the mouth, which are easily grown in artificial media, was

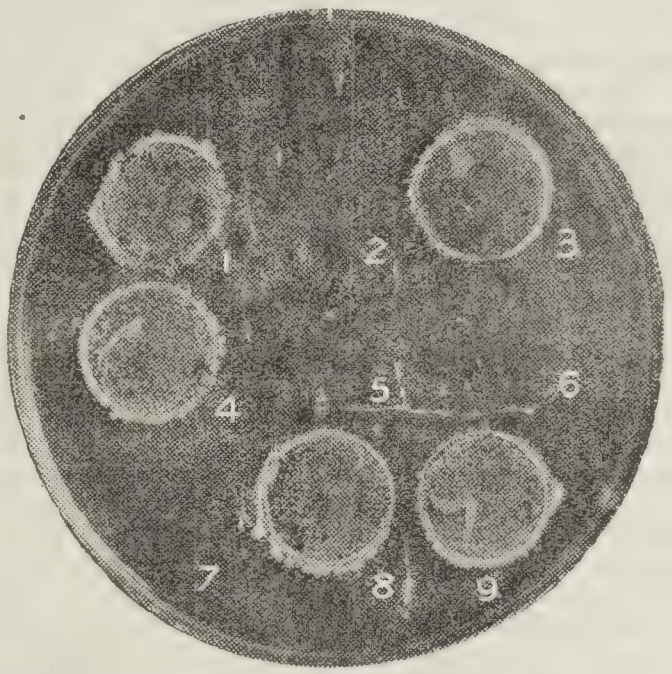


FIG. II.—Each antiseptic had been allowed to act for one minute. 1, Control; 2, saturated aqueous solution of thymol; 3, saturated aqueous solution of boracic acid; 4, saturated solution of boracic acid in a mixture of equal volumes of water and glycerine; 5, chloramine-T 3 per cent. aqueous solution (the dots shown here are due to a defect in the block); 6, zinc sulpho carbolate 10 per cent. aqueous solution; 7, 8, and 9, proprietary mouth-washes A, B, C.

tested as follows: A single loopful of an emulsion or vigorous broth culture was spread out to form a thin film on a sterile coverslip of standard size and allowed to dry. The coverslip was then immediately placed film downwards on the surface of the antiseptic to be tested for a definite time. It was then washed in sterile tap water and either dropped into a tube of broth or pressed film downwards on to agar and removed from the latter after some minutes. After incubation at 37° C. for twenty-four to forty-eight hours the results were read and compared with the control, in which the film on the coverslip was washed in sterile tap water only. Two plate results (x ⅔) are represented in Figs. I and II. Both had been incubated for approximately twenty-four hours when photographed.

It will be observed that B and C, which are much advertised and generally used mouth-washes, give very poor results. I have tested them many times up to five minutes, and the only time there was an approach to sterility was once with C, when there were only three colonies after five minutes. Diluted with water in equal parts the results were of course far worse, and diluted as recommended by their proprietors these fluids must be practically useless.

Mouth-wash A is much better, though with half and quarter minute experiments it showed inferiority to pure thymol, and when diluted rapidly lost its efficacy.

Boracic acid gave very poor results, as will be stated more fully below.

The experiments were made with pure and mixed cultures of organisms from pyorrhoea pockets and contained, among other bacteria, streptococcus, pneumococcus, pneumobacillus, staphylococcus, and *B. coli*. It is not desirable here, however, to go into details as to specificity of the antiseptics, especially as their actions *in vivo* are, of course, liable to be different from their actions *in vitro*. All that I wish to point out is that in every case there was a growth from the control and almost as invariably none after the action of a saturated thymol solution for half a minute or more (one or two exceptions being attributed to the presence of spore-forming bacteria). After only a quarter of a minute's action of the thymol there were always two or three colonies. This record was not attained by any other liquid tested except 2 per cent. chloramine-T and dilute iodine solutions, which are unsuitable as mouth-washes for general use, as will be explained below.

Thymol.

These experiments show that a saturated aqueous solution of thymol is a very good antiseptic for ordinary mouth bacteria, and it is the most satisfactory mouth-wash that I have been able to find. In cases kept under observation (some for more than a year) in which this solution has been used at least every night, the growth of leptothrix, as well as the bacteria which can easily be cultivated artificially, has been very much diminished, so that there is practically no accumulation of tartar. In cases of pyorrhoea where the gums are too sore for even a soft brush to be used, they should be massaged with the fingers and then well washed with the solution, some of which should be retained in contact with the gums for some minutes. An antiseptic solution is much to be preferred to a paste or powder. These latter, owing to the necessary presence of some gritty substance, such as chalk, tend not only to injure the gums but also to clog the "pockets"—a most undesirable result.

The saturated solution of thymol has a pleasant taste, causing a temporary burning sensation, and stimulating a flow of saliva. It is a stronger antiseptic and less irritating than carbolic acid, to which it is closely related, being also a monohydric phenol (monohydroxycymene or paramethylisopropylphenol). It is not acid, and is free from the corrosive action of phenol. It may be used as a gargle as well as a mouth-wash, since it is harmless if swallowed, large doses being sometimes given as an intestinal antiseptic. According to most standard works on organic chemistry and pharmacology, one part of thymol dissolves in 1,500 of cold water (others give the solubility as 1 : 1,200 or even 1 : 1,000). According to the first, a saturated solution would contain only 00.6 per cent. of thymol. Notwithstanding this it is a remarkably good antiseptic, a fact which has, of course, long been known, though practically no use has been made of it by the general public. For ordinary use, a saturated solution may easily be prepared by putting a lump of thymol into a bottle of cold or warm tap water; the water must not be hot, for thymol melts at 51.5° C. It should be allowed to stand for some hours, and should preferably be shaken occasionally. As the solution is used, the bottle may be filled up with water.

According to the solubility (1 : 1,500) given above 1 gram of thymol is enough to make 1½ litres of solution, or 1 oz. as much as 9 gallons. In 1914 the price of pure thymol was 8d. an ounce. Owing presumably to the fact that its extraction from the common wild thyme is not carried out in this country the price of it just now is abnormally high. Still, even at the present price of thymol (3s. 6d. an oz.), the cost would be less than 5d. a gallon. Such a mouth-wash should be within the reach of every one. As a matter of fact, thymol forms the active part of many dentrifices or mouth-washes, including A, B, and C (see Figs. I and II, 7, 8 and 9) A fourth dentrifice tested gave quite good results, and was found to contain a saturated solution of thymol according to the prescription on the label. All of these proprietary mouth-washes are sold at approximately 5s. a pint. In travelling, and especially on active service, nothing more convenient as a dentrifice or mouth-wash can be imagined than a lump of thymol in a small bottle to be filled with water as occasion offers. If more generally used, it would do much to put an end to the distressing gingivitis and pyorrhoea so often following neglect of the teeth during a sojourn in the trenches.

Thymol is much more soluble in glycerine than in water (1 part dissolves in 190 glycerine), so that if glycerine be added to the tap water used a stronger solution of thymol may be obtained, without, however, increasing its antiseptic power. The presence of glycerine may be desirable, especially if there be any soreness of the mucous membrane, and of course the solution can always be diluted with more water should it be found to be irritating. As a general rule, the aqueous solution, undiluted, will be found to be a suitable strength. There are no official preparations of thymol in the *British Pharmacopoeia*, but several non-official ones are used to some extent—for example:

Liquor thymol: 1 part thymol in 100 parts 90 per cent. alcohol,* the resulting solution to be diluted in the proportion of ½ pint to a gallon. This gives the final concentration of thymol as 1 in 1,700, or 0.058 per cent. This preparation therefore contains slightly less thymol than a saturated aqueous solution (0.06 per cent., taking the lowest solubility 1:1,500). Experiments showed that a saturated solution of thymol had more effect in one minute than a half-saturated one had in four minutes (inverse squares of concentrations). It is therefore very necessary to have the solution as concentrated as possible, that is to say, saturated.

Boracic Acid.

Boracic acid has given disappointing results. A saturated solution must act for more than two minutes to be effective, and was by no means always satisfactory in five minutes. If used, care should be taken to obtain a really saturated solution by leaving excess of the crystals or powder in contact with the water until no more will dissolve. Such a saturated solution contains 4 per cent. of boracic acid; by adding glycerine to the water more may be made to dissolve, but the antiseptic power of the solution is still unsatisfactory (Fig. II, 4).

Emetine Hydrochloride.

Unfortunately Bass and Johns, believing the amoeba of the mouth (*E. gingivalis*) to be the cause of pyorrhoea, recommended the use of a dilute solution of emetine as a mouth-wash.

E. gingivalis is certainly not the cause of pyorrhoea, and is quite easily killed by ordinary antiseptics so long as it is not sheltered too much by large accumulations of tartar, into which, as already explained,[3] it tends to burrow. Thymol solutions kill the amoeba very rapidly. The well-known amoebacidal properties of emetine are due to indirect action on the parasite, and yet one still finds preparations with emetine, or ipecacuanha containing it, prescribed for direct use in the mouth.† The uselessness of this drug for the purpose is well shown by experiments *in vitro*. On several occasions I have kept *E. gingivalis* under observation in 1 per cent. and 0.5 per cent. solutions of emetine and found specimens alive and putting out pseudopodia after twenty to forty minutes. Consequently solutions many thousand times more dilute, such as those recommended by Bass and Johns, could hardly have any effective action during the few minutes they are likely to be retained in the mouth. Strong solutions could not be used owing to the great toxicity of emetine. As an ordinary germicide emetine gave very poor results, even a 1 per cent. solution being no better than a saturated solution of boracic acid.

Harmine Hydrochloride.

This was tested in the first place for its action on amoebae, at the suggestion of Captain Gunn.[2] A 0.5 per cent. solution was found to have a much greater amoebacidal action *in vitro*, the amoebae being killed instantly, but the germicidal effect was approximately the same as the 1 per cent. solution of emetine. The poisonous

* When a prescription has to be rapidly dispensed it is desirable to idssolve the thymol in a little alcohol, in which it is readily soluble (8 parts dissolving in 3 parts 90 per cent. alcohol), and then to dilute it.

† The use, too, of emetine injected or given internally in cases of pyorrhoea cannot, I think, be too strongly condemned at a time like this when all the emetine procurable is required for the treatment of amoebic dysentery patients and carriers among the troops. All the evidence tends to point to the fact that the amoebae of the mouth do not invade the tissues of the gums; therefore they are not likely to be affected to any extent by absorbed emetine, and the results of the small number of satisfactory tests made point in the same direction.

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

character of this alkaloid, however, apart from other reasons, makes it undesirable for general use in the mouth.

Iodine.

Even in such weak solutions as 1 in 3,000 iodine is a splendid antiseptic, but its destructive action on the tissues is well known, and it would obviously not make a satisfactory mouth-wash for general use. It is, however, useful to dental practitioners, not only owing to its antiseptic properties, but because it stains the leptothrix and so facilitates its removal.

Hypochlorite Solutions.

Even if hypochlorite solutions do not attack the teeth, as is claimed,[1] they are still not suitable for general use owing to their instability.

Chloramine-T (toluene sodium sulphochloramide), which has given such good results when used in solution as a spray for the nasopharynx of meningococcus carriers, was tested in 2 per cent. and 3 per cent. solutions. No growth occurred after submitting films of mouth bacteria to them for any time over fifteen seconds. However, the solutions have an unpleasant chlorinous taste, and this, in addition to possible action on the teeth and their stoppings, at present makes their general use undesirable.

Oxidizing Agents.

Hydrogen peroxide solutions are too readily reduced to be successful in the hands of an ordinary patient. *Potassium permanganate*, another oxidizing agent and deodorant, is sometimes used as a mouth-wash. It is by no means ideal, being only a weak antiseptic, and, in addition to staining the teeth, has an unpleasant taste.

Other Antiseptics.

Zinc sulphocarbolate (zinc phenol parasulphonate) has been recently recommended to be used in 4 per cent. solution as a "gum-wash" in cases of pyorrhoea. In my experiments I have used chiefly a 10 per cent. solution, and out of nine bacterial films submitted to this strong solution for half to two minutes, I have never once obtained complete sterility. In most there were many more colonies than the thirteen shown in Fig. II, 6.

Flavine and other dyes with antiseptic properties are obviously unsuitable for general use in the mouth owing to their tinctorial properties.

To sum up: in health as well as in cases of oral disease, antiseptic mouth-washes should be used as often as possible, and a really satisfactory mouth-wash, both cheap and effective, is a saturated aqueous solution of thymol.

REFERENCES.

[1] J. M. Beattie, F. C. Lewis, and G. W. Gee: Hypochlorous Solution, BRITISH MEDICAL JOURNAL, February 24th, 1917 p. 258. [2] J. A. Gunn: The Pharmacological Action of Harmine, *Trans. Roy. Soc. Edin.*, 1909, xlviii, p. 83. [3] H. Pixell Goodrich and M. Moseley: Certain Parasites of the Mouth in Cases of Pyorrhoea, *Journ. Royal Micros. Soc.*, December, 1916, p. 513. [4] C. Robin: Végétaux parasites qui croissent sur l'homme, 1853.

THE TREATMENT OF FRACTURES BY SPLINTS;

WITH SPECIAL REFERENCE TO THE TREATMENT OF FRACTURES OF THE FEMUR IN CIVIL AND MILITARY PRACTICE.

BY

CHARLES A. MORTON, F.R.C.S.,

PROFESSOR OF SURGERY, UNIVERSITY OF BRISTOL; SENIOR SURGEON TO THE GENERAL HOSPITAL AND THE CHILDREN'S HOSPITAL, AND THE BEAUFORT WAR HOSPITAL, BRISTOL.

IN order that we may determine the right method of treating a fracture by splints, it is necessary that we should first try and answer the question, Is it desirable that the fragments should be immobilized? and then, if this seems to be essential, we should further consider whether it is necessary to fix the joints on each side of the fracture to obtain this immobility. Lucas-Championnière taught [1] that not only did a slight amount of movement at the seat of fracture do no harm, but that it actually aided union. But we must consider not only the effects of movement on the reparative process, but the risk of disturbing the position of the fragments by such movement.

In a transverse fracture in which there has either been no displacement, or it has been reduced, and there is no tendency to its recurrence, the risk of slight movement at the seat of fracture might be ignored; but on the other hand, if we had only succeeded with much difficulty, under an anaesthetic, in correcting marked deformity at the seat of fracture, and we found that unless the parts were most carefully and thoroughly fixed the displacement tended to recur, obviously any movement at the seat of fracture would be most undesirable. Now with movement of a neighbouring joint there must be a risk of displacement of the fragments, and this is, of course, in proportion to the nearness of the joint to the seat of fracture. For instance, in that very troublesome fracture of the femur just below the trochanters, in which there is such marked riding upwards of the lower end of the upper fragment, as well as other forms of displacement, there must be considerable risk of displacing the fragments with movement at the hip-joint, after they have been placed in the best possible position we can obtain under an anaesthetic. Or take another example—fracture of the lower end of the femur just above the condyles. If after much difficulty in reducing the backward displacement of the lower fragment under an anaesthetic, and fixation of the limb on a double inclined plane, we move the knee-joint, we must run a risk of again displacing the fragments.

I have lately had a very striking instance of the way in which movement of the neighbouring joint may disturb a fracture. I treated a soldier with a very comminuted gunshot fracture of the middle of the femur in the Military Hospital with the splint I am about to describe, which fixed the hip-joint. After the splint had been applied for several weeks, and the fracture was slowly uniting, he asked to be allowed to sit up more. I thought this might be done without harm, at the stage of union then reached, and I altered the splint so as to allow of it. When I next saw him I expected him to express satisfaction at the greater freedom of movement, but I found he had not been able to take advantage of the possibility of raising his body into the sitting position, as it caused pain at the seat of fracture. Later on, after further union had taken place, he was able to do so.

There can, of course, be no doubt of the value of movement of the joints above and below the fracture, to prevent them becoming stiff, but it seems to me we ought not to perform such movements at the risk of disturbing the position of the fragments when there is considerable liability to recurrence of displacement of a serious character. I am fully aware that, when it can be carried out without risk of disturbing the fragments, passive movement of the joints above and below the seat of fracture is greatly to be recommended; but I fear there is a tendency to recommend it without laying due stress on the risk of disturbing the position of the ends of the fractured bone. It is sometimes said that if considerable extension is maintained, the risk of displacing the fragments by movement of the neighbouring joint need not be seriously considered. No doubt if extension is acting powerfully, it will to a large extent reduce the risk, but it seems to me very doubtful if it really removes it.

I do not believe that in every fracture a really perfect anatomical position of the fragments is essential to good function. Indeed, I feel sure it is not. But gross deformity must obviously be corrected, and the fragments so fixed in the corrected position that serious displacement does not recur. I do not think that in some cases we can expect to maintain this improved position, which we may have only obtained with much difficulty under an anaesthetic, if we move the neighbouring joint. Not only is movement conveyed to the seat of fracture by moving the articular end of the bone, but every movement of the joint moves the muscles which are attached to the bone, and may be attached just at the seat of fracture. No doubt movement of the joint remote from the fracture—the hip-joint, for instance, in fracture of the lower end of the femur—is not nearly so likely to disturb the position of the fragments by direct movement of them as would movement of a neighbouring joint, but there might be just as much muscular movement produced in the limb. Even if the joint movement is only performed by the surgeon, it is apt to excite some involuntary active movement on the part of the patient, even if he is cautioned against making them.

When a fracture is close to a joint the liability to stiffness of the joint is of course increased, and the surgeon in

such cases very often grasps the limb at the seat of fracture very securely and then moves the neighbouring joint. If the surgeon can really satisfy himself that he can by grasping the limb securely prevent any displacement of the fragments, then the movement of the joint is most desirable, but it seems to me it is better to take the risk of stiffness of the joint than of serious displacement of the fragments. Stiffness of a joint after union of a fracture, though often very troublesome, will yield to passive and active movement in time, whereas the displacement of the fragments can only be remedied by re-breaking the bone or performing an open operation.

It is sometimes stated that one advantage of fixing the bones by plates and screws is that you can then move the neighbouring joint freely without risk of disturbing the fracture, but all the screws get loose before long, and though it may be safe enough to move the joint freely just after the plating, a little later, when the screws have become loose and the union has not progressed far, displacement may occur. This would not, of course, happen if a double-bolted screw or a wire surrounding the fragments had been employed.

In some forms of fixation apparatus the joint near the fracture can be moved without disturbing the splint. For instance, the knee can be extended when, in fracture of the femur just above the condyles, the limb is on a double inclined plane, without any disturbance of the limb on the splint. But if in order to move the joint it is necessary to move an important part of the fixation apparatus, this causes an additional risk of displacement of the fragments.

If, then, it is desirable in certain cases to fix the joint above and below the seat of fracture, as used to be taught in the textbooks of surgery, how can such a method be best carried out in treating fractures of the femur? None of the splints now commonly used for fracture of this bone fix the hip-joint; neither Thomas's knee splint, Hodgen's splint, or Groves's cradle splint do so. The splint which I use does so, but, unlike the long Liston splint, it allows the patient to raise his shoulders from the bed, so that he can easily look about the room, read, and feed himself. I find that if a bar is fixed across the abdomen at the level of the umbilicus this will prevent the patient sitting up

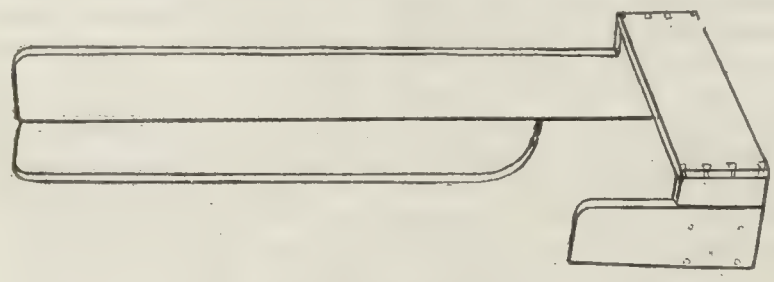


FIG. 1.—The splint.

to such an extent that the pelvis is moved, and any movement of the body will not cause movement at the hip-joint, and therefore not at the seat of fracture. In my splint the transverse portion passes across the patient's abdomen, reaching up to the level of the umbilicus (Figs. 1 and 2). It is an advantage to screw this part of the splint on to the vertical part on which the fractured limb rests after the limb is placed on it. And it is also an advantage to pass a strong piece of cloth beneath the patient's sacrum, and nail it to the lower border of the transverse part of the splint. This forms a kind of floor to the pelvic part of the splint, which will prevent the pelvis falling downwards, if by any chance the splint should be raised from the bed. It seems to me that it is very desirable to have a posterior splint as well as a lateral, in the treatment of

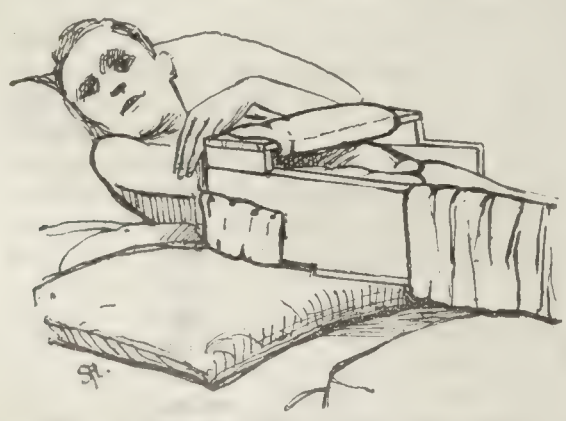


FIG. 2.—Showing the relation of the transverse (pelvic) part of the splint to the patient.

fracture of the femur. It must always be wise to allow a fractured limb to rest securely on a firm support, just as a fractured leg rest on a back splint. When wounds are present on the posterior aspect of the lower limb slings may have to be used as this support. I described a splint with such slings in the BRITISH MEDICAL JOURNAL, 1915, vol. ii, p. 321, for fractures of the leg with posterior wounds. But slings are not an ideal support. They must be used in these cases with posterior wounds because the only support possible has to be at intervals between the wounds, but obviously a firm splint is a much more satisfactory support. This is supplied in my splint, joined to a lateral splint. By means of this combination, antero-posterior and lateral displacement can be prevented. The posterior splint should reach as high as the junction of the thigh and the gluteal region, that is, just a little below the perineum. The upper edge must be round and carefully bevelled, or it will cause discomfort from pressure on the under aspect of the thigh. The lateral splint can have a bracket space wherever required to allow access to wounds.

If slings must be used in compound fractures, I think slips of bent metal are a better support than rubber or mackintosh cloth; a little flat pillow covered in mackintosh cloth, like a large flat heel-pad, should be placed between the limb and the metal sling.

I have treated cases of fracture of the femur on the splint which I have just described, in the extended position, but I quite see there is an advantage in a certain amount of flexion of the knee and hip, from relaxation of the muscles; but if extension is made by plaster in fracture of the femur, with a flexed knee, the only surface to which the strapping can be fixed is the sides of the knee and the thigh just above it. If the fracture is low down in the femur, or there is a wound low down on the thigh, there is very little room left for fixation of strapping here, and the extension pulls almost entirely on the condyles of the femur. But if in such a case the limb is extended at the knee, then the strapping can be fixed also to the sides of the leg, and thus a much larger area for fixation can be obtained. Of course, if weight extension is made by transfixion of the lower end of the femur, the knee can then quite well be flexed, but transfixion extension is not a method free from risk, and I should not be inclined to adopt it if I could get a satisfactory extension by strapping. Moreover, if the knee does become fixed in the flexed position, it is a more serious matter for the patient than if the limb is straight.

It would obviously be possible to make extension with strapping fixed to the leg and lower part of the thigh, in the flexed position of the hip-joint, by placing the limb on a plane inclining upwards from the hip to the foot, but it seems to me that it is flexion of the knee rather than of the hip that is most desirable, in order to relax the powerful hamstring muscles, and that muscular relaxation brought about by flexion of the hip is not as important. But my splint (as shown in the drawing) could easily be modified, so that if it was desirable to secure flexion of the knee and hip, this could be done. The straight back splint could be replaced by a double inclined plane, and such a form of splint would certainly have to be used in fractures of the femur just below the trochanters and just above the condyles.

Those surgeons who consider it is best to treat a fractured femur not by continuous weight extension, but by what they call "fixed extension," which means securing the limb to the bottom of a Thomas's splint, can easily employ this method, for to either the side or back splint a support can be attached to which such fixation can be made.

It is, of course, not enough to fix the hip-joint so that antero-posterior movement of the pelvis is prevented, but my splint also controls lateral movement. In order to do this it must prevent lateral tilting of the pelvis. When I first used the splint it was carried down by the side of the sound limb, as in a Bryant's splint, and the sound limb was fixed to it. This, of course, prevented lateral tilting of the pelvis, if the foot of the sound side was also fixed to a foot-piece; but the fixation of the sound limb worried the patient and prevented easy use of the urine bottle, and it did not seem really necessary, for if the fractured limb is pulled down by a powerful weight and the pelvis is also fixed by a sling around the perineum to the top of the bed, lateral tilting must, I think, be prevented. This perineal sling is essential for another reason: without it the

weight pulls patient and splint down towards the foot of the bed, even if fairly high blocks are placed under the lower legs of the bed. The sling should be made of a cylinder of cloth, stuffed with wool and covered with jaconet, and the groin should be kept well dusted with boracic acid powder. When we wish to obtain abduction of the limb we must put the sling around the perineum on the opposite side to the fracture, and thus produce a tilting up of the pelvis on that side. But when abduction seems desirable, as it does in fracture high up in the femur, the thigh (vertical) part of the splint can be fixed at any required degree of abduction on the pelvic (transverse) part of the splint.

In certain cases of gunshot fracture of the pelvis a support underneath some part of the pelvis can be added to the splint, and a vertical part could be made for each lower limb, so that it would act in the same way as Colonel Robert Jones's abduction frame. If a piece of well-padded wood were joined to the bottom of the pelvic part of the splint so as to make a floor to it on which the pelvis was supported, the splint would be quite suitable for transport of a gunshot fracture of the femur. The extra piece could then be removed when the soldier had been transferred to the base hospital, and the rest of the splint retained in use.

There may be an objection to a splint of wood in cases with wounds. It is, however, more quickly and easily made than an elaborate metal splint, and if the wood in the neighbourhood of the wound is varnished and covered with mackintosh material, there is no real objection to the wood.

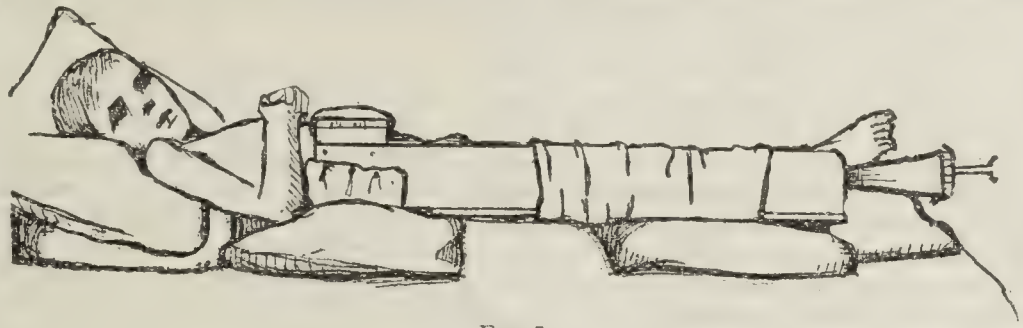


FIG. 3.

With whatever care the surgeon may have placed the fragments in good position, and secured the limb in splints, unless special precautions are taken in the use of the bedpan, movement at the seat of fracture is apt to be produced. It has been pointed out that with the long Liston splint the fracture may be disturbed in this way, as both patient and splint have to be raised to get the bedpan under him, and it has been suggested that the movement at the seat of fracture might be avoided by using a splint which does not fix the hip-joint. But if the hip is not fixed by a splint, but the patient is sitting up in bed, the pelvis cannot be raised for placing the patient on the bedpan without movement occurring at the seat of fracture, for the upper fragment will certainly be raised together with the pelvis. The surgeon leaves the patient sitting up in bed with his fractured thigh secured in a splint, and fails to realize that every time the bedpan is placed under the patient the pelvis and with it the upper fragment of the fracture is raised from the bed. I do not know the amount of distress the use of the bedpan may cause to a patient with a fracture high up in the femur, but I can imagine that it may be very considerable. The best arrangement to allow of defaecation without movement of the fracture is to have a divided mattress, so that the piece corresponding to the coccyx and upper part of the thigh is removable for insertion of a receptacle used as a bedpan. But support must not be removed from under the sacrum, or the pelvis will sink down and movement at the fracture be produced. If a divided mattress cannot be obtained, I have found it possible to arrange firm pillows so as to leave a space for the bedpan, as shown in Fig. 3; but the pillows must be quite firm, and the edge of the pillow underlying the sacrum should be supported by a sandbag lying beneath it, for it is very important that the sacrum should be well supported. Much better than ordinary pillows, however firm, would be firmly stuffed pillows with sides made like a mattress.

To lift the pelvis of a patient with fractured femur, or to slightly roll the patient's body towards the fractured side, in order to get at the sacral region, for the purpose of washing it and applying spirit to it, is very likely to disturb any fracture situated in the upper part of the thigh; but the nurse might safely pass her fingers, covered with a piece of lint, between the skin over the sacrum and the mattress or pillow it was resting on, and thus wash it and apply spirit to it, but she ought to be cautioned not to attempt to raise the pelvis, or attempt to roll the patient on his side.

In gunshot fracture of the femur with posterior wounds, we must, as I have already pointed out, use some form of sling splint. I have generally used a Hodgen's splint, and found its extension very satisfactory; but I see no reason why to the transverse (pelvic) part of my splint two strong metal rods should not be attached, and supported at a considerably higher level at the foot end, thus making an inclined plane from the hip up to the foot. This would be practically a combination of the pelvic part of my splint with the side bars of a Thomas's knee splint, and as it is difficult to fix a Thomas's splint with a suitable sized ring, unless the ring is made for the patient by careful measurement, it would be a great advantage to dispense with the ring, which is so often too large, and lies not on the ischial tuberosity but in the perineum, or even on the opposite side of the perineum, in many of the cases which arrive at the military base hospitals in this country, and cause much distress to the patient, as they can neither urinate or defaecate without great discomfort.

I should prefer continuous weight extension to the mere fixation in extension of the Thomas's splint, but this could be quite easily carried out if lateral bars were fixed to the pelvic part of my splint so as to make a sling splint.

I desire to add some brief remarks on the treatment of fracture of the femur in the aged and in children.

In fracture of the neck of the femur in quite old people we are told in the text-books on surgery that we must not keep them in bed, or they will get hypostatic pneumonia and die. It is said that because bony union in intracapsular fracture will not occur, it is no good fixing the fracture in any way, and that we ought to get them out of bed very soon after the accident. I am sure this is an error. The mere getting the patient out of bed does no good, and causes great distress in a case of recent fracture. It is entirely the position of the patient, not of getting the patient out of bed, which is essential. If the old person is placed in the Fowler's position, with a bed-rest by day, how can he be in any better position in an armchair? We cannot, of course, fix the hip-joint in such cases, for we must keep the patient sitting up by day, and I find a Hodgen's the best splint to use in such cases. Even though we cannot expect bony union, it is desirable to restrict movement to prevent pain, and painful movement at the seat of fracture is much more likely to be controlled by a Hodgen's splint than by sandbags. As to the production of bedsores, there is certainly no greater risk if the patient is supported on an air cushion in the bed than if sitting in an armchair. I have treated in this way, quite satisfactorily, several cases of fractured femur in quite old people—that is, people about 80 years of age.

Then with regard to the treatment of fractured femur in children, it seems to me that if the child is quite young vertical suspension of the lower limb is the best method to employ. The excreta can be attended to without disturbing the fracture and continuous extension can be maintained. The absence of any reliable splinting makes the surgeon a little anxious about the occurrence of deformity, but the result is generally excellent. In older children I think my splint can be used with advantage both for fracture of the femur or for osteotomy in the lower limb; but it may be necessary to fix the whole body in a restless child. This can always be done by a towel and sandbags applied above the level of the splint, so long as the child is restless, or the pelvic part of the splint can be carried up to the axilla, as in Bryant's double splint, and a vertical part can also be added, as in Bryant's splint, for the sound limb; but it seems to me that my splint has the great advantage over a Bryant's splint, that it has a posterior support on which the fractured limb, or the limb on which osteotomy has been performed, rests.

REFERENCE.
(BRITISH MEDICAL JOURNAL, 1909, vol. i, p. 1397.)

RECENT RESULTS IN THE SERUM TREATMENT OF CEREBRO-SPINAL FEVER.*

BY

A. GARDNER ROBB, M.B., D.P.H.,

VISITING PHYSICIAN IN CHARGE OF THE BELFAST FEVER HOSPITALS.

RECENTLY published records of the results obtained in the treatment of cerebro-spinal fever during the year 1916 show very marked improvement in the mortality rates when compared with those of 1914 and 1915. In the sudden and widespread outbreak of the disease in the British Isles in the winter of 1914–1915 death-rates of 50 or 60 per cent. and even higher were common. Various explanations were then suggested to account for the failure in many places to obtain as satisfactory results as had been the usual experience after the introduction of the intrathecal injection of antimeningitis serum by Flexner in 1907.

In the large epidemics in New York and elsewhere in America in 1904–1906 the death-rate seldom fell below 75 per cent. in any series of cases, and was frequently much higher. Similar terrible mortality was experienced in the extensive outbreaks in Scotland and Ireland in 1906 and the early part of 1907.

In the spring of 1907 Flexner introduced the intraspinal injection of serum. Its adoption led to the immediate reduction of the death-rate to about one-third of what it had been. Thereafter, mortality rates of 25 to 30 per cent. were the rule, and in some outbreaks even better results were obtained, notably by Netter in Paris and Christomanos in Athens.

My own experience was that in nearly 300 cases in the Belfast Fever Hospitals in the first seven months of 1907, and before the use of intraspinal injections of serum, the mortality was 72 per cent.; then, while the epidemic was still going on, Flexner's method was adopted, with serum supplied by him, and the death-rate immediately fell to under 30 per cent. In the total of over 270 cases which I have now treated by this method the death-rate works out at just over 26 per cent. Similar rates were obtained with the serum treatment in the extensive epidemic in Texas in 1912; Sophian, in 180 cases treated by him in that epidemic, had a mortality of 25 per cent.

But in the winter of 1914–1915, when cases were numerous in Britain, though the majority were treated by spinal puncture and the injection of serum, the results were in many places very far from satisfactory.

Two main theories were put forward to explain this: (1) That the cases then met with were infected by strains of the meningococcus differing from those employed in the preparation of the serum. (2) That the serum available was not of the same high standard of quality. I think it is now becoming generally accepted that the second of these affords the true explanation, and that, in the words of one of our greatest authorities, "much of the serum then available was of very poor quality, and some of it quite worthless." This has all been changed, and abundance of serum is now obtainable from many different sources, and has recently been giving good results. This is shown by the very interesting reports by Surgeon-General Rolleston, giving the results in the navy for the year August, 1915, to July, 1916; by Captain Charles Gray on military cases in the London area; by the reports on cases in Australia, and also by the results in Canada reported by Fitzgerald and others. Rolleston reports 95 cases in the navy with a mortality of 31.6 per cent., and Gray 46 cases with a mortality of 21.7.

Serum from several different sources was employed in the treatment of the cases recorded in these reports—from the Rockefeller Institute, the Pasteur Institute, Paris, the Lister Institute, that made from Colonel Gordon's strains, Burroughs and Wellcome's serums, and those from the laboratories of Melbourne University and of Toronto University. Good results were obtained with all.

Since Dr. Flexner again took up the preparation of serum at the Rockefeller Institute all my cases have been treated with this serum. Since that time I have had 48 cases of all ages, from 3 months to 55 years. Of these, 13 died, a mortality of 27 per cent. An analysis of the figures shows that, apart from the severity of the type of attack, the most important points are the early commencement of treatment and the greater gravity of the outlook in the older subjects. All recent records afford additional evidence of the enormous importance of early diagnosis.

Navy: 95 Cases (Rolleston).

In 74 cases treated on the first to third day the death-rate was	24.7 per cent.
In 15 cases treated on the fourth to seventh day the death-rate was ...	33.3 ,,
In 6 cases treated later than the seventh day the death-rate was	50.0 ,,

Soldiers in the London Area: 43 Cases (Gray).

In 33 cases treated on or before the third day the death-rate was	9.09 per cent.
In 10 cases treated later than the third day the death-rate was	50.0 ,,

Belfast: 48 Cases (latest Series).

In 36 cases treated within the first five days the death-rate was	22.2 per cent.
In 12 cases treated later than the fifth day the death-rate was	41.6 ,,

The great importance of early treatment cannot be fully shown by statistics, because in every considerable number of cases there must occur some of very fulminant type, dying within a day or two, or even within a few hours. The following case I had some years ago is an example:

A man of 28 years, of splendid physique and a noted athlete, first complained at 8 a.m.; by 10 a.m. he was wildly delirious. He was then removed to hospital; before noon he was comatose and he died at 1 p.m.: total duration five hours.

This, of course, is an extreme example, but it is these exceedingly fulminant cases, in which there is practically no hope, which are most likely to be diagnosed at once and early sent in for treatment. The statistics of cases treated on the first day of illness include many such.

In the 48 cases which I now report the average duration of illness when first injected with serum was 5.5 days; but two of these cases were sent in very late, one on the twenty-first day and one already over fifty days ill. Excluding these two exceptionally late cases, the average duration in the remaining 46 was 4.1 days. I believe that were it possible to cut that average duration down, to say one half, the death-rate would be proportionately reduced.

Age.

It has invariably been found that the older subjects and the young infants give much higher mortality-rates than the older children and the young adults.

Belfast Cases (48). Deaths in Age Periods.

Ages.	Cases.	Deaths.	Mortality.
			Per Cent.
Under 1 year	9	3	33.3
1 to 2 years	3	1	33.3
2 to 5 ,, ...	3	0	0.0
6 to 10 ,, ...	4	1	25.0
11 to 20 ,, ...	16	2	12.5
21 to 30 ,, ...	8	2	25.0
31 to 40 ,, ...	2	1	50.0
41 to 50 ,, ...	2	2	100.0
Over 50 ,, ...	1	1	100.0
All ages	48	13	27.0

From this table it will be seen that, of the 15 cases under 5 years, 4 died—a mortality of 26.6 per cent.; of the 28 cases between the ages of 11 and 30, 4 died—a mortality of 16.6 per cent.; of the 5 cases over 30 years, 4 died—a mortality of 80 per cent. This mortality in age periods compares very closely with my former statistics.

All three cases over 40 years (43, 47, and 55) ended fatally. I have had cases of more advanced years than any in this series make quite complete recovery after severe attack, but such good results are the exception. These older subjects seem much more prone to develop grave complications, such as pneumonia and serious albuminuria, and they have a much greater tendency to pass into a state of general septicaemia.

* Synopsis of a paper read before the Ulster Medical Society on March 4th, 1917.

In mortality tables the young infants show nearly always a comparatively high death-rate. I believe that this is largely, if not entirely, due to the greater difficulty in making the diagnosis in the infant, and the consequent longer average duration of the illness when they come under treatment. The diagnosis in an infant of a few months old is, of course, most difficult; also there is greater opposition to the sending of young infants into hospital. Of the 15 cases in this series under 5 years of age 9 were treated within five days of the onset. Amongst these 9 there was only one death; mortality 11.1 per cent. Whereas of the 6 first treated later than the fifth day 3 died; mortality 50 per cent. When the serum treatment is commenced early, my experience is that these very young children do very well.

Included in this series were 12 military cases. Ten of these made good recoveries and rejoined their units, one admitted on the sixth day of illness died on the sixteenth day, and one, who also had pulmonary phthisis, recovered so far as to show sterile cerebro-spinal fluid and to be allowed up, but he then developed very rapidly progressive tuberculosis in both lungs, and he died two months later.

The average number of injections given in these 48 cases was 4, and the average amount of serum injected was 90 c.cm. The largest amount in any one case was 280 c.cm.

One infant of six months, which lived, admitted to hospital on the fifth day of illness, was punctured thirty times, had 260 c.cm. of serum, and had 1,948 c.cm. of cerebro-spinal fluid drained off from the canal.

Another infant of five months was admitted on the eighth day of disease. Lumbar puncture on admission gave only a few drops of fluid. There was considerable bulging of the fontanelle, puncture was therefore made through the fontanelle, and the serum given by this route. The puncture was repeated five times, and 72 c.cm. of serum given. The infant made slow progress at first but completely recovered, and was discharged after nine weeks. It left hospital last September, and I have recently heard from Dr. Currie of Ballymena, who sent the case in, that the child has remained well since, and appeared to be developing quite normally.

This case is of interest, as the number of cases so far recorded of recovery after treatment by injections given through the fontanelle, rendered necessary by the failure to obtain drainage by lumbar tapping, is very small. I have only been able to find three.

Two years ago, when the results of the serum treatment were in many instances disappointing, other methods of treatment were advocated as follows:

Simple Puncture and Drainage.

This mode of treatment was, before the introduction by Flexner of the intrathecal injection of serum, extensively tried in America and elsewhere, and although it was recognized as useful the results were very far from satisfactory. I have watched the published records of treatment in this disease, and, so far as I know, no one has ever by this method obtained in any considerable number of cases a mortality under 40 per cent., and often it was only practised in more or less selected cases.

Subcutaneous Injections of Antiserum.

At that time also attempts were made, here and elsewhere, to obtain better results by subcutaneous injections of antiserum with at the same time drainage by lumbar puncture, in the hope that the serum would thus more effectually reach the seat of infection, but without any noteworthy success.

It has never been claimed, I think, by those who doubt the value of the intrathecal injections of serum that the serum reduced the patient's chances, but it has been claimed that the results obtained are due to the drainage and not to the serum. If that were so, the method just referred to should have effected as good results. Also the brand or quality of the serum should be of no importance, and the results two years ago should have been as good as those at other times obtained by puncture and the injection of serum.

Puncture and the Injection of Disinfecting Solutions.

Fifteen years ago treatment by puncture and the injection of 1 per cent. lysol was advocated and practised in Lisbon during an extensive outbreak. This method was followed in America, but the results were disappointing, and it was abandoned. Later Wolff recommended the injection of 0.2 per cent. protargol into the canal, and more recently several other disinfectants have been recommended—dilute solutions of carbolic acid, of chloramine-T, of eusol, etc.

Last year Flexner and Amoss carried out at the Rockefeller Institute an elaborate series of experiments to determine the power of lysol and protargol to counteract the effects of meningococcal infection artificially produced in monkeys and young guinea-pigs. They found that:

"Neither protargol nor lysol proved to have any curative action on the experimental infection thus produced in these animals. On the contrary, both lysol and protargol exert antileucotactic and antiphagocytic effects, and are also potent protoplasmic poisons, and the leucocytes with which they come in contact are injured and made to degenerate. According to the extent to which these harmful properties are exerted these chemicals promote the advance, rather than restrain the progress, of meningococcic infection.

"Recovery from meningococcic infection in man and animals is accomplished chiefly through the process of phagocytosis. . . . Any means which interfere with and reduce these essential processes retard or prevent recovery. Both lysol and protargol interfere with and diminish the emigration of leucocytes and the phagocytosis of meningococci, and neither possesses antitoxic power. It follows, therefore, that whatever theoretical advantages might accrue from a bactericidal activity exerted by these chemicals independently of the type of meningococcus causing epidemic meningitis is more than offset by the harmful effects which they cause."

These experiments of Flexner and Amoss prove that the use of lysol and of protargol in guinea-pigs and monkeys infected with meningococcic meningitis do harm and not good. There is no reason to believe that their use in man would be more beneficial than in the monkey. They also raise grave doubts as to the justification for the employment of similar chemical agents, at least until much further experimental research has been done.

All the recent work on cerebro-spinal fever goes further to prove that the most hopeful line of treatment is by lumbar puncture, drainage, and the intrathecal injection of carefully prepared polyvalent antimeningitis serum; and that the most important factors which make for success are early treatment and sufficient dosage.

NOTES ON THE ETIOLOGY OF DYSENTERY.

I.—*Types of Dysentery Bacilli Isolated at No. 3 Australian General Hospital, Cairo, March–August, 1916, with Observations on the Variability of the Mannite-fermenting Group.*

BY

Lieutenant-Colonel C. J. MARTIN, F.R.S., A.A.M.C.,

AND

Sister F. E. WILLIAMS, Australian A.N.S.

(*Abstract.*)

ATTEMPTS to isolate dysentery bacilli from 217 cases in which the stools contained muco-pus with or without blood were made. In many cases the amount of mucus in the stool was very small.

B. dysenteriae Shiga was recovered on forty-seven and mannite-fermenting dysentery bacilli on seventy-six occasions. *Amoebae histolyticae* or their cysts were present in 63 cases and in 36 no causative organism was discovered.

The method employed was to wash the mucus, break it up in sterile broth, and plate out some drops on the surface of a MacConkey plate. Next day likely colonies were picked off, sown into warm broth, and incubated for a few hours. They were examined for motility, and, if motile, discarded. The non-motile broth cultures were sown into glucose and mannite peptone water, and on to an agar slope. If glucose or both glucose and mannite were fermented with the formation of acid only, an emulsion was made from the agar slope and tested as regards agglutinability against a Shiga or Y serum respectively. Macroscopical methods were employed.

In about fifty instances the further biochemical characteristics of the strains were investigated immediately.

The Shiga strains of dysentery bacilli isolated were all true to type.

The organisms of the mannite-fermenting group were, on the contrary, very variable, both as regards their

biochemical activities and agglutinability. Forty-nine of them were tested upon a variety of carbohydrates. They all failed to form acid in lactose, dulcite, inulin, and adonite. They all produced acid in glucose, mannite, and galactose, and turned milk first acid, then alkaline. Their action upon maltose, saccharose, dextrin, raffinose, arabinose, isodulcite (rhamnose), sorbite, and glycerin, and their power to form indol varied with different strains.

The sugar reactions of thirty of the cultures were re-examined for us by Miss Rhodes of the Lister Institute about six months after isolation. Meantime they had been subcultured at intervals on agar slopes. Out of the 3 originally fermenting saccharose 2 had lost this property. Of the 21 which originally fermented maltose 5 had lost the power and other 5 had acquired it; 4 out of 13 had lost the power to split sorbite, and other 2 had acquired it. In 6 cases the action upon raffinose was reversed, 3 ceasing to ferment this sugar and 3 gaining this faculty.

The production of indol was the most variable, the property being lost in 9 cases and acquired in 4.

The instability in biochemical activities manifested by these Egyptian strains other than in the action upon lactose, dulcite, glucose, and mannite, is in accordance with observations upon organisms of this group isolated in different parts of the world, and a survey of the voluminous literature on this subject [see more particularly Hiss (1904), Twort (1907), Müller (1908), Morgan (1911), Penfold (1911), Fraser (1916), and Hehewerth (1916)] convinces us that any attempt to separate the mannite-fermenting dysentery bacilli into groups on the ground of their action upon carbohydrates is unsound.

II.—*The Value of Agglutination in the Identification of Members of the Mannite-fermenting Group of Dysentery Bacilli.*

The serological reactions of strains isolated from cases of dysentery in various parts of the world have been studied by Hiss (1904), Kruse (1907), Rüffer and Willmore (1909), Morgan (1911), Winter (1912), Hutt (1913), and others. The position may be summed up by saying that the mannite-fermenting dysentery bacilli comprise a number of strains serologically distinguishable by the absorption method, but overlapping considerably as regards agglutination. For diagnostic purposes no one serum is adequate; serums made with a member of each of Kruse's groups A, D, and E, would embrace most of the German strains. Of univalent serums Y serum seems to be least specific and covers the greatest range.

From Morgan's work Y serum seemed to be particularly indicated for diagnosis work in Egypt, and we used it exclusively. Nevertheless, nearly one-sixth of the bacilli we recovered in 1916 were not agglutinated by Y serum directly after isolation. The titre of our serum against the homologous organism was 1 in 4,000 at the time of using.

Eight of these strains were kindly re-examined by Miss Rhodes six months later. Four of them were then agglutinated by the same Y serum in dilutions varying from 1 in 400 to 1 in 1,600, so that in the meantime they had acquired some sensitivity by cultivation. Two of the four strains which still failed to be agglutinated were clumped by the polyvalent curative serum of the Lister Institute* in a dilution of 1 in 250.

In eight of the cases we were able to test the organism isolated against the patient's own serum, and in four of them it was agglutinated in dilutions above 1 in 100, indicating that he had been infected by the microbe recovered from his stool. Two of the strains which did not acquire agglutinability on culture are included amongst those which were agglutinated by the patient's serum.

It would be wrong to assume that a bacillus with the morphological, cultural, and biochemical characters of the Flexner group of dysentery bacilli is discredited as an etiological factor because it is not agglutinated by Y or any other univalent serum. This group of organisms is clearly in an unstable condition, and records frequently occur of strains which are not agglutinated by serums prepared from the common type strains. A recent instance, which is interesting on account of the unusual toxicity of the strain for rabbits, is given by d'Herelle (1916). This organism, which possessed the usual characteristics of the Flexner group, was isolated in five cases during a small epidemic amongst a troop of Dragoons, and was not agglutinated by the polyvalent Flexner-Y serum of the Pasteur Institute.

In conclusion, we express our indebtedness to Miss Rhodes of the Lister Institute for retesting many of the cultures in London, in January, 1917, and convey to her our grateful appreciation of her kindness in so doing.

* In the process of immunization the horses furnishing this serum had been injected with a number of Egyptian strains received from Sir Armand Ruffer some years ago.

BIBLIOGRAPHY.

Fraser (1916): *The Bacteriology of Dysentery in Malaya.* Studies from Institute for Medical Research, Federated Malay States, No. 13.

Hehewerth (1916): Ueber Dysenteriebacillen und ihre Eintheilung in Grüppen. *Centralbl. f. Bakt.*, Orig., Bd. 78, p. 3.

D'Herelle (1916): Sur un bacille dysentérique atypique. *Ann. Institut Pasteur*, vol. xxx, p. 145.

Hiss (1904): On Fermentative and Agglutinative Characters of Bacilli of the Dysentery Group. *Journ. of Medical Research*, vol. xiii, p. 1.

Hutt (1913): Neue Beiträge zur Kenntnis der Pseudo-dysenterie, etc. *Zeitschr. f. Hygiene*, Bd. 74, p. 108.

Kruse (1907): Neue Untersuchungen über die Ruhr. *Deut. med. Wch.*, pp. 293 and 338.

Lentz (1913): Article "Dysenterie," in Kolle and Wassermann's *Handbuch*, vol. iii, p. 899, second edition.

Morgan (1911): The Differentiation of the Mannite-fermenting Group of *Bacillus dysenteriae*. *Journ. of Hygiene*, vol. ii, p. 1.

Müller, Reiner (1908): Ueber Mutationsartige Vorgange bei Typhus, Paratyphus and Verwandten Bakterien. *Centralbl. f. Bakt.*, Referate Bd. 42, Beiträge, p. 57.

Müller, Reiner (1911): Mutation bei Typhus und Ruhrbakterien. *Centralbl. f. Bakt.*, Orig., Bd. 58, p. 97.

Penfold (1911): Studies in Bacterial Variation. *Journ. of Hygiene*, vol ii, p 29.

Ruffer and Willmore (1909): On the Etiology of Dysentery. BRITISH MEDICAL JOURNAL, vol. ii, p 862.

Twort (1907): The Fermentation of Glucosides by the Bacteria of the Typhoid-Coli Group and the Acquisition of New Fermenting Powers by *Bacillus dysenteriae*, etc. *Proc Roy. Soc*, Series B, vol. lxxix, p. 329.

Winter (1912): Vergleichende Untersuchungen über die chemischen und biologischen Eigenschaften von Ruhrbazillen. *Zeitschr. f. Hygiene*, Bd. 70, p. 273.

III.—*Epitome of the Results of the Examination of the Stools of 422 Cases admitted to No. 3 Australian General Hospital, Cairo, for Dysentery and Diarrhoea, March to August, 1916.*

BY

Lieutenant-Colonel C. J. MARTIN, F.R.S., A.A.M.C.,

Captain KELLAWAY, A.A.M.C.,

AND

Sister F. E. WILLIAMS, Australian A.N.S.

No. 3 Australian General Hospital being a base hospital, in a large proportion of the 422 cases examined the acute stage of the illness was over and the patients were passing normal or merely loose motions, but in 217 cases the stools contained muco-pus in some amount, with or without blood, at the time of the examination. All specimens were examined for protozoological parasites, but only when mucus was present was the isolation of dysentery bacilli attempted.

TABLE OF RESULTS.

Total cases 422.

Amoeba histolytica or its cysts	72
Amoeba coli	29
Lamblia intestinalis	33
Tetramitus mesnili	14
Trichomonas intestinalis	16
Coccidia (Isospora)	1

217 Cases passing mucus with or without blood:

Amoeba histolytica or its cysts	63
Bacillus dysenteriae, Flexner group	64
Bacilli indistinguishable culturally from Flexner group	12
Bacillus dysenteriae, Shiga	47

No grounds were discovered for supposing that any of the protozoological parasites present, except *Amoeba histolytica*, were responsible for ill health. Twelve organisms isolated resembled the Flexner group of bacilli culturally and biochemically, but failed to agglutinate with any Y or Flexner serum at our disposal; 8 of the strains were re-tested against the same serum six months later, when 5 of them agglutinated quite well. These non-agglutinable strains will be described in detail and their significance discussed in another communication.

METASTATIC GAS GANGRENE:

FIVE CASES, WITH RECOVERY IN THREE.

BY

J. N. J. HARTLEY, F.R.C.S.EDIN.,

CAPTAIN R.A.M.C.(T.C.).

MICRO-ORGANISMS, in cases of gas gangrene, gain entrance to the blood stream and produce lesions in distant parts of the body, perhaps more frequently than is generally supposed.

This in the majority of cases is a terminal phenomenon and readily escapes notice. Colonel Cuthbert Wallace[1] has mentioned two cases in which metastatic lesions were manifest shortly before death, and two similar cases are recorded by Kenneth Taylor.[2] Mullally and McNee[3] describe a remarkable case in which the bacillus of malignant oedema, circulating in the blood, became localized at the sites of injections of antitetanic serum and pituitrin.

During the past five months five cases of metastatic gas gangrene have occurred in No. 8 General Hospital, and three of these are of special interest, inasmuch as each made a satisfactory recovery.

The records of the five cases are as follows:

CASE I.

Cpl. A. (under the care of Captain W. F. Neil, R.A.M.C., T.C.) was admitted on September 9th suffering from gunshot wound of the right upper arm. The humerus was comminuted and the wound very foul and septic.

On December 6th an operation was performed, drainage was improved, and fragments of bone removed.

On December 9th the arm below the wound became cold and areas of discoloration and bullae appeared on the forearm and hand. The patient was pallid, complained of thirst, and vomited. The pulse was soft and running.

The arm was amputated at the shoulder-joint, the flaps being left unsutured. The same evening crepitation was noticed in the left buttock. The extremities were cold, and the pulse barely perceptible; 100 c.cm. of eusol were injected into the median basilic vein. Shortly afterwards the pulse improved, and he began to perspire profusely.

The improvement was very transitory; he rapidly grew worse, and died at 2 p.m. on December 10th.

An autopsy was made soon after death, and the gluteal muscles of the left buttock were found to be greyish, soft, and crepitant. A bacteriological examination demonstrated the presence of *B. aërogenes capsulatus* in large numbers.

CASE II.

Cpl. B. (under the care of Captain W. F. Neil, R.A.M.C., T.C.) was admitted on September 17th with a gunshot wound of the abdomen. An operation had been performed at the casualty clearing station, and the ascending colon had been injured. On his arrival at the base there was a faecal fistula and swelling and crepitation over the right deltoid. There were also the usual toxic symptoms associated with gas gangrene—a soft rapid pulse, intense thirst, and marked pallor. The same day an incision was made over the right deltoid; the whole of the muscle was greyish-brown in colour, crepitant, and spongy. A free excision was made, and 70 c.cm. of eusol given intravenously. The patient rapidly grew worse, and died the next day.

CASE III.

Pte. L., aged 22, was admitted September 5th with gunshot wound of the right arm. The missile had traversed the upper arm a short distance above the elbow and comminuted the humerus. The entrance and exit wounds were large, and the brachial artery lay exposed. The forearm and hand were cold, and presented a bluish mottling and numerous bullae. Crepitation was detected, and bubbles of gas and a sanious fluid could be pressed from below into the wounds. The patient was pallid, had a dry, foul tongue, and vomited.

The arm was amputated a little above the insertion of the deltoid, a flap being taken from the outer aspect.

On September 6th he was extremely ill. Pulse 140, respirations 32, temperature 103°; stimulants were freely administered, and 100 c.cm. of eusol injected into the left median basilic vein.

On September 9th the general condition was slightly better, although there was extreme pallor and an insatiable thirst. Pulse 110, temperature 101° to 103°, respirations 30. The flap had become necrotic, otherwise the stump was satisfactory. Pain was complained of in the right buttock, where there was found to be some swelling and a suspicion of deep crepitation.

On September 10th the crepitation was very distinct, and extended over the sacral and right iliac regions and down the back of the thigh to within a handbreadth of the knee. The right buttock was definitely tympanitic, and over the most prominent part there was a small area of bluish discoloration.

Under a general anaesthetic an incision was made to the right of the sacrum. Gas was present in the subcutaneous tissue, and gas and sanious fluid could be expressed from the right buttock.

A small circular slough of skin formed at the site of the bluish discoloration; on September 16th the slough was gently removed, and along with it was extracted a greyish necrotic mass of muscle, measuring 4 in. by 2 in. The patient was decidedly better. There was no longer thirst, and he was now able to enjoy food. The temperature was falling by lysis. Pulse 96, respirations 24. On September 20th the arm stump and wounds of buttock were covered with healthy granulations. The patient was rapidly gaining colour and strength, and was this day transferred to England.

CASE IV.

Pte. W., aged 21, was admitted November 23rd suffering from trench feet. The toes were bluish-black and cold. There were bluish patches and bullae on the dorsal and lateral aspects of the feet and oedema of the legs extending as high as the knees. The blisters were snipped, the feet washed with methylated spirits, and boric powder and dry gauze applied.

On December 6th the feet had become sodden and foul smelling. The bluish patches had become confluent and an indefinite line of demarcation had formed at the level of the ankle-joints. There was pallor and thirst, and the temperature rose to 103° and the pulse to 120.

The left leg was amputated midway between the ankle and knee. The right leg was amputated a handbreadth above the ankle, and as there was a suspicion of gas in the intermuscular planes, the lateral incisions were extended upwards and the short flaps left unsutured. The patient's general condition was so critical that the operation had to be hurriedly completed. Before he left the table a mixture of 100 c.cm. of eusol and 200 c.cm. normal saline was injected into the median basilic vein.

On December 7th the oedema of the legs was subsiding and the stumps were satisfactory. The patient, however, was extremely ill, mildly delirious, and passing urine involuntarily. There was a bluish pallor of the face. Respirations 46, pulse 140. There was no dyspnoea and nothing abnormal to be found in the chest. One pint of saline and 1 c.cm. of pituitrin given subcutaneously.

On December 8th he was still delirious. Respirations 48, pulse 120, temperature 101°. Next day he was no longer delirious, but very weak and pallid. He complained of pain in the buttocks, and a small serous blister was discovered on the left buttock. On December 12th there was slight improvement and the stumps were satisfactory, but the sclerotics had a marked icteric tint. On December 13th he was still complaining of pain in the buttocks and both gluteal eminences were found to be tympanitic. The skin over the sacral and lumbar regions was oedematous and over the posterior superior spine there was an area of bluish-red discoloration. This state of affairs was remarkable, as the patient's general condition was decidedly better. There was still the waxy pallor, but the patient was feeling better and the tongue was clean and moist.

Under a general anaesthetic incisions were made downwards and outwards from the posterior superior spine. The subcutaneous tissue was slightly oedematous. On incising the deep fascia bubbles of gas and a thin yellowish blood-stained fluid escaped. The finger was inserted, and greyish crepitant masses of necrotic muscle extracted. The wounds were lightly packed with dry gauze. Buttock wounds douched daily with hydrogen peroxide and eusol gauze applied. Small greyish tags of muscle slough were separating on December 16th, and exposing early granulating tissue. Portions of the flaps of the right stump had necrosed, otherwise the stumps were satisfactory, the patient feeling stronger, enjoying food, and sleeping well. On January 2nd the temperature had been normal for a week. The buttock wounds and stumps were clean. The patient had been allowed up in a chair for several days, and on this day was transferred to England.

Bacteriological Examination.—A fragment of slough was examined by Captain W. E. M. Armstrong, R.A.M.C.(T.C.), and was found to contain *B. aërogenes capsulatus* in large numbers.

CASE V.

Cpl. P. (under the care of Captain G. Whittington, R.A.M.C., T.C.) was wounded in the right buttock, right arm, and right shoulder by shell fragments on December 10th. On December 12th the buttock wound was enlarged at the casualty clearing station, and a small piece of shell removed from the bone close to the right acetabulum. When admitted to the base hospital on December 14th he was not markedly pallid, but complained of thirst. Pulse 92, temperature 99.5°. The wound in the right buttock was about three inches long, and lay a little above and behind the great trochanter. There was a moderate amount of sepsis, which, however, was localized to the immediate neighbourhood of the wound. Accidentally it was found that deep crepitation could be made out in the opposite buttock. There was no discoloration of the skin.

An incision was made downwards and outwards from the left posterior superior spine of the ilium, and gas and a thin blood-stained fluid escaped. A portion of the gluteus maximus, measuring 2 in. by 3 in., was greyish and crepitant, and was excised. The wound was lightly packed with dry gauze.

On December 18th there was still a small amount of thin purulent discharge from the left buttock. The discharge contained fragments of muscle slough and had a characteristic anaërobic smell. General condition much improved. For more than a week there was irregular pyrexia, and this was in part due to the septic state of the wounds of the left arm, but on January 3rd all the wounds were clean and granulating, and his general condition was such as to allow of his being transferred to England.

Bacteriological Examination.—Captain W. E. M. Armstrong, R.A.M.C.(T.C.) reported on the gluteal discharge that *B. aërogenes capsulatus* was present in large numbers, and that in aërobic culture a coliform bacillus had been isolated.

It will be observed that in all of the three cases in which a bacteriological examination was made, the causal organism of the metastatic infection was the *B. aërogenes capsulatus*. Four of the secondary lesions occurred in the buttocks, and it would seem—as Kenneth Taylor pointed out in his two cases—that continuous pressure, due to the patients' posture, was an important factor in the localizing of the metastatic infection. Whether the intravenous injection of eusol in Cases III and IV was contributory to their recovery it is impossible to say. In Case V there was recovery without the injection of eusol, but the remarkable feature of this case was that, despite the evidence of a systemic infection with the *B. aërogenes capsulatus*, there was an absence of marked toxaemic symptoms.

It will be noted that in the fatal cases, I and II, the intravenous injection of eusol was given when the secondary lesions were already manifest and the patient obviously moribund.

In the successful cases III and IV the intravenous injection of eusol was given early. The metastases occurred late, and recovery followed with the minimum of surgical intervention. In Case III the extensive gas gangrene in the right buttock and thigh occurred five days after amputation of the right arm. Only a small incision was made for the secondary lesion, yet the infection became localized, and a muscle slough separated spontaneously. In Case IV the metastatic infection in both buttocks developed a week after the amputation of the gangrenous feet. Here again the operation for the secondary lesion was limited, and no attempt was made to extirpate the infected muscles. It can only be suggested that in these two cases the intravenous injection of eusol delayed metastasis, and that prior to the secondary lesions the patient had time to acquire an immunity sufficiently powerful to overcome the disease.

I wish to express my thanks to Captain Max Page, R.A.M.C.(S.R.), for his help and advice, and also to Lieutenant-Colonel S. G. Butler, D.S.O., R.A.M.C., for his kind permission to publish these cases.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, September 16th, 1916. [2] *Lancet*, December 23rd, 1916. [3] *Journal of the Royal Army Medical Corps*, December, 1916.

A NOTE ON SKIN GRAFTING.

BY

D. G. GREENFIELD, M.D., F.R.C.S.

SEVERAL successful cases of skin grafting during the past few weeks have prompted the writing of this note. Four large wounds have been treated by the method described. In three the wounds have been covered by firmly-growing skin at the end of a fortnight. In one only a few small islands of skin grew.

Failure follows many cases of skin grafting owing to the loosening of the grafts by excessive discharge, or to their displacement by the shifting of a dressing or its removal. The employment of oiled silk, celluloid or foil next the grafts only lessens the liability. The absence of a dressing does away with the second risk and minimizes the former, since much less discharge occurs when the wound is open to the air. There may be some greater risk of sepsis, but the other advantages outweigh this. A gauze cage can be made to keep off flies if the part is not covered by bedclothes. Several procedures recommended in skin grafting are open to criticism. It is said that grafts should overlap each other and the margin of the wound. Epithelium will adhere to a granulating surface, but not to epithelium. Consequently, the overlapping edges die from lack of nourishment. There being no spaces between the grafts there is a greater risk of the discharge floating the grafts off. It is often recommended to shave down granulations before applying grafts. This I regard as most undesirable, since it increases the discharge. If the surface is flabby and unhealthy, it is much better to wait till firm new granulations appear before applying the grafts. It may, however, be advisable to shave down the edge of the wound if it be raised and hard. The details of the method used are as follows:

1. The skin from which the grafts are to be cut is cleaned with ether soap. The best site is, I think, over the ileo-tibial band, as the surface is flat and the skin is not easily moved on the subjacent tissues. Grafts of a uniform thickness are cut easily.

2. The granulations are swabbed with saline solution and dried with aseptic gauze.

3. Under a general anaesthetic a graft about the size of two or three postage stamps is cut with a wet razor. In thickness it should be sufficiently transparent to allow the blueness of the razor to be seen through it. On its removal pin points of bleeding should appear.

4. The graft is slipped from the razor on to the wound, slightly stretched with two fingers, and pressed firmly on. About one-eighth of an inch is left between the grafts.

5. No dressing is applied to the grafts. The patient should be in a position in which he can lie comfortably and the contact of the bedclothes avoided by a cradle.

6. Aseptic gauze is stretched firmly over the surfaces from which the skin was cut. This should be left till it peels off readily. If aseptic, the areas are dry. If any sepsis is present, the pus will soon loosen the gauze. It is difficult to avoid the infection of the skin in some cases.

After the operation discharge accumulates between the grafts and forms in some cases an unpleasant-looking scab. This should not be touched before the lapse of a week, when gentle bathing or fomentations will easily remove it. One reads of grafts which disappear entirely for a few days, after which a fine growth of epithelium can be seen over the surface. This suggests to me failure of all but a few fragments to "take," as happened in one of my cases.

The grafts in the presence of discharge may pucker slightly. This is the reason why I think slight stretching of them in application is useful. If there is any blistering of a graft a day or two after operation it is advisable to snip a small button-hole with a pair of sharp curved scissors. In future, except in a very clean dry wound, I would make such a small opening in any graft above the size of a postage stamp at the time of operation. There is nothing novel in the method used, but it is one which has much to recommend it.

ANOTHER WANDERING SHRAPNEL BALL.

BY

CAPTAIN H. L. GREGORY, R.A.M.C.(T.F.).,
GENERAL HOSPITAL, B.E.F.

PROFESSOR ARTHUR KEITH'S letter in your issue of February 24th prompts me to record the following case, in which a shrapnel ball entered the body between two ribs and was removed from the common iliac vein:

The sequence of events was, baldly, as follows:

January 9th. Wounded between ninth and tenth ribs, anterior axillary line, right side.
January 9th to 14th. *X*-rayed at casualty clearing station. Bullet seen in chest.
January 14th. Admitted to No. 26 General Hospital. Bullet seen in chest by *x* rays.
January 15th. Right haemothorax diagnosed.
January 17th. Explored with needle and found sterile.
January 18th. Aspirated. A pint of fluid blood; much cough followed.
January 20th. *X*-rayed again. Bullet not in chest, but seen in abdomen.
January 25th. *X*-rayed again. Bullet in same position. Bismuth meal.
January 26th. Pain in right iliac fossa, suggesting appendicitis.
January 27th. Pain and tenderness increasing. Swelling above Poupart's ligament.
January 28th. Operation. Appendix removed; bullet removed from vein.
January 29th to 31st. Increasing pain, distension, and vomiting, followed by death.

There was a gash wound in the front of the arm, which possibly took a little "way" off the bullet. When the patient was admitted the breathing was distressed, necessitating the upright position, and there was frequent cough with fairly copious greenish sputum. There were signs of pleural effusion—dullness, diminished breath sounds, vocal fremitus, and resonance, with displacement of the apex beat to the left. There was aegophony on both sides.

The *x* rays showed the bullet near the middle line at the level of the anterior end of the sixth rib. It moved obliquely upwards and inwards with respiration, and now and then oscillated quite violently through a distance of about an inch.

Captain D., radiographer to the hospital, suggested that it might be in a bronchus, and it seemed very possible that this was so, thus accounting for the cough and sputum and respiratory distress, though there had never been any haemoptysis. The *x* ray, of course, showed the haemothorax, which rather obscured the outline of the liver and diaphragm.

UNIVERSITY OF CALIFORNIA - URBANA-CHAMPAIGN

After aspiration there was severe paroxysmal cough, air hunger, and distress, lasting about half an hour, but quieted by morphine.

Next day breathing was much easier, and on January 20th, when he was *x* rayed again, the cough was gone.

Now came the surprise; the bullet was no longer in the chest, and on searching the abdomen it was found an inch below and an inch to the right of the umbilicus. Neither Captain D. nor I had at this time heard of bullets wandering about the circulation, so we concluded that it had either been coughed up and unconsciously swallowed, or had passed directly from a bronchus into the oesophagus by ulceration. There was no evidence in support of these hypotheses, but we could suggest no other, and for the next few days the stools were closely scrutinized, but without avail, the bullet remaining where it was. A bismuth meal was watched descending the oesophagus, but no leakage was detected, and there was never any cough or difficulty at meals.

On January 26th temperature and pulse each rose to 100, with pain, tenderness, and resistance to pressure in the right iliac fossa, and a small amount of swelling above Poupart's ligament.

Next day the symptoms and signs persisted, and suggested either intercurrent appendicitis or ulceration of the small intestine in which the bullet was thought to be, possibly held up at the ileo-caecal valve.

At the operation I found the appendix inflamed and removed it. The surrounding coils of intestine were injected and beginning to adhere. I then turned up the caecum and ileo-caecal junction, and felt the bullet behind the peritoneum on the inner side of the ureter and to the outer side of the common iliac artery, and as I thought, vein. I removed it by blunt dissection, together with a large bead of what I thought was rather thick pus, but which may have been fibrin, and was dismayed to find free bleeding follow. This was controlled by pressure with a retractor, and the rather ragged hole in the vein, which could not be stitched, was plugged with gauze, wrapped in thin rubber, and brought out of the incision in the rectus sheath. The vein below was thrombosed. Unfortunately peritonitis ensued, and the patient died on January 31st.

Post-mortem examination revealed unexpected conditions. The track of the bullet was first followed through the chest wall and diaphragm into the liver; it had left an orange-coloured track three inches long, which led straight into the end of the hepatic vein. There was no sign of bleeding from the liver wound, and merely a film of blood in the chest remaining from the haemothorax. There was general peritonitis, the pelvis was full of turbid fluid and flakes of purulent lymph, and there was a subphrenic abscess on the left side. There had been no leakage from the plugged hole in the vein, but it was firmly thrombosed below.

It will be obvious, I think, how I was misled from the beginning by the supposition that the bullet was at first in a bronchus. It seems now most probable that it was at that time in the right auricle, and that the excitement and disturbance of the aspiration dislodged it into the inferior vena cava, and that its passage through the mouth of that vessel caused the intense respiratory distress referred to above. The mysterious and for some days unexplained immobility of the bullet in the abdomen perplexed us all.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CARCINOMA OF THE COMMON BILE DUCT WITHOUT JAUNDICE: RAPID DEATH FROM METASTASIS.

RECORDING a case in which a symptom is absent that may be reasonably looked upon as a sheet anchor in the diagnosis often seems to me of doubtful value, and even confusing. On the other hand, a chance reader may find such a case of some utility, because he is engaged in some special study of the particular condition, or because he finds in it a useful warning against over-confidence in the possibilities of accurate diagnosis. For these reasons I venture to publish the following brief notes:

A man aged 38 years, a waterside labourer, came to University College Hospital two weeks before admission, complaining of pains in the right shoulder. He was a dock labourer, and the only point of importance in his history was the presence of a urethral stricture the result of gonorrhoea. The pain in the shoulder was quickly followed by the appearance of a tender, semi-fluctuating swelling, the size of a pigeon's egg, over the right acromio-clavicular joint. A few days later he lost his voice, and eight days before admission developed complete facial paralysis on the left side, which he attributed to exposure to the cold wind when working on a barge.

He was admitted to hospital on November 24th, 1916, and the further point was ascertained that for a week before the above symptoms were complained of he had suffered from neuralgic pains in the right thigh and left side of the abdomen. It was apparent that the man was desperately ill, wasted, and suffering severely. Examination at once excluded any such condition as gonorrhoeal arthritis or multiple gummata. In addition to the tumour already noted a mass was felt in the right rectus abdominis muscle, and rapidly growing masses were also present in the neck, due to involvement of the lymphatic glands. The left vocal cord was paretic. The neuralgic and agonizing pains in the right thigh and leg were clearly due to intermittent pressure. The left facial palsy was complete, with loss of taste on the anterior part of the tongue. Multiple growths afforded the only explanation and death rapidly followed (December 30th, 1916).

There was not the slightest indication as to the primary seat of the neoplasm during life, and this dogmatic statement was supported by the necropsy.

Although there was at no time any trace of jaundice, and in fact any abdominal symptoms apart from the neuralgic pains, the primary growth was situated in the common bile duct, which was infiltrated by carcinoma but the lumen not diminished.

The growth on the right shoulder, which sprung from the right clavicle, reproduced the carcinoma in an intensely active form. Growths were disseminated in the cervical, thoracic, and abdominal glands, in the lungs, peritoneum, and adrenals.

London, W. F. J. POYNTON, M.D., F.R.C.P.Lond.

Reports of Societies.

THE TREATMENT OF TRAUMATIC AND ARTERIO-VENOUS ANEURYSM.

AT a meeting of the Medical Society of London on April 2nd, Lieutenant-Colonel D'ARCY POWER, President, being in the chair, Colonel CHARTERS J. SYMONDS, opening a discussion on the treatment of traumatic and arterio-venous aneurysm, said that whilst many cases of arterio-venous aneurysm had been submitted to operation since the war began others had remained untreated; it would be very valuable to see both groups, and so modify the views currently held. His experiences had led him to correct some of his former views. The most interesting form of aneurysm was that in which there was a direct communication between an artery and a vein, either direct or by the intervention of a sac. In some the communication was set up within a few hours of the trauma; in others there was considerable delay. He asked for experiences as to the secondary effects of aneurysm, such as were alluded to by Sir George Makins and by Dr. Bernheim of America, especially cardiac and circulatory disabilities. The local conditions in some varix aneurysms were important; in those involving the common femoral artery and the profunda femoris there was enormous dilatation of veins, so that they looked like sinuses running through the muscles. The difficulty in arresting haemorrhage in these was very great. After giving particulars of a number of these he proceeded to discuss the treatment. In aneurysm of the posterior tibial artery the disability was very slight; this was also true for those at the bend of the elbow. When an aneurysm existed at the base of the skull, so that the patient was kept awake at night and had nerve disturbance in consequence, it was advisable to operate. Sir George Makins's view was that aneurysmal varices seldom required operation. He described, by means of diagrams, the various operative procedures which had been devised for aneurysm, and the degree of success which had attended them in his own experience. Gangrene was a serious danger in operations on the common femoral; in the South African war it occurred in 50 per cent. according to Makins. In aneurysms below the middle of Hunter's canal, his experience was that gangrene did not follow ligature of the vessels.

With regard to arterio-venous aneurysms, Makins was strongly of opinion that these should be left for from two to three months, to consolidate and contract and to permit

the establishment of a collateral circulation. But the speaker suggested that it might be wiser to operate on them early, in the same way as upon a wounded artery, thus avoiding the trouble due to adhesions which followed passive waiting. Procedures which might be useful were temporary ligature of a large artery through the abdomen, or compression of the common iliac artery by a band of deep fascia being sewn over it, or using a portion of saphena vein sufficient to encourage early collateral circulation. In aneurysm of the carotid there was danger of the supervention of hemiplegia, one or two examples of which he related. He thought that much could be said in favour of operating earlier than Sir George Makins advocated. The formation of adhesions and the development of a large number of thin-walled vessels, which were particularly hampering if the operation indicated was suture of the aperture in the artery, had to be taken into account.

Major R. H. JOCELYN SWAN spoke of the need for distinguishing between arterial haematoma and arterio-venous aneurysm. By the former was meant a collection of fluid blood and clot contained under pressure in the muscular and fascial planes of the limb, into which blood is forced from a laceration in the wall, or complete severance of an artery or a large branch of it. The clot might become softened by direct infection from the external wound, when secondary haemorrhage might occur, or, as was more common, the surface wound healed, whilst the impact of the circulating blood hollowed out a cavity in the recent clot, which, by organizing, formed a more or less thick-walled laminated sac with smooth inner lining, resulting in a pulsating swelling, and forming the false or traumatic aneurysm. At the same time, as the result of infiltration of the tissues by serum and leucocytes, a good deal of matting and fixation of the sac occurred, and the anatomical lines were obscured—conditions which caused difficulty when an attempt was made to remove the sac at an operation, and might render the main vessel hard to find at some distance from the aneurysm.

An arterio-venous aneurysm implied a wound both of the artery and vein, with a communication between them. This might be direct, causing aneurysmal varix. This simple form was uncommon; it was more common to find an aneurysmal sac at the distal side of the artery in addition, or a sac lying between, or on one side of, both artery and vein, with which both communicated. In some cases the sac seemed to be formed mainly from the venous injury. An arterio-venous aneurysm might not be noticed for some weeks or months after the injury.

Of the recently published cases of aneurysm following gunshot injuries, of 146 which were operated upon 106 were false aneurysms and 40 of the arterio-venous variety. In his own 23 cases, 16 were false and 7 arterio-venous. With regard to situation, 40 occurred in the upper extremity and 90 in the lower, 12 of the remainder being in the carotids. The proportion of arterio-venous to false aneurysms was greater in the larger vessels; in the femoral it was 14 to 31, in the popliteal 8 to 21, in the posterior tibial 2 to 13, whilst in the axillary it was 3 to 9, and in the brachial 2 to 14. In the neck there were 8 arterio-venous aneurysms to 4 traumatic.

The physical signs of arterio-venous aneurysm differed from those of false aneurysm. The bruit, which might be systolic at first, became a more continuous rumble, and was conducted more widely both along vessels and bones. The thrill was coarser and bubbling and often appreciated by the patient. The swelling of a varicose aneurysm was usually smaller and less defined than that of a false aneurysm.

Dealing with treatment, he advised delaying operative procedures for some weeks unless untoward symptoms, such as gangrene, rapid increase in the size of the swelling, or increasing pain from pressure upon nerves, should force one's hand. In most cases of arterial haematoma he advised complete rest, in the hope that the whole might consolidate, whereas if a traumatic aneurysm developed it could be dealt with subsequently. If an arterial haematoma were opened it might be very difficult to pick up the injured vessel, whereas a proximal ligature of the main trunk at the seat of election was to be avoided, for not only had the collateral circulation been given little chance of establishing itself, but also it might be seriously interfered with by the pressure of the mass of blood clot in the tissues. Further, the haemorrhage might proceed from a large branch and not from the main trunk, whilst ligature of the main vessel might determine the onset of gangrene in the limb. When a false aneurysm was present, the patient should be kept at rest with slight pressure on the swelling, and the latter carefully watched for any increase in size. Although operative treatment would generally be necessary, it should be deferred, if possible, until all wounds were firmly healed and collateral circulation had had a good chance of becoming established. The difficulties were lessened rather than increased by waiting. If the swelling had not appreciably diminished in six to eight weeks, if signs of increase were present, or if pain from nerve pressure became marked, operation should be undertaken. In most of his operations he had been obliged to abandon an attempt at suture and to rely upon obliteration of the vessel by ligature. The operation should aim at reconstructing the lumen of the injured vessel by suture; when this was not feasible, ligature immediately above and below the injury should be carried out and the sac emptied and obliterated by suture. It was neither advisable or necessary to attempt removal of a large sac. By opening the sac one made certain that no branch led into it which would keep up the aneurysm.

In arterio-venous aneurysm operation would seldom be required for direct fistula. When the artery and vein were in communication through a sac, operation was needed owing to the gradual increase in size of the swelling. He believed that ligature of both the artery and the vein, above and below the aneurysm, would be found to be the best that could be done where immediate suture was impracticable.

Major MCADAM ECCLES remarked that Colonel Symonds thought it would be well not to wait before operating on arterio-venous aneurysm and ordinary traumatic aneurysm, whilst Major Jocelyn Swan thought it wise to wait. He believed that both were right. In the case of aneurysm in the neck, he considered that the sooner one operated the better; but when the situation was one of the limbs, it was right to wait for collateral circulation to be established. So far he had not had a case of gangrene of the lower limbs, because he had waited for months in these cases.

Captain J. R. LEE, of the Australian Forces, expressed his firm belief in combining the operative treatment with the administration of a vaccine to counteract the lighting up subsequently of pathogenic organisms. Where it was possible preference should be given to an autogenous vaccine. He agreed as to the wisdom of waiting in cases of aneurysm of the limbs. He did not agree with leaving the sac, as there was evidence that it was apt to become canalized.

Captain C. ROWNTREE considered that aneurysmal varix with a direct arterio-venous fistula was, on the whole, better left alone, especially as it caused but little trouble. It was a different case with the indirect variety. Suture was very rarely possible though it should be aimed at. It would be useful to learn the proportion of cases of successful suture. One could not always be certain whether the condition was aneurysmal varix or varicose aneurysm, and in some cases it was essential to incise and explore before deciding whether it should be left alone or operated upon.

Dr. C. H. MILLER thought, as the result of watching many cases, that when an aneurysm was near nerve trunks, if the surgeon was willing to operate, he should do so at once. With regard to tying the common carotid, he believed that hemiplegia occurred only when emboli material found its way into the brain.

Colonel SYMONDS and Major SWAN replied.

THE late Surgeon-General Sir Benjamin Franklin, C.I.E., left estate valued at £22,327 gross.

A MEDICAL life assurance association was founded in the Republic of Colombia as the outcome of a movement started at the second national congress of medicine held at Medellin in 1913. So far, however, the movement does not seem to have had much practical result, for, according to the *Repertorio de Medicina y Cirugia* of Bogotà, the membership is only 36, and although some 40 practitioners have died since the date of its foundation, not one of them belonged to the association, and almost all of them have left their families unprovided for.

Reviews.

ANAESTHESIA.

"THE proper administration of an anaesthetic is more than a mere mechanical performance, it is an art." This pronouncement, made by Dr. PALUEL J. FLAGG, in *The Art of Anaesthesia*,[1] conveys his aim in writing this book. In the introduction a just tribute is paid to Dr. C. W. Long, the pioneer of ether anaesthesia. The next 119 pages are devoted to general aspects of anaesthesia, its signs, the methods and agents employed, and include a vast amount of careful and clearly expressed information. The book is practically a guide to etherization, although nitrous oxide alone and with oxygen, and ethyl chloride receive some attention. Chloroform, however, is relegated to a secondary place, and its action and the appropriate methods of exhibiting it are not adequately treated. We are told that it is too dangerous for routine employment, and advised to adopt the C.E. mixture in its place. This is not surprising since the author tells us that chloroform vapour of 5 per cent. and over is dangerous, although 2 per cent. is usually given as a maximum! He appears to be unaware of the important work done of late years in England on this subject, and of Sir E. Schäfer's condemnation of Harley's C.E. mixture. No mention of dosimetric methods is made. As an exponent of ether methods we have nothing but praise to give to this book, although we question the accuracy of Dr. Flagg's statements anent the ocular phenomena under that anaesthetic. The methods—oral, intrapharyngeal, intratracheal, intravenous, and colonic etherization—can readily be understood by reading Chapter IV. We are warned that the last named method is dangerous. There are also useful sections dealing with local analgesia, mixed anaesthesia, and spinal anaesthesia, but in the case of the last named procedure no mention is made of the lateral posture, undoubtedly the most satisfactory one. Preliminary medication is fully treated, but Dr. Flagg, in recommending morphine gr. $\frac{1}{4}$ and atropine gr. $\frac{1}{150}$, seems to us to fall into the common error of giving too much of the former and too little of the latter drug. The directions as to post-operative treatment are excellent, and we welcome the importance given in the book to the subject of acapnia. Anoci-association receives approval, but the reasoned criticisms made upon it in this country find no mention. There are two chapters—one describing methods of keeping records of anaesthetic cases, the other giving "the point of view of the patient"—both of which are at once novel and valuable. It is a pity that so good a book should be marred by errors such as "dilation," Ringler's (for Ringer's), besoin de respire, mucous (for mucus); these and other slips should receive correction.

In the collection of essays comprised in *The American Yearbook of Anaesthesia and Analgesia*[2] (1915) we find a great deal of valuable material, and Dr. F. H. MCMECHAN, the editor, is to be congratulated. The views of Dr. R. S. Lillie upon the theory of anaesthesia are interesting, if not wholly convincing. They traverse a wide field, as is shown by the appended bibliography of 160 authors. We are told that "the phenomenon of reversible decrease of activity of responsiveness is anaesthesia"—a definition which takes us back to Bernard, Jolyet, and Lebranche. The cell wall of tissues is certainly affected in narcosis, and recent work seems to suggest that certain alterations in the physico-chemical properties of the plasma membrane are associated with anaesthesia, if not its essential cause. The decrease of its permeability to the electrical polarization normally following stimulation, and general depreciation in cell activity, are examples of such alterations. The asphyxial theory revived by Verworn and his school and Matthews's view that anaesthetics form a chemical union with protoplasm are discussed, although Verworn's experiments, when studied from the standpoint of the practical anaesthetist, hardly support his thesis. The blood changes occurring under anaesthesia are reviewed by Dr. Casto. His conclusions are that haemoglobin is always lessened, and that changes in the form and number of blood cells occur. Acidosis, a perverse metabolism, may, he assures us, be prevented under anaesthetics by maintaining the blood content of oxygen. In many essays dealing with this question one fails to find that this important fact is noted. Asphyxia is not anaesthesia, nor are the phenomena of these conditions the same. Graham's work on "late chloroform poisoning" is important. He indicates that the pathological conditions usually attributed to anaesthetics are produced by many other drugs, and we might add by sepsis; dissociation of the haloid may, he thinks, be the important factor which causes tissue necrosis. Several of the papers, such as those of Gwathmey, McMechan, Rice, Guedel, Thoma, Riethmüller, and Ford, deal with practical methods, and those who desire to learn what are the most recent advances in anaesthesia and analgesia in the United States should refer to these essays. The volume contains two especially useful papers, one by McKesson on blood pressure under anaesthesia, and a very full account of acapnia and cognate conditions by Professor Yandell Henderson.

[1] *The Art of Anaesthesia*. By Dr. P. J. Flagg. Philadelphia and London: J. B. Lippincott Company. 1916. (Med. 8vo, pp. 341; 136 illustrations. 15s. net.)

[2] *The American Yearbook of Anaesthesia and Analgesia*. By Various Authors. Edited by F. H. McMechan, A.M., M.D., 1915. New York City: The Surgery Publishing Co. 1916. (Demy 4to, pp. 416; illustrated. 4 dollars.)

CHEMISTRY.

CHEMISTRY is a science that rubs shoulders with daily life at every turn. Some knowledge of chemistry would be of practical utility and interest to every man, woman, and child in the street. The rudiments of the science of chemistry, from the teaching point of view, demand little apparatus for their demonstration, and deal with such concrete things as volumes, weights, and measures, with the result that the learner founds his knowledge on a solid basis of personal observations. To teach people to learn by using their senses is the main object of education; and an elementary textbook of chemistry, written on these lines by Dr. F. M. PERKIN and ELEANOR M. JAGGERS,[3] may be welcomed as an effort to put the rudiments of the science in a clear manner before beginners who know nothing of it. The book is for use in the laboratory as well as for reading, and falls back on simple experiments to prove its points wherever possible. It deals successively with water, air, chalk, carbon, combustion, certain non-metals, the metals, and a few technical chemical processes. The chapters are well arranged, and the facts and theories dealt with are made to lead on one to another in a natural way. Clear thinking and clear statement are encouraged, and the book should be of great service in elementary chemistry classes of all sorts. A couple of misprints may be noted—on page 87 the subtraction of 267.5 from 273 is made to yield 4.5, and on page 376 common solder is said to contain 50 per cent. of copper. The authors have carried out their intention to write a sensible and interesting introduction to chemistry with great success; the book should have a wide popularity.

For the benefit of those who already have some knowledge of physics and chemistry, and are well-trained mathematicians to boot, Professor W. C. McC. LEWIS of Liverpool has written an excellent and up-to-date textbook of *Physical Chemistry*.[4] It is much more concerned with mathematical physics than with chemistry, and contains accounts of such subjects as the structure of the atom, the theory of concentrated solutions, capillary chemistry, Nernst's theorem of heat, the thermodynamics of photochemical reactions, and the application of the Planck-Einstein "energie-quanta" to the specific heat of solids. The first volume deals with kinetic theory; thermodynamics and statistical mechanics are considered in the second volume, with their influence on chemical equilibrium in various systems. Professor Lewis writes clearly, and his book covers a vast amount of the ground between pure physics and chemistry; full justice is done to the numerous original authorities quoted and compressed. The volume should be of service to advanced students of physics and chemistry, and to such mathematically minded

[3] *Textbook of Elementary Chemistry*. By F. M. Perkin, Ph.D., F.I.C., F.C.S., and Eleanor M. Jaggers. London: Constable and Co. 1916. (Cr. 8vo, pp. 384; 82 figures. 3s. net.)

[4] *A System of Physical Chemistry*. In two Volumes. By W. C. McC. Lewis, M.A. (R.V.I.), D.Sc.Liv. Textbooks of Physical Chemistry, edited by Sir W. Ramsay, K.C.B., F.R.S. London and New York: Longmans, Green and Co. 1916. (Cr. 8vo, pp. 534 and 559; 98 figures. 9s. net each volume.)

physiologists and medical men as are competent to follow the mathematical trend of much modern physiological research.

Professor ALEXANDER SMITH'S *General Chemistry for Colleges*[5] may be described as a very successful attempt to produce an elementary textbook of the advanced type, simple withal, yet covering a very great deal of ground. The greater part of the volume is concerned with the theoretical aspects of chemistry. These are treated by the author in most lucid style, and without recourse to higher mathematics. The main data of inorganic chemistry have been cleverly fitted into this exposition of chemical theory, and some account of elementary organic chemistry is given in fifty pages two-thirds of the way through the book. Numerous useful historic references and accounts of manufacturing processes have been introduced, and students of biology and medicine will find matters of particular interest to them discussed from the chemical point of view in many of the chapters. There is little with which a reviewer can find fault in this excellent volume; on page 62 the author's use of the term "atomic weight" in place of the word "atom" is, perhaps, not free from objection, and it may be noted that Guldberg and Waage, who did so much to elucidate the study of chemical equilibrium, were Norwegians, and not Swedes as is stated on page 187. It is possible that room should be found for mention of the name of Newlands in the account of Mendeléef's periodic system on page 298. The book may be cordially recommended to the senior students of elementary chemistry for whom it has been written.

NOTES ON BOOKS.

ECONOMY in foodstuffs has long been a pressing problem for the Central Powers. Of late the same problem has been brought with increasing urgency before the inhabitants of Great Britain. Dr. M. GOMMÈS has written for the benefit of the French a brief account[6] of the principles that should direct our allies in the choice of inexpensive but nutritious foods. His pamphlet is written on scientific rather than domestic or housekeeperly lines, and may be taken as indicating the theory rather than the practice that must be followed by those who wish to economize in their bills for victuals and drink.

The third revised edition and authorized translation into English of the Dresden veterinarian Professor EDELMANN'S book on *Meat Hygiene*[7] has been subjected to a special revision, making it suitable for the use of American readers. It has therefore been brought into line with the rules and regulations issued by the Bureau of Animal Industry of the United States of America, and references to the German regulations have been omitted. A special chapter has been added to deal with the practical side of the inspection of meat and various "meat-food products." The book has been brought up to date with regard to the pathology of various diseases to which animals used for food are liable. Chapters are also allotted to the organization and methods of procedure of meat inspectors, and there is a brief but interesting account of the history of the subject. The book is one for practical men, and contains a great deal of technical information entirely suited to their needs. The plates and illustrations are excellent.

The second edition of Mrs. BLATCH'S *One Hundred and One Practical Non-Flesh Recipes*[8] is a book for vegetarians anxious to expand their dietary and possessed of a cook who will try experiments. A certain tendency towards the production of tastiness in the dishes is observable, and this, to anyone who in these hard times is a vegetarian *malgré lui* to some extent, will not seem a fault.

Ventilation is a subject of interest to everybody. A general account of the mechanical and practical details of the systems of ventilation that may be applied to dwelling houses, offices, institutions, meeting rooms of all sorts, theatres, and churches, is contained in Mr. R. GRIERSON'S book on *Some Modern Methods of Ventilation*.[9] The design of ventilating plants has received a deal of attention in recent years, although it is far from having reached anything like uniformity. Mr. Grierson defines ventilation as "the art of passing a predetermined volume of *conditioned* air into the space to be ventilated, and out of it again, and the proper distribution of the air during its passage through the ventilated space." Air for ventilation is described as "conditioned" when its temperature and relative humidity have been brought by artificial means to the desired standard; generally speaking the temperature should be 60° to 65° F., and the relative humidity between 43 and 60 per cent. Mr. Grierson would have such air supplied by a plenum system—that is to say, forced into the space to be ventilated—a rather doubtful doctrine. Mr. Grierson's chapters deal with such subjects as the apparatus employed, the design of the air circuit, the importance of making the architect take into consideration the requirements of the engineer responsible for the ventilating arrangements, the apparatus used for warming or cooling the air and bringing it to the proper degree of humidity, the various instruments employed, the tests that should be applied to completed ventilating installations, and the schedules and specifications to which it is desirable to work. The book is clearly written and well illustrated, and would gain by the addition of an index. Mr. Grierson writes for engineers and architects, and his pages are full of technical matter. Yet, although his volume is too stiff for the general reader, it may be recommended to medical men who are directly interested in the practical problems of ventilation, with the warning that the plenum system has defects to which Mr. Grierson does not seem to have allowed sufficient weight.

[5] *General Chemistry for Colleges.* By A. Smith. Second edition, entirely rewritten. London: G. Bell and Sons, Ltd. 1916. (Post 8vo, pp. 672; 138 figures. 6s. 6d. net.)

[6] *L'Alimentation rationnelle à très bon marché.* Par le Dr. M. Gommès. Préface de M. E. Fuster. 2e édition. Paris: A. Maloine. 1916. (Cr. 8vo, pp. 32. Fr. 0.50.)

[7] *Textbook of Meat Hygiene, with Special Consideration of Antemortem and Post-mortem Inspection of Food-producing Animals.* By R. Edelmann, Ph.D. Third revised English edition and authorized translation revised for America by J. R. Mohler, A.M., V.M.D., and A. Eichhorn, D.V.S. London: J. and A. Churchill. 1916. (Med. 8vo, pp. 458; 5 plates, 161 figures. 21s. net.)

[8] *One Hundred and One Practical Non-Flesh Recipes.* By Margaret Blatch, M.C.A. Second edition. London: Longmans, Green, and Co. 1917. (Fcap. 8vo, pp. 80. 1s. 6d. net.)

[9] *Some Modern Methods of Ventilation.* By R. Grierson, A.M.I.E. London: Constable and Co., Ltd. 1916. (Demy 8vo, pp. 201; 36 figures. 8s. 6d. net.)

MEDICAL AND SURGICAL APPLIANCES.

Destruction of Sanitary Towels and Dressings.

DR. ARTHUR MECHAN has devised a system for the destruction of women's sanitary towels and soiled surgical dressings which is worthy of the attention of medical and sanitary authorities and of the managers of public or private institutions where women work, reside, or visit. The system has been in operation in Glasgow for the past ten months, and has met with the approval of the Home Office. The need for a simple and effective method for the disposal and destruction of sanitary towels, etc., in public lavatories, has long been recognized, but the nature of the subject seems hitherto to have stood in the way of any popular demand that something should be done. Dr. Mechan's system provides a fixed collecting box for each water-closet. The soiled material is placed in an inner receptacle of cardboard which is removed and burnt with it in a cast-iron destructor that can be fixed against the wall of the lavatory corridor. Incineration is effected in a few minutes by means of gas jets of the Bunsen burner type, and the ash falls through a grating into a sliding ash-tray. The unhygienic and surreptitious ways of disposing of soiled towels which women are so often forced to adopt when away from home are obviated by this method, to the benefit of all concerned. Particulars of the system, in which Dr. Mechan states that he has no trade interests, are obtainable from the agent, Mr. Arthur M. Morrison, 67, West Nile Street, Glasgow.

Radium Emanation Tubes.

Dr. ARTHUR BURROWS (Manchester and District Radium Institute, Royal Infirmary, Manchester) writes: I have devised an instrument for introducing radium and radium emanation tubes into tumours when there is no danger of perforating important structures. It consists of a sharp trocar, a cannula with a slot running its whole length, and a blunt trocar. The sharp trocar and the cannula are thrust into the growth to the required depth, and the trocar is withdrawn in the usual manner. The radium tube is then inserted in the cannula, and its silk attachment for withdrawal is slipped into the slot. Next the blunt trocar pushes the tube home. The cannula is then pulled up along the trocar, and its lower end and the silk are thus completely disengaged, and the trocar and cannula are withdrawn, leaving the tube in position. The process is speedy, and practically no scar remains. The component parts of the introducer screw together into a compact whole. The internal diameter of the cannula is 3 mm. The instrument was made for me by Messrs. James Woolley, Sons, and Co., Ltd., of Manchester.

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

British Medical Journal.

SATURDAY, APRIL 14TH, 1917.

THE USES AND ABUSES OF SANATORIUM TREATMENT.

IN their report of the year's work ending in July last the authorities of Midhurst Sanatorium are able to record a satisfactory maintenance of average success in their treatment of tuberculosis, in spite of the difficulties due to the war. As in so many other kindred institutions, research work has had to be greatly curtailed. Following the custom of previous years, the cases reported upon are divided into two main classes, according to the presence or absence of bacilli in the sputum. Every effort has been made to keep in touch with the patients after their discharge, and during the last nine years over 2,000 cases have been watched, with the result that of the positive cases only about 41 per cent. were found to be still living in 1916, as against 74 per cent. of the negative cases.

Comparison of the many reports issued of late years by other sanatorium managers would seem to indicate that the high-water mark of success in treatment has been reached. During the last few years there has been a notable change with regard to the general death-rate, which has tended to increase in some areas while remaining stationary in most of the others.

The obvious inference to be drawn from these facts is that the present methods for the suppression of tuberculosis as a national disease are not adequate, and that a much more drastic scheme will have to be adopted if that result is ever to be attained. To mention one point only, so long as individuals in whose sputum bacilli are present are allowed to mix freely with their fellows so long must the spread of the disease go on.

But the disease itself may be nipped in the bud by prompt sanatorium treatment, and it is for such early and curative treatment that sanatoriums should be reserved. But in almost all such institutions it is obvious that beds are occupied and much money and labour expended on cases in which there is no reasonable hope of recovery, to the exclusion of those to whom immediate treatment might mean complete restoration to health and usefulness. At Midhurst it would appear that about 73 per cent. of the third-stage cases were found to have died during the nine years, and many of these had only survived for a year or two after discharge.

Why should money which has been contributed for a definite purpose be diverted into other channels? Sanatoriums have been established with the definite object of arresting or curing incipient disease in individuals. They were never intended to serve as asylums for consumptives beyond hope of recovery. The admission of these unfortunates on the same footing as the curable patients may fairly be regarded as an abuse of the facilities afforded by public subscription.

A sharp line of distinction needs to be drawn, and sanatorium benefits, whether for insured or uninsured, should be strictly limited to the cases in which arrest of the disease is not merely possible but probable. For the rest, the chest hospitals and sick asylums can afford just as much temporary relief as the sanatoriums, and the cost of their maintenance may well be borne by voluntary contribution, until such time as the State may be in a position to provide adequate means of segregation for the actively infective cases.

The defects of the present system are further emphasized in a recent report by the tuberculosis officer for Wigan. In Lancashire, as doubtless in many other counties, notification often comes too late. Over 40 per cent. of the cases examined for the first time by the tuberculosis officer were found to be already in the third stage of consumption. The earlier stages of the disease had been diagnosed as bronchitis or debility and the cases allowed to drift on until "no form of treatment is of much avail."

Another difficulty has been met with in dealing with tuberculous ex-soldiers, who, having received their pensions as consumptives, refuse to submit to sanatorium restrictions. The suggestion is made that the payment of such pensions should be conditional on treatment being fully carried out, or that military patients should remain under military control until fit to undertake remunerative work. It has become only too obvious that the habits of discipline acquired on active service are all too soon lost on return to civil life.

That similar difficulties in ensuring the proper use of sanatoriums are being encountered in America is shown by an interesting account of the trend of effort towards the suppression of tuberculosis published in the *Public Health News* by the Department of Health of the State of New Jersey, for January, 1917. The whole question was very fully discussed at a joint conference held in December last, with a view to combined action in separate counties. Special attention was concentrated upon two points, both of which deserve close attention by all who have to do with the problem of control of the disease. First, the domestic question. The presence of a tuberculous person, discharging bacilli, is a manifest danger in a household, but more particularly to the children than to the adult members of the family. To the latter the risk is considered to be relatively small, since personal or close contact occurs but seldom, whereas children are constantly being handled and caressed, and are too often allowed to sleep in confined space with a consumptive relative. To combat this risk it is obvious that one or other of the persons concerned should be eliminated from the family circle. Under present conditions the enforced segregation of the adult is not possible, and hence the removal of susceptible children from the danger zone is aimed at. With wider knowledge and extended powers it may be possible for the local authority to reverse the process and to segregate the infective agent, leaving the children to the far more desirable environment of the home, but the time would not yet seem to be ripe for so radical a change.

A second consideration which has given rise to much discussion is the more extended and intelligent use of the sanatorium as a curative agency. In America, as elsewhere, the tendency to admit advanced cases for treatment has operated adversely. Beds have often been occupied by incurables, which should have been utilized for incipient cases only. The economic value of early treatment is on all hands admitted—in theory—but neglected in practice. Much has been done, especially in New York City, to spread knowledge and to attract the early case. It is probable that greater efforts will be made in future to protect the children and to use the sanatorium more intelligently, in response to the unanimous call of the experts.

LIBRARY OF THE UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

THE MEDICAL SERVICES IN THE SOMME ADVANCE.

THE advance on the southern part of the Western front in France has entailed the shifting of a good many medical units, including the casualty clearing stations. Many of these most important elements in the medical arrangements are now, we believe, far from the spot where they had spent the winter, and, indeed, many preceding months. It is no light job to move casualty clearing stations, and when it is remembered that the majority of them work in pairs, it will be seen that the amount of work that had to be done in the way of dismantling, transporting, and re-establishing these units has been very great. It has only been made possible to do so rapidly owing to the admirable way in which railways and serviceable roads have been pushed forward on the heels of the advancing troops.

The advance itself has thrown some light on the much-discussed question of the formation of field ambulances. It has frequently been suggested that they would do well to abandon the whole of their horse-drawn vehicles. The wisdom of adhering to the plan of maintaining a certain number of horse-drawn vehicles in each field ambulance has been strikingly proved by the events of the last few weeks, during which we have advanced so far into what was previously the enemy's territory. Much of the ground was so much cut up by our own shell fire, so far as the roads just behind the original enemy front were concerned, and by ordinary traffic after the frost, as well as by intentional obstructions somewhat further afield, that between our own rear—meaning thereby the rear of our front—and the actual fighting line there was a broad stretch of country which could not be traversed by ordinary automobile ambulances or even by the small ambulances created out of Ford cars.

The horse ambulances, however, were able to get ahead, and, once past the worst part of the road, were able to work quite freely and easily, going up to any point where they were required, and bringing the cases back to the place where the impassable parts of the road commenced. At these places squads of stretcher-bearers were maintained; they took the patients over from the field ambulances and carried them till they reached a spot at which they could be relieved by the automobile vehicles. These "carries" sometimes extended for several miles, so that the work was exceedingly heavy.

Another interesting point was that, owing to the character of the ground and the scattered nature of the fighting, the casualties were collected by day instead of by night, as has hitherto usually been the case in this area of the war. Fortunately, however, the casualties were not numerous.

Throughout the winter the casualties were relatively light. There were a good many cases of sickness, but not for the most part of a serious kind—colds, coughs, sore throats, *et id genus omne*. It has, in short, been a fairly healthy winter on the whole, and the domestic rather than military character of the cases in hospital has been heightened by sundry outbreaks of measles, especially at the bases. Of these domestic troubles the nursing staffs have had their share to the full. This is only what might be expected. Many of the nurses have been in France for a long time, and a nurse's life in a military hospital in France is on the whole a good deal more trying than that of an average member of the staff of a civil general or other hospital. She bears the strain to the full when things get busy, but cannot share entirely the benefit of slack times. The routine of a ward must be maintained, even though it contain no more than half a dozen patients, and these men who are not very seriously ill. There can never be any release from the perpetual cleaning; in fact, if ever a hospital be so short of patients as to allow of a ward being cleared, it is the signal for the immediate "spring cleaning," so to speak, of the ward and for its general renovation; in this, of course, the sisters and nurses play the leading part.

If the British army has to spend another winter under conditions anything like those experienced last winter, there will be plenty of justification for any philanthropic folk who are willing to open a convalescent home on the Riviera for nurses. One has been at work all the winter at Mentone, and has proved of immense value to those who were able to visit it. But these were a very small proportion of the nurses who might have gone there with advantage, for there was room for only a little over a dozen convalescents.

Within the next few weeks it is expected that two large electro-therapeutic clinics will be at work with the British army in France. It is considered that the complete recovery of men suffering from rheumatism, neuralgias, and other like troubles, might be hastened by electro-therapeutic methods. This is not a mere matter of belief, for on a small scale electro-therapy, has been available at one base at least, almost from within six months of the beginning of the war.

Arrangements have also been made, and are already actually at work, for the treatment of men suffering from functional heart troubles, that is, the cases put down as D.A.H., and attributed sometimes to "heart strain," sometimes to nicotine, sometimes to that explainer of all things—streptococcal infection, and sometimes to other causes. The general idea seems to be that while a proportion of these cases can be cured by graduated exercises, a very large proportion are incurable from the point of view of their capacity for front line work, because the men have never been really physically fit, as compared with the average man. Apart from boys who develop heart troubles after attacks of rheumatic fever, diphtheria, and the like, there are always, at every large school, others who instinctively shun the more active games or at all events fail to shine in them; just as instinctively when they leave school they seek the more sheltered forms of existence, and when forced to share exertions of which their fellows make comparatively light, they show evidence of heart imperfections, however much their hearts, in a symbolic sense, may be in the right place. There seems no reason to doubt that some men are born with defective nerve control, or a nerve constitution which predisposes to lack of nerve control or loss thereof, and it is legitimate to suppose that others are born with hearts which for some reason are less capable of full work than those of normal individuals, although this defect does not become manifest until the test of unwonted physical exertion brings it out.

THE ARMY AND THE CIVIL PROFESSION.

THE meeting of the Central Medical War Committee on April 11th had before it a report by its Assessment Sub-committee on the method by which it proposed that the demands for further medical officers for the army could be met. The present position, the report stated, was that some 250 additional men were still required, after making allowances for medical men to be supplied from Scotland and Ireland, for newly qualified men, and for voluntary applicants, including men to be released by the Committee of Reference, and for the response to the calls already

made on general practitioners under 41, and in the provinces on consultants. As a first step to make up this deficit a new call had been decided upon to include men between 41 and 45, men passed for home service only, and men who, having served, have returned to civil practice for not less than one year, in addition to any men under 41 who can still be spared from the districts in which they practise. In order to arrive at an estimate of the numbers the Committee had classified the areas into three groups—namely, those which could not in existing circumstances supply more medical men; secondly, those in which it was not possible to say that this disability definitely existed; and, lastly, areas on which a call could be made immediately. In the third group the subcommittee had included those areas and subareas not assessed in the first instance because no men of military age were available, and others in which the call made was coextensive with the assets as estimated at the time but where the number has now been increased. The subcommittee presented a careful analysis of the sources of supply and expressed the view that there was reasonable ground for hoping that the balance required by May 31st, to make good the deficit in the number of medical officers demanded by the War Office, might be made up. After a debate, the Central Medical War Committee approved the report of the Assessment Subcommittee as to the prospects of meeting the requirements of the War Office for May 31st, and authorized calls to be made forthwith in accordance therewith, but went on to record its opinion that on the facts ascertained from the critical review now made of the remaining provision for the civil community, no further substantial reduction in the number of doctors in civil practice could be effected without causing such public dissatisfaction as should not be occasioned on the sole responsibility of the Committee. The Committee therefore deemed it its duty to place the position before the Government through the departments with which it was chiefly in relation, namely, the War Office, the Local Government Board, and the Insurance Commission.

A MINISTRY OF HEALTH.

THE question of a centralized Ministry of Health, which has grown out of Lord Rhondda's proposed bill dealing with maternity and child welfare, remains in the foreground of medical politics. The matter is also engaging the attention of the approved societies and insurance committees, who see quite plainly that it affects them, and a meeting has been summoned by the joint committee of approved societies for April 16th, at 7 p.m., in the Central Hall, Westminster, to discuss the formation of a Ministry of Health and allied topics. Meanwhile the special committee of the British Medical Association is at work. An agreed medical policy of the profession is of the first importance, not only in the interests of the profession but in the best interests of the community. The subject, however, is of such complexity, that it is no easy task to lay down even the broad general principles. The British Medical Association does not come to this question as to some new thing. For many years past it has taken the view that a Ministry of Health would provide the only remedy for the overlapping in public health administration, and consequent waste of energy and money. The Association has at hand a large mass of information bearing upon the question, sufficient, it is hoped, for the shaping of a clear policy which will command the agreement of the great body of the profession, and sympathetic co-operation from the Government. The main point, that a Ministry of Health is needed, has been a continuous policy of the British Medical Association almost from the first. With regard to this central organization, the present opinion, based upon the widest outlook possible, is that a Ministry of Health should be created to take over from existing Government departments such duties as concern the health of the community. On this point the Association and Major Waldorf Astor's committee of Unionist members are in the main at one, although they are not agreed as to the means which should be taken to secure this end. That the board should be presided over by a minister of Cabinet rank is a point upon which there can scarcely be any difference of opinion; the advantages are self-evident; and all, we suppose, must agree that eventually, if not from the outset, an effective Ministry of Health should confine its activities to matters affecting the public health. A further point upon which no disagreement is to be expected within the medical profession is that if the administrative functions of a Ministry of Health are to be carried out by a board it should be a real working board, as in Scotland, and not a fiction of State as in England, and that it should contain representatives of both the preventive and clinical sides of medicine in equal numbers; if an advisory committee is appointed, this should contain medical members representing the two aspects of the subject. It cannot be pointed out too soon or too strongly, however, that the co-operation of the general body of the medical profession, which, as Lord Rhondda recognizes, is essential to the success of any scheme for a Ministry of Health, will only be obtained if it is made clear from the beginning that, whatever Government office is to be remodelled as a basis of the new department, the Ministry of Health will not be the Local Government Board "writ large."

PROGRESS OF THE CALCUTTA SCHOOL OF TROPICAL MEDICINE.

A YEAR ago we were able to report that the foundation stone of the Carmichael Hospital for Tropical Diseases had been laid, and to record the satisfactory progress of the institution. During the last year the hospital has been nearly completed, the donations, amounting to £5,000, for the construction of the top story having been provided by the Calcutta firms belonging to the Bengal Chamber of Commerce. The total subscriptions to the endowment fund have risen from £20,000 to £40,000, which will allow of the completion and partial endowment of the hospital, and, in addition, annual subscriptions of over £5,000 for research, contributed by the great industries of Bengal and Assam, will be available when the school can be opened—possibly in October, 1918. Meanwhile, plans are under consideration for the addition of 80 ft., to the height of three stories, to the north wing of the laboratory. This will accommodate an out-patient department and dispensary on the ground floor, and hygiene laboratories for practical and theoretical teaching for the university diplomas in public health. A full course for this diploma has not yet been provided in India, although instruction in the prevention of tropical diseases, which are the most important from the public health point of view in India, can obviously best be imparted in such laboratories as that provided in the Calcutta School of Tropical Medicine. On the third floor there will be space for further research laboratories, which will soon be required on account of the success of the endowment fund in providing several research workers in addition to the Government staff of the school. Omitting the cost of the biological laboratory of the Medical College, which has been included in the new building for administrative convenience, the Calcutta school possesses in its laboratory, hospital, and endowments, property of the value of £90,000, of which £40,000 has been provided by the Government of India on the advice of Sir Pardey Lukis, Director-General of the Indian Medical Service, and an equal sum raised by the endowment fund, of which Sir Leonard Rogers is the honorary secretary. The remaining £10,000 has been found by the Bengal Government, whose finances have been severely handicapped by the war. It is hoped that the Bengal Government will be able to contribute some substantial help towards the hygiene extension before very long, to enable it to be opened with the rest of the building after the war. This will complete the laboratories as at

present proposed, although the foundations have been designed to allow a fourth story to be added at a later date, a wide view having been taken of the future possibilities of the institution.

FOOD ECONOMY.

IT is now generally known, and will soon be made even plainer through the food economy campaign which is about to be undertaken by the war service committees, that the crux of the matter is the wheat supply. There is no room for doubt that the present rate of consumption of bread and wheat flour must be reduced if we are to carry through safely until next harvest. The Food Controller has let it be known that the present situation, which is undoubtedly serious, would be eased if all adults in the country were to make it a point of honour to eat one pound less of bread (or its equivalent in flour) a week than they have been accustomed to consume. If this principle were loyally carried out by every class up and down the country there would be no need for compulsory rationing with all its proved defects. Under a compulsory scheme it is impossible to adjust the distribution to individual needs; widely different classes of workers cannot be placed on the same level of requirement when bread is served out. Many would be drawing far beyond their needs, while others would be drawing too little. Compulsory rationing has been a failure in Germany, and every effort must be made by every one to economize in food without direct compulsion. In this matter the Government has every reason to expect the medical profession to use its influence with the community. We believe that if the medical profession in England could be polled a large majority would be found in favour of the opinion that the consumption of meat and wheaten bread was too high before the war. It was the custom among the upper and middle classes to eat too much meat, and often, also, too much bread, and the custom among many sections of the industrial classes to rely much too largely on wheaten bread, to the neglect of other cereals, especially oatmeal, and of vegetables, with the single exception of potatoes. Soup or broth is the staple dish of the French peasant, and far more popular in Scotland and Wales than in England; in fact, except in a minority of households, soup is not among the middle and industrial classes a staple dish. With regard to rationing, we have received from Dr. E. Hugh Kitchen a leaflet in which he advocates what he describes as the unit scheme of food rationing. Its essential feature is the reduction of all food supplies to a unit value representing a weight or quantity of each kind of food. It is suggested that this unit value should be fixed by the Food Controller, and varied by him week by week as occasion might demand. The same authority would lay down, and vary if necessary from week to week, the various units of food which might be consumed respectively by an adult, a boy or girl, or a child. Every tradesman would be required to show conspicuously the unit values of all the scheduled foods supplied by him, corrected from time to time. The rich would be encouraged to buy the more expensive foodstuffs by giving a comparatively low unit value to such foods, the object being to put the rich and the poor on an equality, since the former by buying expensive foods would free a corresponding quantity of cheaper food for the poor. So far the scheme might be made voluntary, but the second part, which includes the issue of a "food book" for each individual, in which entries showing the article and number of units purchased are to be made by the tradesman, introduces the compulsory element.

THE PARIS FACULTY OF MEDICINE.

By the publication of the *Commentaires de la Faculté de Médecine de l'Université de Paris*,[1] Dr. Ernest Wickersheimer, the erudite librarian of the Académie de Médecine, has conferred a boon upon those who study the history of medicine. The *Commentaires* are the records of the Faculté, and similar to the "Annals" of the Royal College of Physicians of London, wherein are recorded all its transactions. In all there are twenty-four volumes of the *Commentaires*, dating from 1395 to 1786. At one time five earlier volumes were in existence, but they are now, unfortunately, lost. The last volume of the series, dealing with the years 1776–86, has already been published, and Dr. Wickersheimer has now issued the first four volumes, embracing the period between 1395 and 1516. To any one interested in the early history of one of the oldest medical institutions in the world, the *Commentaires* contain a mine of information, but the task of studying them would be a heavy one. Dr. Wickersheimer has, however, rendered that task comparatively easy by supplying a most scholarly introduction of some ninety pages, in which he has placed at the service of the reader his great knowledge of mediaeval medicine. This introduction is an admirable account of the early history of medicine in France, and does great credit to the ability and industry of the author. The foundation of the Faculté de Médecine in Paris, as sketched by Dr. Wickersheimer, is an interesting story. Apparently it became a part of the University of Paris soon after its formation, for Pierre de Nemours, Bishop of Paris, mentions physic in connexion with the university in 1213. In 1254 medicine was recognized as one of the Faculties, and in 1270 the four grades of "écoliers," "bacheliers," "licenciés," and "mâitres" or "docteurs," were instituted. Before becoming "bacheliers," the "écoliers" were required to pass three years in the study of medicine provided they had graduated in arts, or four years if they lacked that distinction; but in 1426 Pope Martin V ordained that no one could become a "licencié" unless he held a degree in arts. The period of study required for this grade was fifty-six or sixty-eight months, and after having passed that the "mâitre" was reached by keeping two Acts. The doyen of the Faculté occupied a position very similar to that of our president, and the monastic tone of the community over which he presided was pronounced, even to the insistence of celibacy. At first the meetings of the Faculté were held in churches, but in 1470 a house was rented in the Rue de la Bûcherie. Beyond 1518 Dr. Wickersheimer does not carry his investigations, but what he has given us in this valuable contribution to the history of medicine leads us to hope that, when he returns from the war, he will resume the labours for which he is so eminently qualified.

[1] Paris: Imprimerie Nationale, 1915

CHILD MORTALITY.

A REPORT by the Medical Officer of the Local Government Board on child mortality at ages 0 to 5 in England and Wales has just been issued.[1] It furnishes a detailed analysis of the incidence and causation of deaths during infancy and the next four years of life in 1911-14, with special reference to the figures of the 245 urban areas and the twenty-nine metropolitan boroughs. More than 575,000 deaths occurred during the period in England and Wales at ages under 5, or more than a quarter of the total deaths at all ages during that period. The report aims at presenting a bird's-eye view of the extent of the unnecessary child mortality which still occurs; of the places in which the need for remedy is most pressing; and of the best means of attack. The point which arises most clearly from Sir Arthur Newsholme's report is that the centres of excessive child mortality are those in which the chief industries in the country are carried out; and the conclusion which he reaches is that, although the problem varies in each locality, a very high proportion of the total present death-rate can be obviated, since, in his opinion, it is well within the range of administrative action to reduce child mortality during the next few years to one-half of

[1] Cd. 8496. H.M. Stationery Office. Price 1s. net, to be obtained through any bookseller.

UNIVERSITY OF ILLINOIS-CHAMPAIGN

its present amount. The wider view, which is now generally adopted, that the care of the young child is inseparable from the care of the mother before, during, and after her confinement, is emphasized in the last section of the report, which catalogues for the use of health workers the present and future activities which would conduce to the saving of infantile life on a large scale. We hope to consider the report in more detail in a future issue.

X-RAY INTENSIFYING SCREENS.

In the course of a paper on the physical properties of intensifying screens, read to the Röntgen Society, Mr. T. Thorne Baker, F.C.S., said that before many months were past the sensitiveness of these accelerators was likely to be increased by 200 or 300 per cent. Methods had also been evolved whereby the size of the crystals could be controlled, with the result that the grain of the intensifying screen was practically no larger than that of the photographic plate; this was a considerable advantage. It was advisable to place the screen above the plate sensitive side downwards, and not in the reverse position. Whether the *x*-ray plate or the ordinary plate was the better for screen work depended upon circumstances, and one plate might be better under certain conditions and less satisfactory under others. The grain of ordinary plates was apt to be much coarser than that of good *x*-ray plates, in which the silver bromide was precipitated in an exceedingly fine form. Some workers advocated warming the screen before use; it was true that there were certain forms of calcium tungstate which would fluoresce rather more brightly in a warm atmosphere than in a cold, but a very slight increase in exposure would have the same effect as any auxiliary method. As a screen coated with only a thin layer of calcium tungstate would give a better result with soft rays than with hard, an entirely different result might be obtained when making comparisons of screens with a tube running soft from that which was obtained with a tube running hard. He believed that two standards of screen, one for installations of low power and another for installations of high power, would be adopted in the future. The effect of age on the screen resolved itself again into a question of crystalline structure. Calcium tungstate could be prepared in many degrees of crystalline fineness. If the crystal structure was good there was no sign of destruction with age, but otherwise there was a definite tendency for the crystalline particles to go back to an amorphous state, and to lose speed under the action of the rays if the screen were used a good deal. Most of the modern kinds of intensifying screens could be washed in water; if not, they could be cleaned with benzol or alcohol or a piece of rubber. In the case of a screen splashed with developer, however, there was no known method of purification, as the developer was a powerful oxidizing agent.

SURGEON-GENERAL SIR WILLIAM TAYLOR, K.C.B., Honorary Physician to the King, who held the post of Director-General of the Army Medical Service from 1901 to 1904, died on April 10th, at the age of 74. We hope to publish an obituary notice in an early issue.

THE series of clinical articles on the application of the principles of orthopaedic surgery to injuries of war by Colonel Robert Jones, C.B., which appeared in this JOURNAL during 1916, have been reprinted in a volume and published for the British Red Cross Society by Cassell and Co. Sir Alfred Keogh has written an introductory note and an index has been provided. The price of the volume, which contains a large number of illustrations, is 2s. 6d.

Medical Notes in Parliament.

The New Military Services Act.

Medical Certificates and Medical Boards.

IN the House of Lords on April 4th Lord Derby, on the second reading of the Military Services (Review of Exemptions) Bill, said he did not regret the amendment whereby men who have been discharged in consequence of neurasthenia or allied functional nerve disorder are to be exempted from service, if so certified by a special medical board, of which Sir John Collie was president. With reference to a promise made by Mr. Macpherson in the Commons to consult the military authorities whether it would be possible to give the benefit of a special medical board to all those who might wish to be examined by it, Lord Derby said that it had been found impossible. It would mean that practically every one who did not want to serve would see in it a possible loophole of escape, and would appeal. It was not possible to form numerous boards all over the country, for the simple reason that there were not at the present moment doctors enough for all the work which the War Office had to put upon them. The country should know, too, that, whereas some people thought that the work of the R.A.M.C. was without any danger, more than 400 doctors had been killed and wounded in the Somme battle alone. "We are," continued Lord Derby, "I will not say critically short, but certainly lamentably short of doctors for all the work which we have for them at the present time, and, I am afraid, in the immediate future." Lord Derby said that there was a sort of understanding that medical certificates given by private practitioners shall be taken into account. He was quite ready that they should be taken into account, but could give no undertaking that they would be accepted as being in themselves conclusive; it must be left to the doctor examining on behalf of the army to say whether or not the man was fit for service. Certificates given by family practitioners had been abused. There was a sort of feeling among many people that the examination of these recruits was done by military doctors who had one idea, and one idea only, and that was to force men into the army. But, as a matter of fact, examinations for the army were not made by single doctors, but by boards of three doctors, and the proportion of civilian to military doctors on these boards was two to one.

Lord Crewe thought Lord Derby had spoken with some severity of family medical practitioners having given certificates for exemption to those who did not deserve them. Lord Crewe trusted for the credit of the medical profession, and of the family medical practitioners to whom the community owed so much, that these cases were not numerous. He added the hope that only those would be returned to the army who could properly be returned in the national interest.

Lord Derby, in a reply to the debate, said he knew that the administration of the bill would have to be worked with the greatest possible care. If in the examination of a million men there were one hundred cases of failure those one hundred cases would be quoted against the War Office and the other cases would never be quoted in its favour. He believed that the Medical Boards as now constituted were, he would not say giving general satisfaction, but were working infinitely more satisfactorily than they were in the early months of the war. In what he had said he did not mean any reflection on family medical practitioners; but what did happen in the early part of the war undoubtedly was that a man who came with some sort of certificate from a medical practitioner was often not examined at all. The doctor was very pressed with work; he looked at the certificate and then passed the man out without any further examination. He (Lord Derby) did not think there was any case of fraud on the part of the medical men. It was only that the practice was abused, being taken advantage of by men to get exemption in a time of great pressure.

In reply to Lord Beresford, Lord Derby said that if a man had voluntarily joined twice and had twice been invalided out he would not be accepted.

The Royal Assent was given to the measure on April 5th.

THE WAR.

INFECTED SKULL WOUNDS.

OBERARZT DR. H. BURCKHARDT,[1] writing on the treatment of infected wounds of the skull, discussed the origin of the meningitis which was the almost constant cause of death when this resulted from the later consequences of the injury. When the injury was not directly fatal, the patient either recovered or succumbed to an infection. Consciousness returned, the pulse improved, but on the third or fourth day a gradual or sudden rise of temperature occurred, and death followed two or three days later. In other cases there appeared to be a definite progress towards recovery; but suddenly, after some weeks, headache commenced, the mind became affected, the temperature rose, and death followed, with or without the usual symptoms of meningitis. In these cases a hernia had usually formed, and had granulated over. At other times the change from apparent convalescence was rapid: in the morning malaise, in the evening high fever and delirium, the next day death.

The *post-mortem* appearances in these prolonged cases were very constant. Around the hernia the surface of the brain and the dura had become adherent, evidently before the onset of the graver symptoms. An exudate was present, confined to the base, or more marked there than elsewhere, and the immediate neighbourhood of the hernia was frequently entirely free from it. Burckhardt found no evidence that the infection spread to the meninges through the substance of the brain; on the other hand, a direct infection of the ventricle from the focus in the brain could always be demonstrated. He concluded that the meningitis was always caused through infection of the ventricle in these more prolonged cases. When death occurred within the first week from the injury the adhesions were not sufficient to exclude the possibility of a direct infection from the wound.

Conditions leading to infection of the ventricle were: (1) Direct injury of the ventricle by the projectile, by the lacerations of the brain caused by the sudden increase of pressure and extending to the ventricle itself, or by fragments of bone. (2) A progressive encephalitis gradually approaching the ventricle. (3) The detachment of necrotic masses in the wall of the brain wound. Infection followed primary wound of the ventricle a day or two after the injury in some cases; in others a ventricular fistula formed, and if the outflow of fluid were free infection might be long delayed. In almost every case of primary wound of the ventricle infection occurred sooner or later.

From the recognition of the fact that the ventricle was the intermediary in the causation of the fatal meningitis it followed, in the first place, that the prognosis rested on the nature of the wound and its relation to the ventricle, and, in the second place, that the meninges were very resistant against infection. In war surgery at least there was little fear of incisions in the dura leading to meningitis from the infected wound in the brain. Among the 306 cases of gunshot injury of the skull under Burckhardt's care no case of such infection had been met with. Instances of fatal traumatic meningitis of direct origin—as where the air cells, and especially the ethmoidal cells, were involved in the injury—were exceptional.

Prolapse of the brain, apart from the mere dislocation of portions of the brain substance by the force of the injury, was always the result of inflammatory swelling. With slighter forms of inflammation this and the hernia might disappear; when a progressive encephalitis was present the ventricle became involved ultimately; if a superficial abscess formed in the brain substance recovery was possible if there were free outflow for the pus. In the milder forms of inflammation the hernia after a time became firmer, and had the following structure: It was composed mainly of brain substance altered by inflammation, and was covered by a smooth firm membrane composed of organizing granulation tissue. The prolapse filled the gap in the skull completely, and was adherent to the dura, to the granulation tissue springing from the diploë, and to the scalp. These granulations gradually extended over the surface of the protrusion. A prolongation of the ventricular cavity entered the hernia, its apex lying at times very near the surface. Such was probably the structure of all prominent hernias; where the brain was but slightly swollen there would be little alteration in the normal relations of the structure. The surface of the protrusion gradually became covered with epithelium, but a sore persisted at the most prominent part so long as the inflammatory process remained active. When the infection ceased the swelling subsided, healing over occurred with great rapidity, and a depression with a relatively small scar remained.

The appearances and results were very different in the more destructive forms of encephalitis. There a crater occupied the centre of the prolapse; this was surrounded by prominent polypoid masses and discharged pus. A ventricular fistula was almost always present.

As regards treatment, diametral wounds with small apertures of entry and exit were best left untouched; other cases should be operated on at once, with the object, in the first place, of warding off an encephalitis or abscess, and in the second place of providing a free outlet in case the ventricle had been wounded. The opening made in the skull should uncover the whole extent of the injury in the dura, and incisions should be made in this displaying the whole extent of the brain injury. No radical operation was possible in the very severe cases with extensive comminution and fissuring of the skull. If the projectile had become lodged it was best to operate immediately, since in a great number of cases it was unexpectedly found that the projectile was impacted outside the cranial cavity, the bones being merely depressed. In such case an abscess frequently formed, and this could be prevented by immediate operation. Moreover, if the bullet entered the brain, immediate operation was also indicated, since it was sometimes possible to turn the wound down and by repeated taps on the skull recover the bullet. If this were not successful and the track were deep no attempts should be made to reach the projectile with the sound or finger. In Burckhardt's experience a bullet rarely lodged in the middle of the brain, with the exception of small grenade fragments; it either became impacted near the aperture of entry, without entering the cranial cavity, or having entered the cavity it came to rest at the opposite cranial wall, lying free or impacted in the bone. Less frequently it perforated the opposite wall and remained lodged beneath the skin. In using the *x* rays in these cases it was to be remembered that a bullet lying free in the cranial cavity might alter its position with an alteration in the position of the patient. When the bullet was impacted in the basis cranii the case was always fatal.

In dealing with a progressively increasing prolapse it was often desirable to enlarge the aperture in the skull, and to incise the dura radially. There was little fear of infecting meninges in this operation, and the relief from tension often acted favourably in arresting the progress of the hernia. The same procedure should be adopted in cases of acute prolapse, that is, where compression of a fistula by the swollen brain substance caused a sudden hernial protrusion. The operation was also indicated where the prolapse itself hindered the free outflow of pus, where for instance the discharge was from the edge of the hernia or from beneath the bone surrounding the aperture. In the more destructive forms of encephalitis enlargement of the aperture was especially indicated; the compression of the mass on the aperture tended not only to obstruct the ventricular fistula, but favoured the retention of pus in the numerous pockets and fissures that always existed in these cases.

[1] Bruns's *Kriegschir.*, Heft 19, p. 618.

AMPUTATIONS AND AMPUTATION STUMPS.

IN a paper on amputations in warfare Professor Fritz König[1] estimates the percentages of amputations to fracture wounds of the thigh in some of the wars of last century as follows: Crimean war (1854–58) 93 per cent., American Civil War (1861–63) 63 per cent., Franco-German war (1870–71) 65.7 per cent., Russo-Turkish war (1877–78) 80 per cent.

He does not attempt to express in figures the comparative frequency of amputations in the present war. Stromeyer, in his textbook of war surgery, laid down definite indications for amputation. Fracture of the upper arm, for example, when complicated by laceration

[1] *Med. Klin.*, No. 21, 1916.

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

of the brachial artery, was a definite indication for amputation, as was also fracture of the leg complicated by a wound of the knee-joint. Such hard and fast rules no longer held good, and every Austrian surgeon expected at the beginning of the war that the small bore bullet would only in exceptional cases inflict wounds necessitating amputation. These expectations proved illusory. Every combatant nation had adopted more destructive projectiles, and the frequency of infection, the colossal number of casualties, and the difficulties of transport, had all stultified the calculations of the surgeon hoping to practise modern conservative surgery.

In his retrospect of the lessons he has learnt in the war, Professor König records one case of fracture wound of the metatarsus in which anaemia of the limb, intentionally induced, led to gangrene and suppurative phlegmon, necessitating amputation. He used ethyl chloride or ether as an anaesthetic for amputations. He finds it necessary to utter a warning against adding to the shock of a recent wound the shock of immediate amputation. He condemned the wholesale employment of the simple, circular amputation. This, the "butcher's cut," was often followed by great retraction of the soft parts, and consequent protrusion of the bone, requiring a second operation at which more bone had to be sacrificed than had apparently been saved at the first operation. He attached great importance to providing a stump capable of bearing a large share of the body weight, and expressed the view that the plan of expecting most of the weight to fall on the ring of the support embracing the limb above the stump was unsound. He also urged the need for keeping the patient under skilled supervision till he had learnt to make the best use of his stump and artificial limb.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Accidentally Killed.

Captain H. A. Lunn, R.A.M.C.

Captain Henry Anderson Lunn, R.A.M.C., was accidentally killed by a fall from an upper verandah of the Colaba Hospital, Bombay, on March 5th. He was educated at Anderson's College and at the University of Glasgow, and took the Scottish triple qualification in 1902. Prior to the war he was in practice at Ballygunj, Calcutta. He took a temporary commission in the R.A.M.C. on September 18th, 1914, and was promoted to captain on completion of a year's service. He had served in France and in Gallipoli.

Wounded.

Lieutenant-Colonel W. Egan, R.A.M.C.
Major J. S. Jenkins, Canadian A.M.C.
Captain V. E. Badcock, R.A.M.C. (temporary), attached Highland Light Infantry.
Captain P. R. Bolus, R.A.M.C.(T.F.).
Captain J. G. Greenfield, R.A.M.C. (temporary).
Captain J. Hardie, Australian A.M.C.
Captain G. F. Hardy, R.A.M.C. (temporary).
Captain A. Peden, R.A.M.C. (temporary).
Captain F. R. Sturbridge, R.A.M.C. (temporary).
Captain J. A. R. Wells, R.A.M.C. (temporary), attached Lancashire Fusiliers.

Missing.

Captain S. J. Linzell, M.B., R.A.M.C.

Deaths among Sons of Medical Men.

Brown, Frank, second son of Captain R. Brown, I.S.M.D., Civil Surgeon of Motihari, Bihar, killed in action on September 15th, 1916.

Gosse, Robert Buchanan Wilkes, Second Lieutenant Cheshire Regiment, attached Royal Warwickshire Regiment, second son of Dr. H. Wilkes Gosse, of Eccleshall, Staffordshire, died of wounds on April 1st. He was born in 1889, and educated at Dunstable Grammar School. At the beginning of the war he enlisted in the 5th Battalion of the South Staffordshire Regiment, in which he served for six months in France as a sergeant. He returned to England in September, 1915, received a commission in the Cheshires, and went back to the front, attached to the Warwicks, in September, 1916.

Hodgson, John S. R., Lieutenant Dorsetshire Regiment, elder and only surviving son of Dr. Hodgson, of Alresford, Hants, killed on March 25th, aged 20. He was educated at Rugby and at Sandhurst, and was gazetted to the Dorsets in December, 1914, being promoted to Lieutenant in July, 1916. He had been severely gassed at Hill 60 in May, 1915. His only brother, Midshipman E. T. Hodgson, R.N., was lost in H.M.S. *Invincible* in the battle of Jutland.

Hugill, Valentine Francis Hubert, Second Lieutenant Royal Fusiliers, attached Royal Flying Corps, only son of Dr. G. F. Hugill, of Balham, reported missing on September 16th, 1916, now presumed killed on that date, aged 22. Early in the war he joined as a dispatch rider in the Royal Engineers, got his commission in June, 1915, and joined the Royal Flying Corps in August, 1916.

NOTES.

The Italian Minister of War has decided gradually to remove from military territorial hospitals soldiers serving there as assistants, infirmary orderlies, dentists, etc., and send them to the dépôts and war zones. The territorial hospitals number from five to six hundred, and it is estimated that by this action no fewer than twenty thousand men will be made available for active service. Their places will as far as possible be filled up by women.

Mr. John H. Morgan, C.V.O., has taken command of a large hospital at Nevers for French wounded.

Surgeon General G. Sterling Ryerson has deen appointed Honorary Colonel of the Canadian Army Medical Corps, vice Surgeon-General Hon. Sir Frederick Borden, deceased.

Commended for Services.

The names of the following medical officers are included in a further list of names brought to the notice of the Secretary of State for War for valuable services rendered in connexion with the war:

Temporary Colonel J. Atkins, C.M.G., M.B., F.R.C.S., A.M.S.
Lieutenant-Colonel F. H. Westmacott, F.R.C.S., T.D., R.A.M.C.
Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel D. Hepburn, M.D., R.A.M.C.
Major and Brevet Lieutenant-Colonel C. R. Sylvester-Bradley, R.A.M.C.
Major (temporary Lieutenant-Colonel) G. S. Mansfield, M.B. (Reserve of Officers R.A.M.C.).
Temporary Major R. H. J. Swan, M.B., F.R.C.S., R.A.M.C.
Temporary Captains: W. T. Finlayson, R.A.M.C., C. R. Stewart, M.B., R.A.M.C., D. J. Thomas, M.D., R.A.M.C.

The following corrections of names previously mentioned are published:

For Lieutenant-Colonel J. Battersby, retired pay, late R.A.M.C., read Lieutenant-Colonel H. L. Battersby.
For Major Grey, R.A.M.C., read Major E. Gray.
For Major J. H. H. Pirie, M.D., R.A.M.C., read Major W. R. Pirie, M.B.
The following names should read as below and not as previously stated: Surgeon Lieutenant-Colonel Sir W. R. Crooke-Lawless, C.I.E., M.D., Reserve of Officers, Coldstream Guards; Temporary Captain F. J. P. Daly, R.A.M.C.

England and Wales.

Scheme for the Treatment of Venereal Disease in Manchester.

At a meeting of the Manchester City Council held on April 4th the chairman of the Sanitary Committee, in presenting the committee's proposals for the treatment of venereal disease, asked the council to approve of the following resolution

> That the attention of the Government be called to the extreme desirability of retaining under military control every person in His Majesty's military forces known to be suffering from venereal disease until a cure has been effected, or the case otherwise determined.

Some opposition was made to this resolution on the ground mainly that it involved an injustice to the soldiers in placing them in a different position from that of civilians. In reply to this the chairman said it was quite impracticable to put all sections of the community on a level in a matter of this kind. He understood that venereal disease was more prevalent among soldiers than civilians. There was no intention of keeping men in barracks, and all that was asked was that soldiers suffering from these diseases should be kept under some form of supervision until they were cured, and to this extent compulsion was justified by the terrible evils arising from these diseases. On the other hand, to do this with the civilian population would involve compulsory notification, which was likely to deter people from going to doctors for treatment, and this would defeat the object in view. The resolution was finally accepted with only one dissentient.

The council was then asked to consider the report of the Finance Committee on the Sanitary Committee's proposals for the treatment of venereal disease. The scheme

had been drawn up by Dr. Niven, the M.O.H., and the Finance Committee pointed out that it was proposed to make use of the Public Health Laboratory of the University for the examination of material, that treatment should be given in six of the local hospitals, and that the M.O.H. should deal with the necessary supply of salvarsan or its substitutes. The total cost of the scheme would be about £22,250, but as the Local Government Board on approving the scheme would repay 75 per cent. of the cost, the net expenditure of the corporation would only be about £5,560. It was suggested that the Local Government Board should pay its proportion by instalments, so that the council would not have to finance the scheme, and that other local authorities from whose districts cases came for treatment in Manchester should bear their proportion of the cost. The report describes the character and some of the effects of venereal disease and the impetus given to successful treatment by the discovery of salvarsan. Dr. Niven agrees with the Royal Commission that it is not expedient at present to make these diseases notifiable. The hope is expressed that satisfactory arrangements will be made with the Royal Infirmary, Ancoats Hospital, St. Mary's Hospitals, and the Lock Hospital, to treat cases, the treatment being for all comers irrespective of their place of abode or means. Only a few beds will be required and the out-patient clinics are not to be specially designated as for venereal diseases and nothing is to be done to distinguish the patients from other out-patients. Provision is also made for courses of instruction to be given to practitioners who desire it and for the supply of remedies. In forming an estimate of the number of cases that may apply for treatment, it is pointed out that in 1915 in the four large hospitals there were 2,718 cases of syphilis and 4,793 of gonorrhoea, and this is accepted as about the number that need be provided for. It is expected that the maximum expenditure will be reached in the first few years and will then decline, partly owing to the qualification of more practitioners and partly from a real diminution of the diseases. It is further suggested that as soon as the scheme is approved, a publicity campaign should be at once organized, and the Finance Committee recommends that the Local Government Board should be asked if it will repay 75 per cent. of the cost of this. The Chairman of the Committee said that the intention was to provide treatment free of all cost to patients, and to offer every inducement to the persons affected to avail themselves of the treatment. The council approved of the report with the proviso that it should be for one year only in the first instance.

CARE COMMITTEES FOR CONSUMPTIVES IN LANCASHIRE.

It is gratifying to note that the development of care committees for consumptives in the Lancashire area is proceeding as well as can be expected in war time, but from reports received it is clear that lack of sufficient funds greatly hampers the work. The memorandum of the Local Government Board of 1915 placing the responsibility of organizing voluntary care committees on the county and county borough councils has given the committees a definite status, and as the councils may receive 50 per cent. of the cost of clerical and other expenses from the Government, all private subscriptions can now be devoted to the actual relief of consumptives. Nevertheless, the committees of Wigan, Leigh, and Horwich find themselves seriously short of funds to deal with the cases that urgently need assistance in the way of clothing and extra nourishment, and an appeal is made to the public for additional subscriptions.

REACCEPTANCE OF DISCHARGED SOLDIERS AND SAILORS.

The Lancashire Panel Committee has recently issued to the panel practitioners a circular with reference to the treatment of discharged soldiers and sailors. It appears that several practitioners have been declining to reaccept discharged soldiers and sailors who were on their panel lists prior to their joining the forces, and the Panel Committee expresses the opinion that it is not only advisable to accept these patients, but it is a patriotic duty to do so. At the same time, the committee states that it is probable that in the future discharged soldiers and sailors will, with few exceptions, remain under military authority until they are fit for some form of civilian occupation. The committee therefore hopes there will be no demur on the part of any panel practitioner to accept any discharged soldier or sailor who was on his list previously.

Scotland.

EDINBURGH SPRING GRADUATION CEREMONY.

THE spring graduation ceremony of Edinburgh University was held on April 5th. A number of graduates are at present serving with the forces abroad, and their degrees were conferred *in absentia*. The Principal, Sir Alfred Ewing, in his address, made a stirring appeal for effective national service of every kind, addressing himself to the women students as well as to the men. He explained that some of those who received degrees in medicine that day had been allowed by the authorities to pursue their medical studies with a view to qualifying for immediate service of a kind in which their abilities would be put to the greatest use.

EDINBURGH EYE, EAR, AND THROAT INFIRMARY.

In the report of this institution for 1916 the directors state that during the year the work of the infirmary was necessarily much curtailed owing to the absence on military service of most of the members of the surgical staff. For one month in the summer the institution was closed altogether, since the available medical officers found it impossible to spare the necessary time. The managers pay a tribute to the medical officers who have at so great a sacrifice managed to carry on the work of the infirmary.

THE ERSKINE HOSPITAL FOR LIMBLESS SOLDIERS.

The scheme for the establishment of a hospital in the West of Scotland for sailors and soldiers who have lost their limbs has, since it was inaugurated by the Lord Provost of Glasgow a year ago, made good progress, and the extent of the work has been increased. Erskine House, near Glasgow, which was placed at the disposal of the promoters, has been converted into an excellent hospital by the introduction of an adequate water supply, heating and electric light, baths and laboratories, and workshops. The first extension was to include soldiers and sailors from the northern counties of England, as it was fortunately found that the number from Scotland would not exhaust the accommodation that could be provided. More recently, at the request of the War Office, the committee has undertaken to erect pavilions to accommodate two hundred men for treatment preparatory to their being fitted with artificial limbs. This has been done partly to relieve the general military hospitals, and partly because it was thought desirable that the surgeons who would eventually supervise the fitting of the limbs should also have the cases under observation during the preparatory stage. The workshops provide facilities for the men to receive preliminary training in various handicrafts and industries, including basket-making, elementary carpentry, and hand-loom weaving; the men are also encouraged to take an interest in poultry farming and pig rearing, and other occupations will be taught should the demand arise. The committee is making an appeal for funds for the erection of temporary buildings, and for the cost of maintenance and the provision of preliminary training.

Ireland.

THE CARE OF MATERNITY AND CHILD LIFE.

AT the annual meeting of the Belfast Health Society, held on April 5th, Sir John Byers gave a forcible address on maternal and child welfare in relation to the needs of the moment. It was clear, he said, that the necessity for preserving young life was a national one, if only from the fact that while on an average nine men belonging to the British forces died every hour last year on the battlefield, during the same period twelve babies under one year of age died every hour in the United Kingdom alone, while losses before birth were responsible for a decline of similar magnitude in the population. When, a few years ago, a

ampaign was started to save the children, efforts were at rst directed towards the reduction of infantile mortality lone, but it had soon become plain that in order to ake any progress the mother also must be super- ised before, during, and after the birth of her hild. Thus the dual problem of maternal and nild welfare had to be tackled, and the Government ad already taken steps to stimulate local authorities n this direction. Sir John Byers grouped the main auses of infantile mortality under the headings of overty, drink, overcrowding in large towns, congenital nd acquired disease, and ignorance on the part of the nothers of the most elementary principles of mother- raft. He was unable to congratulate Ireland upon its ublic health record as shown in the reports for 1915. otwithstanding that there never was such a high mar- age-rate, that the loss by emigration never was so small, nd that Ireland was prosperous and less affected by ne war than any other country, allied or neutral, the irth-rate was the lowest yet recorded, and the general eath-rate, as well as the death-rate from tuberculosis nd the infant mortality, were higher than in the pre- eding year. Much, therefore, remained to be done in eland. With regard to the immediate problem of the ure of maternity and child life, the solution depended rimarily, in Sir John Byers's view, upon how far skilled ssistance and advice, based upon scientific knowledge nd practical experience, could be brought to bear upon ne expectant mother before, during, and after her confine- ent. For this purpose he recommended co-ordination etween the health authorities, the voluntary social rganizations, and the medical profession, existing agencies eing employed to the fullest extent in order to reduce xpenses. He was glad to know that the public health uthorities of Belfast were now formulating a scheme with his aim in view, and he concluded his speech with a arm tribute to the splendid work now being done by omen in every department of public life.

Canada.

THE MEDICAL SERVICES IN CANADA AND RETURNED SOLDIERS.

The Care of Returned Invalid Soldiers.

s a result of a conference between the Minister of Militia nd the Army Medical Services on the one hand and Sir ames Lougheed and the Military Hospitals Commission n the other, it has been decided that in future the medical ontrol of returned invalid soldiers shall be in the hands the Army Medical Corps, while the provision and main- enance of the necessary hospitals, convalescent homes, nd institutions for the treatment of special cases, together ith physical training and re-education of convalescents, hall remain in the hands of the Military Hospitals Com- ission.

This decision appears to be the only satisfactory solution what during the last few months had become a very erious problem. It was inevitable that the greater umber of the not very large permanent Army Medical orps, and those officers of the active Militia who took een interest in military medical matters, should be afted overseas, so that when the matter of establishing onvalescent homes for the reception of returned soldiers ame before the Government it was found advisable to stablish a Military Hospitals Commission, composed of epresentative civilians from the different Provinces, nder the presidency of Sir James Lougheed, a Cabinet linister. The Order in Council establishing this Com- ission gave it extraordinary powers; it was, in fact, iven the complete charge of returned soldiers, while the ure of the men of the Canadian Expeditionary Force who ad not yet gone overseas remained in the hands of the rmy Medical Corps. By the terms of this Order, the ilitary Hospitals Commission took charge of the treat- ent of the returned soldier, and proceeded to establish a eparate medical organization to this end throughout the ominion. It was this duplication, its cost and its diffi- ulties, that led to a very definite crisis. Towards the end last year it was becoming more and more difficult to btain an adequate supply of practitioners to carry on the ork of the Army Medical Corps in Canada, as there were 1,300 Canadian medical men overseas with the Canadian Expeditionary Force and an additional 400 with the Royal Army Medical Corps, and the desire of the Commission to obtain the services of men already belonging to the Medical Corps rendered it evident that the attempted duplication was impossible. It is thus a matter of general satisfaction that the difficulty has been solved in the manner above stated.

Appointment of Director of Medical Services to Invalids.

Sir Edward Kemp, the Minister of Militia, made the announcement on February 27th that in pursuance of this new policy it was the intention of the Government to create a new branch of the Army Medical Corps, to be known as the Medical Services to Invalids. The director of this branch will have the entire supervision and control of the medical and surgical work in connexion with the returned soldiers. The policy of returning to Canada so soon as possible, for continuance of active treatment, those soldiers whose condition renders it unlikely that they will resume active service, necessitates a great increase in the hospital accommodation in Canada, and a corresponding increase in the personnel of the Army Medical Corps in Canada. It will be the duty of the director to strengthen the personnel by enlisting the services of experienced medical men who, for some cause or other, have found themselves unable to go overseas. We understand that Lieutenant-Colonel J. G. Fotheringham, C.M.G., has been recalled to undertake this post. Colonel Fotheringham, in addition to having made a reputation as professor on the staff of the University of Toronto, has for long years been keenly interested in the work of the Canadian Army Medical Service. Previous to the war he was A.D.M.S. of the Toronto Military District, and as A.D.M.S. to the Second Canadian Division at the front he has rendered notable service.

Colonel Marlow's Report.

When the late Minister of Militia, Sir Sam Hughes, appointed Colonel Bruce to report upon the work of the C.A.M.C., overseas in Great Britain and France, he appointed Colonel Marlow, A.D.M.S. of the Second Military District, Special Inspector to report upon the work of the Army Medical Service in Canada. This report was completed in October, 1916, while Sir Sam Hughes was still overseas. Apparently, owing to the rapid series of events which followed upon Sir Sam Hughes's return to Canada, and subsequent resignation, the late Minister took no action upon this report; in fact, it was not made public until the middle of February, when it was brought before a Parliamentary Committee, appointed, under the chairmanship of Sir Herbert Ames, to inquire into the arrangements made for the reception, care, and treatment of returned invalid members of the Canadian Expeditionary Force.

In the spirit of full recognition of the difficulties which confronted the Acting Director-General and his staff, and of appreciation of the work accomplished by the Acting Director-General, this report compares most favourably with the unfortunate report of Colonel Bruce. It contains a number of recommendations, many of which are upon matters which had been carefully considered prior to Colonel Marlow's tour of inspection; while others deal with matters which were in process of adjustment at the time when the report was written, and have since been adjusted along the lines recommended in the report.

The report makes a strong appeal for increase in the staff of the Army Medical Service in Canada, and the completion of its organization, for a more frequent inspection of all districts and camps, for a better scheme of gradation of officers of the Army Medical Service, and for substantial increase in their pay. Colonel Marlow's recommendation that recruits should not be accepted after physical examination by the medical officers of units, but only after appearing before a Medical Board, had already been decided upon by the Militia Council some weeks previous to the publication of his report.

The recommendation to replace the employment of civil hospitals by base hospitals in the various districts will probably be met by the establishment of military hospitals, in addition to the continued employment of civil hospitals, this being necessitated by the great number of returned invalids requiring active treatment.

Parliamentary Committee of Inquiry.

The Parliamentary Committee appointed to inquire into the arrangements for the care and treatment of returned invalided and discharged soldiers held its first sitting on February 22nd, under the chairmanship of Sir Herbert Ames. This Committee is obtaining evidence from the Military Hospitals Commission, the Pensions Board, the Army Medical Service, and other sources, and is still sitting. From the evidence of Colonel Alfred Thompson, M.P., Chief Medical Officer of the Military Hospitals Commission, it appears that 12,000 men have already passed through the hands of that Commission and returned to their homes. The men are not willing to take up farming, and even those who came from farms asked for occupation in the cities. Mr. J. K. L. Ross, Chairman of the Pensions Board, stated that pensions were being paid to 2,843 widows, 4,065 disabled soldiers, 641 other dependants of soldiers, 150 orphan children, and 4,955 children of pensioners. For January of this year the amount paid out in pensions was £249,831.

Correspondence.

THE CONFERENCE WITH LORD RHONDDA.

SIR,—It was with very great pleasure that I read the letter of "Cunctator" in your issue of April 7th. He asks very pertinent questions on the latest health "ramp," and I venture to seek the hospitality of your columns for the purpose of stating my views on Lord Rhondda's proceedings.

I suggest that there are two principles to be borne in mind at the present time: Firstly, that there is a war in progress which we have got to win; secondly, that after the war we have got to pay for it. The whole of our energies should be devoted to the furtherance of these two principles. Now a general upheaval in health administration in the middle of a war is not going to help us to win; and after the war we shall have to be very careful that we do not dissipate our energies in costly schemes, whose sole justification is the problematical saving of a certain number of lives—good, bad, and indifferent.

To pay for the war the whole of the energy and resources of the nation must be turned to production; and unproductive people should be kept under. If Lord Rhondda persists in his efforts to form a Ministry of Health, what will be the results? In the first place, it is not unlikely that his rival at the National Insurance Commission will embark on some form of health propaganda of his own. There will then be two Government Ministers engaged in the work. Secondly, whatever happens, much money will be spent; because any extension of Government interference involves fresh and increased expenditure, notwithstanding the argument invariably used that the wonderful co-ordination contemplated will lead to economy. My own estimate for Lord Rhondda's Ministry of Health is £50,000,000 a year, which will make an appreciable addition to the £200,000,000 or £300,000,000 interest on the debt incurred through the war.

In the third place, all these Government activities involve hosts of officials; and quite an army of individuals will be employed in the unproductive work of keeping accounts, supervising, refereeing, and inspecting, in order to see that the £50,000,000 is properly spent.

In the meantime, such is the appreciation of the necessities of the war amongst the medical profession, that at the present time when every available medical practitioner is supposed to be required in a professional capacity some twenty or more medical men from all parts of the country are meeting in London for many hours at frequent intervals for the purpose of concocting a scheme for Lord Rhondda's consideration. "Cunctator" is quite right when he says that the scheme must raise the insurance question again—a disquieting prospect in the middle of this country's life and death struggle—and that with the raising of the insurance question financial proposals will once more arise.

It is a mad world, my masters; and the maddest thing about it is that doctrinaires should think the hour of their country's danger the most suitable opportunity for pressing their personal fads upon a public the saner portion of wh are engaged on matters of greater moment.—I am, etc.,

April 9th. SCRUTATOR

THE SOLDIER'S HEART.

SIR,—Your leading article in this week's JOURNAL on "Soldier's Heart" and the "Effort Syndrome" must h interested many men, especially those of us who engaged in examining military men of various grades.

There are considerable difficulties just now to be o come when meeting with these "heart" cases.

On the examiner asking the patient what is the ma with him, a large number of men say that their hear affected. On further questioning as to how and w this trouble came on, the majority of men reply that t were told so by a previous medical examiner; oth say from the pain or discomfort which they suffer the cardiac area; others again—and this is interestin from the mere fact of having attended a heart hosp or clinic.

I find very few murmurs, and apparently the size of heart is little, if at all, affected, but in a certain numbe cases there is an increase of pulse-rate.

I have come reluctantly to the conclusion that large proportion of these "heart cases" the cause i be found in the amount of physical drill and marc which are given to the recruits, who from their sedentary life—often with flat feet and hammer toe add to the difficulty—are unable to correlate their phys condition with the excessive and unaccustomed amoun physical training which they are ordered to undergo other words, the physical exercise outruns the car powers, so that the latter break down.

A large number of these recruits come from offices city life, they are soft in all their organs, and time elapse before these cases can be hardened.

My experience leads me to say that medical men sh talk less about the heart, and take as a rule a much bro aspect of these cases. Exercises or training should be ditioned according to past occupation and the pre health of the coming soldier. Lastly, every one mus impressed now with the absolute necessity that for future all children and young adults should be taugh practise the common rules of physical training.—I am,

Folkestone, April 9th. W. J. TYSO

PROPHYLAXIS OF VENEREAL DISEASES.

SIR,—I have followed the correspondence on this sub with much interest, and have been amazed at the nu of side issues introduced by different correspondents—it is moral philosophy, now sociology, again alcohol and still more recently zoology (from which it is pos to prove almost any sex relationship).

As I understand it, Sir Bryan Donkin in effect st that the medical profession, as doctors, must ad loyally to the principle, "Preventable disease mus prevented, curable disease must be cured." Moral sociologists, or even doctors (regarded as ordinary men of the civil community), may hold any views they pl on the ethics of the subject, but as doctors that is only position they can logically take up. Prostitu has nothing to do with them: that is the business of parents, the teachers, the moralists, and the preach but when prostitution becomes the producer and tributor of disease, it then comes within their purview, as in the pottery world the trade only becomes of int medically when it engenders disease. It is not the doctors to say "away with the pottery trade," but to preventive measures against the associated disease the object of averting the dangers of lead glazing in way possible.

It is the business of the moralists to interest themse in the ethics of prostitution, and from what we rea their views one may expect much legislation modelle the type of the present Criminal Law Amendment Bil excellent example of the clumsy and ineffective we called legislation when dealing with moral affai I am, etc.,

JAMES R. WHITWELL, M.

St. Audry's Hospital, Melton, Suffolk, April 3rd.

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

THE DANGER OF SMALL-POX.

SIR,—It may not be without interest if I put on record two somewhat striking cases that occurred in my practice in Leicester.

Case 1.—Twenty years ago a mother brought her eldest daughter to me to be vaccinated in order to enable her to become a teacher. The father had been prominent in the anti-vaccination movement. A year later one of the small outbreaks of small-pox occurred in the town, one of the younger children was attacked. The father refused to be vaccinated or allow any of his children to be vaccinated. The result—every member of that family took small-pox (there were six children) with the exception of the elder daughter who had been vaccinated; I do not remember if the mother escaped or not. The father came from the hospital a firm believer in vaccination, being converted by what he had seen in hospital.

Case 2.—A married couple with one child came from Manchester, the parents had been vaccinated in childhood, their infant had been vaccinated before coming to Leicester. After one year another child was born, the parents hearing of the prejudice of their neighbours would not have their second child vaccinated. Some months later I was called in to see the baby, who was seriously ill with small-pox; the other child remained free from infection. On inquiry it was found both parents had been unwell, but not sufficiently ill to consult a doctor, and the medical officer of health considered they had each had a mild attack.

This one family strikingly illustrates the orthodox opinion about vaccination—that is, recent vaccination giving protection, vaccination greatly modifying an attack twenty-five years later, small-pox remaining as dangerous as ever to the unvaccinated individual, in spite of sanitation.

I well remember one of the most influential and respected members of the town council telling me quite seriously that he would rather have small-pox twice than be vaccinated once. Such is the prejudice. On this subject, when I was a member of the Leicester Board of Guardians, I was in a minority of one.

Dr. Millard, M.O.H. Leicester, is in a difficult position; being a firm believer in the value of vaccination, he meets and gratifies the prejudices of the community by exaggerating the importance of the undoubted fact that small-pox is spread occasionally by vaccinated persons because they have it in so mild a form it is liable to be overlooked.

The inhabitants of Leicester owe their freedom from any serious outbreak of small-pox more to vaccination than many of them would like to admit; every case of small-pox is isolated and surrounded by a cordon of vaccinated persons; every contact is put into quarantine and vaccinated if possible; when small-pox visits the town a fair proportion of the inhabitants who have hitherto neglected vaccination wisely seek the protection that it gives.—I am, etc.,

St. Albans, April 7th. REGINALD BROADBENT.

HEART MASSAGE: ARGAUD'S METHOD.

SIR,—Four years ago Argaud suggested that, in attempting to massage the heart, a better method than the usual one of continuous ventricular massage would be to make light taps by the finger tips over the right auricle at intervals, and to watch, as far as possible, for the myocardial response. He was led to this conclusion by his observations on the heart of a recently decapitated healthy young man of 20 (*Comptes Rendus de l'Académie des Sciences*, 1913, clvi, p. 1787). He saw a spontaneous contraction of the exposed heart forty-five minutes after decapitation; from this time until the sixty-second minute mechanical stimulation of the heart, but especially of the right auricle, evoked cardiac contractions. The heart was now opened; electrical stimulation of the endocardium of the right ventricle and of the whole of the left heart failed to evoke contraction; but similar stimulation of the right auricular endocardium evoked contraction of the whole heart. At the eighty-third minute after decapitation the heart was inexcitable. Argaud found that the most excitable region of all corresponded with the raenia of His, the Keith-Flack node, and the valve of Thebesius, that is, the region of the heart which is richest in nerve ganglia. Argaud had often found such ganglia in the substance of the Thebesian valve of man and other mammals. As far as I know, Argaud's suggested right auricular massage has not yet been tried, but it certainly ought to be; for in many cases, as in those just reported by Mr. Molyneux in the BRITISH MEDICAL JOURNAL (March 31st, p. 420), the surgeon naturally wants to avoid opening the abdomen for the operation of subdiaphragmatic massage of the heart.

If we think over the question of cardiac massage we see that the ordinary bimanual method must sometimes, at any rate, stimulate the region of the right auricle and its intrinsic ganglia. But Argaud's method goes straight at the most excitable part of the heart, and this is exactly what we want in a failing heart. I hope, therefore, that every surgeon will try it at once in future cases in preference to the less logical bimanual method. As to the length of the interval which we should allow between the taps over the region of the right auricle, I would suggest (in my present ignorance) that it should not be less than ten or more than thirty seconds.—I am, etc.,

London, N.W., March 30th. LEONARD J. KIDD.

BREAD.

The Fallacy of Selling Bread by Weight.

SIR,—Although conceived with benevolent intentions, the law which compels the baker to sell his bread only by weight is really an infliction on the public. It tempts the baker to adopt means to make the bread heavy. The usual means are (1) addition of adulterants, (2) mixing with too much water, (3) insufficient fermentation, and (4) insufficient baking. Adulterants are hardly used nowadays, but the other three methods are common enough, especially among the bakers who supply the poor. The effect of all these methods is to make the bread close, heavy, and unwholesome.

The course most profitable to the public would be to leave the bakers to produce the nicest, most wholesome bread they can—without adulteration. The public may be trusted to discern which bakers give the best value for money, whether in quality or weight.

The Sanitary Danger of Twelve-hours-old Bread.

I have not seen in the press any notice of the possible danger (which seems to me evident) of storing bread by the bakers for at least twelve hours, according to the Food Controller's order.

The baker requires to clear the bread out of his bakehouse as soon as possible after baking, in order to clean the bakehouse and to prepare for the next baking, for bread is not made in an hour. But where is he to store his hundreds of loaves for the twelve hours or more? In the houses of the larger bakers there may be a disused room, such as a spare bedroom, which can be used temporarily for storage; but in the smaller bakeries there is no such luxury, and the bread can only be stored in the living rooms, on shelves, tables, chairs, and what not, amid the dust and coughing and sneezing of family life. The idea is revolting, and the possibilities of disseminating infectious diseases by this means ought not to be ignored.

It is better that bread should be delivered fresh from the oven to the customer. If new bread is nicer than stale, it is also more satisfying; but the main thing is that it is cleaner, more sanitary.—I am, etc.,

Cambridge, April 2nd. F. J. ALLEN.

THE DIAGNOSIS OF PHTHISIS.

SIR,—Dr. Rees's (BRITISH MEDICAL JOURNAL, December 9th, 1916, p. 825) exposure of the sanatorium cry, "Give us early cases and we can cure them," is timely but late. The degree of immunity in its relationship to the strength of the virus of tuberculosis is the sole determining factor of cure. The so-called sanatorium cures all belong to high degrees of immunity that have been harassed by circumstances that depress vitality; they never include low immunity invaded by tuberculosis in well-fed, well cared-for, and well-housed young adults. Fresh air does not cure tuberculosis. It is not an uncommon thing in New Zealand for cattle that have never been within four walls to be tuberculous. If fresh air and sunshine cure tuberculosis it is a remarkable fact that this disease has exterminated the aboriginal Tasmanian. The sanatorium in this district, rightly or wrongly, will not have tuberculin within its boundaries; it cures by the aid of pure air and much wind, rest and exercises measured by the beating of a piece of metal. As all these ingredients are to be had in New Zealand without price, an excuse has to be found for the cost of sanatorium treatment, and

discipline is added to make the necessary apology. Dr. Rees does not seem to recognize that he, myself, and all practitioners unattached to sanatoriums are uninitiated into the mysteries of curing tuberculosis by discipline. Personally I know that tuberculin and army discipline have converted much latent tuberculosis into active widespread disease.

The early diagnosis of phthisis does more harm than good. The early treatment of tuberculosis is yet unexplored; it belongs to infancy. Early tuberculosis is collected in sanatoriums, and when these cases advance and become dangerous to the public they are cast adrift. For every sanatorium cure that I have seen I can produce three cures that have never been in sanatoriums, and in all of them physical signs persist. The sanatorium movement has associated itself with the harmful but true teaching that phthisis is not hereditary. The public does not know the difference in the biological and legal meaning of this word. In a legal sense tuberculosis is hereditary. Because there is no such thing as a cross between the human organism and the tubercle bacillus, and because if there were all hybrids are sterile, there can be no such thing as hereditary tuberculosis. Immunity against tuberculosis is strongly transmitted by heredity, and all the great problems of this the greatest of all diseases are centred about immunity. By violating the laws of heredity the sanatorium fashion has established colonies of tuberculosis, and the harm which these colonies do is great.—I am, etc.,

W. STAPLEY, M.D., M.R.C.V.S.

Cambridge, New Zealand, Feb. 8th.

COMPULSORY MOBILIZATION.

SIR,—At a meeting of the Executive Committee of the Wandsworth Division the following resolution was carried unanimously, and I was instructed to send you a copy of it:

> That this meeting strongly protests against any measure of compulsion being applied to the medical profession which is not at the same time applicable to the whole community.

—I am, etc.,

London, S.W., April 5th. J. KENNISH, Hon. Sec.

Obituary.

J. J. DEJERINE,

PROFESSOR OF NERVOUS DISEASES, PARIS.

PROFESSOR JULES JOSEPH DEJERINE, of Paris, one of the leaders of contemporary neurology, who died on February 27th, was born at Geneva of French parents on August 3rd, 1849. He studied medicine in Paris, where he won the post of interne in 1874 and took his doctor's degree in 1879, with a thesis embodying the results of researches on the lesions of the nervous system in acute ascending paralysis. After serving as *chef de clinique* at the Charité he became physician to the hospitals in 1882, and *agrégé* in 1886. In 1887 he was attached to the Bicêtre hospice. In 1901 he was appointed professor of the history of medicine afterwards he was transferred to the chair of internal pathology. Finally, in 1911, he became professor of nervous diseases and head of the clinic at the Saltpêtrière, where he had previously lectured for many years. He was a member of the Académie de Médecine, and an honorary Fellow of the Royal Society, which awarded him the Moxon medal. From the first he devoted himself to the study of neuro-pathology, and his communications to the Société Anatomique, the Société de Biologie, of which he was at one time vice-president, the Académie des Sciences and the Académie de Médecine, his books and his contributions to medical journals cover the whole field of nervous disease. He was the author of treatises on the lesions of the nervous system in diphtherial paralysis, for which he was awarded the Godard prize by the Société Anatomique in 1879; on progressive atrophic myopathy (written in conjunction with Professor Landouzy) for which the Académie des Sciences gave him the Montyon prize in 1886; and on diseases of the spinal cord (in collaboration with his favourite pupil André Thomas). His *Sémiologie des affections nerveuses* is a textbook which has served for the instruction of generations of students and is regarded as a classic by practitioners. But his *opus magnum* is the *Anatomie des centres nerveux*, written in collaboration with his wife, Madame Dejerine-Klumpke, herself a doctor of medicine who has won a high reputation by her scientific work. She was associated with her husband in his later investigations. Professor Dejerine by no means limited his outlook to the laboratory. He was an excellent clinician and teacher, and a sound practical physician; he gave much attention to the study of psycho-neuroses, and made large use of psychotherapy in treatment. He was very successful in the application of this method, and his kindness of heart won for him the gratitude of crowds of patients in all ranks of society. Dejerine was an ardent patriot, and had retained his rank in the army in view of the probability of war. On the outbreak of hostilities he was mobilized, and continued to serve for thirty-one months, till to his deep regret he was compelled by illness to ask for sick leave. Even on his deathbed, when struggling with attacks of uraemic dyspnoea, he followed the progress of the conflict with eager interest.

PROFESSOR EMIL VON BEHRING,

MARBURG.

EMIL VON BEHRING, whose death was recently announced, was born at Hansdorf, in Deutsch-Eylau, on March 15th, 1854. He received his professional education at the Army Medical College, Berlin, took his doctor's degree in 1878, and passed the State examination in 1880. He served as a medical officer in the Prussian army, first at Posen, then at Bonn in 1887 as staff surgeon; in the following year he was attached with the same rank to the Army Medical College at Berlin. In 1889 he was appointed assistant at the Institute of Hygiene, and in 1891 he was transferred to a corresponding post in Koch's Institute for Infectious Diseases. In 1894 he received the title of "Professor" in recognition of his scientific work, and was appointed to the chair of hygiene in the University of Halle; in the following year he accepted a call to Marburg, where he held the post of professor and director of the Institute of Hygiene. In 1895 the title of Medical Privy Councillor was conferred on him.

Behring's name is best known to the medical world in connexion with the introduction of the antitoxin treatment of diphtheria. The idea of using the serum of immunized animals to combat toxins produced by pathogenic bacteria had presented itself to several workers in France and Germany. In December, 1890, Behring and Kitasato, then working in Koch's Institute, made the memorable announcement:

> Our researches on diphtheria and tetanus have led us to the question of immunity and cure of these two diseases; and we succeeded in curing infected animals and in immunizing healthy animals, so that they have become incapable of contracting diphtheria or tetanus.

After fully testing the diphtheria antitoxin in man, Behring in 1893, in conjunction with Kossel and Heubner, recorded the first cases treated with it. In 1894 he began to produce the new remedy on a large scale. The results were so good that the antitoxin treatment soon superseded every other. For his work on serum therapy the Paris Académie de Medécine awarded Behring a prize of £1,000, and from the Institute of France he received another of £2,000. Roux, of the Pasteur Institute, who was with Yersin, made researches on the diphtheria poison in 1889, and presented to the International Congress of Hygiene, held at Budapest in 1894, the results of an extensive experience of antitoxin: he also was awarded a prize.

Behring's cure for tuberculosis, which was announced with much confidence, did not fulfil the promise of the discoverer. In recent years, probably owing to failing health, he seemed to have fallen out of his place among the leaders of medical progress, but his name appeared among those of the ninety-three intellectuals who signed the manifesto as to the war which shocked the civilized world in the autumn of 1914.

IT has been urged, says a correspondent and a lifelong friend of DURET AUBIN, that doctors as a class do not take that share in public work which they might and ought to do, but the deceased Jersey patriot was a conspicuous

instance of a doctor of whom that could never be said. Dr. W. Duret Aubin died at his residence in Jersey on March 9th, in his 69th year. Educated at the Lycée of Coutances, he studied for the profession at the University of Edinburgh, and was always to the fore in his class examinations. He graduated in 1870 and immediately volunteered for service with the Red Cross Society. For his services in France during the Franco-Prussian war he received the Cross of the Society and the Commemorative Medal of the French Republic. He settled in practice at St. Heliers after the peace, and soon attained a good general practice, at the same time working zealously for the welfare of his native island outside the sphere of medicine. He entered the Jersey Militia as assistant surgeon, and eventually attained the rank of surgeon-lieutenant colonel. In 1895 he was elected a deputy for St. Heliers in the Island Legislature, and was instrumental in piloting through the States measures, including the local Pharmacy Act, which he believed to be for the good of the community. In 1899 he was called to the Judicial Bench, which he greatly honoured, and ultimately became deputy chief magistrate. At the same time he gradually relinquished his practice, but continued to work for his profession for many years as president of the Hospital Committee and of the Jersey Boys' Home, and as a supporter of many local societies, chafing unceasingly in his later years as illness precluded him from taking his full share of the work devolving upon his fellow members of the States. Dr. Duret Aubin was twice married. He has left a widow, two daughters, and a son to mourn his loss.

DR. EDWARD LLEWELLYN LUCKMAN, who died on March 20th, aged 67, had been in practice in Altrincham for nearly forty years. He received his medical education at Owens College, Manchester, and took the diplomas of M.R.C.S.Eng. in 1879 and L.R.C.P.Edin. in 1884. He showed great interest in the work of the British Medical Association, and had held the offices of Vice-President of the Lancashire and Cheshire Branch, and Chairman of the Altrincham Division. He was an honorary surgeon to the Altrincham Hospital and surgeon to the police. He was also ophthalmic surgeon and honorary surgeon to the Altrincham Ambulance Brigade, and lecturer and honorary life member of St. John Ambulance Association.

BRIGADE SURGEON EDWARD FARRINGTON BOULT, R.A.M.C. (retired), died at St. Leonards-on-Sea on April 1st. He was the eldest son of the late Mr. Edmund Boult, F.R.C.S., of Bath, was educated at King's College Hospital, and took the diplomas of M.R.C.S. and L.S.A. in 1865. He entered the Army Medical Department as assistant surgeon on March 31st, 1866, became surgeon on March 1st, 1873, and surgeon-major on March 31st, 1878, retiring with a step of honorary rank on September 24th, 1887. He served in the Sudan war of 1885, at Suakin, receiving the medal with clasp and the Khedive's bronze star.

DR. A. PAPPENHEIM, Privat-docent at the University of Berlin, recently died of typhus contracted in the course of his professional work. He was the editor of the *Folia Haematologica*, and was well known by his work on the morphology of the blood and on blood diseases.

Universities and Colleges.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on March 21st.

Mr. Lancelot Bromley was recognized as a teacher of surgery at Guy's Hospital Medical School.

It was decided that the necessary alterations should be made to enable the Department of Anatomy at University College to be opened for the reception of women medical students in October, 1917.

Professor A. D. Waller, F.R.S., and Dr. S. Russell Wells were reappointed director and treasurer respectively of the Physiological Laboratory for 1917.

The report of the Physiological Laboratory Committee for 1916 stated that Captain F. L. Golla, Captain G. W. Ellis, and Lieutenant P. E. Lander, of the laboratory staff, had joined the army; the first was doing experimental work in the laboratory, and the two latter were on foreign service. Owing to want of funds no successor to Miss Edgell in the department of experimental psychology had been appointed. The bulk of the work carried out in the laboratory had, as in the previous year, consisted in researches which had arisen out of the war. The report also contained notes on researches in progress and a list of papers the outcome of work conducted in the laboratory.

It was reported that the Vice-Chancellor has issued a circular letter to teachers of the university intimating that, in view of the fact that rabbits were largely used as food, the university were not justified in making use of them for examination purposes at the present, and suggesting that in practical work the rat or the guinea-pig, or some other non-edible mammal, should be substituted for the rabbit in illustrating lectures on mammalian anatomy.

Mr. H. J. Waring, M.S., has been reappointed by the Faculty of Medicine to the Senate for the period 1917–21.

The presentation of graduates will take place at the university on May 9th, at 3 p.m.

UNIVERSITY OF DURHAM.

THE following degrees and diplomas were conferred at the convocation held on March 31st:

M.D.—I. D. Evans, R. Peart.
M.B.—N. Braithwaite, E. Bramley, R. V. Brew, Stephanie P. L. H. T. Daniel, D. Henegan, J. D. Johnson, J. K. R. Landells, Kamel Ibrahim Shalaby, C. R. Smith, I. Soliman.
B.S.—N. Braithwaite, E. Bramley, R. V. Brew, H. G. B. Dove, D. Henegan, J. K. R. Landells, K. I. Shalaby, C. R. Smith.
D.P.H.—R. J. Cyriax, D. C. L. Orton.

UNIVERSITY OF GLASGOW.

AT the extra graduation ceremony on April 6th, the Principal, Sir Donald MacAlister, in offering congratulations to the new medical graduates, stated that of those eligible for commissions in the navy or army, all had responded to the country's call for medical service with the forces. At the present moment, he said, the demand for medical men and women far exceeded the supply, and the special responsibilities of those who were qualified to practise medicine had, therefore, never been so heavy.

The following degrees were conferred:

M.B., CH.B.—J. W. W. Baillie, Monindra Nath Bhattacharjee, A. M'A. Blackwood, Mabel N. Blake, J. MacD. Clark, A. Dick, S. N. Dykes, L. L. Fotheringham, Margaret H. Glen, W. H. Gordon, D. Heard, F. W. Hebblethwaite, H. F. Hollis, J. R. R. Holms, W. H. Kerr, J. Liddell, F. C. Logan, K. M'Alpine, A. D. Clark M'Gowan, May E. MacIver, D. W. M. MacKenzie, W. D. Miller, W. H. Palmer, J. W. Patterson, May I. T. Reid, A. M'A. Scott, H. B. Sergeant, A. W. Smith, C. L. Somerville, D. S. Stevenson, P. A. Stewart, Marion Watson, Mary MacL. Weir, R. Wiggins, J. T. Wylie.

UNIVERSITY OF DUBLIN.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., PART I.—*Medical Jurisprudence and Hygiene, Materia Medica and Therapeutics, Pathology:* *W. L. Young, *R. M. D. Devereux, *J. C. Fouché, E. J. Lyndon, L. J. Nugent, J. B. McGranahan, E. S. Mack, K. MacG. Greer, Olive G. Blackham, F. Ferguson, B. D. Merrin, F. J. Dymoke, †F. J. G. Battersby, ‡A. L. Gregg, ‡F. A. McHugh, ‡B. A. McSwiney, ‡W. A. Shannon, ‡E. R. Tivy, §Margaret Wolfe.

FINAL M.B., B.CH., B.A.O., PART II.—*Medicine:* *A. R. Barlas, *E. D'A. McCrea, J. C. O'Gilvie, P. H. S. Smith, W. F. Wicht, Olive G. Blackham, P. J. Swanepoel, W. P. Lubbe, G. Marshall, J. A. W. Cullen, T. E. Hill, H. H. Molloy. *Surgery:* *J. A. W. Cullen, G. B. Shaw, H. Banks, H. J. Rice, P. H. S. Smith, H. Brill. *Midwifery and Gynaecology:* E. D'A. McCrea, A. R. Barlas, B. A. McSwiney, Margaret Wolfe, P. C. Parr, J. R. Brennan, H. H. Molloy, T. Tabuteau, P. H. S. Smith, P. Casey, T. H. R. McKiernan, J. J. Keatley.

D.P.H.—*Part I. Chemistry, Meteorology, and Bacteriology:* Captain T. Kirkwood, Captain B. H. Mellon. *Part II. Sanitary Engineering, Vital Statistics, Hygiene and Epidemiology:* Captain B. H. Mellon.

* High marks.
† Omitting Pathology.
‡ Pathology completing examination.
§ Medical Jurisprudence and Hygiene completing examination.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—*Medicine:* J. Boyd and S. A. Faulkner. *Surgery:* W. U. D. Longford, Phoebe Foott, F. M. H. Sanderson, and J. B. Minford. *Midwifery:* W. U. D. Longford, H. C. Smith, F. M. H. Sanderson, J. L. West, and J. B. Minford. *Medical Jurisprudence:* H. Wildeboer, D. C. McNair, L. W. Nott, Eliza J. Stuart, Mahmoud Abdel Kadar Mofreh, E. E. Bronstorph, and J. H. Brown.

The following candidates having passed the final examination have been admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.: W. A. Mein, J. Adami, F. J. Jack, A. E. Elliott, and W. McElroy.

THE report of the Education Committee of the London County Council on the organization of education after the war recommends improved physical education, and speaks strongly as to the great importance of the medical inspection and treatment of school children.

Medical News.

DR. R. S. MAIR has resigned the appointment of certifying surgeon under the Factory Act for the City of London, after forty-three years' service. Dr. Harold Ross is his successor.

AT a meeting of the Royal Microscopical Society on Wednesday next, at 8 p.m., a paper on the life-history of the meningococci and other bacteria will be read by Dr. E. C. Hort and Mr. F. Martin Duncan.

THE New York State Board of Charities has recommended the registration of all feeble-minded persons, especially children, in the State and the development of public institutions caring for them. The estimated expenditure is £2,500,000.

THE regulations for entrance to the Faculty of Medicine of the joint matriculation board of the Universities of Manchester, Liverpool, Leeds, Sheffield, and Birmingham have been revised, and in future Latin will not be required from the student as an obligatory subject.

DR. M. S. PEMBREY will deliver a lecture on the restricted supply of food and its relation to health and efficiency at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., on April 25th. The Right Hon. Sir John A. Cockburn, K.C.M.G., M.D., will take the chair at 5.30 p.m.

THE University of Michigan has united with the University of Detroit College of Medicine and Surgery, turning over its charter, real estate, equipment, and hospital privileges, and undertaking to raise a fund of £200.000 for the development by the university of a graduate school of medicine in Detroit.

SOME friends of the late Professor Hugo Münsterberg have presented his library to Harvard University. The collection consists of about 3,000 books, with some 7,000 reprints, pamphlets, manuscripts, charts, and miscellaneous papers. Among the books are the most important works on experimental and applied psychology.

THE twenty-sixth annual report has been issued by the Committee of Management of the Nurses' Co-operation, formerly at No. 8, New Cavendish Street, and now at No. 22, Langham Street, Portland Place, W. The Co-operation was established in 1891 to secure to nurses full remuneration for their work.

A THREE months' course of lectures and demonstrations in hospital administration for candidates for the D.P.H. will be given at the North-Western Hospital, Hampstead, by Dr. J. E. Beggs, medical superintendent. Particulars can be obtained from the Clerk to the Metropolitan Asylums Board, Victoria Embankment, E.C.

IN 1910 Dr. G. Krauss left a sum of nearly £80,000 to the city of Munich for the foundation of an institute of mechanical and other forms of orthopaedics in memory of his father. The building, which is now complete, stands in the grounds of the university orthopaedic clinic, with which it is closely affiliated, being under the direction of Professor F. Lange.

The Alliance Year Book and Temperance Reformers' Handbook is published by the United Kingdom Alliance (Manchester and London, 1s. net), which is described as a people's league formed to educate the public as to the nature of alcoholic liquors, to obtain for communities the right of prohibition, and to support parliamentary candidates holding the views it approves on temperance legislation. The Alliance appears not to favour State purchase or the nationalization of the liquor traffic; it has as president the Right Hon. Leif Jones, M.P.

THE half-yearly and final report of the War Refugees' Dispensary (265, Strand, W.C.) has lately been issued. This dispensary forms a branch of the War Refugees' Committee and was instituted in October, 1914, by English and Belgian doctors, with the assistance of a Voluntary Aid Detachment. The work was carried on as an out-patient department for refugees until the present year, when, owing to increasing difficulties both in staffing and finance, it was closed and the work handed over to the Government dispensary in Sheffield Street, W.C. During the two and a half years of its existence nearly 29,000 consultations and treatments were given, while dental and ophthalmic aid was also provided for a number of patients. Owing to much gratuitous help the total expenses of the dispensary were scarcely more than £1,800. Domiciliary treatment was also provided for a considerable number of refugees who were too ill to attend the dispensary.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

M.R.C.S. invites surgical opinions on the following case: A man aged 45 suffered from pain after food. Gastric ulcer was diagnosed. The ulcer was excised, stomach anchored to diaphragm; gastro-enterostomy was performed also. The immediate effect of the operation was good, but neurasthenia with mental and physical apathy and constipation persisted so extremely that it was with difficulty that ordinary duties could be performed. The patient also had a mobile kidney which after operation dropped as far as the brim of the pelvis. The questions are, Is this the cause of the neurasthenia and would stitching up of the kidney relieve the condition?

LETTERS, NOTES, ETC.

IN the report of the meeting of medical practitioners in Glasgow and the West of Scotland, published last week, p. 467, the seconder of Dr. McGregor Robertson's motion proposing that the whole nation should be mobilized was Dr. Thomas Russell and not Dr. John Russell as printed.

ABDOMINAL KNEADING IN THE TREATMENT OF INTESTINAL STASIS.

DR. REGINALD ALDERSON (Westcott, Surrey) writes: Dr Bolton's article on abdominal kneading (JOURNAL, March 31st, p. 422) must be of interest to the many who have plenty of spare time to empty the large intestines by that procedure. I would suggest that every one should have the course of the colon, as determined by *x* rays after a bismuth meal, permanently marked out on the surface of the belly, so as to obviate the risk of, say, emptying the contents of the stomach into the oesophagus, or the duodenal contents into the pancreatic duct by mistake. And of course the individual should be prepared to carry out the method always, as it is only fair to presume that normal peristalsis would in time drop out as being merely superfluous.

INFANT MORTALITY IN THE SLUMS.

W. M. F. writes: I notice in the article on Dr. Brownlee's inquiry as to the cause of the large infant mortality in the slums (BRITISH MEDICAL JOURNAL, March 17th, 1917, p. 369) that he considers the essential remedy to be the wholesale abolition of slums and slum life. I am not advocating remissness in improving the houses and surroundings of children, but houses are not the principal cause of the high child mortality amongst the poor of cities. The fathers and mothers are themselves to blame; if they are of good character, cleanly, and tidy they can make a small house fairly healthy. Incidentally, it is to be noted that the builders and proprietors of houses have been so heavily taxed of late that house building is at a standstill. I think the principal cause of the high mortality amongst children is to be found in the drinking customs of the people.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE WOUNDED AS WE SEE THEM AT HOME.*

BY

W. C. ALLARDICE, M.D.GLASG., F.R.C.S.EDIN.,

SURGEON, STOKE WAR HOSPITAL AND THE NORTH STAFFORDSHIRE INFIRMARY.

THE establishment of the local war hospital has brought us in contact with a class of case we did not see in civil practice—namely, septic wounds which do not readily respond to routine treatment. The reason for this is realized when we consider the surroundings of the soldier at the time the wounds are inflicted.

The important point is that the wounded man may have to lie for a considerable time on the ground, which has been highly cultivated and is rich in all kinds of pathogenic germs. A typical example was one case which received a shrapnel wound in the foot and lay for four days in a shell hole. He had a piece of biscuit on the second day from a comrade, and on two occasions drank his own urine to quench his thirst; on the fourth night he managed to crawl to the British lines in an exhausted condition. On admission here it was found that the fibula and astragalus had been smashed by the bullet, and he had lost three toes from frostbite. The whole foot was thoroughly septic, but eventually he made a good recovery. The length of this man's exposure is exceptional, but it is quite common for patients to be wounded in the early morning and not to be brought in till the night. Under such conditions serious wounds have plenty of time to become thoroughly septic, and it is no cause for wonder that the treatment is difficult and anxious. Indeed, the condition of these wounds has led some writers to talk of the failure of antiseptics, and to draw comparisons with the state of affairs in the Crimean war.

I have heard that campaign discussed by the late Sir George Macleod, who had been surgeon to a hospital in the Crimea. As might be expected previous to Lister's teaching, the results of wounds were deplorable. Suppuration was the rule, erysipelas and hospital gangrene quite common, and secondary haemorrhage was a frequent cause of death. The lower wards in a hospital were often ventilated through the floor of the ward overhead. When acute sepsis occurred on the ground floor it was noticed that round those primitive ventilators on the next floor the wounds were specially liable to go wrong. Any wound of a joint necessitated amputation to avoid pyaemia, and amputations were planned for rapidity in the first place, flaps being but roughly fashioned, and coaptation obtained by a few strips of plaster. The object was to leave the wound freely open for the escape of the pus which was sure to form. This method is comparable to the modern guillotine amputation, which has the same end in view. Blood vessels were ligatured with waxed threads, and the ends left long to hang out of the wound. After a week had elapsed the surgeon pulled on these ends until the ligature came away. When this happened without a gush of blood the patient was considered fortunate. Secondary haemorrhage was treated by cauterizing the bleeding point and flexion of the limb or pressure on the main artery, or a temporary ligature was sometimes applied round the main artery at some distance from the bleeding point. Wounds were incised freely for drainage, and one of the best dressings was found to be the linseed meal poultice. The reason for this we now know was that the poultice was changed frequently, and the warm, moist surface applied to the wound increased the flow of lymph, inhibiting the growth of bacteria, and thus bringing the wound into a healthy condition. The poultice is the predecessor of the modern aseptic fomentation so extensively used in the present war.

Dressings were forwarded to the Crimea from this country, and consisted chiefly of old household linen scraped on one side with a sharp comb to roughen it, and thus form lint, or "charpie" as it was called. An old patient tells me that all the schools in North Staffordshire were given a week's holiday while the scholars prepared this lint and rolled other materials as bandages. Sterilization was unknown in those days, and these dressings, packed in rough sacks, were forwarded to the front, thus adding multitudes of germs from this district to the miseries of the wounded in the Crimea.

The measure of our advance is given by comparing this method with the local modern Red Cross supply dépôt, where the work is done under aseptic conditions, and all dressings are sterilized before being sent out to the front.

The army diagnosis of "G.S.W." (gunshot wound) covers most of the cases we are called on to treat, and includes injuries by all kinds of modern projectile. So far as I know, very few cases of bayonet wounds have been admitted for treatment. The reason for this is that those wounds are so often immediately fatal, as the points aimed at are the eye, the throat, the chest, and the abdomen. The modern bullet, conical in shape and consisting of a lead core encased in harder metal, may become lodged in the tissues as a whole, or, splitting in pieces, it may scatter fragments of metal through the tissues. Fired at a moderate range, it may have an explosive effect—that is, after making a small entrance wound, it may shatter the tissues in all directions and make a large exit wound. Shrapnel bullets—round lead balls of varying sizes—make a larger entrance wound, but do not do so much damage internally, as their propulsive force is not so great. As might be expected, rifle bullet wounds are common in the head, shoulders, and arm, from exposure of those parts in firing from cover. Shrapnel wounds, on the other hand, are often multiple on the head and neck, for the shrapnel shell bursting in the air showers its bullets on the head of the soldier in the trench, or on his back, if he is lying in the open taking cover.

High explosive shells rely for their lethal effect on the concussion of the explosion and the scattering of irregular pieces of metal which cause severe lacerated wounds. Every soldier carries in the lining of his tunic an emergency dressing which consists of two packets each containing sterilized gauze in waterproof. That this dressing is of use is proved by the fact that when applied promptly cases may heal up practically by first intention. If the bullet has not carried infection into the wounds the pads prevent subsequent contamination.

Cases are sent as rapidly as possible to the casualty clearing station at the nearest railhead. We have had cases at the military hospital here well within two days of being wounded in Flanders. The reason for this rapid removal is the necessity of clearing hospitals in France during heavy fighting. No one can tell how many casualties are coming in, and accommodation must be kept for cases which cannot be passed on, either from the fact that operative interference is required, or that the injury is too grave to admit of removal. The maintenance of a large body of wounded with the necessary attendance in France, is, of course, a difficult matter.

On admission to hospital in this country, the one fact obvious is, that these patients are exhausted and short of sleep. Warm and comfortable in their unaccustomed beds they sleep more or less for two or three days. After a life of anxiety in the trenches comes the excitement of battle, with the shock and pain of the wound, followed by a more or less exhausting journey. Unless absolutely necessary, operative interference is best deferred until they have fully recovered from this state of exhaustion. These men, however, do well—better than could be expected from the nature of the wounds received. It has to be remembered that they were in good health on enlistment, and that their physical health has been improved by the subsequent military training. They were in the best possible condition when they reached the firing line, and despite many drawbacks they are there fed better, and their sanitary surroundings are better supervised than in almost any previous campaign. In addition to this a severe wound or the loss of a limb is unable to upset the cheerful optimism of the average British soldier of the present day. These facts, then, all tend towards good recovery when we get them safe in hospital in this country.

Wounds.

We all know that in civil practice the future of an injury, such as a scalp wound, depends almost entirely on the treatment received in the first few hours. Hence we find in war work that suitable gunshot wounds, when seen early, have their track excised and disinfected, and the wound stitched up. Many such cases heal up by first intention, thus greatly shortening convalescence. In the majority of cases this method is impossible, owing to the

* A paper read at a meeting of the Staffordshire Branch of the British Medical Association.

extent and severity of the wound, and the firm hold sepsis has on the tissues, before the opportunity of treatment occurs. Thus we find that a more or less lacerated wound is the type we have to treat, while either at the moment of infliction the projectile has carried germs into the depth of the wound, or from the length of exposure sepsis is well established. The bacteria have plenty of time to invade the deeper layers of the tissue of the wound before systematic treatment can be commenced. This accounts for the difficulty in treatment, for antiseptics cannot be expected to penetrate the tissues so as to kill the germs and not the tissues themselves. When the wounds of a convoy smell badly on admission, when first dressed, it is certain some of the cases are serious; high temperatures will be common, secondary haemorrhage will occur, and there may be some deaths from the severity of the septic infection. These features were marked in a convoy of wounded Australians. These big well-built men did not stand septic infection nearly so well as the average English soldier. It seemed as if another factor were at work, which may have been the change from the sunny colonial life to the damp and confined trenches. This would tend to lower their resistance to the pathogenic germs encountered there among inferior hygienic surroundings. The important part of the treatment of those wounds is to encourage free discharge and to provide free drainage. With this end in view Sir Almroth Wright's method of using salt solution is of great value. He found that 2 per cent. will begin to inhibit and 5 per cent. completely arrest the growth of pyogenic organisms. Sodium citrate is added to prevent the lymph coagulating. The practical rule is to use sodium citrate when the discharge is being confined by a dressing, and to omit it as unnecessary when washing away the pus. This is obtained by continuous irrigation by gauze wicks coming from a flask of salt solution or from rubber tubing, with the flow regulated by clips. The effect of this is to wash away all discharge as it is formed and to encourage the flow of lymph outwards through the wound. An unhealthy sloughy wound, with thin irritating discharge quickly improves. The sloughs separate, red florid granulations form, and the discharge becomes what was called in former days healthy laudable pus.

There is another method of employing this treatment. Under an anaesthetic the wound is opened freely and cleansed. It is then covered with a layer of gauze and tablets of sodium chloride inserted; these are covered with gauze and more tablets used. This is repeated until the wound is filled up, when the surface is covered with gauze and a bandage applied. The great advantage is that the wound does not require dressing for several days, thus saving the patient much pain. The discharge from these wounds smells badly, and soon soils the superficial dressing. This can be changed if necessary, but in this instance it does not mean that the wound is going wrong. The best indication for the renewal of the deeper dressing is quickening of the pulse.

The most commonly used routine dressing for superficial septic wounds is an aseptic fomentation of saline solution, or some antiseptic in weak solutions. These fomentations should be changed frequently. Wounds of the limbs improve rapidly on immersion in baths of similar solutions. Dakin's solution or some modification is most efficacious in cleaning offensive wounds.

A septic wound with a dry gauze dressing which is not frequently changed soon goes wrong. The first discharge cakes on the gauze, and the next accumulates underneath, giving rise to a smell. A patient with an extensive wound of the soft parts ought certainly to have a splint applied, as movement tends to spread deep-seated suppuration, and to cause autoinfection.

As regards drainage, when a wound is found to extend into the deeper tissues, each track must be opened up freely under an anaesthetic. This usually causes a rise of temperature from septic absorption by the freshly-cut tissues, but the temperature soon drops, and no harm is done. Drainage tubes should be of large calibre, with frequent holes cut in them. Tubes should not touch any blood vessel, owing to the risk of causing secondary haemorrhage, nor should they touch the bone in cases of compound fracture, from the additional risk of necrosis. They should not be inserted far into the joints, but only down to the capsule, as otherwise they increase the injury to the inflamed synovial membrane.

Gauze plugging tends to pen up the discharge and cause extension of suppuration in the depths of the wound. When the patient is travelling, and changes hands, it is quite easy for the plug to slip inside the wound and be overlooked at the next dressing and so act as a very septic foreign body.

Each wounded man receives a prophylactic injection of antitetanic serum before being sent home, and this largely diminishes the number of cases of tetanus. If any suspicious symptoms of this dread disease occur the prompt and repeated intraspinal injection of the serum is most important. When this is done the foot of the bed should be raised to allow of the upward spread of the serum to the cervical portion of the cord.

Gangrene may develop in a wound which is not drained properly. The freest possible incisions with the largest drainage tube and the liberal local use of oxygen may fail to arrest its spread. The guillotine amputation may offer the only hope, and this may not be feasible from the locality of the wound. Indeed, the rapid onset and quick death of a patient in a severe case of gas gangrene has to be seen to be believed.

Secondary haemorrhage occurs in septic wounds from ulceration of the blood vessels, and is prevented by the free drainage which should be provided in all cases. If plugging the wound fails to arrest the haemorrhage, or if the bleeding point cannot be secured in the wound, then the main artery should be tied at a distance. If the haemorrhage recurs, then amputation must not be delayed until the man is too weak to stand it. These points were well illustrated by one of my cases with a gunshot wound of the middle of the thigh. The wound was opened and drained on admission, and at the first haemorrhage it was again opened up and the artery secured in the wound. Haemorrhage recurred, and the common femoral was ligatured. A week afterwards there was another haemorrhage and the man was beginning to get dangerously weak and anaemic. A circular amputation was done above the original wound and the man recovered; he would have died from another haemorrhage.

Amputations.

It has been said that under war conditions a limb requiring amputation is one in which, from the nature of the injury and length of exposure, sepsis had travelled beyond the limits of the original trauma. For this reason flap amputations do badly, and the guillotine method is the best. Here there is circular division of the skin, muscle and bone at one level, thus leaving an open raw stump. In one convoy four flap amputations were admitted under my care with gangrenous flaps and sloughy wounds. Two were amputations in the middle of the humerus, and both died from acute sepsis, despite all treatment; the other two cases were flap amputations with disarticulation at the knee joint. In each of these cases the articular end of the femur was exposed, surrounded by a sloughing wound, cellulitis extended up the thigh, and in one case secondary haemorrhage occurred from the popliteal artery. In both there was a long dangerous illness before re-amputation could be done, but both eventually recovered.

The guillotine method allows the freest possible drainage from the infected limb, and this is the secret of its success. Subsequently the stump may be skin-grafted, or the tissues brought down over the end of the bone by plaster extension, but in most cases re-amputation has to be done. By this time, of course, the patient's general condition has improved, the limb is free from sepsis, and a secondary amputation is undertaken under very favourable circumstances, giving a good firm stump.

Fractures.

This war has seen the increased use of the different forms of wire splinting associated with the names of Thomas and Robert Jones. These splints are light but rigid, permit of easy access for dressing wounds, and extension is easily arranged either for the arm or the leg.

A septic compound fracture heals slowly; indeed, a long critical illness may result in saving a limb which is of little after-use to the patient. In many cases early amputation would save much suffering, and the modern efficient artificial limb be of more service than the limb which is saved.

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Every effort is made to retain fragments of bone at the seat of a compound fracture, as, if necrosis can be avoided, these fragments play an important part in the subsequent union of the bone. Plating a fracture is out of the question until the wound is healed, and even then must be delayed some time until the health of the patient has improved and there is less risk of operation stirring up a quiescent local septic focus. Fragments of metal in the bone are no detriment to plating so long as they are causing no irritation. In one case of non-union of a fractured radius, with the bone freely peppered with fragments of shrapnel, the bone was plated and the shrapnel left undisturbed; the result of the operation was good.

Head Injuries.

We have had sent us several most successful cases after the prompt trephining of depressed fracture of the vault of the skull, mostly caused by gunshot wound. As we get them there is a horseshoe incision in the scalp which is nearly healed, and under this can be felt the gap left by the removal of bone. These cases have no further symptoms, and require no further surgical treatment. They are fitted with an aluminium plate, held in position by elastic bands round the head, and are then discharged from the service.

Chest Wounds.

When a bullet wound of the chest is received, the patient should at once lie down, as any further exertion or movement increases the haemorrhage to a marked degree. The danger is, a man hardly knows he is hit, and goes on until forced to give up from extreme dyspnoea, due to a large haemorrhage into the pleura. Unless there are urgent symptoms, the chest should not be tapped, as septic infection easily occurs in these cases. Prolonged rest in bed, with strapping of the affected side, and potassium iodide internally, cause the effusion to absorb satisfactorily. If pus is found in the chest, then resection of a piece of rib, with a short but large tube inserted at the lowest border of the empyema, gives good results, and recovery is excellent. One typical case was a private, who had lain for four days on a stretcher, after receiving a perforating gunshot wound of the left chest. To relieve the dyspnoea an incision had been made in the intercostal space and 50 oz. of blood-stained fluid evacuated. On admission here he was dangerously ill; his heart was displaced over the right mammary region, there was an incision at the base of the left lung discharging offensive fluid, and he had a large bedsore over the sacrum. When he had sufficiently recovered, the chest was opened and drained on the above lines. The patient soon picked up, and, when last heard of, he was back with his regiment again.

Foreign Bodies.

Small fragments of metal under the skin can be removed under a local anaesthetic, but irregular pieces may be found firmly held by the subcutaneous tissues, and are difficult to extract. Deep-seated fragments causing no trouble, are, of course, left alone, and, unless very accurately localized by the *x* ray, are difficult to find; any attempt to grope for such a fragment is a difficult business, very likely to fail.

Conclusion.

The war has certainly altered our ideas of the transport of the sick and wounded in this district. The admirable voluntary organizations which perform these duties are worthy of every praise, and we must see to it, in peace time, that the sick and injured of civil life shall have the same prompt and efficient ambulance facilities available, such as the soldiers now have when sent to the Stoke War Hospital.

SINCE the outbreak of the war a scheme for the manufacture of aniline products on a large scale in Italy has been under consideration with the object of freeing the industry of that country from the domination of German enterprise. The Industria Nazionale de Anilina has now been formed at Milan with a capital of £240,000. The initiators, Senator Luigi Della Torre and Signor Aldo Venezini, have secured the co-operation of Professor Ciamician, Senator of the Kingdom of Italy.

THE NEW DIETETIC TREATMENT OF DIABETES MELLITUS.*

BY P. J. CAMMIDGE, M.D.LOND.

I DO not propose to deal with the practical details of Allen's method, as they are probably familiar, but shall devote my attention chiefly to the metabolic changes produced by the treatment, and its effect on different types of diabetes. The condition to which the name diabetes is applied occurs in a variety of forms with the one symptom of glycosuria in common, but differing in other respects. This variation is even more marked when the blood, urine, and faeces from a number of cases are systematically examined. During the last few years I have had the opportunity of analysing some eight thousand specimens from over five hundred cases of diabetes, including fifty-four I have treated by Allen's method. One of the most striking results has been the frequency with which indications of chronic catarrh of the upper intestinal tract were found (71 per cent.). It can hardly be assumed that the relation is accidental or that the catarrh is a secondary phenomenon, for the history shows that symptoms of indigestion have frequently preceded the discovery of sugar by several years. Cases of this description generally respond well to "alimentary rest," but they are apt to relapse unless the intestinal condition is considered in planning the subsequent treatment.

Although one can imagine that impairment of the functions of the pancreas is responsible to some extent for the imperfect carbohydrate metabolism in these cases, and that physiological rest of the gland will therefore bring about an improvement, we should not overlook the effect of starvation on the intestine itself. It may be partly a de-intoxicating process, as Guelpa supposed, but as Lombroso has shown that the intestine yields a glycolytic agent to the blood even more readily than the pancreas, it is possible that the physiological rest may influence the production of this substance and so control the glycosuria. The analogy between the diabetes produced in animals by partial extirpation of the pancreas and in the human subject is probably not as close, in this type of case at least, as some have imagined, since, on the one hand, we are dealing with a surgical mutilation of a non-progressive character, whereas on the other we have to treat a pathological state that tends to progress, and, even when checked, to recur.

It is comparatively uncommon, in my experience, to find evidence of advanced cirrhosis of the pancreas in diabetics, but signs of some interference with the digestive functions of the gland were met with in 72 per cent. of my cases. In most of them (67 per cent.) there were also indications that the functions of the liver were being imperfectly carried out, while in 27 per cent. the hepatic disturbance was more pronounced apparently than the pancreatic. It is convenient, therefore, to recognize three types: (1) the pancreatic, (2) the hepatic, and (3) the pancreo-hepatic—a classification I find of help in prognosis and treatment.

The outlook for patients with a cirrhotic pancreas is fairly good, provided a suitable diet is adopted. I have not found that they are materially benefited by starvation, and as their digestive powers for all three classes of foodstuffs are defective it is more important to ensure adequate nourishment than to worry over the traces of sugar they generally pass.

Strictly speaking, the hepatic type does not come under the heading of diabetes, for although a reducing substance is passed in the urine it is not a sugar, but an alpha-ketonic acid, to which I have given the name pseudo-laevulose, as it is laevo-rotatory, like laevulose. Pseudo-laevulose is met with in the urine of most advanced cases of diabetes, along with dextrose, especially if the diet contains much protein, and it is from protein that it is probably formed; but it also occurs alone, and may lead to an incorrect diagnosis of diabetes. To treat such cases on orthodox lines is a waste of time and may do more harm than good. A carbohydrate-free diet only makes matters worse. Although starvation will clear the urine of "sugar," the same result may be obtained, with greater comfort to the patient, by eliminating proteins from the

* Abstract of a lecture given before the Harveian Society on April 19th, 1917.

diet, or greatly reducing the intake. An abundance of green vegetables, with dextrinized starches or pure dextrose, is the best diet for a time; later other foods can be cautiously added if proteins are taken sparingly. The prognosis appears to be good, for I have several patients who have remained sugar-free and in good health for three or four years. It seems probable that some of the success of the various "carbohydrate cures" for diabetes is to be explained by cases of this kind.

What I have termed the pancreo-hepatic type is probably one development of the intestinal type. There may or may not be evidence of intestinal catarrh when the patients come under observation, but they show signs of pancreatic insufficiency and more or less disturbance of the functions of the liver. The prognosis is most hopeful when hepatic insufficiency is the more pronounced feature. These cases correspond to what has been termed "gouty" glycosuria. Typical attacks of gout are rare, but there is a special liability to cardio-vascular and kidney disturbances, cataract, neuralgia, and neuritis. Striking variations in the excretion of uric acid, creatinine, and amino acids are generally found, and pseudo-laevulose sometimes constitutes more than half the total "sugar." Signs of chronic colitis are common in the faeces.

The nervous complications are commonly regarded as resulting from the gout, but they really arise from the hyperglycaemia, and so long as this is not controlled they persist. A short period of starvation is often helpful, but satisfactory results can be obtained by limiting the protein and carbohydrate intake for several days, then giving one or two vegetable days, followed occasionally by a porridge or potato day. The subsequent diet is arranged according to the patient's tolerance for protein and carbohydrate, care being taken, however, to limit the purin as much as possible. If the gouty and diabetic symptoms are both severe an alternating diet, calculated to control each in turn, is advisable. Typical "gouty" glycosuria is most common after middle life, but even in younger people a predominance of the signs of hepatic insufficiency warrants a more cheerful outlook than when they are absent. In these, as in the typical gouty cases, there is a marked tendency for the hyperglycaemia to persist for a considerable time after the urine has become sugar-free; and unless this is borne in mind, and the urinary analyses are controlled by blood-sugar estimations, the results of treatment are very likely to be disappointing, for our aim in all cases of diabetes should be to prevent hyperglycaemia, not merely to eliminate sugar from the urine. So long as blood-sugar estimations were difficult to carry out there was a valid excuse for relying entirely on the indications afforded by the urine, but the modern micro-chemical analysis is so readily performed that we should not be content with the shadow, but grasp at the substance.

A nervous element enters into many cases of diabetes, no doubt, but it is rarely possible to prove it. I think that the relation between the magnesium and calcium output in the urine may possibly afford some indication, for I have found that the former is usually higher than the latter in nervous people, and that a sudden rise in the magnesium, with little or no change in the calcium, occurs as the result of worry, anger, grief, etc. Cases in which a nervous factor enters into the pathology answer well to treatment by alimentary rest, but always do best when treated away from home and their ordinary surroundings. I give these patients as much fresh green vegetable as possible to supply them with an abundance of inorganic salts, and I find that minute doses of magnesium sulphate, taking care to avoid a purgative effect, improve their mental condition, and tend to control the glycosuria.

It will have been gathered that I do not look upon Allen's fasting treatment as the bes tfor all forms of glycosuria, but I do consider that it marks a great advance in the available methods, and gives results that can be obtained by no other means in many instances. It must be used with judgement, however, and one should always bear in mind that the keynote of the treatment is undernutrition. A practical question that sometimes arises, therefore, is whether a controlled, and may be mild, glycosuria with an adequate diet and reasonable enjoyment of life is not preferable to the theoretical ideal of a permanently sugar-free urine, which can only be secured by a diet that will not satisfy the pangs of hunger, and requires constant close supervision. The answer will depend on circumstances and the temperament of the patient. These should be considered carefully before advising the treatment, as once it is begun it must be persevered with, since a return to an ordinary carbohydrate-free diet always brings about a rapid increase in the acidosis, with excessive tissue waste and death from diabetic coma.

Coma, formerly one of the most common causes of death in diabetes, should now be one of the rarest, for in starvation, followed by a largely vegetable diet, we have a powerful weapon for controlling the acidosis from which it arises. Essentially acidosis results from the imperfect oxidation of fat, and this in its turn is dependent upon faulty combustion of carbohydrate by the tissues, for fat seems to be a less readily oxidized footstuff than sugar, and needs the fire of burning sugar to bring about its complete combustion. It has been calculated that one part of dextrose to three parts of higher fatty acids is required for the purpose. Since the maximum rate at which dextrose can be oxidized by diabetics is always lower than in health the diabetic is not capable of utilizing as much fat as a normal individual, so that acidosis is more prone to develop, the fat smokes, as it were, the "smoke" being represented by abnormal acid products. In order to check a diabetic acidosis it is necessary to prevent "smoking" of the fat by restoring the proper relation of dextrose to fatty acid oxidation, which may be done by increasing the utilization of carbohydrates and diminishing the fat. Starvation will obviously accomplish the latter and tends to increase carbohydrate tolerance. The immediate effect of the fasting treatment will depend upon the amount of fat stored in the body, and therefore upon the nature of the previous diet. If much fat has been taken and there is a considerable deposit of adipose tissue the sugar available may be quite inadequate for its complete combustion and there will be a rapid rise in the acidosis until the fat has been used up and a more normal relation between fatty acids and dextrose has been reached, but even then the acidosis may continue, for proteins contain fatty acid radicals yielding acid bodies when they are imperfectly oxidized, and some diabetics have lost the power of utilizing the dextrose contained in the protein molecule which normally suffices for their complete combustion. By persisting with the starvation, however, the ability of the organism to utilize carbohydrate usually becomes so far restored that enough is available to control the formation of abnormal acid end-products from both sources. Every case cannot be expected to react to starvation in the same way, the determining factors being the amount of stored fat, the power to utilize the carbohydrate stored in the form of glycogen, and the extent to which sugar of protein origin can be made use of. Consequently three practical deductions may be drawn: (1) There is more danger of serious acidosis during the starvation of fat than thin diabetics; (2) when acidosis is present the patient should be prepared for starvation by a fat-free, protein poor, diet for several days; (3) an initial increase in the acidosis is to be expected in most cases, but should not put a stop to the treatment unless it assumes threatening proportions. When this occurs the fast should be terminated for the time being and the treatment directed to the acidosis. A restricted diet and alkaline therapy for a few days will generally serve to control the condition, when a further fast will usually result in improvement in carbohydrate metabolism without increasing the acidosis.

During the fasting period as much exercise as practicable should be taken, as it shortens the duration of the fast. After feeding is commenced the exercise should be continued, short periods of vigorous exercise after meals being preferable to long walks. Excessive fatigue should be avoided. Mental occupation is also most desirable, and patients should be encouraged to continue, or resume, their ordinary work if possible.

Between 1912 and 1915 I published a series of articles, pointing out that a quantitative regulation of the diet is required in all cases of glycosuria, and that control of the protein intake is quite as necessary as adjustment of the carbohydrate allowance, for analyses of the excreta in my cases had shown that merely to eliminate sugar from the urine does not suffice to control the disease if the patient is not at the same time placed in nitrogenous equilibrium. This can only be ensured by teaching him to take his diet quantitatively. It is gratifying to find that my conclusions are important features of Allen's treat-

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

ment, but I am sorry to see that in an attempt to simplify it an empirical method of attempting to establish nitrogenous equilibrium has been generally adopted. Daily analysis of the urine during the fasting period shows that, coincident with the fall in the sugar excretion, there is a drop in the whole level of metabolism, the total nitrogen sinking until it stands at a steady level of 4 or 5 grams a day. At first there may be a rise in the output of uric acid and creatinine, but as the fasting proceeds they also sink, and the same is true of the amino acids. When protein is added to the diet the excretion of these substances rises again until a level is reached at which the total nitrogen of the urine, *plus* 1 gram to allow for the loss in the faeces, balances the nitrogen content of the diet. If the protein intake is maintained at about this amount the patient remains in nitrogenous equilibrium, but if more protein is given evidences of a disturbance of nitrogenous metabolism shortly appear, and ultimately sugar is passed in the urine. Merely to rely upon the appearance of glycosuria is therefore far from being an ideal method of regulating the protein intake, and I have found the adoption of a fixed figure governed by the weight equally unsatisfactory in many instances. Estimation of the carbohydrate tolerance presents no great difficulty, especially if analysis of the urine is controlled by determinations of the sugar content of the blood. When treating children it is important to remember, however, that the diet, both as regards protein and carbohydrate, should not be increased at the same rate as for adults, 1 gram of carbohydrate for a child of 7 kilograms, for instance, being about equal to 4 grams for an adult.

Regulation of the fat intake requires more care than is frequently given to it. Fat is generally regarded as a make-weight by which the caloric value of the diet can be adjusted to the theoretical requirement worked out from the patient's weight, but modern research suggests that a carefully adjusted fat supply is as important as a correctly arranged intake of protein and carbohydrate. Bloor has shown that abnormal lipoid values in the blood are common in diabetes, apart from obvious lipaemia, especially in severe and chronic cases, and that these lipoids originate from the fat of the food. Increase in the latter involves, therefore, the overloading of an already defective mechanism, whereas fasting, or a reduced fat supply, removes the excess of lipoids and leads to more efficient fat metabolism. There does not appear, however, to be any definite relation between the lipoid content of the blood and the appearance of acetone bodies in the urine.

The importance of not commencing the fast in severe cases with acidosis until the patient has been kept for a few days on a fat-free diet, poor in protein, has been referred to, and it is equally important that fat should not be added to the diet subsequently until a considerable carbohydrate and protein tolerance has been established. A creamy blood, an increase in the ketonuria, and the appearance of glycosuria should be controlled by reducing the fat, otherwise it is best to regulate the diet so that a progressive loss in weight is prevented, while a gain, or more correctly an increase in adipose tissue, is avoided.

At regular intervals the whole level of the diet should be materially reduced to avoid overtaxing the defective metabolic functions of the patient. The extent and frequency of the reduction varies with the severity of the case, so that no hard and fast rules should be laid down, but generally one half the usual diet for one day a week is sufficient. In some cases this means that the patient must fast, in others he is limited to low-value green vegetables with two or three eggs, while in others a fair amount of carbohydrate can be taken, provided that the protein and fat are kept low. When carbohydrate tolerance is very effective it is necessary to prescribe one or two vegetable days each week in addition. As the patient improves, more carbohydrate is gradually added to the diet, and the stringency of the fast or semi-fast days is reduced, but progress should be very slow, with sufficient interval between each advance to test thoroughly his powers of dealing with the larger ration. No addition should be made to the protein until all traces of acetone have been absent for some weeks, and there is no evidence of abnormal tissue waste, even then it should be increased very slowly, guided by the nitrogen output in the urine. Most diabetic foods, if not fraudulent as regards their carbohydrate content, consist chiefly of protein, and must therefore be allowed for in calculating the protein allowance.

Management of the diet is at present our only reliable means for combating diabetes, but it is probable that other methods will be discovered. The recent work of Murlin, Kramer, and others opens a new field in this connexion. Experiment has shown that the mechanism regulating the level of the blood sugar is peculiarly sensitive to disturbances in the acid-base equilibrium of the body, acid production leading to hyperglycaemia, while alkalosis exerts an influence in the opposite direction. Applying this idea, Murlin and Kramer, and more recently Underhill, have reported considerable improvement in cases of glycosuria subjected to careful alkaline therapy. The former used normal sodium carbonate given intraduodenally in 1 per cent. solution. Underhill employed large doses of sodium bicarbonate given by the mouth. Since meats and cereals are in general acid-producing foodstuffs, while vegetables and fruits usually yield an excess of bases, a diet rich in the former will tend to raise the sugar content of the blood, whereas a vegetable diet will lower it. May this not be one of the reasons why the largely vegetable diet given after the fast in the alimentary rest treatment is associated with an increase in carbohydrate tolerance, and partly explain the deleterious effect of more protein than is needed to make good the actual wear and tear of the body?

THE VARIATIONS IN WEIGHT OF THE TUBERCULOUS UNDER SANATORIUM TREATMENT.

BY J. HENDERSON SMITH, M.B., CH.B.

THROUGH the courtesy of Dr. S. Vere Pearson I recently had the opportunity of examining the record of weights kept at Mundesley Sanatorium, and an analysis of the six years 1909–14 has given the results here set forth.

The patients at Mundesley are all tuberculous. A few cases are included where the lung symptoms are of subordinate importance, such as laryngitis or peritonitis, but the overwhelming majority are definite pulmonary cases. All stages of the disease are represented and no attempt has been made here to subdivide them into groups. Patients are weighed at regular weekly intervals on getting out of bed, and care is taken that the weight of the clothes does not vary. The weighing is done to a quarter of a pound, the machines are inspected and tested regularly, and there is no reason to doubt that the record is substantially accurate.

In such a place as a sanatorium, where full nourishment is insisted on and where so many of the patients arrive far under their proper weight, we should expect the weekly observations to show on the whole an increase in weight. And this is in fact the case. Each week no doubt some of the patients may lose in weight or remain stationary, but taking all the patients together we find that usually the gains exceed the losses, and there is on the average a net increase per patient per week. In 285 out of 312 weeks there was a gain in weight and in only 27 a loss, the weekly average varying from a gain of over 1.4 lb. per patient to a loss of over 0.4 lb. (See Table I,

TABLE I.—*Showing the Average Weekly Gain or Loss per Patient in 312 Consecutive Weeks.*

			Net Loss.				
In 2	weeks	...	more than .4,	not	more	than	.5 lb.
3	,,	...	,, .3	,,	,,		.4 lb.
7	,,	...	,, .2	,,	,,		.3 lb.
5	,,	...	,, .1	,,	,,		.2 lb.
10	,,	...	,, 0	,,	,,		.1 lb.
			Net Gain.				
In 22	weeks	...	more than 0,	not	more	than	.1 lb.
20	,,	...	,, .1	,,	,,		.2 lb.
26	,,	...	,, .2	,,	,,		.3 lb.
34	,,	...	,, .3	,,	,,		.4 lb.
28	,,	...	,, .4	,,	,,		.5 lb.
34	,,	...	,, .5	,,	,,		.6 lb.
35	,,	...	,, .6	,,	,,		.7 lb.
32	,,	...	,, .7	,,	,,		.8 lb.
17	,,	...	,, .8	,,	,,		.9 lb.
12	,,	...	,, .9	,,	,,		1.0 lb.
13	,,	...	,, 1.0	,,	,,		1.1 lb.
4	,,	...	,, 1.1	,,	,,		1.2 lb.
5	,,	...	,, 1.2	,,	,,		1.3 lb.
2	,,	...	,, 1.3	,,	,,		1.4 lb.
1	,,	...	,, 1.4	,,	,,		1.5 lb.

where a summary is given of the average net results during the six years under examination.) The range of variation is considerable, and it is remarkable how some weeks are good weighing weeks and others bad. In some, all, or nearly all, the patients gain weight; in others, no one gains much, and the majority lose. This is sometimes very striking indeed. For example, in the Mundesley figures in July to September, 1909, in the middle of a run of low weeks in which over half the patients failed to gain there came a week in which 96 per cent. did not lose, and there was an average net gain of over 1 lb. per patient. Again, in October of the same year a bad week with an average loss of 0.37 lb. is interposed between weeks with a gain of over 0.7 lb. Variations of this kind where there is a sudden change in the character of the week affecting most of the patients simultaneously may be simply chance happenings, but they at least suggest that some outside factor is affecting the results. The most obvious factor of the kind is meteorological influence, and later on the question is discussed whether there is any evidence for such a supposition.

The frequency with which the different individual changes occur is given in Table II for over 7,000 consecutive observations, and these plotted at half-pound intervals give a fairly smooth, slightly skew curve. Taken together, there are 4,261 observations of gain in weight with a total of 5,485 lb., 722 without change, and 2,084 observations of loss totalling 1,976½ lb. Over the whole 7,067 observations there is an average net gain of 0.496 lb.—that is, every patient gained on the average about half a pound for each week of his stay in the sanatorium—an excellent result. Here again the individual variations are large—from the three patients who each put on half a stone or more in a single week to the five who lost five or more pounds in the same period. The largest increases are recorded during the first two or three weeks of the patient's stay, as one might expect from the often emaciated condition of new arrivals. The average increase of all patients during their first week's stay was 1.40 lb., during the first four weeks 1.09 lb. per week, during the fifth week 0.75 lb., and during the ninth to the twelfth weeks 0.42 lb. per week.

TABLE II.—*Showing the Frequency of the Various Average Weekly Gains and Losses.*

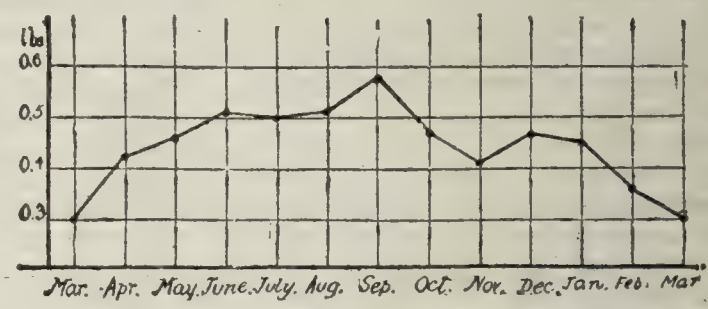
	No. of times a loss occurred.		No. of times a gain occurred.
A loss of 5¾ lb.	... 1	A gain of 0½ lb.	... 625
,, 5½	... 1	,, 0⅝	... 577
,, 5¼	... 1	,, 0¼	... 562
,, 5	... 2	,, 1	... 536
,, 4¾	... 2	,, 1¼	... 410
,, 4½	... 2	,, 1½	... 338
,, 4¼	... 1	,, 1¾	... 268
,, 4	... 3	,, 2	... 235
,, 3¾	... 1	,, 2¼	... 156
,, 3½	... 11	,, 2½	... 162
,, 3¼	... 9	,, 2¾	... 89
,, 3	... 25	,, 3	... 78
,, 2¾	... 20	,, 3¼	... 59
,, 2½	... 41	,, 3½	... 41
,, 2¼	... 46	,, 3¾	... 29
,, 2	... 81	,, 4	... 27
,, 1¾	... 74	,, 4¼	... 19
,, 1½	... 121	,, 4½	... 13
,, 1¼	... 160	,, 4¾	... 11
,, 1	... 286	,, 5	... 13
,, 0¾	... 308	,, 5¼	... 1
,, 0½	... 383	,, 5½	... 3
,, 0¼	... 505	,, 5¾	... 2
		,, 6	... 1
		,, 6¼	... 1
		,, 6½	... 2
		,, 6¾	... 0
		,, 7	... 1
		,, 7¼	... 1
		,, 7½	... 1
No change occurred 722 times			7,067

When the observations of the six years are arranged under the months in which they occur, it becomes evident that there is a well-marked seasonal variation in the weight increase. There are six months in which the increase is greater than the general average of 0.49 lb., and these six months run consecutively from May to October (see Table III). Plotted as a graph the figures give a curve rising to a maximum of 0.62 lb. in summer and then falling fairly regularly to a minimum of 0.31 in February. But there is a possible fallacy which we must consider before we can accept this as a correct representation of the facts. We have seen that during the early weeks of a patient's stay he puts on weight more rapidly than in the later weeks. If in the summer months the number of patients coming

TABLE III.—*Showing the Average Weekly Gain per Patient for each Month (A) when all Observations are included; (B) after deducting the "Early Observations" of the First Four Weeks of Stay; (C) after bringing the Early Observations to a Constant Proportion.*

	A.	B.	C.
January	.44	.28	.45
February	.31	.16	.36
March	.33	.12	.30
April	.37	.24	.42
May	.58	.29	.46
June	.62	.34	.51
July	.54	.33	.50
August	.53	.35	.51
September	.55	.42	.58
October	.49	.30	.47
November	.46	.22	.41
December	.44	.30	.47

to the sanatorium is larger in proportion to the total number of patients than it is in the winter months, the average gain will be greater, and the rise in the curve may be due solely to this cause, and not to any real increase in the weights. And it is the case that there are more arrivals in the summer than in the winter. If we take the first four weeks of stay as "early weeks," there are during May to October more than twice as many observations belonging to the early weeks, as in the November to April period, and the early observations in the summer period form 25 per cent. of all the observations in the period as against 16 per cent. in the winter period. More new patients arrived at the sanatorium in each of the months May, June, July and August than in any other month of the year. This, however, is not the true explanation of the rise in summer. If we deduct from the total observations during each month all the "early" observations, and plot the result, the curve still shows the marked rise of summer; and if we bring the early observations to a constant proportion—namely, 20 per cent. in each month—we get a more accurate representation of the actual weight variations than is obtained from the uncorrected figures. This is shown in Curve 1. The



CURVE 1.—The average weekly increase in weight per patient during each month of the year.

graph rises steadily from March to reach a maximum in September, and then falls again to reach its lowest points in February and March. There is a high level of weight increase all through the summer, culminating in the early autumn, and a lower level throughout all the months of winter and early spring.

So marked a seasonal variation suggests climatic or meteorological influence, and it became a matter of interest to see whether the weights varied either directly or inversely as the elements of the weather, or any one of them in particular. For this purpose the available data for the whole eastern district of England, and also for the single neighbouring district of Cromer, were extracted from the records of the Meteorological Office for these six years; and use was also made of the published figures giving a twenty to thirty-five years' average. A close correspondence was perhaps not to be expected; certainly none was found.

The amount of sunshine in this area is least in December, and increases steadily to reach a maximum in May, falling fairly steadily to December again. The temperature curve rises to a maximum in July and August, and falls smoothly to a minimum in January. The rainfall is least in February and increases steadily, with a break in September, to a maximum in October; January, February, and March being the months with least precipitation. The rainfall for 1909–1914 departs from this, which is the general rule, by rising to a very high maximum in December owing to exceptionally heavy precipitation at the end of the year in four out of the six years. December, 1909, and December, 1910, had both exceptionally high rainfalls, over 3.75 in., with the very small weight

averages of 0.18 and 0.0 lb., and December, 1914, with 5.75 in., and August, 1912, with over 7 in. the unusually high weights of 0.60 and 0.69 lb. The relative humidity curve is very different from the weight curve, and the absolute water-content of the air shows a curve which agrees closely with the curve of temperature. No special influence of the south-west or other wind or of any other element could be discovered.

There is, then, no close agreement with any of the meteorological curves, whether these be plotted from a twenty to thirty-five years' average or only for the six years 1909–1914, and whether the figures be taken for the whole eastern district of England or for the neighbouring district of Cromer only. There is undeniably a general agreement. The six months from May to October, which are the months of greatest weight, are also the months of greatest water-content, most sunshine and highest temperature, as well as of greatest rainfall on the thirty-five years' average. But one cannot demonstrate a closer relationship than this, and what there is can scarcely be held to establish a direct causal connexion.

It still seemed possible that the sudden weekly variations to which reference was made above might be traced to weather conditions, and there is some theoretical ground for imagining that this might be the case. Exhaled air is approximately saturated with water vapour at the body temperature—that is, it holds about 19 grains of water per 1 cubic foot. At rest a man may be taken as breathing 1 cubic foot every four minutes, or over 6,500 grains in twenty-four hours, and during periods of exercise the rate may increase to as much as 1 cubic foot every thirty to sixty seconds.[1] Under ordinary conditions external air does not contain nearly so much water as 19 grains, and the difference is supplied from the body. Thus at 60° F. the air, even if saturated, contains only about 5.7 grains per cubic foot, and the body must find 13 grains every four minutes, or over 4,500 grains of water every twenty-four hours. The less the air approaches saturation the larger the quantity of water exhaled that has to be found—for example, with a temperature of 60° F. dry and 55° F. wet bulb the body must supply about 15 grains to each cubic foot, and over 5,000 grains every twenty-four hours. With an external temperature of 37° F. and a saturation of 90 per cent., such as is not uncommon in January, the air contains only about 2.25 grains per cubic foot, and 6,000 grains (0.85 lb.) must be added to saturate at body temperature the air exhaled in twenty-four hours.

No doubt the loss of water by exhalation is ordinarily compensated for by diminished loss through skin or kidneys, and by increased intake of fluid; but the patients are weighed on getting out of bed, and we might expect a very dry night, or succession of nights, to be followed by an appreciable reduction in weight. The sudden changes in the weight average might be due to a marked change in the water-content of the external atmosphere. There does not, however, appear to be any support for this in the actual facts. In the six years there were eleven weeks of exceptional gain in weight, averaging over 1 lb. per patient, and thirteen weeks of exceptional loss, averaging over 0.25 lb. per patient. Yet the average water-content of the air in the losing weeks was 4 grains per cubic foot, as compared with 2.65 grains in the weeks of gain, and in no week of pronounced gain in weight was the water-content so high as the average for the losing weeks. The average rainfall was practically the same for the weeks of gain as for the weeks of loss. The ten weeks of highest rainfall, averaging 1.83 in., and the sixteen weeks of lowest rainfall, averaging 0.005 in., show the same average weight increase, and in dry weeks with 0.01 in. rain or less the weight average varied from 0.10 to 1.07 lb. gain. The hours of sunshine were practically the same for the weeks of gain as for the weeks of loss; while the air temperature and the accumulated temperature were higher in the weeks of loss than in the weeks of gain.

There is, then, no obvious connexion between the weather and the weekly variations in weight, and it is probable that the sudden interposition of good or bad weeks is merely a chance happening. We have seen that out of 7,067 observations there were 2,084 of loss and 4,983 of gain or no change—that is, the losses and not-losses were approximately as 2 is to 5. With such a proportion as the general rule the probabilities against obtaining, say, 29 not-losses in a week of 30 observations are only about 2,000 to 1, and in repeated samples of 30 the chances against are correspondingly reduced. In the Mundesley figures the chances against obtaining the actually observed results are not greater in any instance than 150 to 1, not enough to make a dominant interfering factor a necessary hypothesis.

In the literature I am acquainted with only one paper, a very interesting work by Strandgaard,[2] which deals with weight variations in sanatoriums in a manner similar to the foregoing, and his results show a striking agreement with the Mundesley results. Strandgaard, who writes from Böserup sanatorium in Denmark, has collected the figures of eight Danish sanatoriums over a period of several years, and this has given him a material of about 800 observations a week—enormously larger of course than the Mundesley data. Plotting the monthly averages he obtains a curve very similar in its main features to the Mundesley curve. From January to May the weight gain remains fairly constant about a minimum of 230 gr., then the curve rises steadily to reach in September a maximum of 380 gr. (0.8 lb.), falls again in October and November and reaches the minimum once more in December. The spring and winter months give the lowest values, the summer and autumn the highest, and Strandgaard gives reasons for thinking that in this the weight curve corresponds with the general well-being of the patients, and that the tuberculous in Denmark do better in summer, and especially in autumn, than in spring or winter.

Strandgaard considers that the three main factors determining the weight curve are the relative humidity of the atmosphere, the average temperature and the amount of sunshine. He supports this conclusion by a certain agreement between the curves of weight and those of rainfall, relative humidity, sunshine and temperature, as well as by various minor arguments. We have seen that the English figures scarcely admit of so definite a conclusion, and we may remark that the weight curve can hardly be expected to follow the curve of relative humidity, as Strandgaard suggests. The amount of water supplied from the body varies not with the relative humidity but with the absolute water-content, and the seasonal curves of relative humidity and weight in the English figures are as a matter of fact wholly divergent.

There seems no reason to suppose that the six years selected for examination were exceptional years, or to doubt that the summer–autumn increase in weight is the general rule at Mundesley. The remarkable agreement with the Danish figures, moreover, suggests that this would be found to hold good at other sanatoriums in England, and probably in other countries—at least, of Western Europe; and it would be of interest to learn whether similar results were met with in the high districts of Switzerland, in the numerous institutions in America, in South Africa, and in other parts of the world. The results would be of value, whether they agreed or disagreed with our finding, and might have some bearing on the treatment of consumptives and the regions to which they may best be sent at different seasons of the year. It is not probable, of course, that this seasonal variation is peculiar to the tuberculous. It is much more likely that there is a general increase in the weight of the population in summer and early autumn, though I have not met with any satisfactory data bearing on the point. And it is a large assumption that even in the tuberculous the season of greatest weight is the season when they thrive best. Strandgaard believes that it is so, but his evidence is scarcely conclusive. It is difficult in so variable a disease as pulmonary tuberculosis to obtain clear and objective data of improvement and recovery, and the Mundesley figures are not large enough to allow of definite conclusions. But the fact remains that increase in weight is undoubtedly a sign of improvement in the tuberculous, and, unless there is evidence to the contrary, the presumption is that the season of greatest weight is the season of their best improvement in health.

One other fact deserves a brief mention. If we arrange the data in periods of four weeks instead of by months, so that we have thirteen periods in the year instead of twelve, a marked break in the curve of weights appears, which is obscured in the monthly arrangement. As a whole, the curve remains much the same, but for the four weeks covering the last fortnight in July and the first fortnight of August the weight average drops sharply, and this is true for five out of the six years. A similar drop at this time apparently occurs also in Strandgaard's figures.

He plots nine curves at weekly intervals and gives detailed figures for three more, also at weekly intervals, and, taking the twelve together, there is evident a marked fall in the average values, a break in the curve, in the July–August period. So far as published meteorological data enable one to judge, this is not due to change in the weather conditions. It may be noted that in the curve published by Kroon,[3] showing the seasonal variation in the frequency of human conception, as calculated from the birth curve, there is a similar break in August.

SUMMARY.

In tuberculous patients undergoing sanatorium treatment there is on the average a steady increase in weight. This increase shows a marked seasonal variation, being greatest in the six months from May to October with the maximum in September, and smallest in the six months November to April with the minimum in March.

The six months of greatest weight are also the months of most sunshine, highest temperature, largest rainfall, and greatest atmospheric water-content. This agreement suggests that the weight variation is due to meteorological conditions, but, if it be so, the climatic influence can only be indirect, and no single factor has predominant effect. Sudden changes from week to week occur in the average weight, and there is nothing in the available records to show that these changes are due to weather conditions.

I have pleasure in expressing my thanks to Dr. S. Vere Pearson for permission to use the Mundesley records, and also to Sir Napier Shaw, of the Meteorological Office, for the loan of records and other kind assistance.

REFERENCES.

[1] See, for example, BRITISH MEDICAL JOURNAL, 1916, April 15th, p. 541. [2] Strandgaard, *Beitr. zur Klin. d. Tuberk.*, 1914, Bd. 32, H. 2, p. 179. [3] Kroon, *Nederland. Tijdschr. v. Geneesk.*, 1914, December 19th, p. 2010.

A METHOD OF ANAESTHETIZING SOLDIERS.

BY

W. J. McCARDIE, B.A., M.B., B.C.CANTAB.,

CAPTAIN R.A.M.C.(T.),

ANAESTHETIST TO THE GENERAL, DENTAL, EAR AND THROAT HOSPITALS, BIRMINGHAM, AND TO THE WEST BROMWICH DISTRICT HOSPITAL.

I HAVE long noticed that when coughing occurred during the early stages of etherization a change for a few minutes to chloroform stopped the cough and much lessened mucous secretion. The small quantity of chloroform inhaled exercised apparently a prolonged mitigating effect on the irritating quality of the ether. It seemed to me, therefore, that if the short interval of chloroformization had such a prolonged effect it might be worth while to try the addition of a small quantity of chloroform to the ether in Clover's inhaler, with the object not only of lessening irritation but also of obtaining an anaesthesia more nearly approaching the ideal—that is, a sleep-like one. Since chloroform acts as a depressant, but ether as a stimulant, it should be possible to obtain by a mixed vapour of these two drugs an anaesthesia in which, while there is a proper muscular relaxation, the respiratory and circulatory functions are neither depressed nor stimulated but approximate to their condition during sleep. Such a mixture would probably differ in its proportion according as to whether the open or closed method were used, and also according to the type of patient, if the best results were to be obtained. Perhaps the best all-round mixture would be one in which the respiration and circulation are very slightly stimulated by the addition of a little more ether, thus ensuring safety and counteracting any shock arising from the operation. The idea is to take ether as the standard of safety and so to dilute or modify its action as to obtain some of the advantages of chloroform anaesthesia. Ether thus modified by chloroform, as suggested later, possesses practically the safety of pure ether. When we use such mixtures as E_2C_1, E_3C_1, we regard chloroform as the main drug and modify its action by the addition of ether. It has been shown of late years that the mixing of chloroform with ether enhances the anaesthetic power of each drug; indeed it has been asserted that a mixture of six or seven parts of ether with one part of chloroform increases the potency fully 30 per cent. without increasing the toxicity.

Having at the 1st Southern General Hospital, Edgbaston, the opportunity of anaesthetizing soldiers—that is, patients of much the same age and type, and trained, fed, and living under the same conditions—I tried the effect of different mixtures of chloroform and ether administered by the closed method from a Hewitt's wide-bore modification of Clover's inhaler. To soldiers a routine method seems particularly applicable. They are mostly strong and fit men, well fed, much accustomed to tobacco and consequently with irritable throats; nearly all have coughs due to exposure to wet and cold indoors and out; their nervous system is on a much higher plane of tension than that of the normal individual during ordinary times, so that altogether as a type they are much more difficult patients in whom to induce anaesthesia than are the general run of those met with in civil practice. On the other hand, when once induced, anaesthesia is maintained in them more safely and easily than in the ordinary non-military patient, because, generally speaking, of the healthy conditions in which the former have been living. In fact, soldiers more nearly approach the normal healthy human being than does any other class of patients.

At the end of October, 1915, I began to use various mixtures of chloroform and ether in Hewitt's wide-bore Clover's inhaler, beginning with mixtures of E_4C_1, E_7C_1, E_8C_1, $E_{16}C_1$, $E_{18}C_1$, $E_{20}C_1$, $E_{32}C_1$, by volume.

In the first three of these mixtures the chloroform factor predominated too much for safety, causing blueness and too quiet respiration, whilst in the last one the ether component predominated too much, and the effect of the chloroform was practically negligible. Finally, in $E_{16}C_1$ I found a mixture which suited admirably my purpose, and have used it in more than 1,200 cases. Since the above-mentioned date it has been my routine method for the induction and often for the maintenance of anaesthesia. The $E_{18}C_1$ and $E_{20}C_1$ mixtures I found very useful for debilitated patients.

In 1916 I administered $E_{16}C_1$ to 732 out of 843 cases at the 1st Southern General Hospital—that is, to practically 7 out of 8 patients.

I look upon it as and call it "mitigated ether," and administer it exactly as I should ether by the closed method, the only difference being that during induction I very often allow one or two inspirations of air.

The respiration and circulation are slightly stimulated, the patient is of a good colour, respiration being about half as deep as that during pure etherization. There is much less irritation of the respiratory mucous membranes than with ether alone, but if much coughing ensues during induction, as so often happens in soldiers, I immediately change down to a mixture of chloroform and ether, or more commonly to chloroform alone given by the open method. In fact, in the last few months, in nearly all operations which last longer than a few minutes, save rectal ones, after induction of anaesthesia has been safely brought about and some degree of stimulation of the vital functions established by $E_{16}C_1$, I change down to chloroform and find it best suited to maintain anaesthesia.

The contraindications to the addition of the small amount of chloroform to the ether are cases in which the fullest stimulation by ether is needed, as in patients in whom there is great shock, loss of blood, or toxaemia, or where rapid dilatation of a sphincter or stricture is necessary.

As compared with pure ether, administration of $E_{16}C_1$ by Clover's inhaler causes less irritation, less muscular spasm, less mucous secretion, less excitation, and less obnoxious smell. The induction of anaesthesia is quicker and quieter and muscular relaxation appears more quickly and is more complete. The addition of this small amount of chloroform seems to make a very great and advantageous difference. The $E_{16}C_1$ may easily be given without any preliminary administration of nitrous oxide or ethyl chloride.

All soldiers have a preliminary intramuscular injection of morphine one-sixth of a grain, and atropine one-hundredth of a grain, as nearly as possible half an hour before the time of operation, so that the maximum effect of these drugs is obtained. This injection is essential for quiet induction and stoppage of secretion. The effect of the morphine helps greatly to quieten induction and to maintain and steady the anaesthesia. It also enables a lighter form of anaesthesia to be used than is possible without it. The disadvantage of the morphine is that

LIBRARY OF THE URBANA-CHAM

very occasionally, owing to the light respiration, the patient may become a trifle bluish under chloroform.

Since 1901, when I first used it by the closed method, I gave ethyl chloride as a preliminary to etherization, but since administering "mitigated ether" it occurred to me that a better preliminary would be a few drops of a mixture of two parts of ether and one part of chloroform dropped into the bag of the inhaler, just as is ethyl chloride. At first I used to drop the mixture on to a little wad of wool fixed in the angle piece to which the bag is attached, but I soon found it better to spray directly into the bag 15 to 20 drops (not minims—2½ drops are about equal to 1 minim) of E_2C_1. This quantity seems to be equivalent to the usual dose of 3 c.cm. of ethyl chloride. The few drops of this mixture do not volatilize so quickly as does ethyl chloride, the vapour does not surge into the head so rapidly, and the transition from the one mixture of chloroform and ether to another mixture of the same components seems somewhat easier, quicker, and smoother than from ethyl chloride to ether or to "mitigated ether." The small quantity of mixture so administered is far less costly and more convenient than ethyl chloride, and I now use it before giving ether in private work.

With regard to the course of anaesthesia during the administration of $E_{16}C_1$ I have had two cases in which respiration ceased, in one of which the fault was due to inadvertence. In both cases the pulse and colour remained excellent, and respiration quickly restarted after a few compressions of the chest. Otherwise I have had no danger or trouble.

With regard to lung troubles I have had four cases of pneumonia and two or three of bronchitis.

Pneumonia.

Case 1.—Patient aged 25; stone in ureter. No cough before operation. Anaesthetic, E_2C_1, $E_{16}C_1$. Anaesthesia lasted about fifty minutes. Three days afterwards the patient developed a high temperature and cough. The officer in charge said the patient had a bronchopneumonic patch lasting three days.

Case 2.—Patient aged 22; double hernia. Had cough for years and been subject to attacks of bronchitis since childhood. Anaesthetic, E_2C_1, $E_{16}C_1$, followed by chloroform as soon as under. Developed pneumonic signs at right base, later on had signs at both bases. The patient was very ill, but recovered.

Case 3.—Patient aged 26; appendicectomy. Anaesthetic, $E_{16}C_1$, chloroform for a few minutes, $E_{16}C_1$. Administration lasted half an hour. Had general bronchitis and right apical pneumonia. Denies previous cough.

Case 4.—Patient aged 23; nephrolithotomy. Rather pink and flabby-looking; chest normal, no cough. Anaesthetic, E_2C_1, $E_{16}C_1$. Perfect anaesthesia for three-quarters of an hour. Next day developed bronchitis and high temperature, then bronchopneumonia; very ill for three days. The ward was a very cold and draughty one.

Bronchitis.

Case 5.—Patient aged 24; hernia. Anaesthetic, E_2C_1, $E_{16}C_1$. Anaesthesia lasted thirty-five minutes. Bronchitis for two or three days afterwards.

All these patients had morphine $\frac{1}{6}$ gr. and atropine $\frac{1}{100}$ gr. before anaesthesia, and had no mucous secretion; therefore there was no question of inhalation of septic material from the mouth.

Two other patients, in addition to Case 5, had a good deal of bronchitis afterwards. There was no prolonged sickness after any administration. It is very probable that in no case was the lung trouble wholly, or even partly, due to the anaesthetic, because the patients had to be transferred after operation along draughty corridors to wards which were also sometimes draughty and cold, and were never intended for hospital use.

In the pressure of present-day hospital work rapid induction of anaesthesia is necessary. The method described is all round the quickest and least unpleasant one I know, and is practically as safe as the more usual sequences of gas and ether or ethyl chloride and ether. Refinements and time-spending methods of administration, such as gas and oxygen, intratracheal anaesthesia, open ether *ab initio*, percentage inhalers, have little scope and less efficiency, when applied to tough fighting men, in the routine of a big and busy hospital. Safe, simple, and speedy methods are the most valuable.

CONCLUSIONS.

1. The irritation caused by ether vapour administered by the "closed" method is much mitigated by the addition of a very small quantity of chloroform.

2. The addition of this small amount of chloroform to ether distinctly saves the work of the lungs and heart, which during a long or severe operation may be a very important factor.

3. The mixture is practically as safe as the administration of ether alone, because the ether greatly predominates.

4. It is valuable as a routine method of producing anaesthesia in soldiers, being reasonably safe and rapid.

5. A few drops of E_2C_1 are preferable to ethyl chloride as a preliminary to the administration of ether, or $E_{16}C_1$.

6. For maintenance of anaesthesia E_2C_1 or chloroform are preferable to even "mitigated ether," owing to the prevalence of respiratory irritability among soldiers.

MULTIPLE SEVERE INJURIES FROM A BOMB EXPLOSION: OPERATION: RECOVERY.

BY

CAPTAIN NORMAN DAVIDSON, F.R.C.S.E., R.A.M.C.

THE following case deserves attention on account of the multiplicity of the wounds, their seriousness, and the good recovery following operation.

Pte. J. W. P., aged 25, while practising bombing on December 17th, 1916, threw a bomb which burst prematurely at about a distance of a little over a yard from his head. This occurred about 11.30 a.m. He was dressed by the medical officer of his battalion, and was brought at 12.45 p.m. by ambulance to this military hospital, where he was examined immediately on admission.

He was quite conscious, and complained much of abdominal pain; he said he was quite blind. Pulse 120, temperature 97.4° F., respirations 20. He showed a considerable amount of blanching, and was suffering from great shock. The wounds were as follows:

1. Wound of the scalp, 2 in. long, on the vertex down to the bone.
2. Perforating wound entering the abdominal cavity at the junction of the ninth costal cartilage with its rib on the right side.
3. Wound of left thigh entering the left groin 1 in. below Poupart's ligament, in a line with the vessels, and with its exit below the left knee, apparently smashing the head of the tibia and tearing the patellar ligament.
4. Wound in the right groin 1 in. below Poupart's ligament.
5. Small superficial wounds of right and left arms, abdominal wall, etc.

Operation: The patient was brought to the theatre at 3 o'clock the same day, and anaesthetized by ether. He had already had ¼ grain of morphine hydrochloride and 500 units of antitetanic serum. With the assistance of Lieutenant J. F. Gill, R.A.M.C., the skin around the wound over the ninth costal cartilage was excised, and it was seen that the cartilage had been half torn through and a fragment had perforated the peritoneum. This wound was then sewn up.

The abdomen was immediately opened in the hypogastrium by splitting the right rectus sheath and pulling the rectus towards the middle line, the nerves to that muscle being preserved by pulling downwards. The abdomen was found to contain about a pint of blood and blood-stained serum. This was mopped out, and an examination was made of the abdominal contents. The liver was found to be intact, as was the stomach. The duodenum was found to have a perforating wound at the middle of the second part, practically in the centre of its anterior surface; this was closed with a Lembert stitch of linen thread. The jejunum was next followed, and there was found, about 12 in. down, a perforation at the free edge and another on the mesenteric edge, with a small chunk of bomb-case lying in the mesentery. The missile was removed and the three holes closed by Lembert sutures of linen thread. No further abdominal lesion was found, though it was noticed that gauze which had been placed near the duodenal lesion had a little bile on it, but search failed to reveal any injury. As the patient was in a very exhausted condition the search was not prolonged; a rubber tube rolled up in gauze was inserted down to the duodenum and another at the lower angle of the wound down to the recto-vesical pouch, and the abdominal wall closed in layers. Attention was then turned to the left groin, the skin wound was excised, and there was found to be considerable arterial oozing from the depth of the wound. This was opened up freely, the sartorius muscle retracted inwards, and the track of the foreign body was followed. This caused more bleeding. Digital pressure was put on the femoral artery, and by following the track of the haemorrhage one quickly came on the femoral artery and vein at the upper end of Hunter's canal. The artery was isolated and ligatured above and below with stout catgut. On removal of digital pressure there was only a little venous oozing, but on lifting up the artery there was quite a rush of venous blood. Pressure was applied above and below, the artery lifted up again, when it was seen that there was a small longitudinal tear in the vein. This was stitched up with a fine linen stitch for want of better material, as it was considered that ligation of both artery

and vein would be sure to invite the risk of gangrene. The sides of the wound were then drawn together at each end and the centre packed with gauze soaked in eusol.

The wound in the knee was excised and opened up freely, when it was seen that the joint had not been entered, but that the patellar ligament with the tuberosity of the tibia had been torn away. Loose bone was scraped out and the wound packed with gauze and eusol. The wound in the right groin was excised, the track followed down about eight inches to the adductor muscles. A counter opening was made, the track well scraped out, and a rubber tube placed along it. The scalp wound, through an oversight, was not excised, and the patient was returned to bed with the right leg enveloped in cotton-wool and placed in an elevated position. On recovering from the anaesthetic he was placed in the Fowler position. The next day the patient was very ill indeed. Pulse 130, respirations 30, temperature 99° F. He was given morphine freely. He had one and a half grains of morphine hypodermically in the twenty-four hours and salines per rectum, which he retained, also a turpentine enema to relieve some distension.

December 19th. He was better and had had a good night. Dressings were soaked through, so he was dressed. There was no discharge from the lower abdominal tube, but a free discharge of bile from the upper one, free oozing from the left knee wound, and no signs of gangrene in the foot.

December 20th. To-day the foot showed dry gangrene of all the toes. Circulation was apparently good up to the knee. The abdominal tubes and gauze were removed and the tubes only replaced. General condition satisfactory. Had bowels opened, but abdomen seemed distended. Good night. Pulse 96; less bile escaping; tube shortened. Line of demarcation now begun to form at the middle of the calf.

December 25th. Patient doing well, but there was pain in the left leg and oedema above the line of demarcation.

January 1st, 1917. Complained of a great deal of pain during the night. Amputation was decided on, and morphine hydrochloride ¼ gr. and atropine sulphate $\frac{1}{200}$ gr. given. The operation was performed with anterior and posterior flaps. The bone was sawn through 2 in. above the knee. At the same time an opportunity was taken to draw together the edges of the wound in the left groin which had become a large granulating area, and the head wound scraped of redundant granulations.

January 2nd. Patient says that he feels better than he has done since he came into hospital. No bile escaped to-day. Tube removed.

January 7th. All wounds healing well.

January 17th. Patient was quite convalescent and went to a concert on a wheeled chair.

To sum up, the patient was injured at 11.30 a.m. and was operated on three and a half hours later. The interval between the accident and the operation was to the patient's advantage as he was in better condition at 3 p.m. than on admission. Morphine, salines, and warmth, were all that was used to combat the shock.

I have to thank Lieutenant Gill, R.A.M.C., for his able assistance and advice, and Sisters Geeve and Frewin, Q.A.I.M.N.S.R., for their care of the patient.

THE VALUE OF FEEDING DURING OPERATION AS A PREVENTIVE OF SURGICAL SHOCK.

WITH SPECIAL REFERENCE TO OPERATIONS ON THE STOMACH.

BY HERBERT H. BROWN, M.D.LOND., F.R.C.S.,
SURGEON TO THE EAST SUFFOLK AND IPSWICH HOSPITAL.

IN 1911 I published an article on surgical shock,[1] in which I attributed the phenomena to exhaustion of the food material—the Nissl granules—stored in the nerve cells, more particularly those of the vasomotor centres. Severe haemorrhage and starvation prior to operation were mentioned as important factors predisposing to shock, owing to their leading to a "depleted larder" in the nerve cells.

Whatever theory of the causation of shock is accepted, it is quite certain that loss of blood and insufficient feeding are of great importance as predisposing agents. Operations on the stomach, such as gastro-enterostomy and partial gastrectomy, are often accompanied by severe, and sometimes fatal, shock.

The operation is usually performed either for stricture of the pylorus and consequent gastric dilatation resulting from cicatrization of an ulcer in the pyloric region, or for malignant disease; in another class of case it is performed for severe haemorrhage from a gastric or duodenal ulcer. In the first class the patient's nutrition is low. Owing to the difficulty in the passage of food through the pylorus and the vomiting of a large part of the food ingested, a condition of starvation is induced, and when malignant disease is present, haemorrhages and cachexia add to the debility. In the second class the patient is usually profoundly anaemic, and may have undergone a preliminary course of starvation only very partially alleviated by rectal feeding. It is not surprising that in such cases operations on the stomach produce an extreme degree of shock.

To combat this, it has been my practice during the past ten years to feed the patient during the operation. The operation is proceeded with in the usual way until the suturing with catgut of the mucous membrane and muscular wall of the stomach and jejunum is nearly completed—that is, to within the last ¼ in. A soft catheter with rubber tube and funnel attached is then introduced into the jejunum and passed on until the end of the catheter is in a coil of intestine well within the abdomen, the opening through which it has passed being held firmly with the finger and thumb to prevent any leakage of fluid. The intestinal and stomach clamps have been removed. A pint of peptonized milk, to which a beaten-up egg and an ounce of brandy have been added, is poured slowly through the funnel into the intestine; the funnel is held at a distance of 8 to 10 inches above the abdomen so that no undue distension of the intestine can take place. The catheter is then withdrawn and the operation completed in the usual manner.

Since adopting this procedure I have never seen serious shock follow an operation of this character, and the patient usually leaves the table with a better pulse than he had at the commencement of the operation.

A few weeks ago I operated upon a man of 57 who was wasted and anaemic. He had malignant disease involving the circumference of the stomach about 5 in. from the pylorus. I removed about two-thirds of the stomach, uniting the cardiac end to the jejunum. The operation was long, lasting for two hours, or a little more.

The blood pressure, which was 140 mm. before the operation, fell to 90 mm. soon after its commencement, and was below 90 mm. when feeding was commenced. It had risen to 120 mm. half an hour later, when the operation was completed. He had no symptoms of shock afterwards, and made an uninterrupted recovery.

Shortly afterwards I operated upon a similar case, in which the carcinoma involved a still larger area of the stomach, and the resection was very extensive. The patient suffered somewhat severely from shock at the time of operation, but was sitting up in bed taking food well in the course of a few days. After an operation I generally start regular feeding within twelve hours, giving two ounces of peptonized milk hourly to commence with.

In performing gastrostomy for stricture of the oesophagus or the cardiac end of the stomach upon a patient who is in a cachectic and semi-starved condition, I always feed during the operation, passing a catheter through the gastrostomy opening into the duodenum, and inject a pint of prepared food, and continue feeding regularly at four-hourly intervals after the operation.

In addition to its value in preventing the development of shock, this procedure tends to promote the healing of the stomach and abdominal wounds. It is obvious that tissue cells cannot divide and repair take place unless the cells are provided with food, and speedy union is of great importance in the success of these operations.

REFERENCE.
[1] *Practitioner*, August, 1911.

A CASE OF CEREBRAL ABSCESS OF OTIC ORIGIN.

BY H. BODKIN, D.O.OXON., M.R.C.S., L.R.C.P.

THE following case may be of interest from the symptoms that led up to the diagnosis:

A boy, aged 15 years, was admitted at night to the Bristol Royal Infirmary with pain in the right ear and a temperature of 103°. The history was that he had suffered from chronic suppurative otitis media on both sides from infancy, but had had no pain before.

When seen next day the temperature was 99°, the pulse 72, and he was free from pain, but he had facial paresis on the right side. No other nerves were affected.

The boy's mother, being questioned as to how long his face had been in this condition, declared that it had always been the same and that all her children were born like that.

She produced photographs of several other sons, taken in khaki and broad smiles, which certainly bore out her statement in so far as they all had a very peculiar one-sided smile. This feature was apparently inherited from their father and grandfather. The boy himself stated that he was always laughed at by his mates for having a lopsided face. The mother, therefore, would not recognize the paralysis as such, or consent to operation on that account.

A week later there was a recurrence of the pain and temperature, and the facial paralysis became more complete. Operation was then agreed to, and a radical mastoid operation performed. The maxillary antra being explored as a routine with Watson-Williams sinus exploring syringe, thick pus was found in the left antrum. This condition had no doubt been instrumental in keeping up the otitis media.

The temperature returned to normal next day, and the patient appeared to be progressing favourably for the next fortnight, except for attacks of headache, chiefly referred to the frontal region, coming on every two or three days but only lasting an hour or so, and a general mental depression, "No, I haven't any pain but I feel so downhearted," being the usual information vouchsafed. The boy took his food well, and there was never any vomiting.

On the sixteenth day after the mastoid operation, when the patient was up and about the ward, he was given by a friend visiting him some jam tarts and a cigarette. He contrived to smoke the cigarette unobserved in the bathroom, after which he became collapsed, and had to be carried to bed. He then lost consciousness, and developed paralysis of the left arm and leg, with conjugate deviation of eyes to the right, the right pupil being widely dilated and inactive to light; the left pupil remaining of normal size and active to light. The right fundus showed arteries very contracted and veins full, but no swelling of disc. The knee-jerk was lost on the left side. Extensor plantar reflexes on both sides.

Right temporo-sphenoidal abscess was diagnosed, and preparations made for operation.

Two hours later the paralysis had completely passed off, the eyes were normal, and the patient quite conscious, and able to relate his smoking exploit and declare himself all right again.

The operation was proceeded with, the dura being exposed in the tegmen tympani, and further uncovered by the removal of bone upwards. Pus was sought for with a slender-bladed knife, and a small collection found at a depth of rather over an inch, about an inch and a half above and a little anterior to the auditory meatus. A culture of the pus from the abscess gave a feeble growth of *Staphylococcus albus* and a few streptococci. The abscess was drained with gauze, and for some days the patient appeared to be doing well, and was particularly ravenous for food, but died on the tenth day after the abscess was opened.

On *post-mortem* examination it was found that the abscess cavity was well drained, but the infection had spread up the meninges, there being a thick layer of pus under the dura in the right parietal region.

I think the temporo-sphenoidal abscess must have been present when he was first admitted, but had given insufficient sign of its existence for diagnosis till the accident of the cigarette smoking in a young boy in an enfeebled condition of health led to sudden cerebral congestion which brought out pressure signs, these signs passing off again as quickly as the effects of the tobacco. Previously there was only the very transient headaches and the more marked mental depression to suggest the presence of an abscess. I have noticed before in chronic cerebral abscess a mental depression or melancholy, much greater than would be expected from any complaint of pain or other symptoms, and on meeting this again shall be inclined to try the effect of tobacco or some similar drug for its diagnostic value as shown accidentally in this case.

I am indebted to Dr. Watson-Williams for permission to record this case.

TREATMENT OF TRENCH FEET BY THE SUBCUTANEOUS INJECTION OF OXYGEN.

BY

H. OSWALD SMITH, M.B., CAPTAIN R.A.M.C.,

ATTACHED —— BASE HOSPITAL, FRANCE.

THERE are several stages of trench feet:

1. *Neuritic*, producing acute pain, and preventing the patient walking or sleeping. There is no swelling or discoloration of the foot.

2. *Oedematous* without discoloration, but acute pain is present, produced by the pressure of nerve endings.

3. *Oedematous* with blisters, and varying discoloration of the skin short of gangrene.

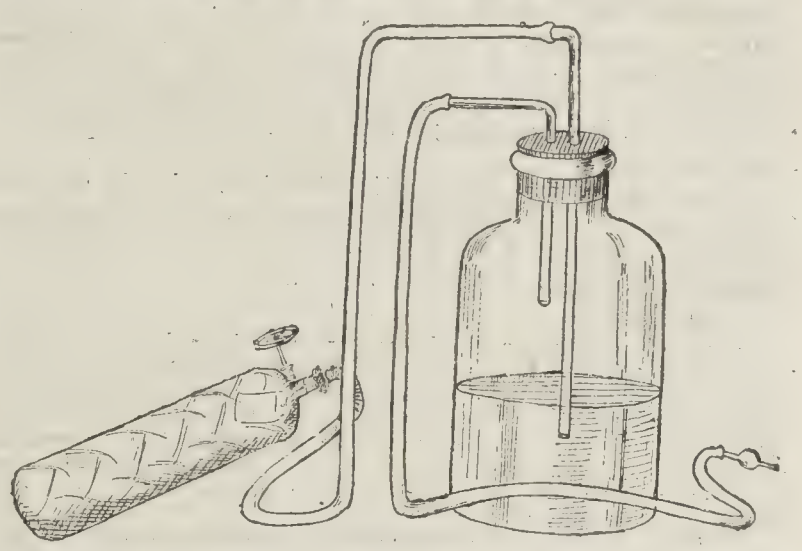
4. *Gangrenous*, partial or circumscribed, with oedema and blisters, and reddening of the skin involving the lower leg.

I have employed subcutaneous injections of oxygen in Classes 2, 3, and 4.

Technique of Treatment.

It is essential that in all cases of trench feet, whether the skin is broken or not, antitetanic serum should be given under the skin in the arm or pectoral region; the dose should be 500 U.S.A. units.

The operator requires a Woulfe bottle, with two glass tubes bent at an angle and inserted into a tightly fitting cork. To the end of one glass tube is fitted three yards of red rubber tubing connected with the usual oxygen cylinder; to the end of the other glass tube is fitted two yards of a finer rubber tube, and the distal end of the tube has a salvarsan needle fitted on. The bottle contains a saturated solution of sodium carbonate.



It is best to sterilize the needle in boiling oil, and this should be done for each individual case. The operator having sterilized his hands uses a little iodine on the proposed sites of puncture. The needle is inserted into the subcutaneous tissue at a point midway between the heel and external malleolus. The oxygen is allowed to enter slowly until the foot is filled up. The needle is then withdrawn, and inserted midway between the internal malleolus and the heel. If the toes are black and cold the needle is inserted in the mid-line at the base of the toes. It is important that the oxygen should be injected slowly. So far the process is simple, but one learns with experience that if the part is almost gangrenous injection into the deeper tissues is of advantage.

The treatment is based on the conclusion that trench foot is akin to Raynaud's disease. The oedema produces stasis in the veins of the foot, impeding or stopping circulation. The venous blood, if oxygenated, will help to keep the tissues alive until the serum can be drained away. The oxygen helps to drive out the serum slowly but steadily through the puncture holes. Mere puncturing has been found useless in relieving the oedema. Furthermore, the oxygen balloons up the subcutaneous tissue, and relieves thereby pressure on the blood vessels and lymphatics. When the oxygen is absorbed and the serum drained away circulation is quickly restored to the limb.

There is marked relief to pain at once, and under the eye of the observer certain changes can be seen taking place. The reddish-blue appearance changes to pink; the redness which often extends up the leg disappears, and where blackened areas exist a white line makes its appearance, and any living tissue is picked out in pink. The white line indicates what would ultimately be the line of demarcation of gangrene, and it is noted that healthy granulations start from this white line after injections of oxygen. The destruction of parts is greatly lessened, and is often confined to the tips of the toes. Areas of black blood on the dorsum of the foot rapidly undergo change, becoming greyish-white and pink, more resembling healthy tissue. In many of the severe cases recovery of the whole foot has taken place, and in some the loss of a single digit has been recorded. I have amputated in two only out of a large number of cases; both were suffering from severe toxaemia and dangerously ill. In each the other foot made splendid recovery, but amputation of the relapsing foot had to be undertaken to save life. These patients have been evacuated to England in a good state of health.

A minor but important point is the treatment of all blisters. They should be drained by sterilized thread

passed through by means of a straight surgical needle and the ends cut short. The dead skin should be left *in situ* as a protective unless pus is present.

The oxygen causes an increase in the pulse of the posterior tibial artery. There is no rise in temperature, pain is relieved, and sleep promoted. Lint wrung out in 1 per cent. solution of picric acid is applied to the part and renewed every day. No cotton-wool should be employed or disastrous results will ensue. The lint and bedclothes next day will be found saturated with serum, sometimes clear, and sometimes blood-stained. The skin will have a peculiar wrinkled appearance, pointing to the previous state of oedema. The foot is warm even at the toes, and movement will have returned. At the end of the second day tingling sensations are complained of. A second injection may be given in the severe cases which are semi-gangrenous and where the oedema still persists. One injection is usually found to be sufficient, but picric acid should be used once or twice a day to keep the part dry and sweet. The effect of the oxygen on the deeper layers of the true skin is notable; a rich red velvet colour persists for several days.

I would advocate conservative treatment in all cases of trench feet unless gas gangrene should be present or grave toxaemia. Repair is slow but sure, and many hopeless-looking cases have recovered with useful limbs and small loss of structure.

I have to record one case of gas gangrene in a lance-corporal who was admitted with trench feet of the severest type. The left foot responded to the oxygen treatment, and the threatened gangrene in both feet disappeared, but the right foot never cleared up. The patient was too ill on admission to be operated on, and he died two days later. *Post-mortem* examination revealed extensive gas gangrene of liver and spleen. The gas gangrene organism was grown from the right foot, spleen, and liver. The blood from the liver was injected into a guinea-pig, which died fifteen hours after injection, and the same organism was demonstrated from its blood as was present in the organs of the man. Captain A. A. W. Petrie, R.A.M.C., kindly carried out these experiments, which were conclusive, microscopically and experimentally.

The cost of the oxygen treatment is small, and oxygen is usually available to most units. There is no risk to the patient if intelligently used. More punctures than three can be used, but healthy tissue as far as possible should be utilized. The length of time for repair and recovery of the part is long in the semi-gangrenous or gangrenous cases. The granulation tissue is often indolent with the epithelial margin heaped up, and here, again, oxygen has been found to stimulate epithelial growth, a hypodermic needle being utilized in place of the salvarsan needle.

The conclusion drawn is, that if the oedema can be relieved by withdrawing the serum, the circulation can be re-established, and during this withdrawal the tissues are given oxygen to keep them nourished.

These notes are offered as an additional line of treatment for combating a condition which is the despair of the military commander and medical officer. My thanks are due to Lieutenant-Colonel A. Hull, of —— Base Hospital, for his helpful encouragement and permission to publish these notes, and to Captain A. A. W. Petrie for his experiments in the case of gas gangrene recorded above.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CARTILAGE GRAFTS FOR CLOSING CRANIAL DEFECTS.

IN the *British Journal of Surgery*, January, 1917, p. 454, a method of closing cranial defects by portions of bone taken from the tibia is described by Mr. Albert Morrison, and in the BRITISH MEDICAL JOURNAL, March 3rd, 1917, p. 307, is an abstract account of a similar method advocated by Dr. R. Pflugradt, the bone in the latter instance being taken from the external table of the skull. The method I am about to describe I have found simple and efficient.

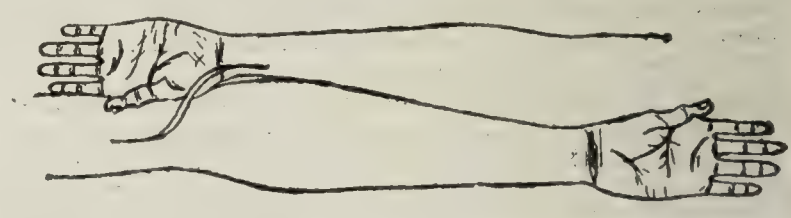
A flap of scalp slightly larger than the cranial defect it is proposed to remedy is turned down and separated from the dura mater. The edge of the internal table is separated also from the dura mater for about one-eighth of an inch all round. A flap of skin is now turned down over the false rib near the sternum, and with a scalpel a piece of cartilage is removed slightly larger but corresponding in shape to the bony defect. If the opening is a large one several pieces of cartilage may be used. The piece or pieces of cartilage should be bevelled at the edges to allow them to fit under the bone. Should there be any difficulty in retaining the cartilaginous grafts in position, cross sutures of catgut can be inserted over the gap, from one side to the other, so as to form a cage under which the cartilage lies; this, however, is seldom necessary. The scalp flap should be replaced and sutured, and a few strands of silkworm-gut placed beneath the angle of the wound to prevent a haematoma forming.

THOMAS YOUNG SIMPSON, M.D., M.S., F.R.C.S.
Plymouth.

A SIMPLE METHOD OF BLOOD TRANSFUSION.

SINCE blood transfusion is often necessary where there has been either primary or secondary haemorrhage, it may be useful to describe a simple apparatus which I have on several occasions employed in direct transfusion.

The transfusion is from the radial artery of the donor to the median basilic vein of the recipient, the corresponding limb of each being used; and the connexion is made by means of a glass cannula, as illustrated. Each limb of the



cannula, and also its transverse portion, measures three and a half inches. The ends of the cannula are tapered, and have a flange near their termination.

The donor and recipient are placed in the dorsal decubitus and their abducted limbs are placed in the supine attitude on a small table between the patients. The surgeon and his assistant are then able to stand between the patients and have easy access to the field of operation. Before beginning the operation, however, the cannula must be in sterile liquid paraffin at the body temperature, ready for use. The radial artery of the donor and the median basilic vein of the recipient are simultaneously exposed under local anaesthesia by the surgeon and his assistant. A small slit is then made in the radial artery and one end of the cannula inserted to a little beyond its flange. A ligature is now tied round the artery and cannula, thus fixing the cannula in the lumen of the artery. With each pulse blood is pumped through the cannula, and, while this is so, its other end is inserted in a similar fashion into the lumen of the median basilic vein of the recipient. To keep the stream of blood, whilst flowing through the cannula, at its normal temperature warm sterile lotion should be continuously dropped on the cannula.



During the transfusion the condition of the donor must be carefully observed, and the transfusion stopped when symptoms of depletion are fairly evident. Most donors can stand it for about fifteen minutes without any untoward effects.

The one drawback to direct transfusion is, of course, that we cannot estimate the quantity of blood transfused. On the other hand, it is difficult to say how much blood any individual can give without suffering after-effects, so that in any case the donor's condition is the only safe gauge to go by. This method of transfusion may recommend itself to some on account of the simplicity of its technique, the cheapness of the apparatus, and the security which it affords against either blood clot or air entering the circulation of the recipient.

This transfusion cannula can now be obtained from Messrs. Down Bros., Ltd., London. I am indebted to Corporal H. J. Lowe, of the 11th Royal Warwicks, for the illustrations.

JAMES BUCHANAN, M.B., Ch.B.Glasg., F.R.C.S.Edin.,
House-Surgeon, Norfolk and Norwich Hospital.

DIGITIZED BY THE WELLCOME HISTORICAL MEDICAL LIBRARY

SUPPURATIVE (NON-TUBERCULOUS) ADENITIS TREATED BY ASPIRATION.

THE advantages of aspiration, in the treatment of non-tuberculous adenitis, over excision, with frequent dressings, etc. and subsequent scar disfigurement are obvious, particularly in the upper part of the neck.

Case 1.—E. J., aged 35, male, complained of swollen and tender lymphatic gland just below the border of the jaw. As the condition did not subside under fomentations, and the skin became red and the gland adherent and soft, it was aspirated. About 1 c.cm. of pus was withdrawn; the symptoms rapidly subsided, and the gland was barely palpable when last examined. When aspirated it was the size of the terminal phalanx of the ring finger. It was aspirated once only.

Case 2.—H. W., aged 38, male, had acute inflammation of the left submaxillary salivary gland. The temperature was 101.5° F., and the pulse 100; he was unable to separate the teeth more than half an inch. The duct could be felt as a thickened cord in the floor of the mouth; no obstruction was palpable. He was sent to bed and ordered fomentations. The skin became red and oedematous and the gland fluctuant; it was aspirated five times, about 4 c.cm. of pus being evacuated. The gland was enlarged to the size of a small hen's egg. Complete subsidence and the probable avoidance of an external salivary fistula.

The method illustrated by these cases appears free from risk, provided strict antiseptic precautions are used and the patient kept under observation. As small a needle as will evacuate the pus should be used. Aspiration was done two or three times a week.

In the first case the pus was reported by the County Laboratory to contain spore-forming bacilli, and that of the second cocci. No local cause was discovered in either of the cases.

Burley, Hants. H. E. C. KEITH MURRAY, M.D.

NITRO-GLYCERINE IN TRENCH FEET.

I CANNOT find any record of the use of nitro-glycerine in trench feet on account of its action in dilating the peripheral vessels and increasing the deficient circulation.

We have had such excellent results here with small doses of this drug combined with a little strychnine that I think it deserves attention.

The treatment is accompanied by electricity—first anodal galvanism, later the same interrupted twenty times a minute, and finally faradism. The electrification is undoubtedly of very great value, but nevertheless it is significant that the electrician has noticed the difference in cases where the drug has been discontinued or not used.

E. S. ELLIS,
M.O. Palace V.A.D. Hospital,
Gloucester.

Reports of Societies.

SUDDEN DEATH IN TABES DORSALIS.

AT a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland on March 30th Dr. A. R. PARSONS related the facts of two cases of tabes in which sudden death occurred. The first, a man aged 41, had consulted him two years before, complaining of some difficulty in walking and unsteadiness. There was also slight trouble in micturition—at first difficulty; later, some loss of control. Seventeen years previously he had a sore on the glans penis, but no other symptoms. His wife had had one miscarriage. He was a healthy man, with the exception of his nervous system, which showed typical, if rather slight, signs of locomotor ataxia. The Wassermann reaction was faintly positive. The case ran the usual course for two years. Then one day at dinner the patient, who during the day had been in his usual health, suddenly changed colour, and when examined was found to be dead. The second case was very similar; the patient died suddenly while playing bridge. In neither case could an autopsy be obtained, but frequent careful physical examinations during life showed no evidence of arterial disease, and this could almost certainly be excluded. Dr. Parsons considered "cardiac crisis" to be the most probable explanation of death. This condition was almost entirely overlooked in the textbooks, but was mentioned by a few authors, notably Gowers and Osler.

The President, Dr. H. C. DRURY, considered the record of these two cases very important, but thought that, as no cardiac symptom had previously appeared and no anginal symptoms were present during the fatal attacks, it was questionable whether they could be called cases of cardiac crisis. In several cases of sudden death Professor O'Sullivan had found, as the only recognizable lesion, a sclerotic or atheromatous condition of the region of the aorta about the openings of the coronary arteries.

Dr. G. E. NESBITT was interested to hear that sudden death was a possible occurrence in a disease generally considered essentially chronic. He asked what was Dr. Parsons's experience of recent specific methods of treatment—for example, salvarsan or mercurialized serum by intrathecal injection. He had seen some apparent improvement follow, but could not obtain the results often claimed.

Sir J. W. MOORE suggested that death was more probably due to brain mischief—for example, cerebral haemorrhage—than to cardiac crisis of anginal nature.

Dr. W. M. CROFTON asked whether these cases had been treated by intensive mercurial inunction with sulphur baths while they were in Germany, as cases of arrest of the disease by this means were reported.

Dr. PARSONS, in reply, said that as far as was possible by clinical examination arterial disease was excluded. Death was also too sudden in both cases for cerebral haemorrhage. No specific treatment had been tried, either in this country or in Germany, where the cases had been treated at various times. He had seen many of the latter prescriptions, which seemed to consist almost entirely of well-advertised proprietary drugs. There was little hope of improvement when actual organic changes had taken place. He thought the explanation of cardiac crisis as a cause of death fairly probable.

Reviews.

MILITARY ORTHOPAEDICS.

WE had the privilege of publishing during 1916 a series of articles specially written for the JOURNAL by Colonel Robert Jones, C.B., Inspector of Military Orthopaedics, Army Medical Service, on the application of orthopaedic principles to the many problems raised by gunshot injuries. The articles have been collected and revised, and have now been published, with some additional illustrations, by the British Red Cross Society through Cassell and Co. The articles have been arranged in seven chapters, dealing respectively with the positions of election for ankylosis following gunshot injuries of joints; the suture of nerves and transplantation of tendons; the treatment of common deformities of the foot; the treatment of malunited and ununited fractures; the transplantation of bone and some uses of the bone graft; some disabilities of the knee-joint, and the mechanical treatment of fractures under war conditions. The volume bears the title *Notes on Military Orthopaedics*,[1] and is not intended by the author to be a complete treatise, but rather to serve as a practical guide to the surgeon in treating conditions which arise with particular frequency after gunshot injuries.

It expounds the theory and practice of what has been called the Liverpool School of Orthopaedics, one of the greatest gifts that this country has made to practical surgery. Incidentally the whole art and mystery of the application of the Thomas splint—so simple in theory, but proving often so difficult in practice until the surgeon has seen it demonstrated—are set forth. So far as the printed word and clear diagrams can go, this volume will supply the place of a demonstration. But as will be seen from the list of subjects treated in the various chapters, the book covers a very wide field, and the author does not disdain here and there to give hints on prophylaxis, as, for instance, in the highly practical disquisition on the qualities which a good marching boot should possess.

Sir Alfred Keogh, G.C.B., has provided an introduction, in which he observes that the term "orthopaedics" has now been extended to include cases not hitherto comprehended as belonging to this branch of surgery, the wider

[1] Published for the British Red Cross Society by Cassell and Co., Ltd., London, New York, Toronto, and Melbourne. 1917. (Demy 8vo, pp. 144; 128 figures. 2s. 6d. net.)

application of orthopaedic principles having been forced upon the attention of surgeons by their special importance at the present time. He points out that this importance rests not merely on surgical, military, or even humanitarian considerations, but upon the grave social and economic problems which attend the proper treatment and education of the maimed and discharged soldier. In future, as he truly says, the general surgeon, no less than the orthopaedist, will be directly concerned with the subject. "Unless," he says, "the general surgeon is concerned with the after-treatment of cases, the efficacy or inefficacy of original procedures will often be unknown to him," and he adds the following significant sentences: "We are here concerned with conditions necessarily entirely different from those of civil life. The military surgeon's connexion with his case is often brief; cases pass from one surgeon to another with extreme rapidity; few surgeons see their patients from the beginning to the end. One could well wish that there was no evil in this. But there is much of evil, and not the least is the fact that the orthopaedic surgeon's work is enormously increased." If this book, he concludes, "brings home to the surgeon the necessity for a correlation between early and late surgical procedures, and at the same time succeeds in obtaining for the discharged and disabled soldier the same surgical interest as is displayed on his behalf in the earlier days of his incapacity, it will prove to be a very solid contribution to national efficiency."

In his preface the author tells how, by the time a soldier has passed through various phases of recovery from septic wounds in several different hospitals, and is finally transferred to an orthopaedic centre for treatment to correct deformity and restore the use of injured joints and muscles, his spirit is often broken. The shock of injury, followed in succession by a long period of suppuration, and then by a wearisome convalescence, during which he receives treatment by massage or electricity, or by monotonous movements with mechanical apparatus, too often leaves him discontented with hospital life. In the orthopaedic centre he finds his fellow patients busily engaged in employments in which they are doing something, and it is not many days before he asks for a job. As an instance he states that at the Military Orthopaedic Hospital at Shepherd's Bush out of 800 patients about 500 are employed at some regular work, and each soon begins to feel that he is becoming an ordinary member of society and not a mere derelict. When the preliminary stages of operative and surgical treatment are over, a man passes by a steady gradation from massage and exercise to productive work, which is commenced as soon as he can really begin to use his limb at all. If his former trade is suitable, he is put to use tools he understands, otherwise some occupation adapted to his disability and curative in its character is found for him. Thus men with stiff ankles are set to drive a treadle lathe or fret-saw. If put on a treadle-exercising machine a man's mind is soon wearied, but if it be engaged not on the monotony of the foot work, but on the interest of the work turned out, neither mind nor body becomes tired. Again, men with defective elbows and shoulders find exercise and mental diversion in the carpenter's and blacksmith's shop, and for those whose hands and fingers are stiff, working with a big swab to clean windows, or with a paint-brush, is a more interesting occupation than gripping spring dumb-bells. Massage and electricity are not neglected, but when combined or followed by work in the curative workshops lead up to the idea of fitness—fitness to work and earn a living and serve the State in an economic sense, even if not to return to the regiment and fight once more in the ranks of the army. A number of orthopaedic centres have already been established in addition to the parent establishment at Shepherd's Bush; in each curative workshops have been or will be started, and Colonel Robert Jones pays a tribute to the initiative and inspiring enthusiasm of King Manuel, the representative of the British Red Cross Society in this matter, by dedicating the volume to him. These curative workshops have already proved to be of very real value; though they are latest, they are not the least important advance in the orthopaedic treatment of wounded men suffering from physical disabilities of their limbs.

The volume will be of much interest and value, not only to those medical practitioners actually serving in the Royal Army Medical Corps, but to that very large number of civil practitioners among whose duties it is to treat men discharged from the army suffering from physical disabilities of the type with which it is concerned.

EXPLORATORY THORACOTOMY.

THE fourth volume of the twenty-sixth series of *International Clinics*[2] is largely concerned with surgery. An interesting paper by Dr. Ashhurst of Philadelphia on encapsulated empyema and abscess of the lung enters a strong plea for the more frequent performance of the operation of exploratory thoracotomy in cases in which the presence of a collection of pus in the pleural cavity is suspected but cannot be proved by the insertion of a trocar. For this exploration Dr. Ashhurst uses local anaesthesia. Half an hour before the operation the patient receives a hypodermic injection of $\frac{1}{6}$ grain of morphine and $\frac{1}{150}$ grain of atropine. He is then placed prone on the table with the arms above the head, and the head turned away from the side to be operated upon. Novocain (1 in 400 solution) is the local anaesthetic of choice; being now unable to procure this drug, Dr. Ashhurst uses in its place a 1 per cent. solution of eucaine, adding three drops of 1 in 10,000 adrenalin solution to each ounce of it. He has used as much as 65 c.cm. of this mixture during an operation. The area of the skin incision is injected, and the intercostal nerves above and below the rib to be resected are blocked each with an injection of 2 c.cm. of the eucaine and adrenalin, made three or four inches from the middle line of the back. Three or four inches of rib are resected as a rule; the pleura is opened between forceps, as the peritoneum is opened in abdominal operations. Even if the lung is not adherent to the parietal pleura (as it commonly is) it seldom collapses to less than half its bulk, and there is comparatively little respiratory disturbance. The lung is then searched for adhesions, and usually where these are thickest pus will be found. Details of the operation in fourteen cases are given by Dr. Ashhurst.

NOTES ON BOOKS.

THE fourth edition of Dr. E. R. STITT'S *Practical Bacteriology, Blood Work, and Animal Parasitology*[3] is a compendious work, containing a great deal of information useful to the clinician in the laboratory. It is well up to date, and includes descriptions of the way in which a great number of clinical tests should be applied. The author covers a vast amount of ground in his comparatively small compass; perhaps the most valuable of his pages are those devoted to animal parasitology. The illustrations are well chosen, and the volume as a whole may be recommended more particularly to students of tropical medicine.

Mr. C. T. KINGZETT'S *Chemistry for Beginners*[4] is a simple little textbook designed for use in primary and public schools. The author holds that the future of the British empire depends largely upon the progress of scientific education within its limits. As a chemist he is anxious that all boys should have the opportunity of acquiring an elementary knowledge of chemistry, and his manual has been written for reading, and for use where facilities for even the simplest laboratory work are lacking. The text, which is devoid of illustrations, deals first with matter and its properties from a chemical point of view, and next with force and energy. Then follows a chapter on the air, together with a brief account of the elements arranged in alphabetical order; the book ends with a brief dictionary of terms and index combined. This little volume should be of service to those for whom it has been written.

In the April number of *The Western Front*[5] Mr. MUIRHEAD BONE continues his drawings of munition works, illustrating among other things the manufacture of big guns and howitzers and the putting together of aeroplanes. Some of his other drawings show characteristic features

[2] *International Clinics*, Vol. 4, 26th Series. Edited by H. R. M. Landis, M.D.Phil., U.S.A. Philadelphia and London: J. B. Lippincott Company. 1916. (Med. 8vo, pp. 318; illustrated. 35s. net, four quarterly volumes.)

[3] *Practical Bacteriology, Blood Work, and Animal Parasitology: including Bacteriological Keys, Zoological Tables, and Explanatory Clinical Notes.* By E. R. Stitt, A.B., Ph.G., M.D. Fourth edition, revised and enlarged. London: H. K. Lewis and Co., Limited. 1916. (Post 8vo, pp. 517; 115 figures, 4 plates. 9s. net.)

[4] *Chemistry for Beginners.* By C. T. Kingzett. London: Baillière, Tindall, and Cox. 1917. (Cr. 8vo, pp. vi + 106 2s. 6s. net).

[5] *The Western Front.* Part IV. Drawings by Muirhead Bone. Published for the Government by *Country Life*, Ltd. (2s. net monthly.)

LIBRARY OF THE WELLCOME CHEMICAL RESEARCH LABORATORIES

of the Somme landscape, and there are also a couple of sketches of hospital ships in port. In addition to the monthly numbers a selection of his drawings are being reproduced on a larger scale (20 in. by 15 in.) under the title "War Drawings." Each part will contain ten illustrations and will be printed in one, two, or more colours according to the character of the original. Among other drawings in the first part are the striking sketches of the Somme front which appeared in early numbers of *The Western Front*. The price of these parts will be 10s. 6d. net, but it will be possible to obtain separate plates. The originals have been presented to the British Museum.

Dr. I. G. COBB'S book on *The Organs of Internal Secretion*[6] gives a general account of the subject written for the benefit of general practitioners of medicine, founded on a series of articles that appeared last year in the *Medical Press and Circular*. It may be regarded as an up-to-date account of hormone-therapy, or the treatment of disease with the hormones derived from the ductless glands. Naturally the extracts derived from the thyroid and parathyroid glands receive the most extensive consideration; those obtained from the pituitary body, suprarenal glands, pancreas and other digestive glands, and the sexual glands are also duly described. Perusal of the volume leaves the impression that hormone-therapy is a wide and speculative method of treatment, perhaps undervalued at present, possibly with a great future before it. Many interesting cases of the successful exhibition of these organic glandular extracts are detailed, to show the indications for these treatments and the lines they should follow.

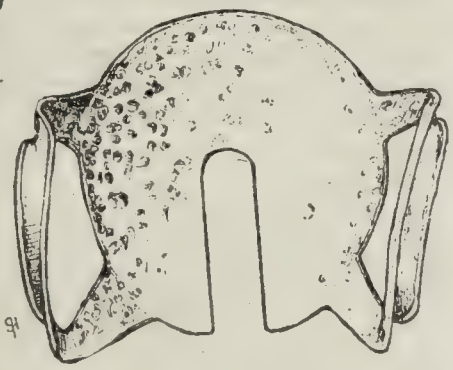
[6] *The Organs of Internal Secretion: Their Diseases and Therapeutic Action.* A Book for General Practitioners. By I. G. Cobb, M.D., M.R.C.S. London: Baillière, Tindall, and Cox. 1917. (Cr. 8vo, pp 246. 5s. net.)

MEDICAL AND SURGICAL APPLIANCES.

Amputation Retractor.

MAJOR E. K. MARTIN, R.A.M.C., writes: This instrument, designed to facilitate retraction of the soft parts while dividing the bone, consists of a circular metal disc, 7½ in. in diameter with a slot 1⅛ in. wide running downwards from the centre to the periphery. Towards the distal side the metal plate is convex, with a fall of ½ in. from centre to circumference. From the sides handles project proximally and are attached rather below the centre,





so that the act of retraction presses the blind end of the slot against the bone. The soft parts are then exposed only on that side of the bone away from the saw. The retractor is particularly adapted for amputations above the knee. It can be made locally of any convenient material. The original models were made of tin with iron handles riveted in place. That illustrated is hammered out of a piece of sheet aluminium.

RADIUM THERAPY.

THE RADIUM INSTITUTE, LONDON.

THE report prepared by the Medical Superintendent, Mr. Hayward Pinch, F.R.C.S., of the work carried out at the Radium Institute, London, during two years from January 1st, 1915, to December 31st, 1916, is about to be issued.* It is arranged on the same general plan as the previous reports, some of which have been published in full in our columns. The policy of declining to treat operable cases of malignant disease—rodent ulcer alone excepted—has been rigidly adhered to save in those instances in which the patient has positively refused to submit to operation, On the other hand, the cases have not been selected, and only those have been refused in which the patients were practically moribund, or where the disease was of a kind for which radium therapy was manifestly unsuitable. In stating the results the term "cured" is not employed; the term "apparently cured," which is used, is to be interpreted as representing a condition in which all trace of the original lesions has disappeared, in which there is no sign of recurrence, and in which the patient is, so far as can be determined by a thorough and careful examination, free from any indication or symptom of the disease. Cases have been classed under the heading "improvement" only when the result of treatment was to produce a definite marked degree of benefit either in retardation of the progress of the disease, diminution in the size of the growth, healing of ulceration and arrest of haemorrhage and discharge, or relief of such subjective symptoms as itching, tenderness, pain, dyspnoea, and dysphagia. The strength of the apparatus used is expressed in the report in terms of hydrated radium bromide, the radium element content of which is 53.6 per cent.

In epitheliomata of the buccal, laryngeal, and pharyngeal mucous membranes, though temporary improvement frequently followed on radium treatment, the final result was usually disappointing. Of 58 such cases treated to a conclusion, 16 were dead at the time of the report, 13 were not improved, 25 were improved, and 4 were apparently cured. In addition 30 cases abandoned treatment and 14 were examined but not treated. In some rare instances isolated nodules in the tongue responded well to the burying within their substance of a tiny powerful emanation tube of 50 mgr. or more initial activity, screened with 1 mm. of silver or 0.3 mm. of platinum, for a period of eighteen to twenty-four hours. Brisk reaction occurred, followed by fibrous changes in the nodule and arrest of the disease. Small and circumscribed growths in the soft palate did comparatively well under this method of treatment, and of all epitheliomatous lesions in the mouth and fauces these were regarded as the most suitable for radium therapy. Of 6 cases of vaginal epithelioma, 4 were apparently cured, 1 was improved, and 1 not improved. Primary epitheliomata of this region usually reacted satisfactorily to prolonged exposures with powerful applicators heavily screened, and if of recent origin and without much surrounding induration were often completely removed.

Mr. Pinch reports that the symptomatic improvement which almost invariably follows the radium treatment of inoperable cases of carcinoma of the uterus is most striking; arrest of haemorrhage, lessening of discharge, healing of ulceration, reduction of surrounding infiltration, diminution of the rate of growth, and amelioration of pain are constantly to be observed, and in some instances cases previously declared to be inoperable became operable. The treatment should be repeated at intervals of six weeks or two months; a 50 mgr. or 100 mgr. tube, screened with 2 mm. of lead, and 3 mm. of rubber, is introduced into the cervical canal, or, if this be impracticable, into the posterior fornix; a powerful flat applicator containing 80 mgr. to 100 mgr., screened in a similar fashion, is placed on the abdominal wall over the fundus. The exposure should be from thirty to sixty hours, spaced over from five to ten days. When the disease is confined to the cervix and the growth is of the fungating type, a preliminary curetting of the ulcerated mass is stated to be desirable.

The results in carcinoma of the rectum varied very greatly; the best were obtained in persons over 50, in whom the growth was annular in type, vascular in character, and situate in the upper half of the rectum. The plaque-like growth, with much surrounding infiltration, was rarely improved, and, owing to the difficulty of shielding the adjacent healthy mucous membrane, troublesome infiltration generally occurred. In an annular, vascular, and exuberant growth, with a tortuous and much constricted lumen, radium treatment often relieved the threatened obstruction; but sooner or later, both in this type of growth and in those of a spongy character, fibroid contraction of the lumen occurred, necessitating colostomy or regular dilatation of the stricture. When the growth is extensive and ulceration present, colostomy is recommended before radium treatment, both to prevent pain and because, when the growth is situated high up, the colostomy aperture enables the upper portion of the growth to be treated with a tube passed down the sigmoid.

* The secretary will supply a copy to any medical man who applies to him at the Radium Institute, 16, Riding House Street, Portland Place, W.

The results in cancer of the rectum were not very brilliant. Of 51 cases treated to a conclusion, 33 were improved, 10 were not improved, and 8 died; in addition, 14 abandoned the treatment.

The report is very emphatic that radium should never be used as a substitute for operation in the treatment of early cases of mammary cancer. In rapidly growing carcinoma of the medullary type, radium had little effect, but in slow-growing cases of the atrophic type it was often found of considerable use in checking the progress of the disease, arresting ulceration and even causing it to heal, diminishing induration and lymphatic engorgement, and relieving pain. Quite frequently its use was followed by the disappearance of small cutaneous nodules and reduction in the size of infected glands. Of 111 cases of carcinoma of the breast treated to a conclusion, 6 were apparently cured, 67 were improved, 24 not improved, and 14 died.

Of rodent ulcer, it is said that lesions which have not been subjected to any previous treatment with *x* rays, carbonic acid snow, or ionization, which do not affect mucous membrane, bone or cartilage, and do not exceed 3 cm. in diameter, can almost invariably be cured by one treatment. A full-strength applicator is used unscreened, and an exposure of between one and a half and three hours given, its length being determined by the amount of induration and infiltration present. The reaction which follows is usually severe, but the resultant scar is smooth, supple, and inconspicuous, and the tendency to recurrence extremely slight. The number of cases of rodent ulcer treated to a conclusion was 169; of these, 122 were apparently cured, 37 were improved, 8 were not improved, and 2 died; in addition 6 abandoned treatment.

The result in cases of sarcoma, if treated before dissemination into the internal viscera, was usually good. The treatment must be vigorous, both by the burying of emanation tubes within the substance of the growth and by the external application of powerful screened apparatus. The response of lympho-sarcomata was very remarkable, the growths commencing to shrink within a few days of the termination of the treatment and rapidly disappearing. Some systemic disturbance, with a temperature of 101° to 102°, languor, and occasional nausea or vomiting, were generally noticed, but rarely persisted for more than four or five days.

With regard to fibroid disease of the uterus it is said that if ordinary methods of treatment have failed to relieve menorrhagia and metrorrhagia and the patient declines to submit to operation, radium is worthy of trial, as it will almost certainly lessen or abolish the extensive loss of blood, and will sometimes produce considerable diminution in the size of the uterus.

In cases of lupus vulgaris which have not responded to treatment with the Finsen light, radium may be used with a fair prospect of success, but the treatment must be vigorous. Lupus erythematosus, it was found, frequently responded to radium treatment.

In pruritus, especially if of long standing and associated with leucoplakia or hyperkeratosis, radium was often of the greatest use, but where no actual lesion existed and the trouble was purely nervous the results were not satisfactory.

In arthritis deformans, of which 128 cases were treated to a conclusion, previous experience was confirmed, the daily administration of 250 c.cm. of radium emanation solution of a strength not less than one millicurie per litre often producing a very remarkable improvement, especially in persons under 40 years of age, in whom the disease had been of short duration and infective in origin, the changes being periarticular and affecting many joints.

Mr. Pinch acknowledges his indebtedness to his colleague, Dr. J. E. A. Lynham, both in the preparation of the report and in the conduct of the night clinic. The total number of patients treated was 1,313, but in 123 of these treatment had not been completed at the time of the report. Altogether we understand that during the past two years the Institute has given 12,331 treatments, and that of these 8,373 were given free of charge to necessitous patients. In a report on the chemico-physical laboratory Mr. W. L. S. Alton, the director, states that owing to the depletion of the staff by military exigencies, very little new work was attempted, the preparation of radium emanation applicators and radium emanation solutions having occupied the time of the members remaining.

THE ROYAL INFIRMARY, EDINBURGH.

Dr. Dawson Turner has presented to the managers his report on the radium treatment at the Royal Infirmary, Edinburgh, during the year 1916. He states that 66 patients had attended for radium treatment. The total attendances during the year were 520; 28 patients suffered from rodent ulcers, 25 from inoperable malignant disease, 7 of these affecting the vagina or cervix uteri. There were 7 cases of exophthalmic goitre and 4 of naevi. Amongst the malignant cases there were 8 of sarcoma and 17 of carcinoma. Sarcoma, in Dr. Turner's experience, invariably benefited by radium treatment, and, if accessible and localized, could be entirely removed. Rapidity of growth was no contraindication to the use of radium; and there was, in fact, reason for believing that rapidly proliferating cells were more vulnerable than cells which in morphology and growth more nearly resembled the normal. He quoted the opinion of Gaarenstroom, of the Amsterdam Cancer Institute (*Archives of Radiology*, December, 1916), who holds that the histological structure is the chief criterion and that round-celled sarcoma generally reacts favourably, spindle-celled less so, and polymorphous-celled least so. Gaarenstroom based this opinion upon an experience of 23 cases treated by the Roentgen rays. He made no use of radium, and Dr. Turner points out that the effect of radium rays may not be quite the same as that of Roentgen rays. Dr. Turner found myelosarcoma, lymphosarcoma, large spindle-celled sarcoma, and parotid mixed-celled tumours extremely sensitive to radium rays.

Malignant disease of the vagina and cervix was favourably affected by radium treatment, and epitheliomas, if localized, could confidently be expected to disappear. Owing, however, to the difficulty of efficiently raying the more inaccessible portion of the growth, recurrence in these positions after a longer or shorter period was common. Treatment of the recurrence was, as a rule, less successful than that of the primary growth for two reasons: (1) That the recurrence was probably situated in a less accessible position, as in an extension to the broad ligaments, and (2) that after a course of raying only those cells survived which were refractory to the rays, and a recurrence consisting of such cells or daughter cells was less susceptible to attack. There was a tendency by natural selection to breed cells which were immune. The same phenomenon might sometimes, though rarely, be observed in rodent ulcers, for an extended ulcer attacking perhaps bone or mucous membrane after repeated raying might not respond at all. In the cervical cases, even though there should be recurrence, the patient greatly benefited in the meantime by the removal of pain, the cessation of discharges, and the general gain in health and strength.

Uncomplicated rodent ulcers situated on the skin and not too extensive for the amount of available radium invariably did well. Recurrences which might be due to an insufficient primary treatment easily yielded to a second course and remained cured, and scarcely any contraction of the skin ensued. Rodent ulcers on mucous membrane were less amenable. Though a single strong application might suffice for their removal, Dr. Turner preferred, when possible, to divide the necessary dose into two or three, administered at three or four days' interval. To prevent recurrence, the deeper parts as well as the superficial must receive adequate treatment.

Seven cases of exophthalmic goitre—five females and two males—received radium treatment. All benefited save one, an acute case, who died in less than a month after the treatment from hyperthyroidism. As mentioned in the report for the previous year, indisputable benefit was occasioned in exophthalmic goitre without any necessary obvious change in the thyroid gland, though generally it was diminished in size.

Appended to the report are notes of 17 cases, including instances of exophthalmic goitre, sarcoma, epithelioma, myeloma, and chondro-fibro-sarcoma.

A CONGRESS and Exposition are to be held at Monaco with the object of promoting the expansion of the thermo-mineral and climatic stations and watering places of the allied nations. The Congress is under the patronage of the Prince of Monaco, and the head quarters of the organizing committee are at the Institut Océanographique, 195 rue Saint-Jacques, Paris.

British Medical Journal.

SATURDAY, APRIL 21ST, 1917.

THE PROPOSED MINISTRY OF HEALTH.

ALTHOUGH the Government's intentions with regard to the establishment of a Ministry of Health have not been made known, and are, there is every reason to suppose, still in a fluid if not nebulous state, one or two recent events point to the fact that a scheme of some kind is under construction for submission to the Cabinet. It is therefore clear that now is the time for the medical profession to formulate its views upon the matter, in order that they may be pressed upon the authorities before the Government scheme is crystallized and made public. An expression of medical opinion before the Government has openly committed itself to any particular course is more likely to be effective than if delayed so that it must take the form of criticism of an announced policy.

As we have pointed out several times lately, the problem is an immense one and bristles with difficulties which are all the greater because the energies of the nation are now bent upon the prosecution of the war, and so large a proportion of the profession is serving in the army that the elected bodies of the British Medical Association encounter difficulties of a kind precisely similar to those Parliament itself meets in learning what the most active minds in the constituencies are thinking.

Lord Rhondda, in the reply to a deputation from the National Associations of Insurance Committees for England and Wales, which waited upon him last week, said, as reported in another column, that the Government is very seriously considering the establishment of a Ministry of Health. He was, however, careful to let fall nothing which would commit the Cabinet, and, in fact, stated that no decision has yet been reached. Speaking for himself alone, he expressed a strong opinion in favour of the establishment of a central authority to deal with public health affairs to be constructed upon existing organizations, and repudiated the idea that he wished to abolish the local Insurance Committee. Beyond this he lifted no corner of the veil; for instance, we are left in ignorance as to the relative positions which it may be proposed to assign to the Local Government Board and the Insurance Commission in the reorganization which would be involved in the setting up of any form of central health department. A little light was expected to be thrown upon this, among other obscure matters, at the conference of approved societies and insurance committees announced for April 16th; but this meeting, for reasons which can only be surmised, has been postponed *sine die*.

The proposal to form a Ministry of Health, if we may judge by the extraordinary number of approving articles in the press, seems to have captivated the public imagination. But if we study these articles we are not rewarded by the discovery of any very definite suggestions as to how the fascinating ideal is to be attained. The only one we have so far come across is contained in the *Westminster Gazette* of April 14th, where two essential features which it is considered a Ministry of Health must possess are set out. "First it must be an independent ministry standing outside any existing department; second it must be not merely an advisory or hortatory department, but a department with real power and initiative. A Health Ministry which was a mere branch of the Local Government Board and liable to its supervision and veto would be a mere rearrangement of machinery, and little or no good could be expected from it." The second proposition with its rider probably expresses pretty nearly the general view of the medical profession, but we confess we do not understand what is meant by the first. What is intended to be understood by the phrase "an independent ministry standing outside any existing department"? Taken in its natural sense it would seem to imply the creation of a new ministry; existing ministries—the Local Government Board and the Insurance Commissions, for example—to go on as before. This, no doubt, is not what was intended, but the phrase is a good example of the loose writing which reflects much of the loose thinking on the subject. A new ministry standing outside any existing department is not what is wanted, but a new ministry containing those sections of existing departments which are concerned with health, expanded to meet new needs, and expansible to meet other further needs that will arise. Our contemporary so far understands this that it goes on to insist that a real health policy means a steady screwing up of backward and reluctant local authorities to a minimum standard of sanitation and housing, and to urge that unless the Health Ministry is strong enough to keep up effective pressure upon the local authorities it will be able to do little good. It is suggested that the only way by which the central authority can be armed against the local authority is "the money way"—by giving the new Health Ministry "a substantial sum to dispense according to the efficiency with which the local authorities administered the health and sanitary code," probably in some such form as the grant-in-aid which the Board of Education has already found a persuasive instrument. We are inclined to doubt whether any attempt has been made to estimate the very large sum that would be necessary; but whatever value there may be in this suggestion, and we know the bitter criticism the phrase "payment by results" has evoked in educational matters, the article seems to us to take a view which is too narrow and bureaucratic when it does not savour of party politics. That our contemporary has some inkling of this defect appears from the peroration where it is said that the Ministry of Health must "enlist in its service men of high repute and ability in the special subjects with which it will have to deal. This means going outside official circles and obtaining the aid of consultants or specialists already well known to the public." We would ask for a definition of terms. What is meant by "the public"? Does it mean that very vague afflatus the general public sentiment of the country, which can only be aroused now and again for a short time, when it flies off in some other direction, or does it mean that very real, always active thing, local public opinion? This is no captious question, but goes to the root of the matter; for we believe that when the very large problem that has now been raised receives the careful study it deserves it will be found to involve something a great deal more than the creation of a Ministry with power to give or withhold grants, and that it will be seen to be necessary so to reconstitute local administration that it may be a counterpart of the central organization, and, like it, attract to the public service "the aid of consultants or specialists already well known to the public"—the local public.

In response to the desire of the President of the Local Government Board to be put in possession of the views of the British Medical Association upon the general question of a Ministry of Health, a committee has recently given very close consideration to the principles which should underlie any workable scheme acceptable to the medical profession and in the true interests of the community. The immediate aim of this committee has been to look at the matter in its widest bearings, and, so far as time has permitted, to hammer out some authoritative pronouncement which will represent the view and enlist the active support of the medical profession at large. Its report will be presented to the meeting of the Council next week, and, after consideration and if necessary emendation by it, will no doubt be passed on to the Representative Body. An exposition of general policy would appear to be the need of the moment. It can hardly be doubted that for the medical profession the great risk is that the task to which Lord Rhondda has put his hand may turn out to be so large an undertaking as to be unmanageable in the present state of parliamentary and public business. There will then be the temptation, in order to have something to show as the result of the movement, to rest satisfied by giving the Local Government Board power to make grants-in-aid for other purposes than those for which it already has such power, and possibly by bringing the administration of insurance within its scope—a ridiculous little mouse to be brought into the world by so mighty an act of parturition as is now in its first stage.

CHILD MORTALITY.

THE report[1] recently issued by the medical officer of the Local Government Board on child mortality at ages under 5 for the years 1911-14 can hardly fail to cause a feeling of shame and indignation at the disastrous failure of our health authorities, local and central, to prevent the lamentable state of affairs revealed. During the four years named, 575,078 deaths occurred in England and Wales at ages under 5, or more than a quarter (28.2 per cent.) of the total deaths at all ages during these years. In some of the 274 urban areas the death-rate was three times as high as in some others. Some consolation is drawn from the fact that even in the most backward towns and boroughs much saving of child life has already been secured, for if the experience of the ten years 1901–10 had continued, the number of deaths in the four years under review would have been 719,000, or 144,000 more than the number which actually occurred. But in spite of this the report has to emphasize the fact that "in every area a very high proportion of the total present mortality could be obviated, and it is well within the range of administrative action to reduce the child mortality within the next few years to one half of its present amount." This is equivalent to saying that, if the authorities and all concerned did what they know to be their duty, over 70,000 child lives could be saved every year. There is, we fear, hardly a remote probability that anything like this saving will be effected within the next few years.

About half of the report is occupied with a detailed comparison of towns with the highest and lowest death-rates among children under 5, and maps are given to show the conditions in the largest centres of population. A consideration of these shows "the outstanding fact that the centres of excessive child mortality are those in which the chief industries of the country are carried on." So much is this the case that we are told that a map of the coal measures of the country might almost serve as a map of the chief areas in which child mortality is excessive. Nevertheless, that "this association is not inevitable" is shown by the large reduction in child mortality already effected in some of the industrial areas and by the great variation in the present mortality in towns having the same or closely allied industries.

Dealing with the chief causes of deaths under 1 year of age, it is stated that 6.4 per cent. of the deaths were returned as due to measles, whooping-cough, diphtheria, and scarlet fever, and 2.9 per cent. to tuberculosis, so that over 9 per cent. can be ascribed to diseases well recognized as infectious, and therefore, it might be supposed, amenable to those preventive measures which the Local Government Board has made familiar. In addition, 18.4 per cent. are caused by diarrhoeal diseases, which are commonly to be attributed to the use of tainted milk and food during hot weather. Bronchitis and pneumonia account for 16.7 per cent., and of the 23 per cent. classed as due to "congenital debility," a considerable proportion are considered to be caused by congenital syphilis. From these figures the conclusion is drawn that more than half of the infant mortality is due to infection *ab extra*. Much of this could certainly be prevented, and this is true even in many cases of simple bronchitis and pneumonia, if the importance of simple precautions against the conveyance of catarrhal infections from persons suffering from "ordinary colds" were more generally realized. The preventability of a large part of existing infant mortality is further shown by its varying magnitude in different areas. For example, in the large towns the infant mortality varied from 67 in Hornsey and 70 in Ilford to 161 in Stoke-on-Trent and 172 in Burnley. But the most striking evidence of the possibilities of life saving is held to be the saving already experienced. Between 1871 and 1915 there was a decline of 29 per cent. in the death-rate of infants; in the second year of life the decline was 41 per cent., in the third year 50 per cent., in the fourth 53 per cent., and in the fifth 50 per cent., the smaller decline in the first year being partly due to the little effect hitherto produced on the congenital causes of mortality and partly to the fact that in infancy it is more a matter of intimate personal hygiene than in the next years of life.

After a detailed examination of the principal areas in which the child mortality is specially large, a general summary is provided of the circumstances of environment that seem to favour excessive child mortality, and the following are separately considered: Maternal ignorance, lack of medical care and nursing, carelessness of mothers, intemperance, poverty, overcrowding of areas or in homes, defective sanitation, industrial employment of married women, and size of family.

A final section gives a summary account of present activities in maternity and child welfare work, with suggestions for further action on the part of local authorities and others which would conduce to the conservation of life and health of mothers and their young children. Foremost among the measures for which the need is urgent are recognized to be the provision of better housing accommodation and more efficient sanitation, better means for the storage and preparation of food, and the provision of a purer milk supply. These subjects are not discussed in any detail,

[1] Supplement to the Forty-fifth Annual Report of the Local Government Board, 1915-16: Report on Child Mortality at ages 0–5 in England and Wales. [Cd. 8496.] Price, 1s. net.

but special attention is directed to the provision of medical assistance and nursing, as "this is the part of maternity and child welfare work which in the past has received least attention," though it is held to offer great possibilities of saving life and preventing illness and disablement. The Midwives Act and the Notification of Births Act are named as the chief means by which the local authorities can get into relation with the mothers. A long and presumably complete list is given of the measures which public authorities are already authorized to institute, and for which they may receive grants from the Local Government Board covering one half the total expenditure if carried out to the satisfaction of the Board. These measures include provision for medical attendance and nursing both at home and in hospital, not only of expectant mothers but of parturient women and nursing mothers and their children up to the age of five.

No one can be blind to the progress made in some areas, but it is impossible to read the report without regarding the facts which it contains as reflecting most seriously on the efficiency of our health administration, both central and local. Even the measures that are now advocated and supported by grants are in many respects little more than tinkering with the problem.

MEDICAL WAR ORGANIZATION IN AMERICA.

FOR some time previous to the entry of America into the war the medical profession of the United States had been taking its share in the "preparedness campaign," and we learn that the means whereby the most effective service can be rendered to the Federal Government by the profession have now taken definite and concrete form. Last August the Council of National Defence was created by act of Congress for the co-ordination of industries and resources for the national security and welfare. Dr. Franklin H. Martin, of Chicago, whose reputation as a medical organizer is not confined to his own country, was selected by the President to serve on the advisory commission to the Council, and gathered around him a strong medical committee to consider the various medical problems which bear upon national defence. As a result of conferences between this body and the War Department courses of instruction in military medicine were instituted early this year in all the medical schools. A national committee of American physicians was formed twelve months ago by joint action of the five leading professional bodies for the purpose of formulating plans whereby the civilian medical resources of the United States might be ascertained and effectively co-ordinated. In connexion with this central body, which has been hard at work since its inception, county committees are now being set up throughout the States. The idea is that all these medical organizations should co-operate with the Council of National Defence. The medical profession of this country will watch with keen and friendly interest the progress of medical organization for war in the United States, and will learn with pleasure that among the signatories of the appeals to the American people and to the President to fight Germany with the full strength of the nation, issued a short time ago by the American Rights League, appear the names of Dr. Lyman Abbott of New York, Dr. Richard C. Cabot of Boston, Dr. Theodore C. Janeway of Baltimore, Dr. Morton Prince of Boston, and Dr. W. W. Keen of Philadelphia. Classes have been instituted in various centres for training in modern military surgery, and some of the most senior members of the profession in America have not been too proud to attend them. In Philadelphia the course, consisting of twenty lessons, each of three hours, has been attended by about a hundred doctors. Dr. Keen has all along been active on the side of the Allies, and when, in delivering an address to Red Cross women workers the other day, he expressed the wish that the United States would enter the war "as an ally of the Allies" he was applauded to the echo.

VITAL STATISTICS FOR 1915.

THE seventy-eighth annual report of the Registrar-General for England and Wales deals with the year 1915, but contains a few indications with regard to 1916. The marriage-rate for 1915 was 19.5 per 1,000, the highest on record, being 3.6 above the rate in the preceding year and 4.1 above the average in the ten years 1905–14; but the provisional figures for 1916 indicate a return to the average experience in 1905–14. The birth-rate in 1915 was the lowest on record—22 per 1,000; although this rate is 3.5 below the average for the preceding decennium and 1 8 below the rate for 1914, it compares very favourably with the experience of other belligerent countries, but the provisional rate for 1916 is 21.6. The civilian death-rate in 1915 was 15.7 per 1,000; this is 1.2 above the average for the total population in the preceding ten years, but the provisional rate for 1916 is appreciably lower than for 1915. The civilian death-rate was adversely affected by two circumstances: first, the withdrawal by enlistment of a large body of men at an age at which mortality experience is below the average; and, secondly, by the fact that the men remaining in the civil population at this age were, on the whole, much less healthy than those that had been withdrawn. When comparison is made of standardized death-rates, it appears that the civilian death-rate in 1915 exceeded the average rate for the total population in the preceding ten years by only 0.4 per 1,000, and was below the rate in any year before 1907. It appears, therefore, that the mortality of 1915, though slightly exceeding the standard of the immediate past, does so only to an extent which is less than might in the circumstances have been anticipated, and which is, indeed, not outside the range of its normal fluctuation. The infant mortality rate was 110 per 1,000, being 5 per 1,000 above the rate in the preceding year, but below the average for the ten years 1905–14 by the same amount. The provisional infant mortality rate for 1916 shows a decrease to 91 per 1,000 births, the lowest rate on record. The death-rate during 1915 from enteric fever was the lowest on record, but that from influenza was the highest since 1900, and from measles the highest since 1896. There was an abnormally high death-rate from cerebro-spinal fever, and the mortality from measles and diphtheria was above the average of the preceding ten years. Cancer showed a higher mortality than in any other year, judged by the crude or ordinary death-rates, but such a form of statement is unsatisfactory in dealing with the disease, in view of the present constitution of the civilian population. Comparison of standardized death-rates shows that the mortality of both males and females was slightly below that of either of the two preceding years. The mortality from phthisis and from tuberculosis as a whole showed a marked increase among males and a slight increase among females; but here again the fact that enlistment has withdrawn a very large number of healthy males at ages considerably affected by the incidence of tuberculosis must be remembered. The Registrar-General's office has been able to undertake the responsibility of furnishing local mortality statistics to the various sanitary authorities of the country for 1916 and subsequent years, with the view of economizing labour in the local sanitary offices during the war. Should the experiment prove successful, it may be found advantageous to continue the system permanently and so avoid duplication of work which has existed hitherto.

PROFESSIONAL ORGANIZATION.

THE *New Statesman* publishes this week the first part of a special supplement on professional associations, of which we have been favoured with an advance copy. It consists of the first half of a report, prepared by Mr. and Mrs. Sidney Webb for the Fabian Research Department,

dealing with the question, "What is to be learnt from the professional associations of brain workers as to the sphere of control by the vocational organizations?" Under this formidable title the authors publish the results of their investigations into the history and present position of the various professional organizations of the country. Part I deals, among others, with the profession of medicine. After a brief, but fairly adequate, historical survey, in which the various efforts towards medical reform are traced, the authors discuss at some length the nature, powers, and duties of the General Medical Council, and take note of the fact that the National Insurance Acts have set up an additional tribunal to investigate charges of professional misconduct and the like, against medical men on the panel. Voluntary organization of the profession is dealt with at some length, and in a critical spirit. A sketch is given of the great work which the British Medical Association has done for the profession in such matters as the passage of the Medical Acts of 1858 and 1886; the improvement of the status and pay of Poor Law medical officers and medical officers of health; the campaign against "covering," and canvassing "medical aid" institutions, and so forth; and lastly, the concessions to the profession which the Association wrung out of the Government during the passage of the Insurance Acts. Prefacing an analysis of the machinery of the Association the authors give it as their opinion that the "British Medical Association is, alike in its constitution and in its functions, one of the most highly developed and the most efficient of all the British professional organizations," and they conclude this section of the subject thus: "The strength of the British Medical Association, compared with all other voluntary organizations of medical men, lies not only in its great traditions, but also in its status as a scientific and technical society controlling a powerful journal and organizing a popular annual conference, at which science and social intercourse are happily combined." Another section is devoted to an exposition of the professional code of ethics; this is written in a fair but not unduly sympathetic spirit. A long section follows upon the relation between the doctor and the community, or, as Mr. and Mrs. Sidney Webb like to put it, "between what may be regarded as the 'producer' and the 'consumer' of medical services." The innate preference of the medical practitioner for dealing only with individual clients in a strictly personal relation and without control or supervision or interference from outside, which underlies the medical objection to a state medical service, is discussed and criticized from the socialistic standpoint. The authors seem to have persuaded themselves that the hostility of medical practitioners to what they call "scientific management" and to whole-time employment in a graded state service is due to the same motive which causes the industrial manual worker to shy at "scientific management" in the workshop and the mine. Can it be that the Fabians and the new statesmen and stateswomen perceive no essential difference between the relation of doctor to patient and miner to coal-seam? Nevertheless, this section is well worth reading; but the final dissertation on professional exclusiveness is little more than a *post mortem*, since none of its hard sayings apply to conditions of to-day.

SCIENCE IN PEACE AND WAR.

PROFESSOR ERNEST GLYNN has revised and published as a pamphlet[1] the presidential address he gave to the Liverpool Biological Society, on bacteriology and the war, and on the national neglect of natural science. The first part of the address introduces the layman to some of the fundamental facts about micro-organisms and the perpetual struggle between man and microbes, leading up to the subject of bacterial infection of wounds and the germ-borne diseases with which the army has to contend. Professor Glynn's explanation and defence of antityphoid inoculation are clear and easily understandable by the non-medical reader. "Fortunately," he says, "we have appreciated the vast importance of bacteriological science in this war; *when its principles have been properly applied* our armies have won great though silent and bloodless victories." Nevertheless the nation, Professor Glynn maintains, has neglected science as a whole, and he says that this neglect has produced not only disastrous consequences in peace but is partly responsible for the prolongation of the war. He is convinced that we as a nation do not sufficiently appreciate the "extraordinary importance of scientific methods and of scientific research, and of the application of results of scientific research to commerce, to industry, to war, and to every department of life." With this many will agree regretfully. Professor Glynn, however, sees light on the horizon. In the midst of war the immense value and importance of science and the scientific outlook to the life of the country are beginning to be recognized. This leads him to a comparison between the advantages of what are called "classical" and "modern" educations. In his view it is wholly useless, and a shocking waste of time, for the ordinary boy to acquire a smattering of Greek and Latin to the exclusion of modern languages and the rudiments of science. The war, he says, has compelled the nation to reconsider its whole system of education, and he looks forward to the time, in the near future, when the true aims of education are grasped and acted upon. He concludes his vigorous and thoughtful address with these words, which, we think, express the truth of the matter: "The intellectual contest between nations has become so fierce that we must abandon obsolete educational methods, and become more practical and utilitarian—if we really wish our Empire to survive in the struggle for existence. Above all, we must bring scientific methods, scientific knowledge, and scientific research into every department of life."

[1] *Microbes and the War*. Liverpool and London: C. Tinling and Co., Ltd. Price d

AN EARLY VIEW ON WOMEN'S FRANCHISE.

MARCELLE TINAYRE, one of the most brilliant French women writers of the day, has unearthed a manifesto issued at Marseilles in 1789, entitled "The claim of the women of Provence to be admitted to the states general." In the account she has given of it in a recent issue of *Le Journal* she describes it as logically conceived, clearly drawn up, and expressed with a force and freedom not unmixed with what she calls a kind of ingenuousness. The three estates of the realm were then clergy, nobles, and the third estate; and the manifesto asked that women should be similarly divided and allowed to elect members to the three chambers in numbers proportional to those given to men. Nuns were to correspond to the clergy, and women of noble birth to the nobles; all the others were to belong to the third estate. They demanded universal suffrage subject to a most significant limitation, which is, perhaps, one of the paragraphs of the document Marcelle Tinayre regards as ingenuous. The manifesto proposed that every woman of 15 years of age or upwards should have the right to vote provided she had "given a citizen to the State." "We believe," these ladies went on, "that this condition is necessary in the interest of social organization, because an innocent, timid young woman, with restricted ideas would not be able to oppose effectively the coarse arguments of our antagonists." Further on, the idea that maternity constitutes an inalienable claim to the possession of all the rights of a citizen is, we are told, ably developed. After criticizing the education then open to women and the few opportunities then afforded to them of serving the State, the women of Provence set out what they described as a precise idea on the population question and the means of increasing the number of citizens. "No one," they said, "will deny that the true riches of a state is its population. It follows that if a nation refuses to increase its population, it refuses to

crease its riches." Finally, they suggested penalties
celibates; such men should pay double taxes and no
ublic employment should be open to "this parasitic
ass, which lives at the expense of fathers of families,
d usurps wealth which ought to belong to future genera-
ons." The manifesto, which seems to have been printed
cretly, was promptly suppressed, and the General
ssembly of 1789 took no notice of the claims of the
omen of Provence; but they were pioneers, although
eir suggestion that only those women should have the
te who had presented at least one citizen to the State
s not found favour with their sisters of to-day.

TUBERCULOSIS AND LONGEVITY.

HE truth of the paradox that the secret of long life is to
ffer from an incurable illness and to know how to take
re of yourself is well illustrated by the story[1] of Den-
ark's oldest doctor, F. F. Ulrik. He was born on April
th, 1818, and he died on February 20th, 1917. At the
e of 24 he developed signs of pulmonary tuberculosis,
d having finished his course of practical studies at a
neral hospital, took the advice of his medical superin-
ndent and went to live in the country. Here he acquired
large practice, necessitating long journeys by road. The
tacks of haemoptysis from which he had been suffering
ased, but he did not return to Copenhagen till he was 46.
e led an active life, and contributed largely to the sanitary
form of Copenhagen, where he was a member of the
ealth Board for twenty years. He was confined to his
d only a couple of days before his death.

THE FUTURE OF THE BRITISH X-RAY INDUSTRY.

the discussion at the Röntgen Society on April 3rd on
e future of the British *x*-ray industry Mr. R. S. Wright,
eaking from the manufacturer's point of view, asserted
at the backward condition of the electro-medical industry
the United Kingdom, as instanced by the fact that one-
lf or two thirds of the apparatus used in this country
as of foreign manufacture, was due largely to the
ejudices of medical men. The notion was current in
e medical profession that whatever happened to have
en made in Britain was necessarily inferior and out of
te. British medical men had in too many cases believed
at they must adopt everything that German medical
en adopted, and that German methods must be best
cause they were German, with the consequence that if
English maker showed originality, the outcome of his
terprise was not taken up until the same kind of thing
d found endorsement in Germany. The speaker in-
nced the Snook interrupterless machine, which was
st placed on the European market by a British firm, but
as never bought in Britain until, some long time after-
rds, it became known that German manufacturers were
aking it and German *x*-ray workers installing it; even
en two-thirds of the machines were obtained from
rmany. Sir James Mackenzie Davidson, while ad-
tting some of these contentions so far as they
d reference to what had been, pointed out that
the case of the Snook apparatus the fact that
came into favour at a later stage was not en-
ely due to its reintroduction from the Continent.
hen the Snook machine first came out there were very
w tubes that would stand the energy. In the process of
be development a stage had now been reached in which
tube, the Coolidge, quite equal to the energy which
e Snook machine put in, had been constructed, and no
ubt that form of machine would come into more
neral employment. The German *x*-ray tube, he
ought, had at one time an advantage over tubes
ade elsewhere, but German superiority in this respect
had already passed, and our American allies were now making a tube which would hold its own against any German rival for many a day. Professor A. W. Porter, F.R.S., thought that the great need was for research laboratories; they were, however, beyond the capacity of a small firm, and he suggested a combination of firms for this purpose. There was already provision in the physical laboratories attached to the universities for the preliminary training of men to undertake research, although the final training could not be given in any academic institution, but only in the works themselves. Captain G. W. C. Kaye laid stress upon the comparative poverty of British work on the applied side. In pure physics British workers held a record of which none need be ashamed, but on the applied side there had been few pioneers. He, too, hoped to see an *x*-ray institute, the particular province of which would be to thresh out practical problems for the manufacturer.

[1] *Ugeskrift for Laeger*, March 1st, 1917.

THE Svenska Läkaresällskapet (the Swedish Physicians' Society) has elected Colonel Robert Jones, C.B., Inspector of Military Orthopaedics, to be a foreign member. The honour was conferred at the instance of Dr. Haglund, professor of orthopaedics, Stockholm, supported by the professor of surgery, Dr. John Berg, and by Dr. Henning Waldenström, lecturer on orthopaedics. By this election Swedish surgeons desire in these dark times to show to their colleagues in the countries at war, who are fighting against the terrible individual consequences of the war, how greatly their work is valued.

THE Council of the Medical Society of London has awarded the Fothergillian Medal for 1917 to Sir Leonard Rogers, I.M.S., C.I.E., F.R.S., of the Medical College, Calcutta, in consideration of his work on dysenteries, their differentiation and treatment.

Medical Notes in Parliament.

THE House of Commons resumed on Tuesday, when the bill to prolong the life of Parliament was read a second time after a division.

New Warrant for Army Pensions.—On the same day Mr. Barnes (Pensions Minister) gave some particulars of what has already been done under the new warrant for pensions or gratuities for soldiers. Up to April 11th, or one week after the warrant came into operation, the department had on its lists 13,000 applications from soldiers and sailors. There had not been time to analyse them all—to ascertain, for example, how many had earned pensions and how many gratuities. There were 475 cases of widows of men whose disease had been aggravated by the war. Under the old warrant these women were entitled only to about 5s. a week, but already the department had dealt with 114 of these widows by provision under the new scheme. There were 1,229 widows who had no claim under the old warrant. Ninety-eight of these cases had been considered, and pensions had been given in 87 cases. In this first week, also, a few cases of parents had been dealt with. Thirty-four out of 38 had benefited, the benefit averaging 3s. 2d. a week. The number of dependants on the list was 2,819. Of these, 41 cases had been considered, with the result that 37 had been granted pensions, and 4 rejected. Mr. Barnes claimed, therefore, that the question of an Appeal Court sank into comparative insignificance. A very large number of the men who had been denied pensions would get them; some at once, and others would get gratuities. A very large number of widows would be lifted up very appreciably in the scale of allowances and pensions. It was intended that every man whose disease had been aggravated by the war should get a pension, and that every widow entitled to it should get a pension. All those other men discharged as medically unfit should get a more or less substantial gratuity. On April 18th Sir Edwin Cornwall stated that arrangements had been come to between the Insurance Commissioners and the Pensions Minister whereby no liability to pay for soldiers' disablement would fall upon the Insurance Fund.

THE WAR.

AMBULANCE LIGHT RAILWAY TROLLEYS.

THE ambulance trolleys for light railways used by the Royal Army Medical Corps have attracted the attention of French observers during the advance at Arras. As is well known, the engineers have laid down light, narrow-gauge railways in many areas, and the possibility of using them for the transport of wounded was very soon appreciated. The mention in General Nivelle's congratulatory telegram to Sir Douglas Haig, of the First and Third armies, and the Field Marshal's acknowledgement on behalf of those armies, permits us to say that the trolley car has been in use in these armies, and probably in others, for the last year or so. The cars are of very simple construction, lightly but strongly made. Each has room for two wounded on stretchers below, and two on stretchers resting on the supports above; they can be easily handled by one or two men, and, where a light railway is available, afford an extremely smooth and rapid mode of transit from the advanced dressing station to the field ambulance.



Two light railway ambulance trolleys.

One great advantage is that the light railway often penetrates into areas where the roads, having been cut up by shells and heavy traffic, are extremely bad. With the best constructed ambulance in the world and the most careful drivers a certain amount of jolting is inevitable on such roads, but the ambulance trolley on the light railway affords a smooth and easy means of transport, diminishing suffering and improving the ultimate prospect of recovery in serious wounds.

SURGERY IN A GERMAN BASE HOSPITAL.

HERMANN FISCHER, of the German Hospital, New York, records (*Amer. Journ. of Surgery*, January, 1917) an experience of six months in a German base hospital. He was with the first party sent to Germany under the auspices of the American Physicians' Expedition Committee, and was assigned for duty to the Reserve Lazarett at Oppeln in Lower Silesia, one hour by automobile from Czenstochowo, the first important Russian town across the border. The number of cases treated by the expedition from October 18th, 1915, to March 31st, 1916, was 727. Of these 493 were cases of injury by shot and shell. The rest were simple fractures, hernias, appendicitis, and minor surgical affections sent into hospital from the barracks in the town. There was no case of wound by bayonet or other cutting weapon. Among the 493 wounded soldiers 10 had bullet wounds of the head, with injury of the brain, 4 of the spine, with injury to the spinal cord, and 22 of the head, face, and neck, without injury to the central nervous system; 74 were shot through the chest, abdomen, and pelvis, and 101 were wounded in the upper, 264 in the lower, extremity. Fourteen men suffered from paralysis of peripheral nerves of the upper and lower limbs as the result of wounds of the median, ulnar, radial, sciatic and peroneal nerves. Only three gunshot wounds of the large vessels were seen, resulting in aneurysm of the femoral, subclavian, and innominate arteries respectively, the last being an arterio-venous aneurysm. Of these, only the femoral case was operated upon; in the others the symptoms were so slight that it was thought best to leave them alone.

Skull Wounds.

The immediate mortality of skull wounds was high, but a good many reached the field hospital quickly, usually one or two hours after the infliction of the wound. Diametral wounds had the highest mortality on account of the great destruction of brain substance and the haemorrhage; only two cases recovered. All skull injuries were operated on at once in the field hospitals. In slight cases, in which the cranial wound and the defect in the dura were small, the edges of the wound were excised, splinters of bone and other foreign matter removed, and a tampon, covering the defect in the dura, lightly inserted. This treatment was successful in most cases. The danger of infection of the subdural and arachnoid space was not great because the brain prolapsed somewhat through the dural rent and shut off the subdural space. In tangential and segmental wounds, in which destruction of bone and brain substance was considerable, the flow of cerebro-spinal fluid and the loss of brain substance required different treatment. The subdural and arachnoid spaces being wide open the brain did not protrude on account of loss of substance. In these cases ½ to 1 per cent. novocain, with the addition of twenty drops of adrenalin solution 1 in 1,000, was injected into the scalp, producing local anaesthesia and rendering preliminary haemostatic suture unnecessary; it also controlled bleeding from the brain, which was often severe. The ragged and contused edges of the scalp were excised, and all splinters of bone, destroyed brain and foreign matter carefully removed. When the bullet was lodged in the brain the canal was explored and the bullet, if easily accessible, removed. The loss of brain substance was often considerable; the defect was filled up by transplantation of fat, usually subcutaneous fat from the thigh. The defect in the dura was closed by free transplantation of fascia, the smooth glistening surface, normally in contact with the muscle, being turned towards the dura. The transplanted fascia was made to overlap the dural edges by at least ½ to 1 cm. and was fastened to the dura with fine sutures. The scalp wound was closed. To prevent haematoma a small rubber-tissue drain was inserted between the sutures at the angle of the wound. At the beginning of the war most skull wounds had been treated by the open method with the result that infection occurred in most cases. Many surgeons had had excellent results from primary suture of such injuries, but only fresh cases in which there was relatively little soiling of the wound gave hope of a favourable result. Cases received on the second day or later were treated by the open method.

Injuries of Inferior Maxilla.

In former wars the mortality of injuries of this kind has been as high as 50 per cent. In the present war a number of special hospitals have been established in Germany where dentists co-operate with surgeons. It is held that all loose fragments of bone should be removed, but each piece still in connexion with the periosteum should be

saved, even if suppuration be present. Interdental splints of various shapes were used to hold the fragments. Plastic operations were performed when necessary after the wounds were clean.

Wounds of Neck, Chest, Abdomen, and Pelvis.

Among the bullet wounds of the chest only two needed surgical intervention. One of these had a large haemothorax, a good deal of dyspnoea, and some fever. The haemothorax was aspirated and bloody fluid withdrawn; the man recovered in about five weeks. The other was a shell wound of the back, with complicated fractures of the sixth to the ninth ribs, and injury of the lower lobe of the lung. The man had undergone operation in a field hospital, and was admitted to the base hospital with a large old empyema cavity. Thoracoplasty gave a good result. Among the chest wounds there were two cases of traumatic aneurysm. One was a spurious aneurysm of the second portion of the subclavian; in the second the man had been shot through the chest near the jugular. A loud bruit was heard all over the chest, and there was distinct pulsation just above the sterno-clavicular joint. It was thought probable that it was an arterio-venous aneurysm of the innominate artery and vein. In both cases the general condition was excellent, and there were no subjective symptoms; there was no indication for surgical interference at the time. Bullet wounds of the chest, if no large vessels were injured and no infection in the pleura or lung was present, were treated successfully by morphine and the application of an ice-bag. Most of the chest injuries were followed by bloody exudate in the pleural cavity, which in a fair proportion was absorbed within the first two weeks. In cases which came to autopsy there were found in the lungs small areas of necrosis with only slight signs of inflammatory reaction in the lung tissue. Bloody expectoration was always present; in the majority of cases it stopped after three or four days. The treatment was therefore conservative except in the case of shell injuries; most of these were quickly fatal, and comparatively few reached the surgeon. The mortality of the abdominal wounds was high, and the prognosis particularly bad under conservative treatment. The experience of this war, on the German side, had shown that immediate laparotomy gave the best results.

Wounds of Bladder.

There were five gunshot wounds of the bladder. All had been operated on in a field hospital by suprapubic cystotomy, or came with a permanent catheter. Two of the men had a perivesicular abscess communicating with the bladder, which healed under irrigations; one had a recto-vesical fistula which an operation failed to close.

Bullet and Shell Wounds of Upper and Lower Extremities.

The expedition treated 101 injuries of the arms and shoulder and 264 of the thigh and leg. The wound of entry was usually small, whereas that of exit was a large gaping opening with laceration in bones (tibia, radius, ulna) situated immediately under the skin. In injuries of the thigh the aperture of exit was often not much larger than the wound of entrance, but near the bone the soft parts were often lacerated to such an extent that large cavities were formed in which lay fragments carried into the soft parts by the impact of the bullet. Roughly speaking, types of wounds were distinguished: (1) The bullet had grazed or penetrated the bone without disturbing its continuity; (2) the impact of the bullet had caused a fracture of the bone without comminution; (3) the bullet had caused widespread shattering and splintering of the bone with innumerable fragments and considerable laceration of soft parts. The shell wounds were distinguished by the severity of the comminution and laceration. All abscesses and pockets were freely laid open and bone fragments whose nutrition seemed to be impaired removed; but discrimination was necessary, since a good many of the fragments survived in spite of infection. In some, fractures consolidated where the destruction of bone was so great that restoration seemed hopeless. The wounds were drained with rubber tubing and loose gauze dressings were applied.

The plaster dressing, the wound area being left open and the gap bridged with iron bands, was looked upon as the ideal method of immobilization which was the sovereign means of combating fever; time and again the temperature fell to normal two or three days after the application of the plaster. It was found desirable to use extension with caution in severe infections, and not to attempt forcible reduction of the fragments until the wounds were healed and the fracture consolidated. When the deformity and shortening were great enough to impair function osteotomy and nail extension was the procedure preferred. In fracture of the tibia and fibula, where extension was indicated, Fischer used a wire pushed through the soft parts immediately behind the tendo Achillis and resting on the os calcis. This procedure, he says, is very simple and can be performed under local anaesthesia. In bullet wounds of the knee-joint with severe infection and destruction of the condyles of the femur or the head of the tibia, he opened the joint by Mayo's method, removed the destroyed bone, and put up the knee flexed at right angles. After subsidence of the infection, and when the wound was covered with healthy granulations, a secondary resection was done. Where infection of the bone had become chronic, Fischer and his colleagues were guided by the rules for the treatment of chronic osteomyelitis. Although the infections were severe and the comminution of bone great, pseudoarthrosis was not so frequent as might have been expected.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Lost at Sea.

DR. A. R. STEEL.

Dr. Arthur Robert Steel, surgeon in the Admiralty Transport Service, was drowned on February 28th, when the transport to which he was surgeon was sunk in a collision in the Channel, with a South African labour battalion on board. His body was picked up on some floating wreckage on April 3rd and identified at an inquest. He was educated at University College, London, and at Edinburgh, where he took the diplomas of L.R.C.S. and L.R.C.P. in 1885. He was a member of the Sunderland Division of the British Medical Association, and before the war was in practice at Thornley, co. Durham.

ARMY.

Killed in Action.

CAPTAIN M. R. HUGHES, A.A.M.C.

Captain M. R. Hughes, A.A.M.C., killed in France on March 20th, was 25 years of age. He matriculated from Wesley College, Melbourne, and entered Queen's College at the Melbourne University, graduated M.B., B.S. with honours in 1915, and qualified for appointment as one of the resident medical staff of the Melbourne Hospital. At the completion of his term at this hospital he joined the Australian Imperial Force. After his arrival in England, he was transferred to France as medical officer to an Australian infantry battalion, and was serving in this capacity when he was killed. His death will be deeply regretted by a large circle of friends amongst the younger members of the profession in Victoria.

Captain G. B. Bailey, A.A.M.C.

Died on Service.

CAPTAIN J. McC. ORME, R.A.M.C.

Captain John McCallum Orme, R.A.M.C., was reported as having died on service, in the casualty list published on April 13th. He was the son of the Rev. Mr. Orme, Minister of Portree, Skye, and was educated at Edinburgh University, where he graduated M.B. and C.M. in 1915. He took a commission as lieutenant in the Special Reserve of the R.A.M.C. on May 13th, 1914, was called out for service on April 16th, 1915, and was promoted to captain six months later. On November 25th, 1916, he was gazetted as a recipient of the Military Cross for the following services:

He tended and dressed the wounded under very heavy fire, displaying great courage and determination. Later, after his battalion had been relieved, he remained behind evacuating the wounded.

Lost at Sea.

The loss of two more hospital ships was announced on April 14th. The *Gloucester Castle*, 7,999 tons, formerly of the Union-Castle line, was torpedoed and sunk by a German submarine while bringing a shipload of wounded

from France on the night of March 30th-31st. Fortunately all the wounded, some 600, were rescued by other ships, and only two lives were lost, members of the engine-room staff. The *Salta*, 7,284 tons, struck a mine and sank on April 10th while crossing the Channel to France. As she was outward bound, she had no wounded on board, but 51 lives were lost, 5 medical officers, 8 nurses, and 38 rank and file of the R.A.M.C.

On April 17th the following names were published as "missing, believed drowned": Captains J. R. Gyllencreutz, G. C. B. Hawes, and T. G. S. Hodson, and Lieutenants H. G. Smith and J. Naylor of the R.A.M.C.; and Matron E. M. Dawson, Sisters T. Cruikshank, E. L. Fryster, and G. Jones, Staff Nurses C. McAlister, A. G. Mann, F. Mason, and J. Roberts, all of Queen Alexandra's Imperial Military Nursing Service Reserve.

CAPTAIN J. R. GYLLENCREUTZ, R.A.M.C.

Captain James Randolph Gyllencreutz was educated at St. Thomas's Hospital, and took the M.R.C.S. and L.R.C.P.Lond. in 1908. After filling the posts of senior house-surgeon of the Royal Hospital, Portsmouth, and of second assistant at Brentford Infirmary, he became senior assistant at Wandsworth Infirmary. He took a temporary commission as lieutenant in the R.A.M.C. on September 19th, 1914, and was promoted to captain on completion of one year's service.

CAPTAIN G. C. B. HAWES.

Captain Godfrey Charles Browne Hawes was educated at St. George's Hospital, and took the L.S.A. in 1893, the M.R.C.S. and L.R.C.P.Lond. in 1894. After acting as assistant house-physician, assistant medical registrar, and assistant in the skin department at St. George's Hospital, he went into practice at Pangbourne, in Berkshire, where he was medical officer to the Post Office and Board of Education, certifying factory surgeon, honorary medical assistant to the Royal Humane Society, and a J.P. for Berkshire. He took a temporary commission as lieutenant in the R.A.M.C. on March 1st, 1916, and was promoted to captain a year later.

CAPTAIN T. G. S. HODSON, R.A.M.C.

Captain Thomas George Smith Hodson, R.A.M.C., was born in 1864, the son of the late Mr. William Hodson of Downhills, Middlesex. He was educated privately and at the London Hospital, and took the degree of M.B.Durham and the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1893, and the M.D.Durham in 1898. He was formerly in practice at Buxton and Bitterne, Hants, where he held several public appointments. He subsequently practised in London at Wimpole Street. On June 1st, 1915, he joined the R.A.M.C., and was for some time attached to the Royal Victoria Hospital, Netley, and afterwards served on the recruiting medical board at Bristol. Returning to Netley, he answered the call for volunteers for transport work, and was attached to the *Carisbrooke Castle*, and only this month was appointed to the *Salta*, on which he had been four days when she was destroyed in the Channel on her first trip to France after being refitted. Captain Hodson married in 1906 Margaret Mary Mallalien, daughter of the late Dr. Samuel Hyde, of Buxton, Derbyshire, and leaves two daughters and one son.

LIEUTENANT H. G. SMITH, R.A.M.C.

Lieutenant Henry Graham Smith was educated at Edinburgh, where he took the L.R.C.S. in 1883 and the L.R.C.P. in 1884, also the L.D.S. in 1886. He was in practice at Carnforth, Lancashire, till he took a temporary commission in the R.A.M.C. last July. He had previously served as surgeon of H.M. transport *Pancras*.

LIEUTENANT J. NAYLOR, R.A.M.C.

Lieutenant Joseph Naylor of Tipton Green, Staffordshire, was educated at St. Bartholomew's Hospital, taking the M.R.C.S. and L.R.C.P.Lond. in 1889, and afterwards acting as assistant house-surgeon of Derbyshire General Infirmary before he went into practice at Tipton Green, where he was certifying factory surgeon.

Wounded.

Captain W. L. Cassells, R.A.M.C. (temporary).
Captain C. F. Fischel, R.A.M.C. (temporary).
Captain W. N. Gilmour, M.C., R.A.M.C. (temporary).
Captain W. M. Penny, R.A.M.C. (temporary).
Captain R. P. Rosser, R.A.M.C. (temporary).
Captain A. A. Rutherford, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Gray, George G., Second Lieutenant Oxford and Bucks Light Infantry, eldest son of Dr. Gray, of Hastings, killed April 11th. His commission was dated December 22nd, 1914.

Sanders, Archibald Merton, Second Lieutenant King's Own Scottish Borderers, only son of Dr. Sanders, of Lochmaben, died of wounds on April 9th, aged 19. He was a medical student before joining.

Woods, Frank C., Lieutenant Queen's Royal West Surrey Regiment, formerly the 2nd Foot, younger son of the late Surgeon-Major Woods, R.A.M.C., killed recently, aged 29. He got his commission on August 15th, 1914.

NOTES.

RE-EXAMINATION OF EXCEPTED MEN.

THE Military Service (Review of Exceptions) Act, which received the Royal Assent on April 5th, brings within the operations of the Military Service Act, 1916, men who have for various reasons been excepted from the operation of that Act, and gives the Army Council power to call up such men for examination. Unless a man has been properly rejected or discharged within six months, it applies to a member of the Territorial Force not suited for foreign service, to a man who has left or been discharged in consequence of disablement or ill health, and to a man who has been previously rejected on any ground either after offering himself for enlistment or after becoming subject to the Military Service Act. Persons engaged in agricultural work certified to be of national importance are exempted from the provisions of the new Act, as is also any officer or man who has left or been discharged in consequence of disablement if the disablement has been certified under the authority of the Admiralty or the Army Council to be the result of wounds, including injury from poisonous gas received in action, or in consequence of neurasthenia or functional disease certified by a special medical board to be the result of naval or military service in the present war. If a man on this occasion is not accepted for service he is not to be called on again for six months, and if certified to be permanently and totally disabled he is to receive a final discharge. The Act does not apply to any man who has attained the age of 41 years before the appointed date.

The Local Government Board has issued a circular of instructions to local and appeal tribunals as to the administration of the new Act. The circular contains a special new instruction in relation to voluntarily attested men, rejected but not treated as discharged, the effect of which is that any attested man may make an application, not only on the grounds open generally to attested men, but also on the ground of ill health or infirmity, or of conscientious objection; but he must make his application before the appointed date, although a late application may in certain circumstances be entertained. The President of the Local Government Board appeals to tribunals to deal with any applications consequent on the passing of the new Act as speedily as possible, the whole object of the Act being to provide quickly the half million men between now and July next which the Chief of the General Staff announced the army urgently needed. The circular of the Local Government Board points out that tribunals must bear fully in mind that the need of the army for all men of military age at the earliest possible date is pressing; that for men in medical categories A and B1 under 31 years of age exemption on grounds of employment is not, as a rule, justified; and that, as regards claims on the ground of hardship, the standards which must now be adopted are necessarily much stricter than in the early days of the war.

The necessary medical examination or re-examination will be made, we understand, by existing medical boards, which, as Lord Derby stated in the House of Lords when the new Act was under discussion, consist each of two civilian and three military doctors. Lord Derby, it will be remembered, undertook that any certificate from the man's own doctor would be taken into consideration by the medical board, but stated that the final decision would rest solely with that board.

Judging from a letter we have received from a correspondent in France the work of these boards is causing a certain amount of criticism there, and he suggests that it would be improved by bringing home, to act upon the boards, a sufficient number of medical officers having experience in the British Expeditionary Force, who would know the work the men are required to do, and the conditions in which they live. Our correspondent believes that though such a transfer of medical officers would deplete the numbers abroad it would, in the long run, be a gain to the army.

A MOTOR DENTAL SURGERY FOR ARMY SERVICE.

A motor ambulance for dental surgery presented by Messrs. de Trey and Company to the Army Medical Service for use with the British troops in France has lately been placed for private inspection in the courtyard of Devonshire House. It will accommodate at once two patients, two dentists, and a mechanic; the chairs and tables run upon rails, the shelves and working bench are collapsible, and provision is made for using the rear platform when required, so that space is economized to the utmost. The ambulance is well lighted, both naturally and artificially, and a good supply of water is obtained from a reservoir on the top of the car. Lieutenant Parker Cater, G.B.C., 36 Corps, Armée Française, designed and organized the ambulance at the request of the War Office.

UNIV. OF ILLINOIS-URBANA-CHAMPAIGN

England and Wales.

THE HOUSING PROBLEM AND A MINISTRY OF HEALTH.

LORD RHONDDA, President of the Local Government Board, eceived on April 13th a deputation from the National ssociations of Insurance Committees for England and Vales with reference to housing conditions in relation to he administration of sanatorium benefit and the establishment of one central health authority. Mr. W. Huddart, President of the Insurance Association, submitted a memorandum upon the conditions of the working classes and heir effect upon health, from which it appeared that in vercrowded areas the applications for sanatorium benefit vere greatly in excess of those in areas where better ousing conditions existed. Mr. G. W. Bartlett, Vice-President, said that any effort to remedy the existing state f things would have the hearty support of the insurance ommittees, but legislation should include provision for ompelling local authorities to take action. Mr. Huddart hen introduced the question of the establishment of a linistry of Health. He stated that the conviction of those vho were concerned both in insurance committee work nd local health matters was that the absence of central o-ordination was fatal to their efforts, constituting a tumbling-block to progress and a bar to efficiency. He sked Lord Rhondda to give them an outline of his intenions regarding the establishment of a Ministry of Health.

Lord Rhondda said that he had hoped to be in a position o give definite information on the points laid before him y the deputation, but unfortunately he was not, as the natter was under consideration by the Government. He vas himself heartily in favour of the establishment of ome central authority, and was pressing his views upon he Government. The Local Government Board was ully aware of the importance and urgency of the housing roblem, which he regarded as the biggest matter now efore the department, but it was very difficult and comlicated, and the more he went into it the more difficult it eemed; but difficult or not, it had to be taken in hand by he State at once. During war time very little could be one in the way of actual erection of houses, but the epartment was fully alive to the close bearing of that vork upon health in the home. It was easy to trace the elation between infant mortality and the rate of mortality hroughout life to overcrowding. He hoped the Governent would soon come to a decision upon the question aised by the deputation. His own plan was to build up nd construct upon existing organizations rather than to ull them down. He had never had any idea of abolishing he local insurance committees and local health authoities, whose co-operation and assistance he wanted. He oped that when the Ministry of Health was established ; would largely succeed in removing the stigma of auperism. Although he held personal views as to the ig question of extension of medical benefits to uninsured ersons, he would rather not express them at present. Ir. Hayes Fisher, Parliamentary Secretary to the Local overnment Board, said that after the war there would be shortage of half a million houses in England and Wales, nd the department was fully alive to the importance of he problem involved. He was of opinion that many illions might be usefully spent by the State on housing or the working classes. The return in improved health ould be well worth the outlay, and the State might well ome to the aid of local authorities. The important thing as to have one central health authority, but even so a reat deal could advantageously be left to the work of the ocal authorities.

The conference of approved societies, insurance committees, and other interests concerned, which was to ave been held on April 16th at the Central Hall, Westminster, in order to discuss the establishment of a linistry of Health, did not take place. The meeting had een arranged by the Joint Committee of approved ocieties, and Sir Edwin Cornwall, M.P., Chairman of the ational Health Insurance Joint Committee, was to have ddressed it.

TUBERCULOSIS IN SOMERSETSHIRE.

The report of the medical officer of health for the county f Somerset for the year 1915 contains several points of nterest. Although prevented by reason of the war from proceeding with larger schemes a good deal has been done. A hospital with 20 beds has been opened at Taunton on ground adjoining the Isolation Hospital, the authorities of which have undertaken the nursing and feeding of the tuberculous cases under an arrangement with the county council. The system of small wards with only one, or at most two, beds has been adopted and two shelters have been provided. Advanced cases have been specially catered for. This plan is worthy of note. The custom of dealing with the early and the advanced case in the same institution is contrary to general knowledge and common sense. A comprehensive scheme for home visitation and after-care has been started and the work is done by volunteers, only administrative expenses being paid for. Notification has not been carried out in the county with any approach to completeness, but the death-rate statistics for the last fifteen years prove that no material change has taken place. In fact, the figures for 1915 are almost identical with those of 1901. Many tables are presented to exhibit the actual numbers dealt with under various aspects, but the ultimate results of treatment, as expressed in present capacity for work, remain about the same as heretofore, and it may be roughly stated that about half of the cases treated have been restored to working power for longer or shorter periods, but the figures differ considerably in the respective years.

Scotland.

THE Joint Board of Examiners of the Scottish Universities has made a change with regard to the exemption from certain preliminary examinations of candidates from British dominions, colonies, dependencies, and protectorates. Hitherto such candidates have been exempted from the preliminary examination in arts, in science, and in medicine, if they presented evidence that they had passed examinations which would admit them to universities or technical colleges in the dominion, colony, dependency, or protectorate. The Board has now resolved that in and after the academical year 1919–20 this exemption shall not include English in the case of candidates whose native language is other than English. Such candidates will be required to pass an examination in English.

TREATMENT AND TRAINING OF THE DISABLED.

A conference in Edinburgh, presided over by the Lord Provost and attended by delegates from thirty-five of the forty-four local pensions committees in Scotland, was addressed by Mr. Barnes (Minister of Pensions), who began by paying a tribute to the work which was being done by the local committees set up by the Act of 1915. The sum distributed through them amounted to nearly £100,000,000 a year—namely, £72,000,000 in separation allowances and £26,000,000 under the new pensions warrant, which has just come into force. He would resist the granting of pensions to men alleged to have been broken in the war, but not, in fact, so broken; they would receive a gratuity. It was the man who had fought and suffered, who came back diseased in body, broken in limb, and very often weakened in will, who deserved every consideration. Of the 310 local committees probably 270 worked in small areas in which there were no technical colleges or other suitable institutions for treatment and training. The Pensions Ministry had arranged with the War Office that such a man should be retained in a military hospital as long as it was possible to keep him as an in-patient; included in the treatment he received there would be curative training adapted to form the initial stage of subsequent industrial training after his discharge. After a man had been invalided out of the army by a medical board he would still be retained in a military hospital for three weeks, which would allow time for arrangements to be made between the man and the committee. The man would receive a card containing particulars with regard to his physical state of health and the treatment necessary for him, and a duplicate would be sent to the committee of the district in which he intended to reside. Further, the army authorities had agreed to take a man back for any special in-patient treatment he might require. There had been a proposal to form one national committee for Scotland, but, although that might be

possible in the future, it was considered wiser at present to form joint committees for large areas. It was proposed that the south-west of Scotland should form one area; that Edinburgh should be the centre for a south-east area down the east coast and including Stirling to the borders; a central area would have Dundee or Perth as its centre, and Aberdeen would be the centre for the northern counties. It would be possible for the committees to exercise a combination of compulsion and conciliation. The treatment would be prescribed by the doctors; wide use would be made of orthopaedic institutions, and some method of compulsion would be applied to get men to undergo treatment. Provision would be made for their dependants and all necessary expenses met. Full pensions and separation allowances would be made during the training period, and at its end a pension of 5s. for each week would be paid. No inquiries afterwards would be made as to a man's earnings or earning capacity, and the pension would not be reduced. The principle would be to say to a man, "Go and earn as much as you like, and we will help you to earn more." He believed that much could be done by pooling facilities and enabling men to take a new place in life. Sir A. Griffith-Boscawen, who also spoke, emphasized the point that a man's pension would be fixed solely with regard to his physical state, no account being taken of his earnings; everything, however, should be done to induce men to undergo treatment and training, and it would be for the public to see that adequate facilities were provided in every part of the country. The scheme outlined by Mr. Barnes to divide Scotland into four areas was adopted unanimously.

Ireland.

GRADED SCALES OF SALARIES FOR POOR LAW MEDICAL OFFICERS.

AT a recent meeting of the Monaghan Board of Guardians Dr. J. T. Elliott and Dr. T. J. Leonard attended on behalf of the doctors of the union, and requested the board to fix a graded scale of salaries for its medical officers. Dr. Elliott, in addressing the guardians, said that the increase would be only a small tax on the ratepayers. He pointed out that the total amount paid in salaries to the six Poor Law medical officers of the union was £685 a year. Half of this was refunded by the Treasury, leaving £342 10s., and from this a still further deduction is to be made, since £88 16s. 6d. out of estate duty, £69 11s. 6d. from local taxation account, and about £50 from the agricultural grant, were given towards the payment of these salaries. This left about £135 to be raised from the local rates for the salaries of the six union medical officers, or a little over a ¼d. in the £ on the ratepayers of the Monaghan Union. Dr. Elliott said that the proposed increase in the salaries of the doctors would only cost, in the case of a farmer of £70 valuation, 2s. 6d. a year for the six doctors in the union, or 5d. extra for the dispensary doctor of any particular district. Dr. Elliott did not believe there was any ratepayer in the Monaghan Union who would grudge to pay, as an increase of salary, 5d. extra in the year to the doctor on whom, before the middle of the night, he might be depending to save his life or the life of his wife or of his children. The guardians, with one dissentient, agreed to increase the present salary by quinquennial increments of £10 until a maximum was reached of £160 a year for the Monaghan, Kilmore, Scotstown, and Castleshane districts, the maximum salary of Emyvale district to be £180 and the union hospital £125 a year, all increases to be made retrospective.

BOARDS OF GUARDIANS AND LOCUMTENENTS OF MILITARY AGE.

At the last meeting of the Rathdown Board of Guardians a letter was read from their solicitor with reference to instructions received about taking proceedings against the Local Government Board to show cause why it refused to sanction the appointment of Dr. Boland, because he was of military age, as locumtenent in Blackrock during the illness of Dr. Boyce. After some discussion the guardians unanimously resolved to summon a special meeting to consider the letter and the question of the Local Government Board's refusal before final instructions were issued to the solicitor, who was told not to proceed further in the case until after this meeting.

The Local Government Board has written to the guardians of the Ballina Union stating that it appeared that Dr. E. Walsh was employed recently as temporary medical officer of the workhouse, and that the objection to the employment of Dr. Walsh in the Ballina dispensary district, owing to his being of military age, applied also to his employment as temporary medical officer of the workhouse.

The Local Government Board has sanctioned the payment of £1 1s. a day for seven days to Dr. Murray, Clonmel Union, for acting as temporary medical officer at Kilsheelan, instead of the amount mentioned in its letter of January 10th. The Board states that it has given its sanction with much reluctance in this case, and requests that it may not be regarded as a precedent for any payment in future in excess of the scale fee of £4 4s. a week.

Correspondence.

THE CONFERENCE WITH LORD RHONDDA.

SIR,—I notice in your issue of April 14th a letter signed "Scrutator," which severely criticizes the action of the British Medical Association in supporting Lord Rhondda's scheme for a Health Ministry.

Your correspondent bases his criticisms on two points each of which he considers bound to be adversely affected by the scheme in question—namely, the fact that we have got to win the war, and the fact that we shall afterwards have to pay for it.

With reference to the first of these points, he considers that "a general upheaval in health administration" is likely to militate against our winning the war; he does not show in what way the simplification and co-ordination of the various health movements now scattered over six Government departments (a system which the largest party in the House of Commons has publicly stigmatized as "a guarantee of practical waste and inefficiency") into one department, is to produce the upheaval which he fears. Further on, however, he mentions what is apparently to him the gravest danger, the raising of the insurance question; and it is surely pertinent to ask whether your nameless correspondent is a practitioner on the panel? If so (and the implication is to the contrary), is he satisfied that he should be asked to provide for the physical welfare of his insured patients without any provision whatever being made for their institutional or special treatment (apart from tuberculosis and venereal disease, each in a separate department), or for the hundred-and-one other aids to treatment and diagnosis by the general practitioner which are at the command of his better class private patients? If so, he is easily satisfied; if not, why should the community and the profession wait until the end of Armageddon or the coming of Utopia before endeavouring to get things straightened out? Russia has not waited; why should we?

In the second place, your correspondent begs the question; he gives you the debit side, but he allows nothing to the credit side except a "problematical saving of lives." It is to be feared that if either the authorities or the profession were to view such life-saving problems in the casual and short-sighted manner of your correspondent our chances of winning the war would have been reduced to a minimum by the *Bacillus typhosus* alone, while after the war our chances of recovery would be equally remote if our greatest asset—the corporate life of the nation—were to remain uncared for until that wonderful period coming "after the war." But to take his financial figure alone: supposing that a Health Ministry should cost £50,000,000 a year to keep going; what do we stand to save, and what do we stand to gain? If it be indeed true that the present system, or utter lack of system, in dealing with public health has resulted (as it could not but result) in "the uttermost complexity and dislocation," is it not obvious to the most simple-minded that the co-ordination proposed is almost bound to result in an actual saving of money? Your correspondent writes as if a new Health Ministry were to be implanted upon the top of all the present departments. Can he not bring himself to envisage the doing away with all those sections and sub

sections of departments at present so wastefully endeavouring to cure, each in its own way and from its own limited point of view, a small portion of the diseased anatomy of the State? The nation is a large field, and will not one plough work it more thoroughly and more cheaply than a host of men with spades?

I enclose, Sir, for your perusal (I am aware that you have not space for publication) a copy of a report issued by the York Local Medical and Panel Committee on the reconstruction of the Insurance Acts. In it you will see that a Health Ministry is advocated, although the report was drafted some time before it was known that there was any probability of such action as is being taken by the British Medical Association and by Lord Rhondda. It goes further, and some attempt has been made to outline a scheme for the fulfilment of the promise made when the Insurance Acts were passed, that they should actually provide for the health of the workers (and why not also of their families?).

A rough estimate convinces me that the £50,000,000 mentioned by "Scrutator" would more than provide for the institutions therein proposed, while the saving in money at present so ill spent, in life and health to the community, and in worry, irritation, and actual invaluable time to the medical profession, surely provides a balance on the credit side which should make the scheme a sound investment for the nation both during and after the war.

It remains only to heartily endorse the attitude with reference to the constitution of the proposed Health Ministry adopted in your leader in the same issue—that it should by no means consist of a "Super-Local Government Board."—I am, etc.,

J. C. LYTH,
Honorary Secretary to the York Local Medical and Panel Committee.

April 14th.

THE GERMAN ACT AND THE FREEDOM OF THE MEDICAL PROFESSION.

SIR,—The period of probation allotted to the Insurance Act has passed, and we know that when the war is over that measure will be reconsidered and recast. There are rumours of a Ministry of Public Health, rumours, too, which make us suspicious of the method of its constitution. What preparations are we making to meet proposals which may seem to us detrimental? What principles of policy have we elaborated to guide us in considering them? What machinery do we possess to support such principles, to deal with such proposals?

All three questions are profoundly important, and the sooner we set our minds to work on them the better the medicine of the future. It is only with respect to a single principle that I now crave attention for a moment. It is the fundamental principle of progress in every department of human activity. If the profession can only grasp it fully and firmly and in time, safety will already be almost half attained. I will state it as I stated it four years ago: "The fullest possible liberty is, everywhere and always, clearly the accompaniment of the fullest medical efficiency."[1] Whenever, in the past, lay control of medicine has exceeded what was reasonable, the progress and practice of medicine have been impaired. If medical men had even a rudimentary acquaintance with the wonderful history of their art, such statements would be held to be platitudes. It is because they had it not, that they tolerated so mischievous an innovation as the German Act. It was culled —this Insurance Act—straight from the Hun statute book and imposed on our profession. That it has failed is evident enough.

The three fundamental errors of this Act are:

1. The control of highly skilled and educated industry by brains wholly unqualified for such a duty by education and training.

2. The excessive interference with the liberty of the profession thus involved.

3. The inadequate remuneration. This is obvious when we consider the skill and knowledge needed, and the expense and labour of acquiring and maintaining them.

But it is only of 1 and 2 that I desire to speak here. In no other calling of equal responsibility with our own would such conditions have been tolerated for a moment. It is only the lack of self-respect and the defect of mutual loyalty, which are the curses of medicine, which made it possible to impose them upon us.

We do not know what new proposals are about to be made. Is it too much to hope that, in meeting them, we shall remember that no number of "floating sixpences" can pay for liberty lost? Let us remember the historian Buckle's words: "It is certain that men who begin by losing their independence will end by losing their energy." —I am, etc.,

Exeter, April 15th. W. GORDON.

[1] "Medicine and Liberty," BRITISH MEDICAL JOURNAL, January 11th, 1913.

INFECTIVE JAUNDICE AT GALLIPOLI.

SIR,—In his interesting account of the infective jaundice at Gallipoli, published in the BRITISH MEDICAL JOURNAL for April 7th, Lieutenant-Colonel C. J. Martin gives reasons for believing that the disease was essentially a hepatitis following systemic infection, and that Colonel Willcox and I were wrong in regarding the jaundice as catarrhal and due to plugging of the bile ducts by extension of an inflammatory process from the duodenum.

Whatever may be the source of the infection, I still believe that the jaundice was due to obstruction of the bile ducts, and not to hepatitis. It would otherwise be impossible to explain the fact that the gall bladder was definitely distended in many of the cases seen both by Colonel Willcox and myself. Direct proof that such obstruction occurred is afforded by the only autopsy that Surgeon-General H. D. Rolleston saw in a case of jaundice from Gallipoli; severe gastro-enteritis was present, and the orifice of the biliary papilla was found to be obstructed by a tenacious plug of mucus. The absence of obstruction in Colonel Martin's two fatal cases was obviously due to death having occurred from heart failure some weeks after the onset of the illness, long after the actual infection had disappeared, the slight jaundice still present in the first case being accounted for by the fact that two or three weeks may elapse before the bile pigments are completely absorbed after obstruction of the biliary passages has disappeared. For the same reason, the acute duodenitis seen by Colonel Willcox in his fatal case was absent in Colonel Martin's cases.

Colonel Martin correctly says that I was in doubt whether the infection was ascending and secondary to a duodenal infection, or descending and secondary to a systemic infection, although I was inclined towards the former view. I am still inclined to the former view, as all the points which he raises in favour of a primary systemic infection can be equally well explained on the assumption of a primary duodenal infection. Thus the inflammation and necrosis of the liver which he found in his two fatal cases, the enlargement of the spleen, and the occasional presence of albuminuria might easily be due to the action of toxins absorbed from the duodenum, and the cardiac and nervous sequelae might have the same origin, just as the similar sequelae of diphtheria are due to toxins absorbed from the local pharyngeal disease. The fact that the initial symptoms were invariably digestive, consisting of anorexia, nausea, and vomiting, with epigastric tenderness, points to an infection of the upper part of the alimentary canal, and the constant tenderness of the gall bladder, which was always more marked than the tenderness of the liver, can best be explained as a result of infection ascending from the duodenum. Moreover, a primary duodenal infection is quite compatible with a septicaemia, just as the primary infection of the ileo-caecal region in typhoid fever is associated in the early stages with the passage of organisms from the alimentary canal into the blood stream.

Colonel Martin throws doubt on the accuracy of Sarrailhé and Clunet's discovery of a paratyphoid bacillus in the cases occurring among French soldiers at Gallipoli, as no such organism was found in the blood or duodenal contents of English cases the serum of which did not agglutinate either *B. paratyphosus* A or B. But Sarrailhé and Clunet clearly state that they only found the organisms in the blood in the pre-icteric stage; whereas the English observations were rarely made before jaundice had appeared. Colonel Martin's failure to find the organism in the duodenal contents I had aspirated from eight cases was probably due to the fact that most of our cases were mild and their number was insufficient, as Frugoni, Gardenghi, and Ancona have since succeeded in isolating a paratyphoid organism from the duodenal

contents in 18 out of 68 cases among Italian soldiers. Sarrailhé and Clunet further state that the blood of their patients agglutinated the organism they isolated from the blood, but did not agglutinate *B. paratyphosus* A or B; for this reason they thought that they must be dealing with a new paratyphoid organism, a view which they subsequently modified when, six months later, they examined the cultures in Paris and found that the organisms had become modified in their cultural and agglutinative properties, and now proved to be typical or atypical *B. paratyphosus* A in 84 cases, *B. paratyphosus* B in 5 cases, and *B. typhosus* in 4 cases.

For these reasons I believe that the Gallipoli jaundice was a specific disease caused by infection of the duodenum with an organism allied to *B. paratyphosus* A; secondary septicaemia resulted from the passage of the bacilli into the blood stream, but it only lasted a few days, at the end of which the duodenal infection had led to catarrhal jaundice by more or less completely obstructing the smaller bile ducts or the mouth of the common bile duct, the general symptoms being due to the action of toxins absorbed from the duodenum.—I am, etc.,

ARTHUR F. HURST.

Netley, April 9th.

WARM BEDS IN OPEN AIR.

SIR,—Your annotation in the BRITISH MEDICAL JOURNAL of March 31st on the method we have adopted at this hospital of heating mattresses electrically has aroused so much interest that I have received and am continuing to receive numerous inquiries. For the convenience of those interested perhaps you will permit me to state that a detailed report is in course of preparation for the Local Government Board. In the meantime, some preliminary particulars may be welcomed.

The system may be adopted to existing mattresses. These simply require the insertion of the heating elements. The mattresses are differentially heated to ensure that the greatest amount of heat is generated at the foot-end of the patient, a certain amount about the body, and none at all at the head. By the method of wiring adopted the mattress may be turned from side to side or foot to head, but the heating in relation to the patient nevertheless remains distributed as before described.

A mattress being usually stuffed with non-conducting material when thus electrically equipped becomes a potential heat reservoir, the heat being only gradually disseminated. This is much to be preferred to local application of heat as obtained by hot-water bottles, electric heaters, and the like, and avoids their dangers and discomforts.

The heat developed in the bed may be controlled at the bedside by either patient or attendant, throughout all the beds in the ward by the sister in charge, or throughout all the beds in the hospital by some person in authority. This flexibility of heat application is of value and is secured with exactitude and without labour. Its advantages are especially apparent when a sudden fall of temperature creates a demand for more heat, as heat is rapidly available to the extent required at negligible cost. With the rise of the thermometer the current generating the heat may be at once reduced or cut off altogether. Indeed it would be possible to cause the heat generated to be automatically regulated by thermometer for the institution as a whole, while still being available to a greater or lesser degree for individual patients.

The saving of bedding and labour is obvious, and it becomes practicable for the medical attendant to prescribe the exact amount of heat he desires to supply to any patient with the same exactness as he would order a diet or drug.

The current consumed on a 100 volt circuit is only 0.5 ampère per bed. In other words, a 20-h.p. dynamo (the equivalent of a moderate-powered motor car) is capable of supplying all the heat required for the comfort of recumbent patients in a hospital of 300 beds, whether the beds are in or out of doors, and when the maximum output of current is demanded. From this statement the cost of heating may be estimated, and it will be seen to be very low. The cost of installation is also inexpensive, but it is not yet possible for me to supply exact figures.

There is nothing to get out of order. I have used such a mattress myself for the purpose of thorough testing for the past two winters. My mattress is simply connected up with an ordinary wall plug used for supplying the current for a bedside lamp. I switch the current off before retiring, and the bed remains comfortably warm through the night if the current had been turned on some two hours previously. The bed is always well aired and the heat generated is applied scientifically where required.

As sanatorium authorities are aware, the cost of heating, lighting, water, and sewerage in large scattered institutions in remote country districts is inevitably high, and it was with a view of effecting economy and ensuring efficiency that this system of heating was designed and investigated.—I am, etc.,

H. J. GAUVAIN,
Medical Superintendent,
Lord Mayor Treloar Cripples' Hospital and College,

Alton, Hants, April 9th.

THE DANGER OF SMALL-POX.

SIR,—I have to thank Professor McWeeney for his courteous reply to my letter in which I took exception to his views as to the danger from small-pox from neglecting infantile vaccination. Those who take upon themselves to challenge the orthodox position on such a question as vaccination do not always receive quite so much consideration as he has been good enough to extend to me.

I accept Professor McWeeney's correction as to the relative efficiency of infantile vaccination in England and Ireland. Fortunately it is not very material, but I am sorry that I tried to make a point from it. I also regret if, in my reference to Germany and the outbreaks of small-pox which have recently occurred there, I appeared to "gloat," or if my tone was in any way "suggestive of the confirmed antivaccinist." I can assure Professor McWeeney that I am certainly not an antivaccinist. Between me and the antivaccinists a great gulf is fixed, inasmuch as I believe in vaccination whilst they do not; they object to vaccination *qua* vaccination, whilst I do not; indeed, I may truthfully say that no medical man in Leicester has spent so many long hours in trying to convince antivaccinists of the great value of vaccination (in certain circumstances) and to persuade them to submit to vaccination. What I object to is not vaccination but the (as I believe) exaggerated claims put forward on behalf of the practice of infantile vaccination.

To prevent misunderstanding, let me say at once that I quite agree with Professor McWeeney in his contention that the remarkable drop in small-pox mortality which occurred in the early part of the nineteenth century, following Jenner's epoch-making discovery, must be ascribed chiefly, though probably not entirely, to vaccination. I say probably not entirely, because there is evidence that small-pox mortality had reached its maximum in the eighteenth century, and had already begun to decline before the introduction of vaccination. But knowing, as I do, what the effect of vaccination is in reducing the fatality (I think this is a much more correct term than Professor McWeeney's "virulence") of small-pox, it seems to me a perfectly logical assumption that at a time when small-pox was wellnigh universal the introduction of vaccination must at first have produced a very real effect and greatly accelerated the tendency to decline which had already set it. So far, then, I am with Professor McWeeney.

But it is quite another thing to contend that if it had not been for vaccination, or rather the practice of infantile vaccination—for there is an important distinction—small-pox mortality would have remained at the same high figure as in pre-vaccination times, or that if we discontinued infantile vaccination now we should revert to the same condition as regards small-pox as then existed. I submit that there is much evidence to make us doubt this, notably the experience of communities such as the town of Leicester, which, in spite of having virtually abandoned infantile vaccination (only 10 per cent. of the births vaccinated during the last thirty-two years), has yet shown just as great a decline in small-pox mortality as has the rest of the country.

Moreover, it does not logically follow that because infantile vaccination was very beneficial at the beginning of the nineteenth century, at a time when small-pox was allowed to run riot and no alternative means of preventing it were known, it must also be very beneficial in the twentieth century when the conditions are so greatly changed, and when other and most effective means

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

of controlling the disease are available. To demonstrate this point, may I suggest a comparison with the practice of small-pox inoculation? This, it was believed, would be very beneficial in reducing small-pox mortality when it was introduced in the eighteenth century, but no one, I think, would suggest that it would be anything but mischievous at the present day, because, although it was undoubtedly capable of greatly reducing the *fatality* of small-pox, it also had an unfortunate tendency to increase the prevalence of the disease. In like manner, though, no doubt, to a less extent, I suggest that infantile vaccination, whilst it undoubtedly has the effect of reducing the fatality of small-pox—and therefore at a time when the disease was extremely prevalent would have the effect of reducing the mortality—yet by *masking* the disease it certainly has a tendency to encourage its spread and to thwart those measures of administrative control upon which we in England, at any rate, are rapidly coming—willingly or unwillingly—to depend.

Professor McWeeney resorts to the old argument that the great decline of small-pox in Leicester can be accounted for by the fact that the town is "surrounded by a ring fence of vaccinated populations." No doubt Leicester has benefited, like every other town, by the decline of small-pox in the country generally. In the matter of small-pox prevention no town stands alone. But whilst the decline in small-pox in the rest of the country would account for some improvement in Leicester, it is surely a totally inadequate explanation of the whole facts. It is not as if small-pox had only appeared in Leicester on a few rare occasions, on each of which the authorities had been lucky enough to control it. It is estimated that during the thirty-two years that infantile vaccination has been abandoned there have been no fewer than forty separate importations. But far more important is the fact that at three different periods the disease succeeded in attaining epidemic proportions. Moreover, on one occasion, in 1903, no fewer than 156 cases of small-pox, scattered all over the borough, occurred in the short space of twenty-eight days. Where did the supposed protection of the "ring fence of vaccinated populations" come in then?

Again, on the numerous occasions when the disease has been imported from outside, it has almost always been by vaccinated persons, and (as in other towns) the cases which have done the most mischief have been the unrecognized cases—unrecognized because they were slight, and slight because they were vaccinated.

As regards this very real danger to the community arising from unrecognized cases of small-pox in vaccinated subjects, Professor McWeeney does not deny its existence, but he tries to counter it by putting to me a test question: 'Would I advise a doubting parent not to have his child vaccinated in order to save the community at large from this source of danger?" As a matter of fact, I have not infrequently had to face this very question in practice. If a doubting parent comes to me for advice as to what is best for his child, I don't worry him about the good of the community, but I lay before him the facts as they appear to me. I point out to him that vaccination will undoubtedly protect the child for a certain number of years, and after that will confer partial protection for a further period. At the same time I say that the risk of being exposed to the infection of small-pox in this country is, under modern conditions, extremely remote, as small-pox has become one of our rarest zymotics and, when recognized, is now invariably isolated; also, that even after a chance exposure (again assuming that the case is recognized), there is still time to take advantage of the protection conferred by vaccination; also I say that should an epidemic occur at any time the child could then be vaccinated and would get the advantage of recent vaccination. On the other hand, I point out that there is a certain though small risk in the operation of vaccination. The parent must decide which he will take. In one case where mother and child were about to sail for India (where small-pox is endemic), I strongly urged that the child should be vaccinated, though the medical men in attendance took a different view as the child was delicate. But whilst it is one thing to advise parents as to what we think is in the best interest of the child, it is quite another thing to compel parents against their convictions to have their children vaccinated on the ground that it is for the good of the community (for, after all, that is the ostensible justification for compulsory infantile vaccination) if that supposed good is open to doubt.

There are other points in Professor McWeeney's letter which I should like to have referred to, but I have already trespassed far too much on your space.

As regards Dr. Reginald Broadbent's letter, the two instances he quotes, and I could add a number of similar ones from my own experience, prove—as has so often been proved almost *ad nauseam*—that recent vaccination undoubtedly protects the individual. It is instances such as these that have led medical men to assume that infantile vaccination must necessarily be good for the community. Dr. Broadbent's second instance (in which vaccinated parents suffering from unrecognized small-pox infected their unvaccinated child) is one more illustration in support of my contention that vaccinated persons are a danger to the unvaccinated rather than vice versa. Dr. Broadbent says that I "exaggerate the importance of the undoubted fact that small-pox is spread occasionally by vaccinated persons who have it in so mild a form that it is liable to be overlooked." I suggest that it is rather he who underestimates this danger, but it will be soon enough to decide who is right when this aspect of the vaccination question has been more fully considered. It is something to have it admitted that such a danger does exist, because hitherto provaccinists—with scarcely an exception—have never even referred to this danger, and until recently it has hardly been discussed.—I am, etc.,

C. KILLICK MILLARD,
Medical Officer of Health.

Leicester, April 15th.

SIR,—If I understand correctly Dr. Millard's attitude towards vaccination, he advocates that compulsory infant vaccination should be abolished, and reliance placed upon improvement of sanitary conditions, and upon what has somewhat erroneously come to be known as the "Leicester method," for combating outbreaks of small-pox. I am fully convinced that the advocacy of such a course, particularly by any one holding the responsible position Dr. Millard holds, is fraught with grave danger to the community, more especially the helpless child portion thereof. The following figures so clearly illustrate the risks to which the latter are exposed from neglect of vaccination that they deserve the very careful consideration of all interested in this subject.

The records of the Metropolitan Asylums Board hospitals show that of 998 cases of small-pox in children under five years of age, 25 only were vaccinated, and that all of these had mild discrete attacks; of the remaining 973, 756 were unvaccinated and 217 were vaccinated for the first time after having been exposed to infection; of the unvaccinated children, 297 contracted confluent small-pox and 239 died; the remainder got discrete small-pox of various degrees of severity and 87 died. Of the children who were vaccinated after being exposed to infection, 44 contracted confluent small-pox and 173 discrete small-pox; of the former 38 died, and of the latter 37.

All these children lived under practically the same sanitary conditions in one or other of the London boroughs, and it can hardly be seriously contended that the extremely small number and mild character of the vaccinated cases was in any way attributable to their more favourable environment. On the other hand, it would be no exaggeration to say that the deaths of the 400 unvaccinated children—to say nothing of the suffering, disfigurement, impairment of vision, and in at least one case total blindness, inflicted on the survivors—were directly and wholly due to the neglect of infant vaccination. The 217 cases with 75 deaths amongst children vaccinated after exposure to infection illustrates the futility of relying upon this as the chief means for controlling the spread of small-pox.

Dr. Millard rightly attaches great importance to the unrecognized mild case as a means of disseminating the disease, and, I believe, puts forward the fact of their occurrence as an additional argument in favour of his proposal. Unfortunately mistakes in diagnosis are—and, I fear, will remain—unavoidable. That their number would be diminished in the absence of vaccination is possibly true, though this result could necessarily only be obtained by increasing the number of severe and obvious cases. On the other hand, I do not think it is sufficiently realized that mild cases of small-pox do occur amongst unvaccinated children, and that the very fact of their

being unvaccinated may be the determining factor in the making of a wrong diagnosis.

I cannot see how the bald facts represented by the figures I have given can be regarded in any other light than as a proof of the urgent necessity for strengthening the present legislation in regard to vaccination. If small-pox is as prevalent in Germany as it is reported to be, it can only be a matter of time before cases are imported into this country, in which case a heavy responsibility will rest upon those who in any way encourage the continued neglect of vaccination amongst children.—I am, etc.,

Gravesend, April 15th. ARCHIBALD KIDD.

MEDICAL EXAMINATION OF RECRUITS.

SIR,—A recent question in the House of Commons and various statements in the lay press reflect unjustly on the honesty and competence of the Army Medical Recruiting Boards. I hope you will publish this letter, as the medical men concerned are forbidden to reply to criticism in the ordinary press and the authorities seem to consider it no part of their duty to defend their medical examiners of recruits.

With regard to errors of opinion, a certain number of these is inevitable, as every medical man knows, and many cases must arise in which two medical men of equal competence and integrity come to a different conclusion as to fitness for military service. I remember how some years ago a thousand diagnoses made before death in a certain hospital were compared with the results found *post mortem*; the percentage of accuracy was 85.

To the question why cases are now passed as "A" when they were formerly—perhaps on several occasions—rejected, the answer is that the standard of examination is constantly changing and has been gradually tightened up as the national emergency has increased; and the medical examiners, who do not make the rules and merely have to do their best to carry out orders from above, cannot be held responsible for the hardships inflicted by changing standards. Critics seem to forget that the original standard was fitness for twelve years' service, with the result that many small defects sufficient at that time for total rejection now no longer count as reasons for rejection. Up to nine months ago defects of eyesight which are now held to be no bar to service were the cause of many refusals.

With regard to the frequent allegation that the certificates of private medical men are ignored, it must be remembered that a large number of recruits coming up for examination are doing their utmost by any means to avoid service. Medical examiners would not be doing their duty if they accepted all medical certificates on production; they have a clear right to act on their own judgement. Much trouble has arisen because private practitioners will send in certificates, correct enough as to the facts of disease or disability, but mere guess-work so far as an opinion as to total unfitness for any military service is concerned. In such cases the medical examiners receive the medical man's opinion on the point on which he is qualified to judge, but do not necessarily adopt his view on a matter which they are more competent to decide.

The greatest trouble has been about heart cases; a large number of the men who produce heart certificates are cases of functional murmurs, not needing rejection, often only needing training to fit them for service. Too often the statement, "My doctor says I have heart disease" is an opinion founded on incomplete examination. In many cases presenting heart murmurs, which disappear when the patient lies down, it is found that the private practitioner has only listened to the heart when the body was erect.

But beyond questions of honest differences of opinion, we cannot ignore the obvious fact that many certificates of unfitness which come before us have only too evidently been forced under duress from the family medical man, "If you want to remain our doctor you must find some reason why I should be rejected."

With the old rejected men now about to be called up once more, the task of the Medical Recruiting Boards will be much harder.—I am, etc.,

April 12th. EXAMINER OF RECRUITS.

Obituary.

SURGEON-GENERAL SIR WILLIAM TAYLOR, K.C.B., M.D.GLAS., K.H.P.,

LATE DIRECTOR-GENERAL ARMY MEDICAL SERVICE.

SURGEON-GENERAL SIR WILLIAM TAYLOR, K.C.B., late Director-General, Army Medical Staff, died at Windsor on March 10th, aged 74. He was the third son of the late James Taylor, of Etruria, Staffordshire, was born at Moorfield, Ayrshire, on April 5th, 1843, and was educated at Carmichael, Ayrshire, and at Glasgow University, where he graduated M.D. and C.M. in 1864. On September 30th, 1864, he received a commission as assistant-surgeon in the Army Medical Department, in which he had a long and brilliant career of over forty years. From 1865 to 1869 he served in Canada, taking part in the operations on the Vermont frontier against Fenian raiders, and receiving the medal. He returned to England in 1869, and in 1870 was gazetted to the Royal Artillery. In 1873 he went out to India, and in 1877 served with the Jowaki Afreedee expedition, for which he received the medal. After a short service in England he returned to India in 1882 (Bombay Presidency), and in 1885 he was appointed surgeon to Sir Frederick Roberts, who was then Commander-in-Chief in India. In 1885–86 he served on the staff of the Commander-in-Chief in India during the Burmese Expedition, and was mentioned in dispatches. He served also with the Hazara Expedition in 1888, and in the Burmese campaign of 1888–89. In 1893 he was appointed to head quarters in London, but in the following year was appointed medico-military attaché to the head quarters of the Japanese army during the Japan and China war. He received the Japanese war medal. He was principal medical officer of the Ashanti Expedition under Sir Francis Scott (1895–6), and for his services on this occasion was made surgeon-major-general. This was a most successful campaign, and its success was in large measure due to the excellence of the precautions taken for the preservation of the health of the troops; Taylor received the star granted for the campaign, and was specially promoted to surgeon-general. In 1896 he became professional assistant to the Director-General, but two years later was appointed principal medical officer to the forces in the Soudan campaign, under Sir Herbert Kitchener; he was present at the battle of Omdurman, and received the C.B., the medal, the Khedive's bronze star, and the Medjidie. In the same year he was appointed principal medical officer to the British Army in India and held that post for three years, till he became Director-General of the Army Medical Service on December 3rd, 1901, in the late stage of the Boer war. On August 21st, 1901, he was gazetted honorary physician to the King, and in 1902 received the K.C.B. His *Alma Mater*, the University of Glasgow, bestowed upon him the honorary degree of LL.D. He retired on December 2nd, 1904, after forty years' service in the army, during which he had served in six campaigns, and had risen to the highest position open to a medical officer. A man of genial presence and strong social instincts he quickly made his way in all companies, and proved a strong and popular head of his service. He had recently been serving as commandant of the British Red Cross Military Hospital at Englefield Green.

The funeral, which took place at Windsor Cemetery on April 14th, was attended, among others, by representatives of Prince and Princess Christian, and of the staff of nurses of the Princess Christian Military Hospital, and by Sir Alfred Keogh, G.C.B., Director-General A.M.S., Sir William Babtie, V.C., K.C.M.G., D.M.S. War Office, Sir Launcelotte Gubbins, K.C.B., late Director-General A.M.S, Colonel Peterkin, D.D.M.S. London District, Sir John Furley, representing the British Red Cross Society, and the Mayor of Windsor.

We are indebted to Sir ALFRED KEOGH, G.C.B., for the following graceful tribute to the work of one of his predecessors in the office of D.G., A.M.S.:

Sir William Taylor was one of the few remaining officers of the medical branch of the army who, although trained under the regimental system, took a prominent part in the work of unification to which the country owes so much. In his younger days his personal qualities enabled him to wield an influence of immeasurable im-

DIGITIZED BY THE INTERNET ARCHIVE IN 2011 WITH FUNDING FROM UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

rtance in securing the results which were expected from e scheme of Sir William Muir. Those of us who knew m intimately soon learnt to recognize that his contri- ution to the development of the new system was rather a conservative kind, and that he was an ardent advo- te for the gradual evolution of the Corps rather than a pporter of the more drastic methods of reform. In this was justified by his long experience at head quarters in ngland and in India. No man was better acquainted with e official atmosphere or knew better when to support or en to provoke changes, and when to restrain the impetu- ity of the more forward spirits of the new era. But he was ot reactionary. He would perhaps have preferred to foster e development of science within the Medical Corps, as s work in India shows, rather than devote himself to ganization. When the reorganization of the Medical orps was taken in hand by Mr. Brodrick he was selected r the post of Director-General and charged with giving fect to the new measures, while expected to exercise a rtain restraint. His official position was, therefore, one exceptional difficulty, and he laid down his office with adness, having managed with conspicuous success to ntrol the conflicting opinions on those details for which is often so difficult to provide. Taylor's influence on my medical affairs had often been great, but never eater, as we came to recognize, than when he held the st of Director-General. His interest in the progress of e Service was not abated by his retirement, and his in- uence on the course of events may be said to have in- eased. It is unnecessary here to speak of Taylor as a an apart from his profession. He was well known and ceptionally popular in the army, a sportsman, a fine rseman, a wide reader, and a lover of literature.

DR. WILLIAM MABON, emeritus professor of mental dis- ses in the University and Bellvue Medical College, New ork, died on February 9th, at the age of 56. He took his egree at Bellevue in 1881, and, after occupying the post superintendent of the Bellevue and Allied Hospitals for me years, he was in 1904 appointed president of the ate Hospital Commission. Two years later he was aced at the head of the Manhattan State Hospital, the rgest institution for the insane in the world. He was nsulting physician to the New York Hospital for eformities and Joint Diseases, and consulting alienist to e Neurological Institute.

PROFESSOR GIOVANNI PALADINO, of Naples, who died on nuary 25th, was born at Potenza in 1842. He studied edicine and took his doctor's degree at Naples. He orked for a considerable time at Leipzig under Ludwig d at Berlin under Du Bois Reymond. After holding me junior appointments he was called to the chair of stology and general physiology in the university, which occupied till his death. He was the author of textbooks histology and physiology, which have gone through veral editions. The most important of his researches ere those on the destruction and continuous renovation the ovarian parenchyma in mammals and on the atrio- ntricular bundles in mammals. In 1908 he was created senator of the Kingdom of Italy.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

QUARTERLY Council was held on April 12th, when Sir Watson eyne, President, was in the chair.

Jacksonian Prize.

This prize was awarded to Mr. Ernest W. Hey Groves, R.C.S., of Clifton, for his dissertation on methods and results transplantation of bone in the repair of defects caused by juries or disease. The following subject for the Jacksonian ize for the year 1918 was selected: "The Injuries and iseases of the Pancreas and Their Surgical Treatment."

Sir Arthur Sloggett, K.C.B., D.G.A.M.S.

Surgeon-General Sir Arthur Thomas Sloggett, K.C.B., C.M.G., irector-General Army Medical Services (France), was elected Fellow under Section 5 of the Charter relating to members twenty years' standing.

Central Midwives Board.

Dr. Walter Spencer Anderson Griffith, M.D., F.R.C.P., F.R.C.S., was appointed representative of the College on the above Board in the vacancy occasioned by the retirement of Mr. C. H. Golding-Bird.

University of London.

Mr. Charters J. Symonds, C.B., M.S., F.R.C.S., was appointed to represent the College on the Senate of the University of London in the vacancy occasioned by the retirement of Sir Rickman J. Godlee, Bt., K.C.V.O.

Assistant Pathological Curator to the Museum.

The title of the post held by Mr. C. F. Beadles was altered from Pathological Assistant to Assistant Pathological Curator.

The Services.

EXCHANGE.

M.O. of Infantry Battalion in France desires exchange with officer in training centre or hospital at home.—Address No. 1300, BRITISH MEDICAL JOURNAL Office, 429, Strand

Medical News.

SIR ERNEST GOODHART, Bt., and Mr. Gordon Goodhart have given the sum of £300 to Epsom College in memory of their father, Sir James Fred. Goodhart, Bt., M.D., who was one of the earliest pupils at the College.

THE next session of the General Medical Council will begin on Tuesday, May 22nd, when the President, Sir Donald MacAlister, K.C.B., will take the chair and give an address at 2 p.m.

A DECREASE is to be noted in the Home Office return of fatal street accidents for 1916 in England, Wales, Scotland, and Ireland; the figures being 2,837, as compared with 3,014 in 1915. There were 51,441 non-fatal accidents.

IN the obituary notice of Professor Dejerine, published on April 14th, it was, by a slip of the pen, said that the Moxon medal was awarded to him by the Royal Society. The Moxon medal for observation and research in clinical medicine is in the gift of the Royal College of Physicians of London, and was awarded by the College to Professor Dejerine in 1915.

A PAMPHLET entitled *Race Renewal* has been issued by the National Council of Public Morals (20, Bedford Square, London, W.C.), with a preface by the president, the Bishop of Birmingham. The activities of the Council up to the end of last year are described, special attention being given to the report of the private Commission on the National Birth-rate, which was reviewed in our issue of July 8th, 1916. In spite of the war the work of the Council has gone forward in various other directions, such as an inquiry into the influence of cinematographs, the education of public opinion in matters of sex, and a petition to the Chancellor of the Exchequer to diminish the penalties upon parenthood.

ON April 14th Princess Christian paid a visit to the College of Ambulance, 3, Vere Street, London, W., and witnessed a display of ambulance work given by the No. 1 London Voluntary Aid Detachment of the Red Cross Society. Her Royal Highness was received by the President of the College, Sir Rickman Godlee, and the Principal, Colonel James Cantlie. A transport section of fifty cars was inspected, and subsequently a demonstration of methods and technique of teaching of ambulance work was given. After the display the President asked Princess Christian to accept the first certificate of honorary fellowship of the College.

THE appropriations made by the Rockefeller Foundation during 1916 amounted to upwards of 8,249,000 dollars. The largest appropriations were for war relief purposes, making a sum of 2,590,000 dollars; the total amount appropriated for these purposes since the beginning of the war has been nearly 4,182,000 dollars. During the year the Foundation granted more than 600,000 dollars to the International Health Board, a subsidiary organization dealing mainly with methods for the relief and control of hookworm disease in the Southern States, in various Latin-American countries, and in several British Colonies. This board has also made a survey of the principal epidemic foci of yellow fever, and has undertaken experimental work in connexion with the control of malaria. The China Medical Board, another subsidiary organization, which is devoted to the promotion of medical education in China, received from the Foundation over a million dollars.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

R. asks for advice as to treatment of acne of some years' standing in a child 12 years old. It commenced over the malar areas and is extending over the cheeks. All usual internal medication has been tried, while externally antiseptic soaps and various ointments have been used. There has never been suppuration nor blackheads, but "pitting" after subsidence of each crop.

INCOME TAX.

VOX inquires whether a retaining fee to attend men stationed in barracks is assessable as earned income in view of the fact that the retaining fee is temporary "for the period of the war."

*** Yes; if the fee does not accrue as a profit arising from medical practice, it would seem to be in any case a fee or perquisite of office and assessable as such.

PETROL DUTY REBATE.

PERPLEXED inquires whether the rebate should be 3d. or 4½d. a gallon.

*** Section 84 of the Finance (1909-10) Act, 1910, imposed a duty of 3d. a gallon, and Section 15 of the Finance Act, 1916, imposed a duty of 6d. a gallon, "in addition to any other duties imposed by law." The rebate applied to both duties, and the answer to our correspondent's inquiry is, therefore, 4½d., provided, of course, that the full duty of 9d. a gallon has been paid directly or indirectly.

ANSWERS.

M.B.—The most likely home for such a case as that described—a woman mentally deficient, suffering from enuresis but not helpless—and within the limits of payment mentioned, would be one of those established by the Incorporation for National Institutions for Persons Requiring Care and Control, offices, 14, Howick Place, Westminster, S.W. Information from Rev. H. K. Burden, the Warden.

LETTERS, NOTES, ETC.

BRILLIANT GREEN OINTMENT.

MESSRS. C. J. HEWLETT AND SON write to point out that there is an error in the formula given by Captain R. W. Hodgson-Jones (April 7th, p. 455). To obtain a 1 per cent. ointment, two ounces of soft paraffin should have been specified.

A MEDICAL PRACTITIONER'S SUCCESSFUL CLAIM.

IN the Bolton County Court Lieutenant-Colonel H. G. Parker, R.A.M.C.(T.F.), sued a photographer for 15 guineas for professional services rendered. The plaintiff's counsel stated that Colonel Parker attended defendant for corneal ulcer. The answer to the claim was a suggestion of negligence. Dr. Hill Griffith, ophthalmic surgeon to the Manchester Royal Infirmary, gave evidence that there had been no negligence either in treatment or in the number of attendances given. Counsel for the defendant contended that the charges were excessive and that the defendant had suffered injury and loss from the alleged neglect. A counter claim for £50 was put in. The jury found for Colonel Parker on both the claim and counter claim, with costs. Plaintiff's solicitor at the conclusion of the case said that, in view of a suggestion that had been made against the plaintiff's patriotism, he wished to point out that Colonel Parker went to Egypt in 1914 with a Territorial unit, and was in the Gallipoli campaign. He was now invalided home. Judge Spencer Hogg said that no one regretted more than himself that any suggestion of the sort had been made, and he was sure that the jury would equally regret it.

SAMUEL PEPYS, M.R.C.S.

Extracts from the Diary, 1917.

February 17th. Up betimes, as it is war time, and the sick do call and send for me in greater number than ever before. And this, because, my good friends who, with me, make the practise of physick in this district, have sailed across the seas, with the King's Armies. Which, is a right and proper way, and shews a patriotick temper, in chirurgeons, who are of the age for military service. The wants of the nation must come before all other things. And were I not forty-and-five years of age, I would answer the bidding of the Warr Office and march also. But, it is meet that some should stay behind and earn moneys to lend for the King's use. So, God be praised, I find that my neighbours, even now, after so many years, have found out my greater skill in the practise of the noble art of physick. They do say that the *locum tenens* doth not understand infants and hysterick women. And so, I write to the banquer, that he may lend my gettings, at 5 *per centum*, to the King, his Chancellor. And do pray, that I may soon be able to pay for my new car from Amerique.

February 18th. After dinner, I read in the news sheet of the British Medical Association that the Warr Office doth call for more chirurgeons and that a Warr Committee is sitting to choose who shall go and who shall stay at home. Which do trouble and perplex me to the heart, and I shall not let any Committee bid me to leave my house, where my neighbours do so need me in the many colicks and defluxions, from which they suffer and I, only, can find panaceas for them.

In the evening, comes a cordwainer, thirty-nine years of age, to beg that I give him writings, to take to the Military Tribunal, that he may not be pressed for the King's army. He tells me that in Winter, he is stricken with divers humours and a trembling of the joints, and cannot fight. Lord, that such an unpatriotick man should be in England, and the war, now for over two years. I did rate him pretty smart and would give him no writings.

February 19th. Met my old fellow student, Bilkins, who I had not seen for sixteen years, when he did wed a maid, whose father owned many shoppes, and when taken by God, did leave to her, one thousand pounds *per annum*. She, that jealous of Bilkins, would never let him use his skill at physick lest, perchance, well-favoured wenches should call on him. So that, in times of the peace, he hath only played the games of golf and bridge. But now, he hath for two years served the King in a field ambulance and hath returned with a grievous wound in his thigh and the Military Cross given to him by the King's Majesty. Which, I wondered at and commended him mightily. And it did cheer my heart to feel, that were it not for my wife, poor soul, and the sick folk in England, I would do even as Bilkins hath. Moreover when we were students at the Spittall of Saint Thomas, I was always counted a more cunning leech than he.

February 20th. My wife tells me that her cousin, Nan, now for six months member of a Voluntary Aid Detachment for nursing of the wounded, of the King's armies, is like to marry a horse-soldier of the Southern Seas. And that his father owns thousands of sheep and abundance of wheat-lands. Whereat I am glad, as she is of a witty discourse and do look mighty smart in her nursing uniform.

February 21st. Mighty concerned at the demand note for my income tax. The amount thereof is a grief to my soul. But my late gettings have been very great to my great content and am likely to have a few more profitable jobbs in a little while.

February 22nd. A fine afternoon, so my wife do ask that she may have the car to drive forth and see her Aunt Deborah at Epsum. I do tell her that the plaguey Petrol Control Committee have allowed me petrol in such small measure that there shall be no joy-rides. But Lord! how the wretch rated me, crying, that on Saturday seven-night I rode in the car to the Golf Club. Which is a woman's way. But I did not give in.

To the Club, where I meet Progers. He teaches the wench who acts as waitress—the waiters having all joined the King's armies—to make a new cocktail. Which is mighty pleasing. All our discourse was of the British Medical Association. How that, the Committee should bring about, that all chirurgeons and apothecaries who labour under the Act of National Insurance, should be paid fifty *per centum* more than in time of peace. And that their labours should be lessened withal. And we did marvel of what use the Association could be, seeing that the subscription is now two guineas *per annum*. A large sum when we must, perforce, be careful of all monies. So, to Bridge, whereat I lose five pounds through the evil play of my partners. But a merry evening. And so home and to bed.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

MEDICINE AND THE SEA AFFAIR.

INTRODUCTION.

BY

Surgeon-General SIR ARTHUR MAY, K.C.B., K.H.P., F.R.C.S., R.N.,
Medical Director-General, R N.

THIS outline of the work of the medical service of the Royal Navy, necessarily brief from the exigencies of space, may well be prefaced with the satisfactory statement that the health of the service afloat has been excellent—better, indeed, than in times of peace. This fortunate result is due to several factors: in the first place, to the efforts of preventive medicine and hygiene, especially the improved ventilation of warships introduced shortly before the outbreak of war, a subject more fully dealt with on pp. 537–539; in the second place, to the healthy isolation of the Grand Fleet, far from the temptations of seaports; thirdly, to the minute precautions taken in drafting men from the shore dépôts to the fleet, which entail due quarantine after exposure to infectious fevers; fourthly, to lectures by the medical officers to the ships' crews dealing with personal hygiene and insisting on the results of alcoholic excess and the dangers of venereal disease; and, further, to the care taken by all officers, by keeping the men physically fit by means of exercise, and by combating in various ways the effects of monotony and relative inactivity, to maintain the high spirit of confidence in eventual success.

At the outbreak of war the medical personnel was at once expanded by the mobilization of the retired, emergency, and Volunteer Reserve medical officers, by the creation of a large number of temporary surgeons for the period of hostilities, and by the appointment of about ten consultants (two being anaesthetists), including Sir Watson Cheyne, President of the Royal College of Surgeons of England, and Sir William Macewen, Regius Professor of Surgery in Glasgow. Rather later an old type of naval medical officer, the surgeon's mate, was revived in the enrolment as surgeon-probationers R.N.V.R. of medical students who had passed the examination in anatomy and physiology, and who had begun, but not completed, their clinical work. They were placed in torpedo-boat destroyers and other small vessels which otherwise do not carry medical officers, so as to render first aid, and, as the records of the Jutland battle show, this trust was fully justified. The sections which follow have been contributed by medical officers responsible for the subjects dealt with.

MEDICINE AND CLINICAL PATHOLOGY.

BY

Fleet Surgeon P. W. BASSETT-SMITH, C.B., F.R.C.S., R.N.,

AND

Temporary Surgeon-General H. D. ROLLESTON, C.B., M.D., F.R.C.P., R.N.,
Senior Physician, St. George's Hospital.

THE general methods of diagnosis and treatment are naturally the same in naval and civil hospitals, and do not, therefore, require any description. The association between clinical and laboratory work is as close as in the metropolitan hospitals with teaching schools attached, and new methods of diagnosis are thus tested and utilized to the full.

The war has thrown much additional work on the naval hospitals and has led to the extensive substitution of temporary surgeons for the regular medical staff owing to the necessity for employing the latter afloat, and during this period the increasing tendency of modern medicine towards subdivision and specialization has been reflected on the navy by the assignment of temporary surgeons with previous experience of special branches of their profession, such as ophthalmology, neurology, tuberculosis, otology and laryngology, and bacteriology, to the care of such patients and duties. Up-to-date departments for *x*-ray work, dentistry, massage, and electrical treatment are attached to the hospitals where the sick-berth staff are trained for the service afloat. The work of the laboratories of the large base hospitals was assisted by the utilization of men with scientific knowledge but without medical qualifications, and the Medical Research Committee sent Dr. P. Fildes to Haslar as a bacteriological expert, and afforded other facilities.

Vaccines.

At the Royal Naval College, Greenwich, there is a teaching school with large laboratories and research rooms attached, which during the war has been the central establishment for the preparation of prophylactic vaccines and the distribution of curative serums to the fleet, the naval service on shore, and especially to the recently established Royal Naval Division and the Royal Naval Air Service. Here, also, most of the examinations of air, water, and food for the service afloat and the various shore dépôts called into being during the last few years have been carried out. During the war more than 2,250 bottles of antisepsis vaccine have been sent from this laboratory to the ships and fighting forces. This in 1914 was supplied by Sir Almroth Wright, but since that time has been manufactured at Greenwich from strains of pyogenic organisms isolated from wounds received in the war. For prophylactic use nearly 6,000 doses of antitetanus serum have been issued, mainly to the Royal Naval Division serving in Gallipoli and in France. During the past two years anticholera vaccine for more than 50,000 men has been supplied to the forces in the Eastern Mediterranean and Persian Gulf, and to the latter a quantity of plague prophylactic was also sent. Since the recognition of dysentery over 2,200 doses of antidysenteric serum have been dispatched for hospital use. At this laboratory and at Malta the greater part of the antityphoid vaccines used in the naval service have been prepared. The laboratories of Chatham, Haslar, Plymouth, and Malta, in which routine examinations of clinical material of all kinds (and also of the milk and food supply, and dressings) are carried on, have had a greatly increased amount of work during the war in the form of systematic examinations, both from a diagnostic and prophylactic point of view, in connexion with infectious diseases.

Antityphoid inoculations of men likely to be exposed to infection have been systematically carried out. In the first year of the war they were inoculated with a typhoid vaccine received from Sir Almroth Wright, over 5,000 bottles, containing 25 c.cm. each, being used. When paratyphoid infections became prevalent, a triple vaccine was prepared at Greenwich and Malta containing the typhoid organism and being multivalent for paratyphoid A and B, from strains isolated from cases in the Eastern Mediterranean. It contained the full dose of the typhoid germ and half the number of paratyphoid A and B. A fair degree of immunity, as judged by the agglutination test, was thus produced. The reaction is not excessive and much time and trouble are saved without sacrificing the antityphoid immunizing power. With this more than 40,000 men have received protective inoculations, and by this means the incidence of typhoid among enteric cases in 1916 was reduced from 35 per cent. in the uninoculated to 11 per cent. in the inoculated,* or 0.7 per cent. of the total forces in the endemic area, and undoubtedly the severity of the disease was considerably lessened among those who did contract the disease.

Dysentery.

The Royal Naval Division in Gallipoli in 1915 suffered, in common with the other forces on land, from diarrhoea, dysentery, enteric and obscure fevers. The numerous convalescents sent to England were filtered through the large naval hospitals to prevent the escape of any dysenteric or enteric carriers into the general population. The diagnosis on arrival was confirmed or modified by the verdict of the laboratory based on bacteriological, serological, and microscopic investigations. The result of these numerous routine examinations incidentally threw light on the duration and course of the agglutination changes due to the influence of inoculation on the one hand and of definite infection with the enteric group of micro-organisms on the other hand, and thus enabled a more accurate diagnosis to be arrived at in any given case; but it was generally recognized that for certainty of diagnosis the culture of the organism from the blood, faeces, or urine was essential. In the dysentery group of infections the percentage of entamoeba infections found was not very high, but amongst those infected there were some very obstinate carriers, resistant to all forms of

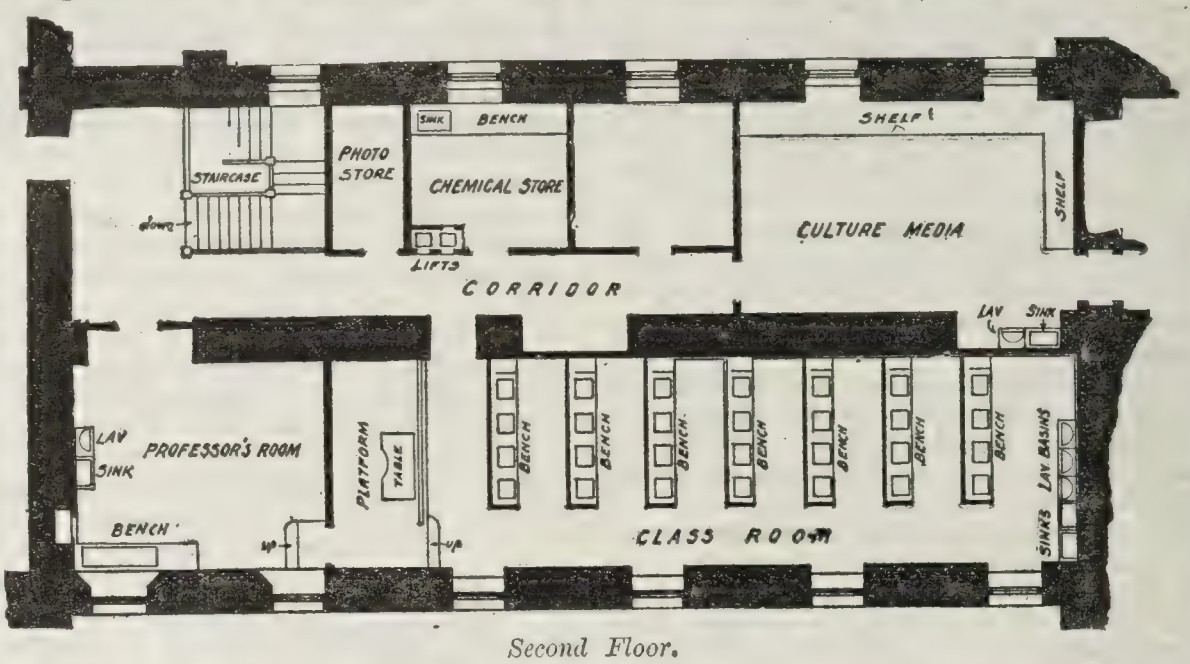
* Vide *Journ. Royal Naval Medical Service*, 1917, iii, 30–32.

emetine. Some vague intestinal symptoms have been traced to such organisms as Morgan I bacillus, and in one instance at least great benefit was derived from vaccine treatment with the organism isolated.

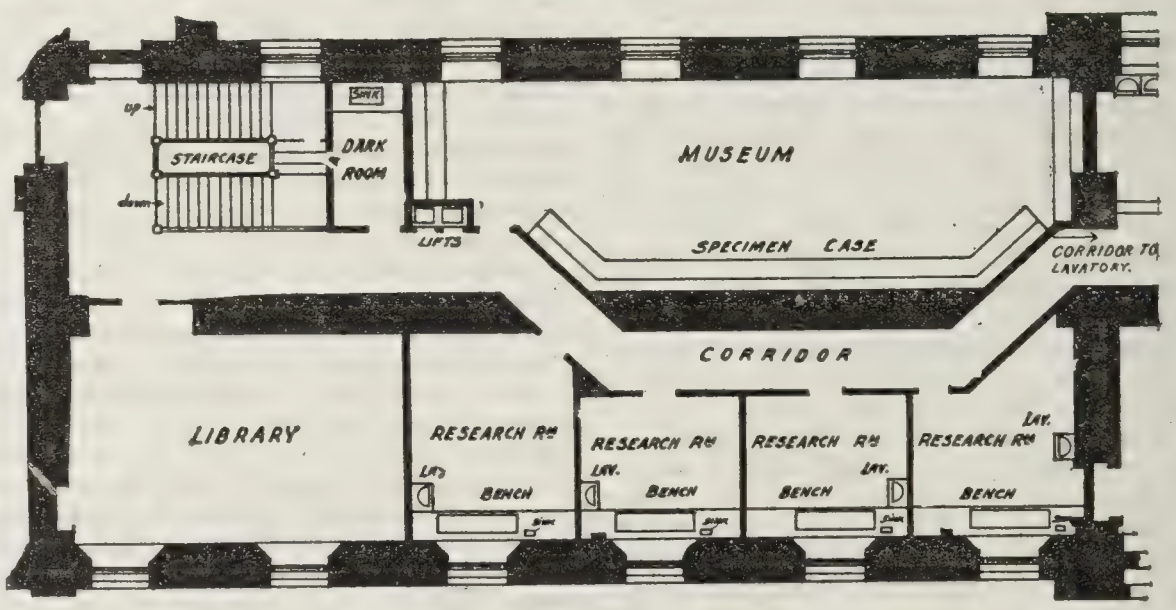
Cerebro-spinal Fever.

In 1915 cerebro-spinal fever became epidemic in England, and during the first year of the war 170 cases of the disease occurred in the navy. Among the various precautions taken to check the spread of this disease, examination of swabs from the naso-pharynx of all new entries was undertaken at the beginning of 1916. At Greenwich alone 5,000 such swabs were examined during the first half of 1916, and of 4,713 cases of healthy non-contacts 46, or 0.976 per cent., were found to be positive, the diagnosis being made on the morphological, cultural, and agglutinative characters. The percentage obtained from contact cases was 5.77. During the winter of 1916–17 up to February, over 4,000 swabs have been examined. From 3,900 non-contact cases there were 11[illegible] positive cases, or 2.8 per cent., which is considerably higher than that found in 1915–16. These were all segregated, and thus numerous infective foci were prevented from spreading the disease, which in this district has kept at about the same level as in the preceding year, although more men passed through the dépôt. In 299 instances the organisms isolated were examined by agglutination tests; of these 112 were positive and 187 negative, using the multivalent serum supplied by Flexner as the final criterion. The greater number were again tested by the four univalent strains prepared by Mervyn Gordon; of 82 so examined 36 proved to belong to the type I, 40 to type II, none to type III, and 3 to type IV; 3 did not react to any of Gordon's serums. In the subsequent examination of these carriers 81 per cent. gave no further evidence of infection, partly no doubt as a result of the prophylactic measures employed. During 1916, at the Royal Naval Hospital, Chatham, 7,220 new entries were examined, giving 94, or 0.76 per cent., positive results; among 805 close contacts there were 52 carriers, or 6 per cent., and among 527 remote contacts 6 carriers. At the Royal Naval Hospital, Haslar, among 5,000 new entries examined during January and February, 1917, there were 316, or 6.3 per cent., carriers; whereas among 2,022 new entries examined rather later during 1916—namely, in the spring—there were no positive carriers. This corresponds with the observations at Greenwich, and suggests an "epidemic of carriers." At the Royal Naval Hospital, Plymouth, among 5,220 new entries examined during 1916 there were 117, or 2.2 per cent., carriers, and among 723 contacts 144, or 19.9 per cent., carriers.

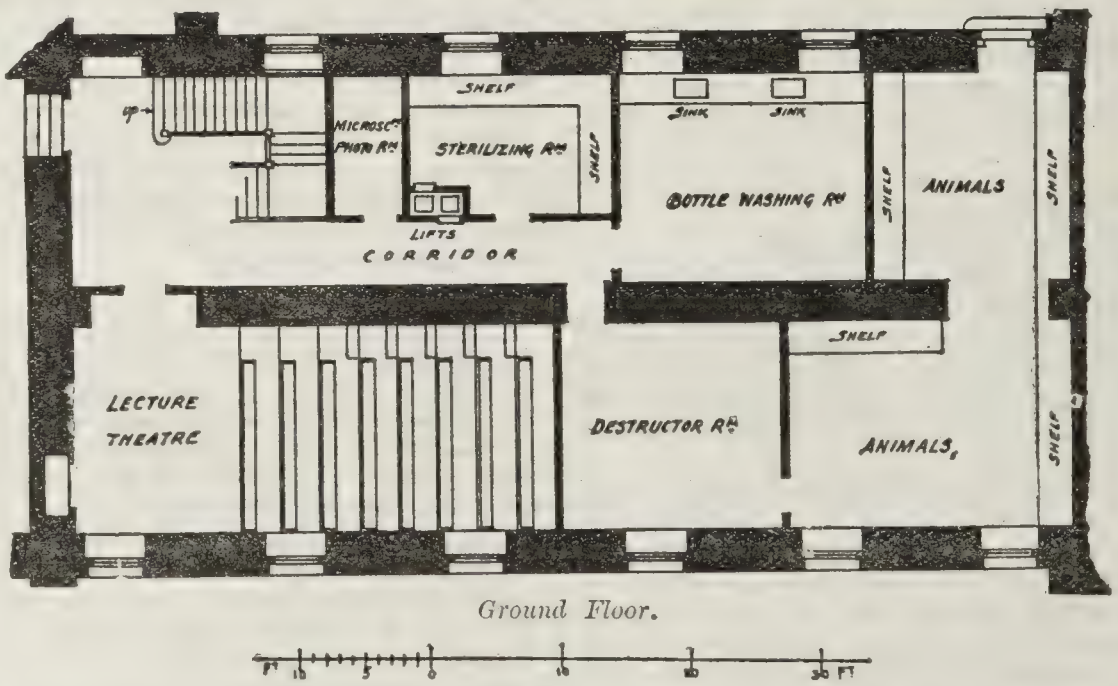
By means of this systematic examination of new entries from outside districts the detection and segregation of carriers have been very thorough. During the second year of the war the number of cases of cerebro-spinal fever in the navy declined to 104, although the total strength had greatly increased. This fall in the incidence of the disease, whether entirely correlated with the coincident diminution in the cases of cerebro-spinal fever in the civil and military population, or due to prophylactic measures (quarantine of drafts, examination of contacts and new entries), is eminently satisfactory, especially as out of these 274 cases of cerebro-spinal fever in the navy during



Second Floor.



First Floor.



Ground Floor.

GREENWICH ROYAL NAVAL COLLEGE MEDICAL SCHOOL: PLAN OF QUEEN ANNE BUILDING.

the first two years of the war 22, or 8 per cent. only, occurred in sea going ships. In the second year of the war the serum treatment, which had proved to be a failure in the previous year, was successful; 2,500 doses were issued from Greenwich, and the mortality fell 17 per cent., to 36 per cent. of all cases. This may be largely ascribed to the use of Flexner's multivalent meningococcic serum generously supplied gratuitously by the Rockefeller Institute, New York, and of Mervyn Gordon's various serums, which were not available during the first year of the war.

A number of cases clinically suggesting cerebro-spinal fever (meningismus) occurred, but no confirmation could be obtained by laboratory methods. The cerebro-spinal fluid was clear, though under increased pressure. No organisms were observed microscopically or by culture, and the blood did not contain any antibodies to any meningococcic strains.

Venereal Disease.

In the treatment of venereal disease, which is more in evidence than in most general civil hospitals, the essential intimate association of clinical and laboratory work is well organized. The diagnosis of syphilis by the microscopical detection of the spirochaete in the initial lesion, by the Wassermann reaction of the blood in the later stages, and by the cytological examination and the Wassermann reaction of the cerebro-spinal fluid in luetic lesions of the central nervous system is an established routine in the larger hospitals and laboratories, and the treatment by intravenous injection of arsenical compounds is universally controlled by the examination of the urine for arsenic. During 1916 the total number of Wassermann tests made was 16,766; at Haslar alone during that year 1,833 injections of arsenical compounds were given for syphilis; kharsivan was given on 1,522 occasions, galyl 55, and novo-arseno-billon 256 times.

Protozoal Infections.

As a result of the large number of men serving in tropical and subtropical regions protozoal infections have been frequent. These areas of active operations may be divided into three—(1) the Eastern Mediterranean and Mesopotamia, (2) East Africa, and (3) West Africa.

1. In the Mediterranean area malarial fevers have been most abundant around Salonica where low-lying swampy ground has been chiefly occupied; the disease has been very severe, and mostly of the malignant form caused by the *P. falciparum*, and the clinical aspect has not infrequently suggested enteric, dysentery, or sunstroke. As the infection is unfortunately very resistant to quinine, the most important prophylactic measures are the destruction of mosquitos by drainage and other methods. The largest number of cases in the navy occurred among the Royal Naval Air Service who live on shore. In the Gallipoli area malaria was not common, but short fevers of the dengue or sand-fly type, often described as "Mediterranean dengue," were very frequent. The knowledge that sand-flies are so often the infective agent has enlarged the scope of preventive measures, and a great reduction of these fevers may be expected in the future. Incidentally it is noteworthy that the prophylactic measures strictly enforced against undulant fever have practically eliminated this disease, which ten years ago would have filled the Mediterranean hospitals. This result emphasizes the value of the work done by a well-organized scientific Commission and of the practical application of its recommendations. The occurrence of many cases of beri-beri in the forces in this area proves the importance of an extended study of the food question and other factors concerned in such deficiency diseases.

2. In East Africa the necessity of thorough measures in the prophylactic issue of quinine is most important, as the prevailing type of fever is best controlled by this drug, which should be given both before and during the whole period that men are employed in the endemic area.

3. In West Africa, particularly in the Cameroon area, the varieties and frequency of protozoal and filarial diseases have been very noticeable, and prophylactic measures against them are therefore essential. Of malaria, which is very common, two types are constantly present, quartan and subtertian, the double infection being almost always found in the same case, frequently associated with Calabar swellings and filariae in the blood. In this region tsetse flies are abundant and trypanosome infections have occurred in Europeans. Early search for these parasites is, therefore, most necessary, and appropriate treatment should be given as soon as possible. A case now at Greenwich of over eighteen months' duration shows how persistent treatment can control the disease, for there are practically no symptoms, although the parasite is pathogenic to white rats in eighteen days. The occurrence of mixed blood infections should therefore be suspected; benign and malignant malaria with trypanosomes or filariae have been found together, always associated with a high eosinophilia (up to 50 per cent.). The quartan malarial parasite is most difficult to eradicate and is very resistant to arsenic, recurring in the blood of those with trypanosome infections after a year's treatment with intravenous and intramuscular injections of antimony and arsenic.

No case of small-pox has been recorded in the navy during the period of the war, thus proving the value of vaccination, which has been compulsory since about 1858.

SURGERY.

BY
Deputy Surgeon-General W. G. AXFORD, R.N.,
AND
Temporary Surgeon-General G. LENTHAL CHEATLE, C.V.O., C.B., F.R.C.S., R.N.
Surgeon, King's College Hospital.

THE equipment of naval hospitals and their treatment of the wounded are on the same lines as in the best British and Continental institutions. If Haslar be taken as an example, the critical visitor would see that all cases of bacteriological importance are diagnosed and treated in association with a perfectly equipped laboratory, in which discharges are stained, cultures are made from blood and wound discharges, vaccines are prepared, and sections are cut of tissues removed from the body for the purpose of microscopical examination. Hence it is needless to point out further how great is the importance attached to the relation between the laboratory and the treatment of surgical disease in this hospital.

Treatment of Wounds Received in War.

The whole question of aseptic and antiseptic treatment has been revised and judgements passed upon the different methods of accomplishing each branch. On the whole, authorities are not satisfied with the aseptic treatment of these wounds. Although it appears successful in some cases, it fails too often in others to encourage its general use. The hypertonic salt solution has been given complete trial, with the result just stated. Wounds undergoing this treatment are liable to secondary or mixed infections. At one time the wounds in one of the wards at Haslar became secondarily infected with *B. pyocyaneus*; the appearance of this micro-organism was at once detected, and it soon disappeared by substituting the antiseptic for the aseptic method. Secondary infections very rarely occur in efficient antiseptic treatment.

In the early part of the war an investigation was carried out in the laboratories of Greenwich and Chatham Hospitals as to the best methods of treating war wounds with various antiseptics.[1] The real problem was to find a diffusible substance which could be applied at, or as shortly as possible after, the time of infliction, and which would inhibit bacterial growth until thorough disinfection and cleansing could be effected at a field hospital. Of the various substances tested, cresol and salicylic acid produced the best results, and appeared to be the most useful for the purpose required. A cresol paste (20 per cent. in lanolin and wax base) and a powder containing equal parts of boric and salicylic acids ("borsal") were introduced. These had given excellent results in laboratory infections, but met with less success in cases from the front, on account of the difficulties of time and places incident to war conditions. Successful cases have been reported from the Gallipoli campaign in which the treatment was adopted, severe gunshot and shell wounds remaining free from suppuration and healing readily.[2] That a cresol or carbolic acid paste is a valuable treatment for wounds on board ship is shown in a report on various cases so treated in a battleship,[3] and wounds, including compound fractures, treated in Chatham Hospital by carbolic acid cleansing and liberal introduction of cresol paste healed well without suppuration.

At Haslar a "green spray" composed of equal parts of 2 per cent. malachite green dissolved in 80 per cent. rectified spirit and water, and 2 per cent. perchloride of mercury dissolved in 80 per cent. rectified spirit and water, has proved satisfactory. It is advisable to keep the two solutions separate, unless the antiseptic mixture is in constant use. The mixture contains 1 per cent. each of malachite green and mercuric chloride in the form of a compound—$C_{23}H_{25}N_2Cl_4$ (Micklethwait)—each molecule of malachite green combining with two of mercury. The compound is easily dissociated, and when it comes in contact with the tissues probably forms an albuminate of mercury and an albuminate of malachite green. The malachite green is reduced by living tissues to the leuco-compound, and therefore becomes invisible in a wound but still maintains its activity. Sloughs and necrosed tissues do not reduce the stain. The albuminate of mercury remains in the wounds as a dépôt, and is slowly dissolved by the exudates, and then exerts its antiseptic action. The bacteriological work on which the use of this compound is based and satisfactory clinical results were published in 1915.[4] The mixture is non-toxic and can be applied to mucous membrane. It is a trustworthy germicide for sterilizing the skin before operations, and is applied by means of a spray. As it stains the skin green the area so treated is clearly marked out. When applied to septic wounds it practically stops secondary infection and steadily diminishes the number of pre-existing micro-organisms. Its value has also been proved in osteomyelitis, septic compound fractures, burns, ulcers, boils, and carbuncles.

The treatment of infected war wounds by physiological methods was inaugurated by Colonel Sir Almroth Wright, who introduced the physiological saline solution (0.85 per cent. sodium chloride) and the hypertonic solution containing 5 per cent. of the salt. He argues that the hypertonic solution inhibits and arrests bacterial growth, produces a lymphagogic action, and sets free a tryptic ferment for the digestive cleansing of the wound. Dressings should be applied warm, very wet, and covered with an impermeable tissue. If the position of the wound render it practicable, immersion in a 5 per cent. saline bath is the best procedure. The bath should be intermittent to allow of the alternating lymphagogic and digestive cleansing action. Normal saline dressing is used in the intervals. Extensive lacerated wounds with fracture caused by shell or bomb have more recently been packed with salt tablets wrapped in gauze folds, the whole being covered with jaconet. This dressing, which usually causes pain for some hours, can be left for two or three days provided the outer covering is moist with discharge, showing that lymph flow is active.

The use of hypochlorous acid as an antiseptic has come into prominence during the war, and chiefly in the form of eusol—a solution containing approximately 0.5 per cent. of the acid—has been extensively employed in naval hospitals. It is a powerful germicidal agent as proved by laboratory experiments, is non-toxic to the tissues, and being gaseous penetrates deeply to all parts of the wound. The solution of hypochlorite of sodium, 0.5 to 0.6 per cent., introduced by Dakin and Carrel is also in use together with the special method of injection tubes and light gauze packing to ensure contact of the fluid with the whole surface of the wound. Good results have been obtained from this treatment, the wounds cleaning quickly and a healthy granulating action appears. If employed for a long period both solutions have in a few cases produced oedema and irritation of skin. This can be prevented by vaseline smears.

The clinical results obtained by the use of a bismuth, iodoform, and paraffin paste[5] in septic wounds, including compound fractures, has led to its employment in the naval hospitals with encouraging results. Though a less powerful and less soluble antiseptic agent than the hypochlorites, observation has shown that it maintains a continuous antiseptic action in the wound. It excites a free exudation of serum, and granulation tissue grows freely in contact with it. The wound after thorough cleansing is swabbed with ether or rectified spirit, a little of the paste is rubbed into the tissues, a thin layer being left in the deeper parts, and a gauze dressing applied. The dressing can be left on and the wound undisturbed for seven days or longer. This is an advantage, especially in compound fractures; it saves labour, dressings, and much distress to patients. Drainage tubes are not required, as the paste does not prevent the escape of discharge. The constituents are toxic if freely absorbed; the quantity used, therefore, should not exceed two drachms.

At Haslar successful drainage of wounds has been obtained with a four-way drainage rubber staff, which in transverse section is a cross.[6] It overcomes the accumulation of discharge which occurs in a tube if the opening be not dependent. When using the four-way staff the pressure exerted by the contraction of surrounding tissues is directed upon the discharges, which are forced out. With regard to the dressing applied to septic wounds generally, constant and repeated change is always the practice.

Burns.

Hitherto picric acid as a first dressing has been unrivalled, and septic burns treated by hot saline baths and boric fomentations, followed by a mildly antiseptic ointment of soft consistence, have healed readily and well. Médecin-major Barthe de Sandfort's "ambrine" treatment (vide p. 540) is now under trial.

Equipment.

For the treatment of the after effects of severe injuries such as stiff joints, atrophied musculature, and nerve lesions, the naval hospitals are fully equipped. Surgical gymnasiums have been established and fitted with medico-mechanical apparatus to aid in the restoration of articular and muscular function. The forms of apparatus were designed to carry out by mechanical means the various movements and manipulations of the Swedish system of physical exercises, and include a combination weight and pulley apparatus—stationary bicycle—apparatus for foot circumduction, knee and foot flexion and extension, elbow pendulum with shoulder extension, frictional wrist machine, finger machine, shoulder circling movements, etc. The machinery can be set at any desired resistance by the aid of graduated levers and adjustable weights. For impaired articular movement radiant heat treatment (solarium bath) is also employed. Electrically the interrupted and continuous current in its various forms is in use, as well as the high frequency current, including diathermy. The system of testing muscle reaction by condenser discharges has been adopted. Ionization is practised extensively in a great number of injuries, and has been found particularly useful in obstinate healing wounds and in relaxing scar tissue. An excellent and complete *x*-ray apparatus is in use, with improved means for the localization of foreign bodies. All of the most recently invented splints are also available. Hey Groves's instruments for inducing and maintaining correct adjustments in fractured bones are in use.

The Wildey hypodermic syringe, designed by Deputy Surgeon-General A. G. Wildey, R.N., has been used with great satisfaction both in naval actions and in the field. The syringe with needle fixed is fitted into a metal sheath with safety-pin attachment by which it can be fastened to the coat and thus be readily available at any moment. The sheath, which can be quickly removed and replaced, protects it from dust and dirt. A spare needle fits neatly into the hollow piston. The syringe is used in conjunction with a solution bottle fitted with rubber cap, through which the needle is passed and the syringe rapidly charged.

The assistance afforded by accurately applied pressure in tourniquet work is shown by a metal tourniquet designed in Haslar.[7] The freedom and simplicity with which its pressure can be increased or diminished with delicacy should encourage a more constant use of the tourniquet without fear of damage to tissues or of oozing of blood after the operations. Its advantages are best displayed during operations upon cases of traumatic aneurysm, aneurysmal varix, and varicose aneurysms. A rubber tourniquet is difficult to apply and remove, and when applied its pressure is greater than required and maintained longer than necessary. These drawbacks are abolished by the use of this new metal tourniquet.

REFERENCES

[1] *Journ. Roy. Naval Medical Service*, 1915, i, pp. 103–142. [2] *British Journal of Surgery*, 1916, iii, p. 427. [3] *Journ. Roy. Naval Medical Service*, 1915, i, p. 522. [4] *Lancet*, 1915, ii, p. 165. [5] Ibid., 1917, i, p. 331. [6] BRITISH MEDICAL JOURNAL, 1917, i, p. 120. [7] *Journ. Roy. Naval Medical Service*, 1917, iii, pp. 230–232.

HYGIENE.

By Fleet Surgeon R. C. MUNDAY, R.N.

T as the fighting service of the navy was found, at outbreak of war, prepared at all points for any rgency, so also the medical service of the navy stood ipped with every weapon that modern sanitary science d suggest. In August, 1914, many eminent combatant al officers were of opinion that the numerous and far-hing precautions for safeguarding and fostering the lth of the personnel would to a great extent have to be ndoned in the face of the pressing exigencies of modern fare. It was also generally thought that the war ld probably be of short duration, and that many con-ons of life which, if long continued, would be detri-ital to health, could and indeed must be endured for w months. The Director-General of the Naval Medical artment, however, has from the outset always main-ed that the objects to be kept constantly in view are to o as many officers and men as possible in the highest e of fighting efficiency, and to reduce the loss of service a sickness to a minimum. It was evident also that means to this end were constant supervision of the y life of the personnel and the continuous adoption practice of measures born of modern research. As a lt of this doctrine, the war, instead of producing a uction or relaxation of the requirements of modern tation, brought with it a great speeding up of hygienic lance, together with progressive improvement in the liances and apparatus employed in preventive medicine ughout the naval service, not only afloat but also in many shore establishments. Combatant officers and l administrators who were at first sceptical of or even ngly opposed to activity in such directions have come ee the military advantages accruing therefrom, and demand the maintenance of a high standard of iene. That success, beyond anything the most mistic prophet could have foretold, has attended the rts made by the Naval Medical Service is evident from extraordinarily small loss of service from sickness in navy, in the dockyards, and in the Admiralty munition ories; moreover, the well established fighting efficiency ur sailors and aviators points in the same direction.

Ventilation.

he improvements in our warships since hostilities menced are perhaps more pronounced in the matter entilation than in any other branch of hygiene. These rovements are the outcome of recommendations made committee appointed by the Admiralty at the end of 2 to investigate and report on the best methods of ilating modern warships. The Admiralty were moved is step by certain observations recorded at a series of erences of naval and civilian medical men summoned 910 to consider and report on the causes and effects of rculosis in the navy.

March, 1913, a First Interim Report was submitted the Committee to the Admiralty, making certain nt recommendations of a constructional nature; and result of these representations a definite minimum dard—200 cub. ft.—of individual cubic space for ping places was laid down, and a uniform minimum supply of 3,000 cub. ft. of air per hour per man arranged for all sleeping and all ordinary working living spaces. The position of various ventilators the weather deck was so arranged as to ensure a inuous supply of pure air under all conditions of ther and sea. The undesirable position also of cer-alternative intakes between decks was abolished and hods of improvement in this respect were inaugurated. Committee considered that a powerful exhaust effect the engine room and stokehold ventilation was lable for use on the mess decks when required; but general rule they strongly recommended, and the iralty adopted, the plenum system combined with ural exhaust for living spaces, and the fan exhaust em with natural supply for spaces in which are rated disagreeable odours, great heat, water vapour, eleterious gases; but it was specifically stated that no supply should be fitted for the ventilation of such es. Silent-running fans, means for avoidance of ights, arrangements for accessibility of the interior of runks for cleaning purposes, and the fine adjustment of, and protection from unauthorized tampering with, air-warming appliances are now fitted in all new ships. Formerly improvement in the ventilation and drainage of bathrooms was urgently needed, and at the suggestion of the Committee special innovations were introduced by which the atmosphere in these places was rendered purer and at the same time prevented from pervading the living spaces. Lastly, the inadequate electric lighting of mid-shipmen's studies and of departmental offices was corrected, a 3 ft. candle illumination on the desks being so arranged that the light passes over the left shoulder of the person reading or writing; now also offices in which persons are working most of the day are placed where natural light and ventilation are available. Not only did the Admiralty order the recommendations to be embodied in the designs of all new ships, but they also gave instructions that so far as was feasible completed ships should be brought into line with the Committee's pronouncements, and during the war, as the older ships have come into dockyard hands for a refit, their ventilation and sanitation has been brought up to date.

In April, 1913, a Second Interim Report was published, dealing chiefly with administrative matters, and in accordance with the Committee's suggestions a senior medical officer was appointed as an additional member of the staff of the Medical Director-General to assist the Director of Naval Construction in the consideration of all plans and details of fittings in connexion with ventilation and hygiene of ships building, all such plans being referred to the Medical Director-General's department for that purpose before final approval was given. This medical officer was also placed at the disposal of the Director of Naval Equipment in the event of his requiring expert advice on any point of naval hygiene, and the former now inspects the hygienic arrangements, including ventilation, in ships building as they approach completion, so as to avoid as far as possible any necessary alterations when the ships are completed; he also co-operates with the above departments in dealing with proposed alterations and improvements in the ventilation and sanitation of ships already built.

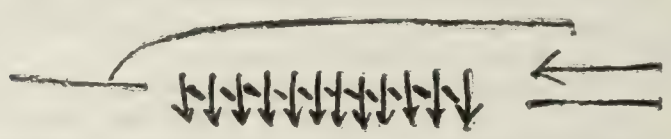
Further, there is on board every ship one commissioned officer responsible to the captain for the general supervision and the best use of the means available for the ventilation of the ship; and whether, in every case, the senior medical officer be actually employed on this duty or not he is at least always in close touch with the officer detailed for it, and is now recognized as the official expert on matters of ventilation and hygiene generally. Moreover, every ship now has a well-organized ventilation party for the management of the ventilation appliances under the orders of the ventilation officer. The medical officers also give lectures on board ship to officers and men on elementary hygiene, with especial reference to ventilation; assistant constructors going through a course at Greenwich College attend the lectures on naval hygiene given at the medical school there, and medical officers under instruction at Greenwich are taught the construction of fans, how to read plans of ventilation, and the considerations governing the volume and velocity of air passing through trunks, ducts, etc.

As affording a good index of the efficiency of the means of ventilation, regular observations of wet and dry bulb temperatures in living and working spaces are made by medical officers afloat, and samples of air are taken in compartments where the ventilation seems unsatisfactory. These samples are sent to Greenwich College for analysis and report in duplicate, one copy being forwarded to the ship and the other to the Medical Department for the information of the Director-General, and to enable him to keep in touch with the requirements of ship ventilation. Every ship also now submits a quarterly report, signed by the captain, showing what means of ventilation and warming have been in use, the extent of the supervision exercised, records of wet and dry bulb temperatures taken in living spaces, and results of analyses of air, together with any recommendations for improvement.

The Final Report of the Ventilation Committee was issued in March, 1914, and contained *inter alia* a proposal for a new system of trunking, devised, after a long series of experiments at Portsmouth Dockyard, to overcome the disadvantages of previous systems by which intolerable draughts were produced and air and warmth were distributed in a most uneven manner throughout the living spaces.

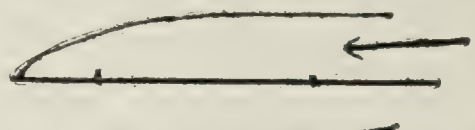
The principle of the new system which has now been adopted in our most recent battleships and cruisers is that by means of an adjusted deflector projecting into the air duct a limited flow of air is directed into a large number of outlet gratings.

It was found that with a suitable but very simple and inexpensive form of grating the air passes out through it with a fairly uniform velocity at all parts. As, however, the area of the grating is considerable in proportion to the air allowed to issue through it, the velocity of the issuing air is low, and no unpleasant draught is perceptible at more than a foot away even when 100 cubic feet of air a minute are issuing from a grating of 18 by 6 inches. The grating is made of expanded steel, and it was found that a three-eighths of an inch mesh placed so that its direction tended to deflect the air at right angles to the trunk thus:



produced the best effect at a minimum of cost and weight. An endeavour was then made by varying the curvature of the deflector to obviate the inequality of distribution over the face of the grating, and experiments were made with deflectors:

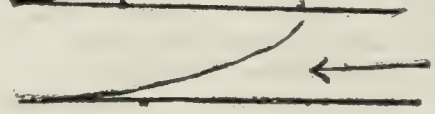
(*a*) Concave, thus:



(*b*) Straight, thus:



(*c*) Convex, thus:



The distribution of the air was found to be a function of (1) the velocity of the air in the trunk flowing past the deflector; (2) the amount of opening of the deflector; (3) the shape of the deflector.

On the whole, the straight deflector proved to be the most satisfactory and was adopted in all subsequent experiments; and for gratings in the proximal end of the trunk nearest to the fan, where the velocities are high and the angle of opening of the deflector small, the straightness and truth of the deflector is of great importance.

As each deflector takes off a portion of the air flowing along a uniform trunk the velocity of air flow in the trunk beyond is correspondingly diminished; and since frictional resistance varies as the square of the velocity, there is a very marked reduction in frictional resistance. So important is this effect, that it was found that with a sufficient number of deflectors and gratings distributed along the sides of a uniform trunk of sufficient length the volume of air delivered was 93 per cent. of the delivery when no trunk at all was connected with the delivery side of the fan, there being, however, a trunk of about the ordinary length and size on the intake side, as would always be the case in a ship.

The deflectors themselves cause no material resistance. There is no difficulty in fixing them so that each gives practically the same delivery of air, a simple formula having been found by means of which this can be done without actual trial. The deflectors remote from the fan, where the velocity and pressure of the air in the trunk are small, require, of course, to be much more widely open than those close to the fan. Suppose the number of deflectors in a trunk is N, then the amount of opening of the Rth deflector will be

$$\frac{1}{N-R+1}$$

multiplied by the width of the trunk; thus, for example, the last must be full open, the last but one half open, and so on.

In a new ship the deflectors are first adjusted in accordance with the above formula, and then with the fan running under ordinary conditions each delivery opening is examined to see whether the velocity of air current is approximately the same at any portion of the trunk proximal or distal, and the deflectors are adjusted until this has been attained; but once equality of velocity has been secured the deflectors should be permanently fixed so that unauthorized persons shall not tamper with them and cause too great a draught in one place and a lack of air in another.

In the case of branch pipes it was found best to place a deflector at the junction and so control the delivery through the whole of the gratings on the branch. Each grating on the branch should also have its deflector. It was also found that it made no measurable difference to the amount of air distributed whether the branches came off at right angles or at the usual angle of 30 degrees.

If each grating measures 18 by 6 inches, which appears to be a convenient size, one is required for every two men when 50 cubic feet of air per man per minute is supplied. This, of course, means a considerable number of gratings. On the other hand, the arrangement is simple, inexpensive, and efficient in preventing draughts and distributing air and warmth evenly throughout a compartment. Very favourable reports have been received from all ships so fitted.

Another great improvement effected during the war as a result of the Committee's recommendation is the introduction of a water-excluding ventilator, which is a modification of a fitting observed by the Committee in the French battleship *Courbet*.

Important compartments in the forward end of the ship such as the seamen's latrines and the sick bay, both of which require specially good ventilation, were formerly entirely without it at sea, except in the calmest weather, simply because both the natural and artificial ventilation had to be closed to keep the water out. Now, however, the new fitting, by a combination of centrifugal action and drainage, guides any water which enters the ventilator back to the deck without permitting any of it to enter the fan or trunks. Consequently every compartment in the latest ships is just as well ventilated in the roughest weather at sea as it is in smooth weather.

Much, too, has been done to reduce the heat and stagnation of air in certain important compartments near the boiler rooms by the introduction of the traversing type of open propeller fan with the object of stirring up the air in accordance with Leonard Hill's results.

In 1915 the condition of living spaces during the long hours in which the ports and all means of natural ventilation have to be closed to exclude light came under consideration, and a number of light-excluding scuttle ventilators was supplied to every ship.

Special attention has been paid in the ships built during the war to the positions and ventilation of wireless office transmitting stations (which are the chief nerve ganglia in a ship), and to the space appropriated for treatment of the wounded during action, so that the atmosphere in each of them may be cool and fresh. Gunhouses and the silent cabinets in gunhouses have within the past twelve months been fitted with artificial ventilation which has been very favourably reported on by the Gunnery School at Whale Island. Destroyers are now fitted with pressure ventilating fans and the indirect system of heating the mess decks.

The ventilation of, and the method of purification of the air in submarines have been greatly improved since the outbreak of war, and this is very clearly shown by the enormous reduction in the CO_2 content after long hours of diving. Traversing fans have been introduced into these vessels also.

Water Supply.

Before the war practically all drinking water consumed in ships in commission was distilled by their own condensers, but, for military reasons, a very large number of the smaller vessels and a few of the larger have, during the present hostilities, derived their water supply from the shore through the medium of water-carrying vessels varying in size from small water boats of about 100 tons to large colliers. It was obvious from the commencement of this system that the transit from the standpipe on shore to the drinking tank in H.M. ships by way of hoses and tanks in water carrying vessels would be attended by a good deal of pollution, unless special precautions were taken, and even then some risk would be unavoidable; accordingly, the Admiralty issued orders that the work of cleaning tanks was in all ships to be carried out under medical supervision; that the clothing, including footwear, of the men who actually enter the tank was always to be previously disinfected; and that the work must be done by the ship, not by contractors, so that the men who carried it out could be under immediate control and supervision. Moreover, the process of supplying drinking water from standpipes on shore to tank vessels has for the past twelve months been under the supervision of naval medical officers, who draw up a few simple rules for the guidance of the men in charge of standpipes and for the masters of tank vessels. These rules are posted near the standpipes and in prominent positions in the tank vessels. Similarly the process of receiving water from a tank vessel into one of H.M. ships is always under the supervision of the medical officer of that ship or her parent ship, who

sterilizes the water with chloride of lime, however pure the source of the supply may be.

Further, a special naval medical officer is employed in

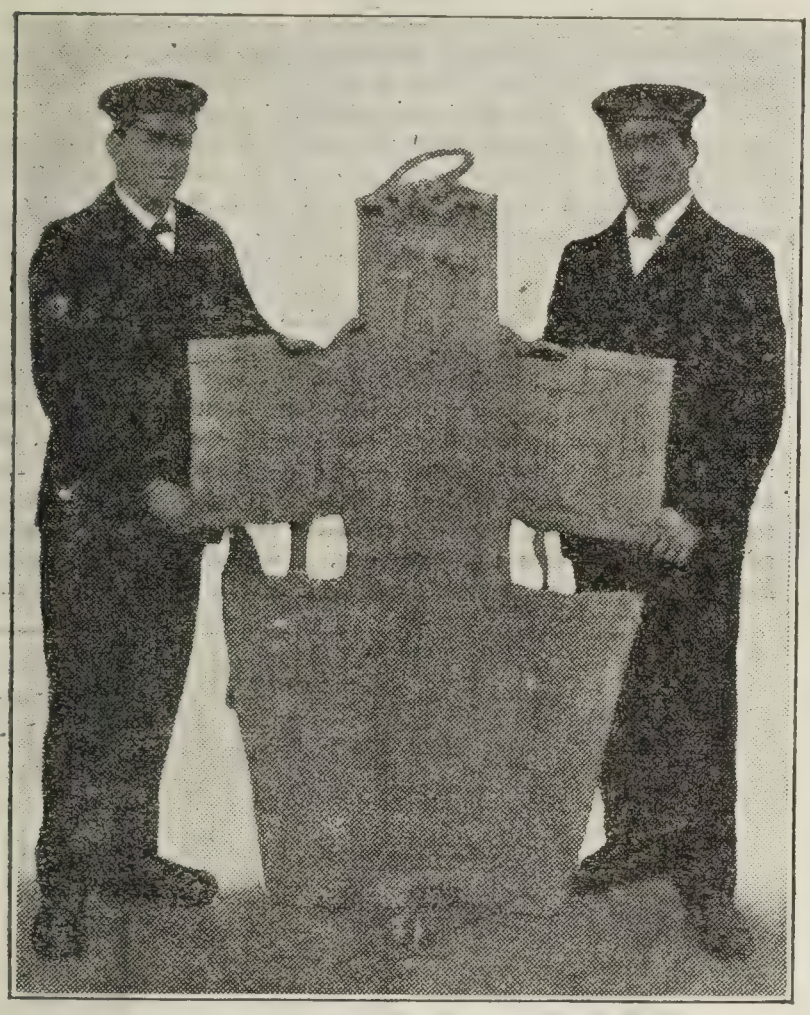


FIG. 1.—Neil Robertson Stretcher Open.

the sole duty of seeing that every precaution possible is taken to safeguard the water from pollution during its transit from shore standpipes to ship's tanks. He travels from port to port inspecting the water-carrying vessels to see that their fittings are in accordance with hygienic requirements and that the method of transferring the water is in accordance with the rules laid down by the Medical Department.

During the Gallipoli campaign a distilling apparatus of great capacity was set up in Mudros in order to provide the ships and the Naval Division with an ample supply of pure water.

As the sites of air stations have been selected primarily from a fighting point of view, the water supply, both as regards quantity and quality, has often proved a matter of difficulty and anxious consideration; it has then been necessary to arrange for sterilization by chlorination.

Unhealthy Occupations.

The composition used for the preservation of the fabric of aeroplanes contains material which, in civilian factories, has given rise to many cases of toxic jaundice, some of which have proved fatal. Although the Naval Air Service has used a very large amount of this "dope" no deaths, nor, indeed, any cases of illness entailing loss of service for a single day, have occurred. This fortunate result is to be attributed to widely disseminated information among the personnel as to the danger to be guarded against, efficient artificial exhaust arrangements (giving thirty changes of air per hour in doping rooms) and complete organization for extensive alternation of work.

The "dope" used in varnishing air-ship envelopes is of an entirely different nature, and in the absence of protective measures causes symptoms resembling acute alcoholism; but here again, although several hundreds of men are employed continuously at this work no ill effects can be traced to it owing to the efficient methods of immediately removing the fumes by a large number of powerful exhaust fans.

In our munition factories 5,000 men and women handle tri-nitro-toluene (T.N.T.), but no dust is allowed to collect, and the regulations for the protection of workers have been so strictly carried out that not only have there been no fatal cases, but there is no record of a single case of toxic jaundice. Although many authorities believe that the poisonous agent in T.N.T. is introduced through the skin, it is considered unjustifiable to allow the fumes of melting T.N.T. to escape into the general atmosphere of the room, and in all our factories artificial exhaust arrangements have been fitted to remove the fumes from their point of origin.

THE SERVICE AFLOAT.

BY

Deputy Surgeon-General ROBERT HILL, C.V.O.,
Principal Medical Officer, Grand Fleet,

AND

Fleet Surgeon E. A. PENFOLD, D.S.O., M.B., R.N.

ALL senior medical officers afloat of the Royal Navy appreciate the work of preparation which has been steadily going on for many years, most markedly in the last decade, in the Service. The plans laid down in peace time for the rapid expansion, when war should be declared, in personnel and stores, all bore fruit when put to the test in 1914, and this expansion still continues.

The installation about six years ago of high-pressure steam disinfectors in ships has, since the outbreak of war, proved of supreme value. Besides providing a weapon to combat the exanthemata and other infectious diseases as well as scabies, they sterilize clothing and dressings as frequently as may be desired. Another great improvement of pre-war times was the replacement of the clumsy service stretcher by the two forms of stretcher now in general use—(1) the bamboo stretcher designed from the Japanese stretcher by the late Fleet Surgeon Neil Robertson, R.N. (Figs. 1 and 2), which renders possible the removal of wounded from small compartments, down escapes in turrets, and round difficult corners with a minimum of danger and discomfort, and (2) the ambulance field service stretcher (Fig. 3), which enters so largely into the scheme for increased stowage space by the tier system, as explained further on (Figs. 4, 5, and 6).

At the outbreak of war the supply of stores and instruments increased automatically, and catgut, silk, and the like were sent to ships in portable tubes ready sterilized. The ships have always been on a war footing, but much has been learnt since the start of hostilities, notably the



FIG. 2.—Neil Robertson Stretcher with Patient.

large number and severity of burns encountered in action. Pictures of bluejackets working their guns stripped to the waist are picturesque reminiscences of the past, but the battle of Jutland showed that exposed parts, such as face,

neck, hands, and arms, are very liable to be severely burnt.

For the evolution of the anti-gas apparatus thanks are due to Fleet Surgeon D. W. Hewitt, R.N., and Mr. A. Hutchinson, of Pembroke College, Cambridge. Their work goes to prove that the naval medical authorities are keeping pace with and countering the fresh devices of the enemy in this respect.

Burns.

The paraffin, or "ambrine," treatment of burns introduced by Médecin-major Barthe de Sandfort of Paris (late of the French navy) has been adopted by the Naval Medical Service afloat. A small slab of the wax, which is

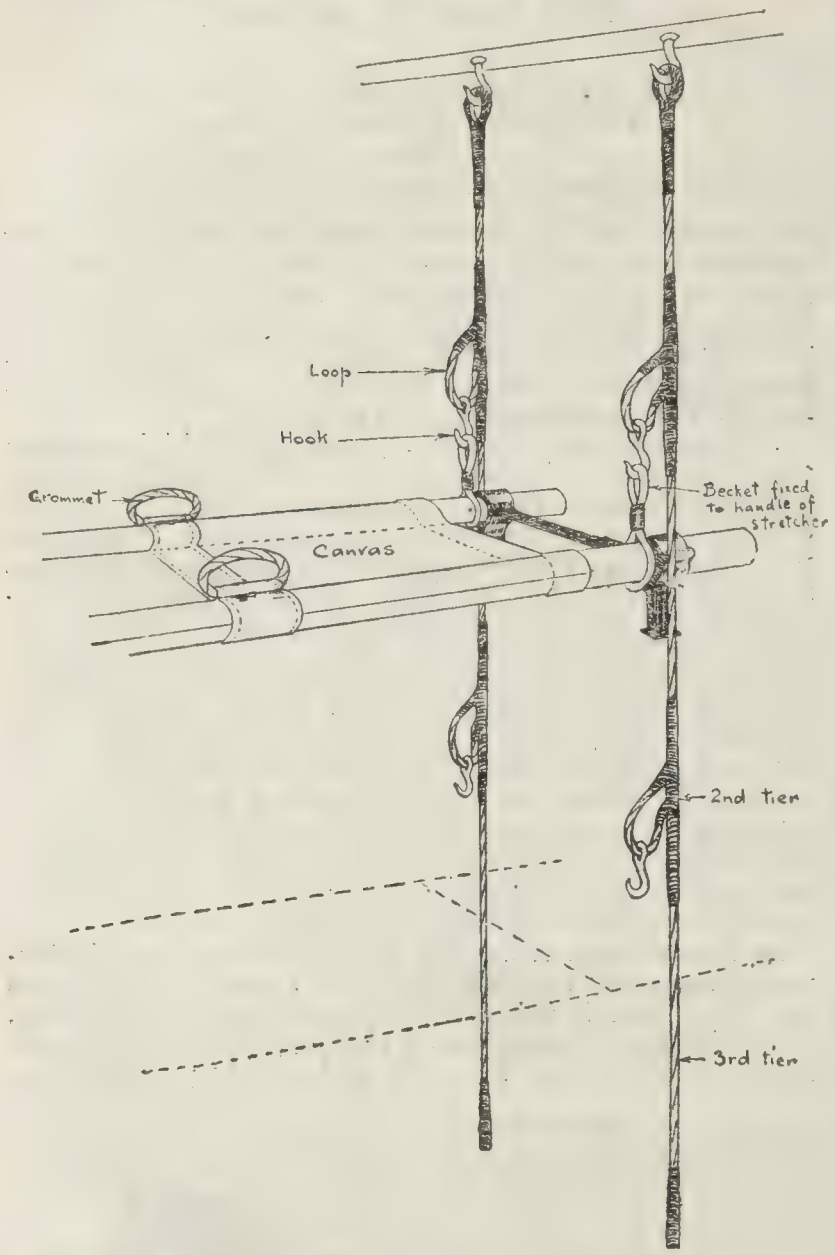


FIG. 3.—Bamboo "field" stretcher slung from wire roping in tier of three system. Design adopted by the Admiralty.

a mixture of paraffin and resins, is put into a metal spray producer and heated, either over a spirit lamp or in a water bath, up to the temperature when the wax melts. The bellows of the spray producer are then adjusted, and the liquid wax is pumped as a very fine spray on to the burnt surface, which has been previously dried thoroughly. A cake of wax forms over the surface, and is both air-proof and, from the heat at which it is applied, aseptic. A thin layer of cotton-wool is then laid on this wax, and the whole is again covered with the liquid wax applied by a brush. The results are very satisfactory; pain is certainly relieved rapidly, and subsequent dressings are almost painless.

Caisson Disease.

Another valuable adjunct to the medical service is the compression chamber fitted in one of the base ships for cases showing signs of caisson disease. It has proved very useful in the few cases in which it has been necessary to use it.

Dentistry.

The appointment of dental surgeons to certain ships in the Grand Fleet has been very valuable. Their services became necessary owing to the few opportunities which men had to visit the dental surgeons at the bases. The amount of work they have accomplished has proved of infinite benefit to the comfort and well-being of all hands.

Sick Bays.

The evolution of the sick bays from those of twenty years ago has advanced as rapidly as that of the ships themselves, and they are now well equipped. Situated well forward, the sick bay usually occupies the whole beam of the ship, and thus gets the advantage of scuttles on both sides for light and air. It is also ventilated by trunks from the upper deck, and this is of inestimable advantage when battened down at sea. The swinging cots, from eight to twelve in number, are slung on supports in the main portion of the bay, and arranged in two tiers with room between each group to nurse on both sides. There is also room for a few hammocks. The messing room is usually curtained off from the beds. The operating room is an excellent compartment with tiled floor, good light from both scuttles and electric groups, enamelled iron shelves, tables, and wash bowls, electric wandering lead and serviceable operating table. The supply of instruments comprises a major operating case, a minor operating case, a case of eye instruments, a set of silver catheters, Potain's aspirator, a small dental outfit, a sterilizer, splints,

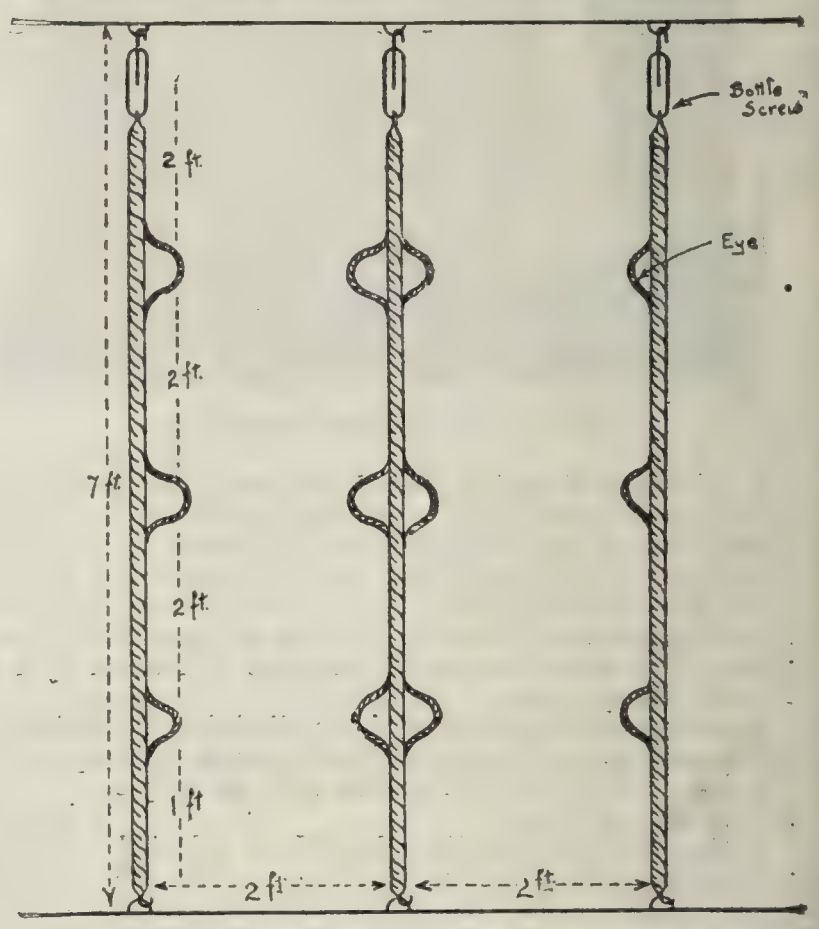


FIG. 4.—Wire-rope uprights in position for reception of cots or stretchers. Designed by Staff Surgeon Bringan, R.N., in H.M.S. *Edgar*.

irrigators, etc. The dispensary is well lighted and fitted up. In some of the newer ships a separate mess is provided for the sick berth staff. This is a great advance and much needed accommodation. There is also an isolation cabin, usually with two beds, which can be used as a junior officers' hospital.

In order to obtain all the advantages as regards space, light, and air, the sick bay must be situated in an unprotected part of the ship. This subject is closely connected with that of the accommodation for the sick and wounded and the medical staff during an action, and also after it, as the sick bay itself is likely to be shattered.

Distributing (Dressing) Stations.

In all modern ships there are two distributing stations designed in the construction of the ship, where the medical officers and their assistants are stationed in action; these are usually situated one in the fore part and one in the after part of the ship. They are designed so that they shall be, as far as possible, in the most protected parts of the ship, and for this reason there are many difficulties as regards space, ventilation, and temperature, these dressing stations being usually in close vicinity to boiler rooms or other engine-room compartments, which are necessarily in the most heavily armoured parts of the ship, and are

DIGITIZED BY THE INTERNET ARCHIVE IN 2011 WITH FUNDING FROM UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

usually hot and the space limited. They are nowadays fitted permanently as dressing stations, with operating tables, shelves, cupboards, and other appliances, and are kept always ready in war time, so that when the ship prepares for "immediate action" only those stores, instruments, dressings, and so forth which are in daily use in the sick bay proper are removed to these stations.

Stowage of Wounded.

The stowage of wounded in the limited space available under armour has exercised the minds of naval medical officers for many years, and active service quickly demonstrated that the decks became too wet to be desirable or comfortable for the wounded; further, very few cots and stretchers could be accommodated in the space at our disposal. Much ingenuity has been displayed by various officers to increase this cot accommodation—Fleet Surgeon Lavertine, Staff Surgeon Bringan, and the late Fleet Surgeon Capps. In all their designs the tier system has been adopted. The two chief types produced are (*a*) the rigid wooden skeleton to hold cots or stretchers, and (*b*) wire roping, fitted with loops at intervals of 2 ft. to carry the stretcher, fixed to the beam above, and either fixed to the deck below or allowed to swing clear.

The committee appointed to report on accommodation of wounded decided on the wire-roping system, erected in single tiers for three stretchers, as the most useful. Figures 3, 4, 5, 6 show the different designs. This contrivance, rigged near the distributing station on both sides of the main deck, and in other suitable sites, increases the stowage room threefold—keeps the wounded

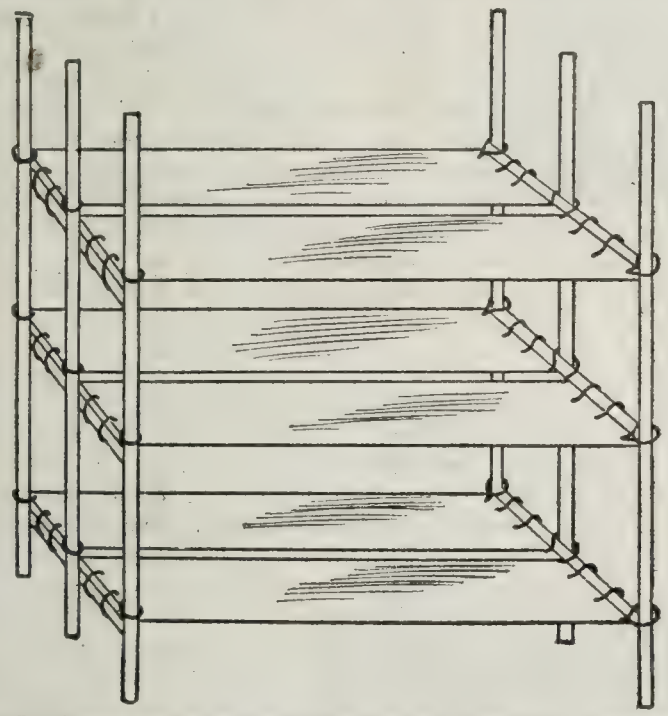


Fig. 5.—Representing a group of six cots in position. Designed by Staff Surgeon Bringan in H.M.S. *Edgar*.

off the wet deck, and places them in situations from which they can be easily attended to and moved should the disengaged side become the engaged one.

First Aid.

Besides the "first-aid" haversacks, boxes or cupboards for each gun are filled with single packages of dressings and other appliances, according to each medical officer's plan. Similar haversacks are usually supplied for the leading hands in charge of each stretcher party, and for every isolated position in the ship—that is, for each station in action where a number of men are isolated in various compartments such as conning tower, torpedo flats, gunnery and torpedo control positions, workshops, repair parties, engine rooms. The "first-aid" dressings supplied to these stations vary in amount according to the number of men stationed there, which may be from three to fifty men. It is also usual to have large tin boxes of additional dressings, tourniquets, scissors, splints, and other appliances in various accessible parts of the ship during action. These stores are used when there is any lull in the fighting, to replenish the haversacks or small boxes belonging to the guns and other stations without the necessity of coming to the medical officers in their usually distant stations.

It must be borne in mind that owing to the condition of a ship during and after an action, and to the excessive shock, even in the less severe cases of injury, it is advisable to avoid immediate operations.

Shock.

In order to combat shock the hypodermic injection of morphine is one of the most important duties of the medical officers during action, as this cannot be satisfactorily carried out by the best of lay assistants who have not previously been accustomed to it. No other forms of administration are entirely satisfactory, although commanding officers of destroyers in the early days of the war, when they were frequently in action, and before the appointment of surgeon probationers, had great faith in the small opium tablets with which they were supplied.

Sepsis.

The next most important duty in action is to combat sepsis, and although there is no soil contamination to be fought against, the wounds caused by shell are contaminated by all sorts of débris, resulting from shell explosion in a confined space, and the difficulties in the way of

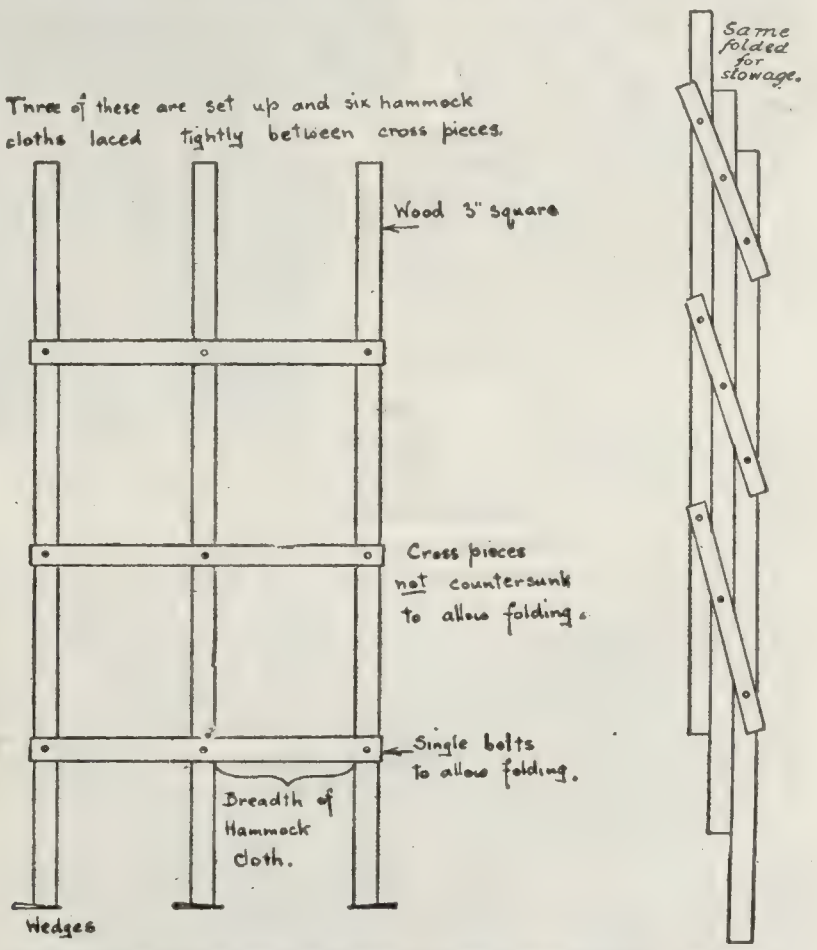


Fig. 6.—Upright as used in *Monarch* since August, 1914. Designed by Fleet Surgeon Lavertine.

cleaning the wounds are greatly increased if the hot water supply in the dressing stations has been cut off either by explosion there, or by destruction of the fresh water supply pipes in other parts of the ship. Recourse must then be had to the previously prepared stock of lotions and to iodine and rectified spirit. After combating shock and cleansing wounds, first dressings are applied and the patients made as comfortable as possible. After the action is over, or if there is a lull, it may be possible to do more in the way of surgery, but as the action may be resumed at any moment until the ship is outside the "danger zone," there will not be any time during which the ship is not liable to attack from the enemy, either by gunfire, torpedo, mines, or from the air, so that usually all that can be done is to remove the wounded to places previously arranged for, in all possible "protected" places, where their wounds can be redressed more carefully and splints applied to fractured limbs, and any immediate surgical work carried out.

Evacuation from Ship.

The evacuation of the wounded from a ship is a most important point, both from the wounded man's point of view and also for the efficiency of the ship. The ideal conditions obtain when a hospital ship can go alongside

the ship of war; then the wounded can be carried in their service cots and stretchers across a gangway to their beds. This, however, is rarely possible, and the services of the hospital carrier are called in as a go-between. In this case the wounded man is taken in his cot or stretcher and placed in the tray or cot carrier and hoisted out by means of a derrick into a hospital boat or barge, which transports him to a hospital ship, an ambulance train, or a local hospital, as circumstances command. The chief point to be remembered is that the less a wounded or burnt man is moved the better his chances of recovery.

Since the outbreak of hostilities the hospital ships have borne the brunt of the medical work in the fleet. The extreme undesirability of making preparation for action with several bed cases, whether medical or surgical, on board the fighting ship is evident. Cases of sickness or injury, if likely to be under treatment more than a few days, are therefore transported to the local naval hospital or hospital ship.

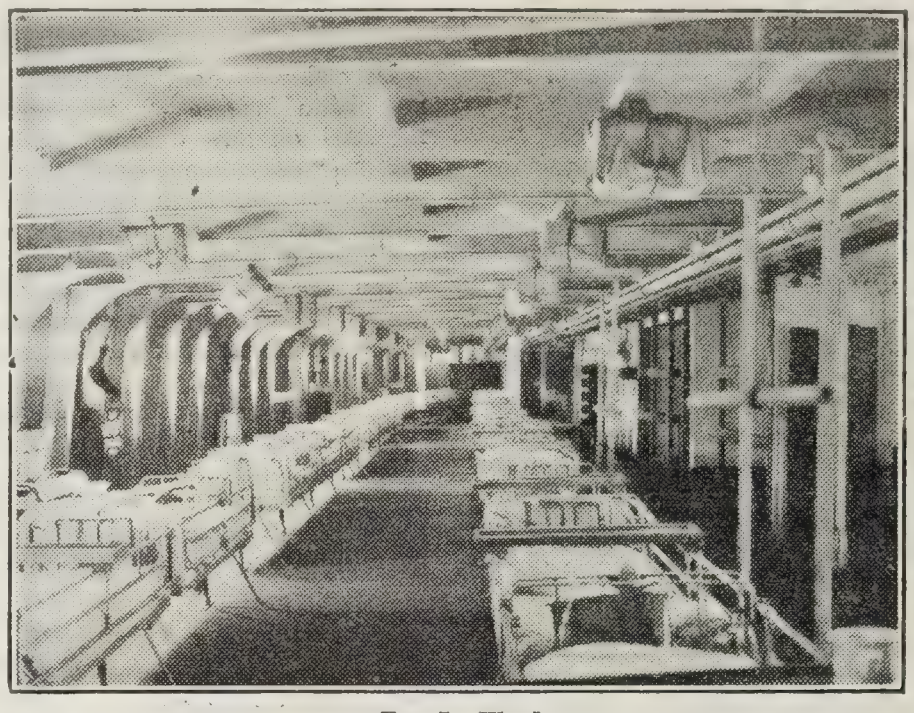


FIG. 7.—Ward.

HOSPITAL SHIPS.

BY

Fleet Surgeon E. C. LOMAS, C.B., D.S.O., M.B.,
F.R.C.S.Edin., R.N.,
Late Senior Medical Officer, H.M. Hospital Ships *Maine*, *Rohilla*, and *Garth Castle*.

BEFORE the war there was only one British hospital ship in commission, the *Maine*, which was originally fitted out by a group of American ladies during the South African war and subsequently taken over by the Admiralty. Unfortunately this vessel went ashore in a thick fog on June 19th, 1914, and was lost, but the arrangements for the provision of sufficient hospital ships for the fleet previously made by the Admiralty worked admirably. Within four days of the order to mobilize for war three ocean liners were converted into hospital "carriers," and with their medical and nursing staff, and full equipment of cots, bedding, and medical and surgical stores complete, which had been kept ready in a lay-apart store at one of the large medical dépôts, were at sea, where any necessary alterations were completed by the artisan ratings, so that they joined up with the fleet ready for any emergency.

In the meantime work was being pressed forward in six other ships intended for more permanent service from plans which had already been prepared during peace, so that they were ready for sea in about three weeks or less. These vessels were mostly intermediate liners, in which the passenger accommodation and cargo space were easily adapted to their new purpose. The swinging cots fitted averaged about 220, but additional emergency accommodation was provided for about 300 more patients. In the Mediterranean this number was sometimes largely exceeded, over 900 cases being conveyed to a base hospital on one occasion.

As a rule there are six or seven wards for men (Fig. 7) and two or three for officers, which were adapted by converting portions of the saloons or removing cabin bulkheads, some officers being also nursed in cabins. A padded room for mental cases was also prepared. The decks are covered with green corticine, which is easily kept in a high state of polish; the bulkheads and cots are enamelled a very light green. Ventilation is maintained by means of scuttles, supply and exhaust cowls, and special motor-driven supply ventilators. The wards occasionally became rather hot at night when dead-lights had to be closed; but this was corrected by Fleet Surgeon M. H. Knapp's plan of fitting the cylindrical portions of ordinary wind scoops with partial diaphragms which occupy about two-thirds of the circumference, so that while air is freely admitted no light shows through. Other alterations included the fitting up according to the existing plans of dispensaries, pantries, latrines, mortuary, disinfector for clothes and bedding, cot lifts both inside and outside the ship, *x*-ray room, laboratory, laundry, operating rooms, and many other necessary adjuncts of a self-contained hospital. These necessary fittings had also all been stored in readiness before mobilization.

The operating theatres are installed either in music rooms or saloons, or in specially constructed erections on the upper deck (Fig. 8). In the former case the somewhat ornate walls are covered in with match-boarding enamelled white. The rooms are divided into two parts with separate entrances and sliding doors between—one half being used as a preparation and sterilizing room. The decks are tiled and all the tables, shelves, and other structural arrangements are of the aseptic pattern. In spite of their extemporized character, it does not appear that any case of sepsis could be definitely attributed to faulty surroundings.

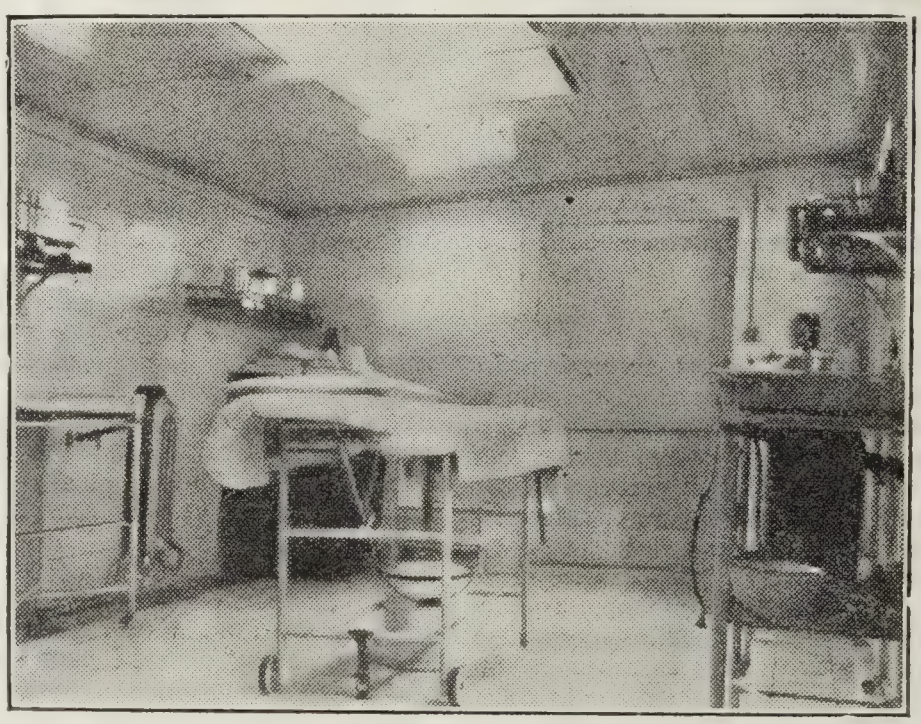


FIG. 8.—Operating room

The cot-lifts which serve the wards are placed near the operating rooms so that the exposure of a patient after anaesthesia is reduced to a minimum. The original supply of instruments and medical and surgical stores met the initial requirements; but subsequently, as it became necessary, further equipment was provided by the Admiralty.

General Duties.

On the Home Station the work of the hospital ships is to a large extent similar to that carried out by the *Maine* in peace time. The Fleets at their different bases—often in remote districts where no shore accommodation is available—are attended by one or more ships. When nearly full they are either cleared by smaller hospital ships which convey the patients to a convenient rail-head for further transference by ambulance train, or at stated

intervals the hospital ships are relieved by others, steam to a railhead to discharge their cases, and are then coaled, provisioned, and if necessary repaired or refitted.

It soon became evident that any preconceived ideas of hospital ships proceeding to the scene of an action had to be discarded. Apart from the difficulties of transporting wounded men from the fighting ships in bad weather at sea it was obvious that the conditions of modern naval warfare precluded these ships from remaining with their engines stopped without running grave risk of being torpedoed by submarines.

Embarkation.

In harbour the conveyance of patients is carried out by converted drifters or in ships' picket boats and cutters. Some of the former are fitted to take eighteen cot cases under cover, and in bad weather are far preferable to ships' boats. On arrival alongside, the cots are hoisted in, by hydraulic or steam cranes, in a tray which would take either a service cot or a stretcher (Figs. 9, 10, 11). The original trays were gradually improved upon, and were fitted with a removable end or side, whereby the process of transfer is much facilitated. When comparatively large numbers of men wounded in action have been brought in by destroyers and light cruisers, it has been found quite possible to get these vessels alongside the hospital ship, which considerably accelerates the transfer.

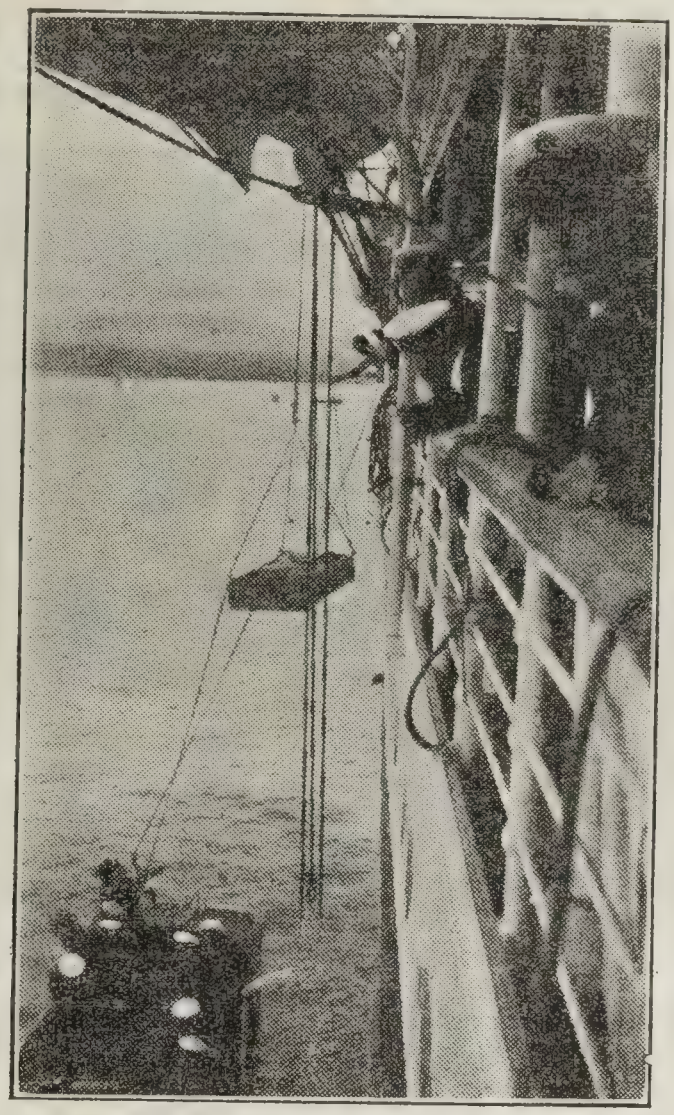


FIG. 9.—Cot case coming on board from a ship's boat.

Opinions differ as to what class of cases should be dealt with by hospital ships after an action and what transferred further by ambulance train. There is much to be said for the view that the very severely wounded and those suffering from much shock are more satisfactorily dealt with in the former. The transference from a fighting to a hospital ship is accomplished with the minimum of disturbance; and, as now equipped, these ships are capable of dealing with anything. After the Jutland battle there was a considerable number of patients with severe burns who certainly could not have borne a long train journey; their care entailed heavy work on the staffs of the ships which received them. It must be borne in mind, however, that when cases on board hospital ships that can travel by train are retained, there are no means of dealing with a fresh lot of wounded that may come in at any time. The hospital ship is, in fact, demobilized *pro tem.*, a most undesirable proceeding.

Staff.

The medical staff consists of one fleet surgeon in charge, six other medical officers, and a dental surgeon. A chaplain also is borne. The surgeons in the first instances, in addition to active service medical officers, were drawn from the

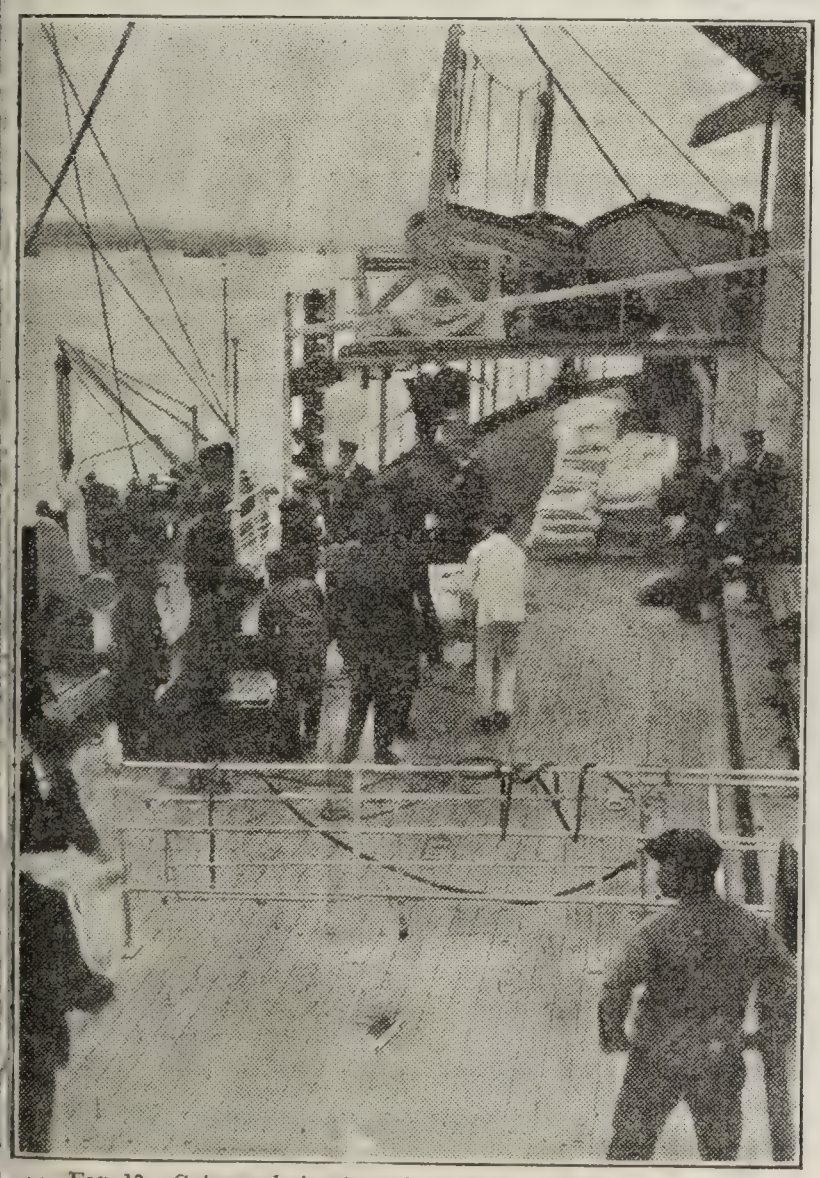


FIG. 10.—Cot case being transferred to the lift from tray.

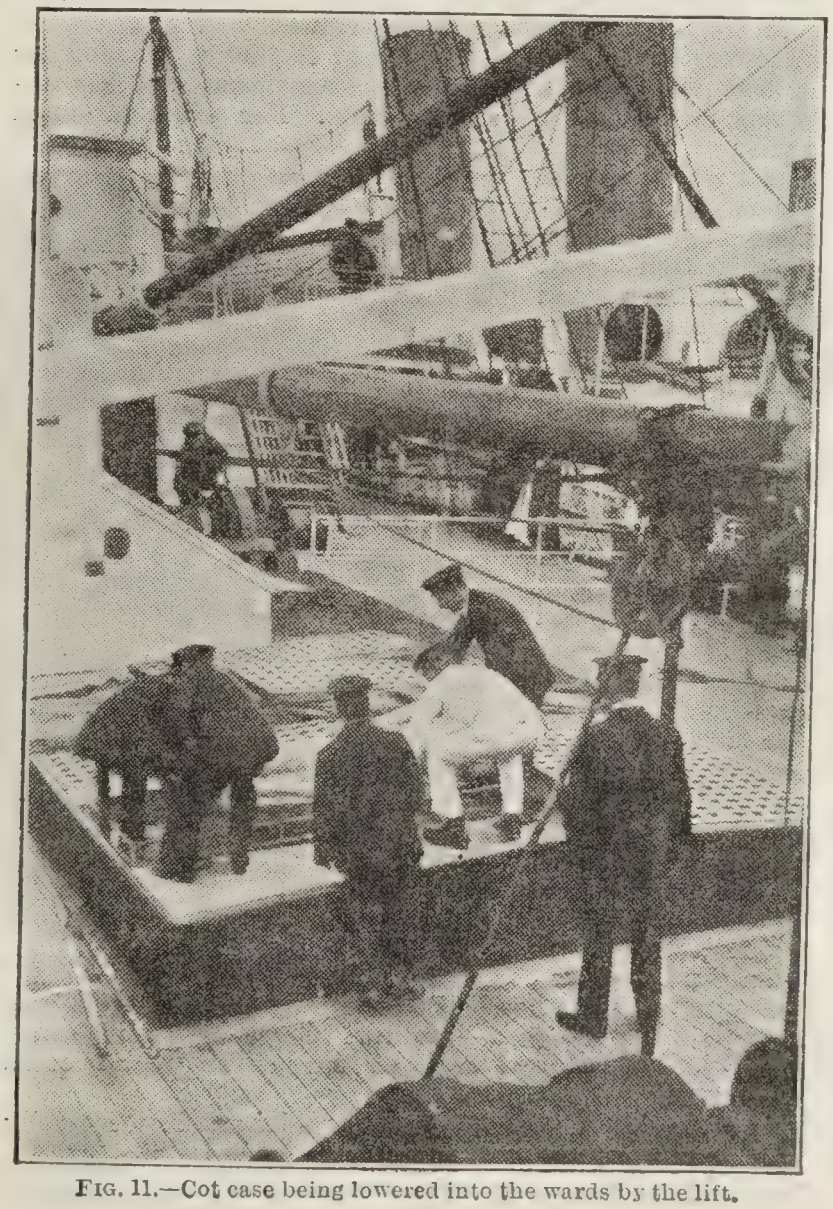


FIG. 11.—Cot case being lowered into the wards by the lift.

Royal Naval Volunteer Reserve, amongst whom were many holding honorary hospital appointments in civil life. Extremely valuable services were rendered by these officers, among whom were bacteriologists, ophthalmic surgeons, and *x*-ray experts. As time went on, special departments were gradually developed, with the result that a degree of efficiency has been obtained remarkable for a floating hospital.

The nursing staff consists of four Royal Naval or Reserve Nursing Sisters, and some thirty-five men, of whom about one-third belong to the regular Naval Sick Berth Staff and the remainder to the Reserve. The latter, drawn mainly from mining and manufacturing districts, were well trained in ambulance work, but as their nursing capabilities were naturally of a less high order, much responsibility fell upon the Sisters, who have admirably justified their calling. The remainder of the complement includes carpenter ratings, master-at-arms, and ship's corporals for baggage and police duties, writer, and signalman.

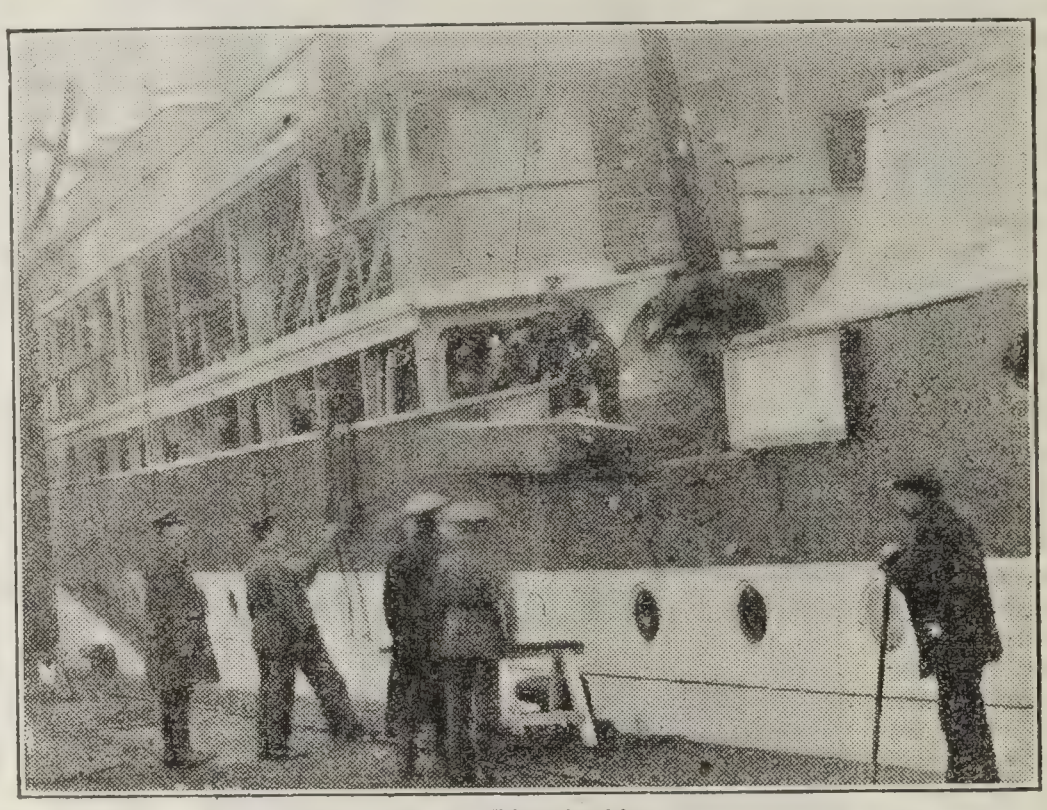


Fig. 12.—Disembarking

Improvements are constantly made in these ships; for instance, in the *x*-ray room of the *Garth Castle* aërial leads were installed, viewing boxes and adjustable carriers for water-cooled tubes made, and many other accessories fitted up by the ship's artisans and electrician under the supervision of the surgeon in charge of the department.

In the laboratory the ordinary clinical and pathological examinations are carried out, and facilities provided for culture work and the thorough investigation of cerebro-spinal fever contacts and carriers. For examination of acuity of vision, especially that of gun layers, all the hospital ships are provided with trial glasses and a dark room, where an ophthalmic surgeon or other member of the staff with a good working knowledge of sight testing and retinoscopy is always available. Among the temporary surgeons there are several gynaecologists, and their surgical experience is turned to good account on more general lines. On one occasion a successful Caesarean section was performed in a remote district where no other professional aid was obtainable. The operative work is often heavy, the cases being those ordinarily met with in a naval hospital. Appendicitis is fairly common, and on one occasion seven gangrenous cases were operated upon in one day.



Fig. 13.—Disembarking: Removal to Motor Ambulance.

In the *Garth Castle* iodine was mainly and successfully used for the cleansing of wounds, skin preparation, catgut, etc. Hypertonic saline solution was also much in vogue, both for arm and leg baths and as a dressing. The formula used was a solution containing 0.85 per cent. sodium chloride with 0.25 per cent. of sodium citrate. The results obtained were excellent; septic wounds and burns became clean and healthy in a wonderfully short space of time. Fleet Surgeon A. R. Bankart's apparatus for obtaining a solution containing free chlorine by the electrolysis of sea water proved quite efficacious.

The dental surgeons are always busy, and are of immense service to the personnel of the Fleet. At one time there were three of these officers living in the hospital ship at a certain base, the foremost operating and preparation rooms being given up to them. The equipment supplied is very complete.

Two features were introduced which proved of the greatest benefit to the Fleet. The first was the systematized use of galyl in all hospital ships. At first patients requiring this treatment were sent to the South of England, occupying valuable beds in hospital carriers and trains, and their services were lost for a considerable period. Later on such patients were sent to the hospital ships for two or three days, the injection was given, the particulars entered in their special history sheets, and they then returned to duty until due for their next dose. Whatever hospital ship was present then carried on the treatment, with resulting economy of time, money, and service. Systematic examinations of the urine for arsenic were also carried out.

The other feature was the provision of a ship specially for zymotic diseases. The ordinary hospital ships are not able to deal with these cases without seriously impairing their general efficiency, so the advent of the *Agadir* was the greatest possible boon. The drafts constantly coming from the various dépôts often bring sporadic cases of infection, and their early isolation is a matter of importance. The laundry and disinfecting plant are two other items in constant request. Clean bed linen and patients' clothing went far towards giving the ships their reputation for always looking fresh and sweet. The contrast to a sick man coming from a fighting ship always prepared for action and often coaling is very great. The large high pressure disinfector is in great demand, much bedding and clothing being brought from auxiliaries and small craft which have no facilities for this work.

Disembarkation.

This is simply the converse of the process of embarking a considerable number of cases. As has already been stated, it is done in two ways—that is, either by discharging

to a smaller hospital ship which came alongside or by the ship herself proceeding to a port with rail facilities. In the latter case, the number and class of cases having previously been telegraphed, a fleet of motor ambulances and baggage lorries is in attendance on the jetty as soon as the ship is tied up. The clerical work, sorting of baggage, labelling for the different base hospitals, etc., has all been completed on the voyage, so that little time is spent over the actual disembarkation. The requisite number of cots are placed in readiness in each ward, and the patients who are unable to walk placed in them. Baggage and walking cases are got out first, the latter proceeding down a brow or the ship's gangway ladder. The cot cases are then brought up in rapid succession in the lifts, transferred to the tray, and hoisted out. Padded trestles are placed on the jetty to receive the tray, and the cots are transferred to the waiting ambulances (Figs. 12, 13). The canvas cots are uniform and interchangeable with those of the ambulance train, so that there is no further disturbance of the patient, the same number of empty cots being received from the train.

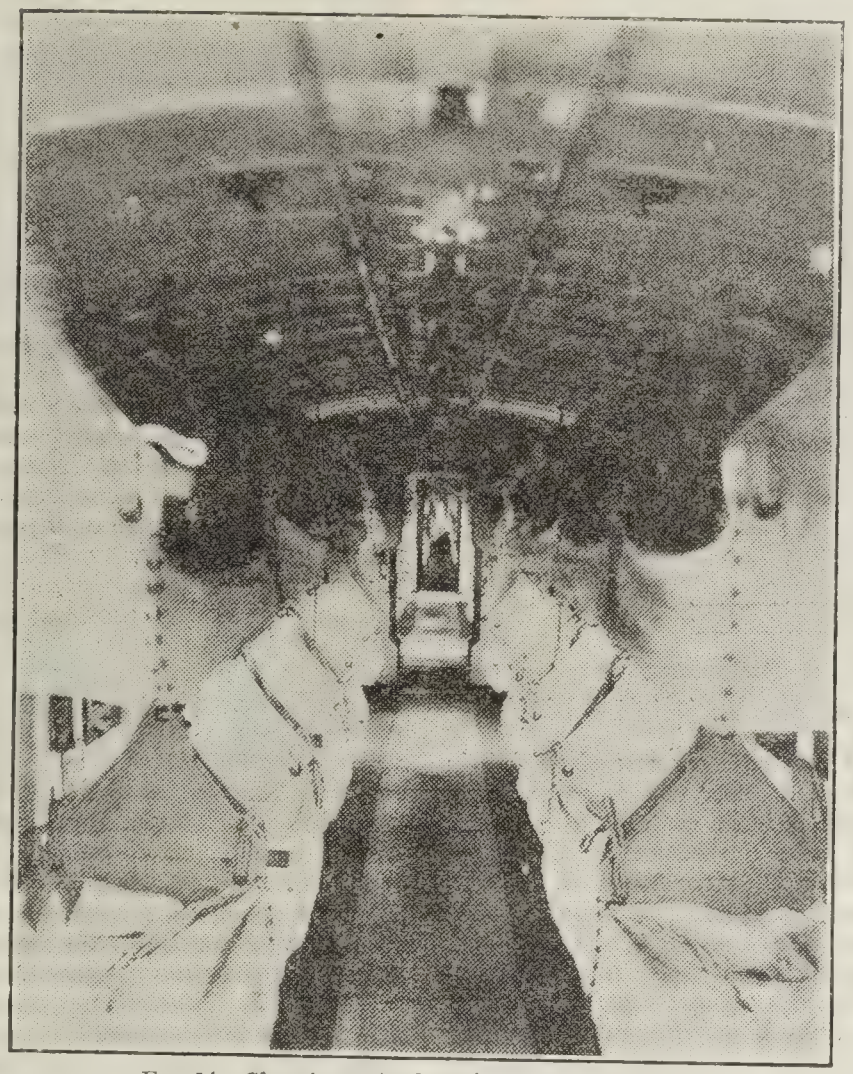


FIG. 14.—Showing cots slung in ambulance train.

The Naval Medical Transport Department now takes charge of the cases, so that when the last patient and kit-bag are over the side the professional work of the ship ceases for a short space, and a proportion of the staff are enabled to get well-earned leave as the last weeks of the round trip are always strenuous.

ACCOUNT OF LAND MEDICAL TRANSPORT ARRANGEMENTS OF THE NAVY.

BY

Surgeon General SIR JAMES PORTER, K.C.B., K.C.M.G. M.D., R.N.,

AND

Staff-Surgeon A. VAVASOUR ELDER, R.N.V.R.

THE removal of sick and wounded from the scenes of their activities to the seclusion of a hospital is no small factor in the general work of the Medical Department of the Navy.

To deal with this phase of medical work a special medical transport organization has been created. There is a central office at the Admiralty for the Principal Medical Transport Officer, and thus in immediate touch with the department. Medical Transport Officers are established at the chief naval ports, and finally Assistant Medical Transport Officers have been appointed at all places round the coast where wounded are likely to be landed after action. At each of these places provision has been made for establishing dressing stations and temporary hospital accommodation for a certain number of cases until such time as an ambulance train can be sent to remove them to base hospitals elsewhere.

One of the difficulties of the problem of dealing with naval cases after action is the impossibility of arranging in advance or foretelling exactly at which spot and in what numbers wounded will be landed. Certain obvious bases, it is true, exist, to which ships able to do so would naturally return after an action. But at the same time these bases are wide apart, leaving large gaps of coast line with many ports, into any one of which rescue vessels and smaller damaged vessels might be compelled to enter and discharge their wounded. Hence the establishment of what are termed emergency medical dépôts, with Medical Transport Officers in charge of each at various places along the coasts. Thus no likely place is left without means of coping with a sudden inrush of wounded and rendering medical aid to them.

Briefly, from the time a wounded man is landed from a ship until he is finally placed in hospital, he is in the charge of the Land Medical Transport branch of the Naval Medical Service. The system adopted by the Navy differs from others in so far that when a man is wounded severely enough to require immediate treatment in bed, after having received medical attention, he is, so to speak, put to bed in

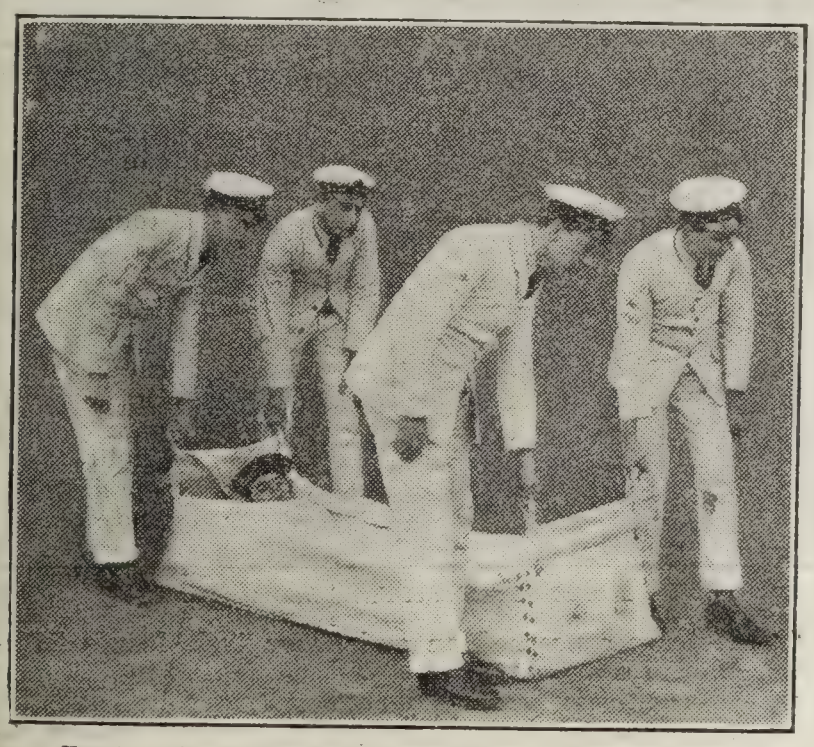


FIG. 15.—Showing method of carrying cot. Summer dress.

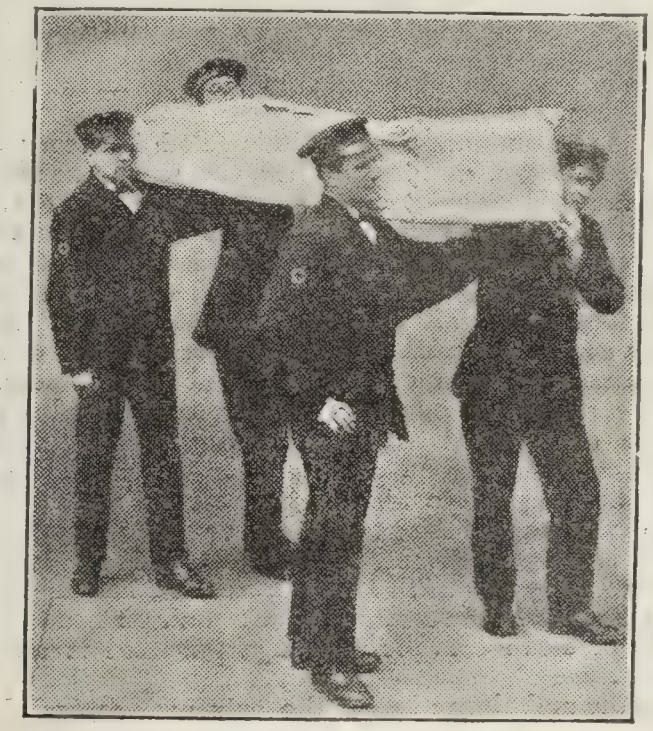


FIG. 16.—Showing method of carrying cot. Winter dress.

his ship in a standard naval cot and made as comfortable as possible in the circumstances. The naval standard pattern cot is composed of canvas stretched over a wooden frame and laced together. At each end of the cot the

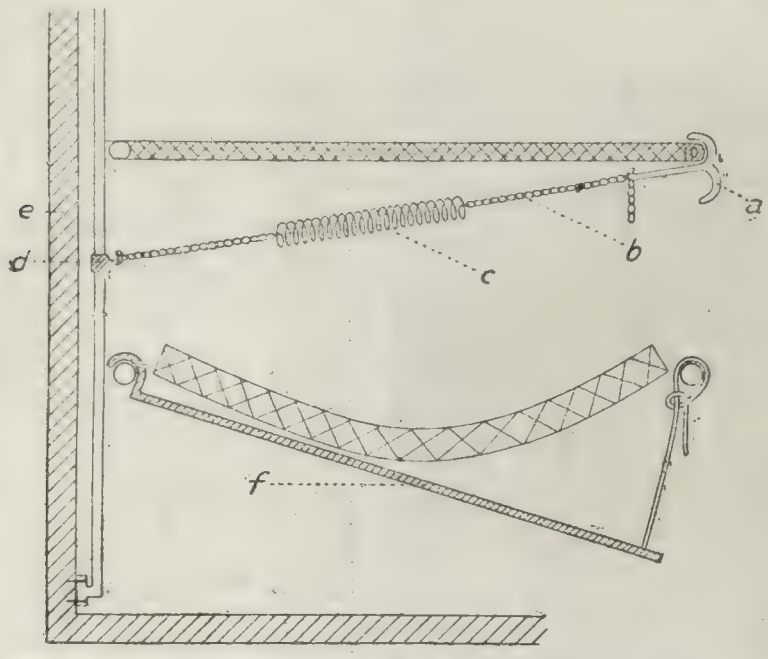


FIG. 17.—"Gripe" and method of diminishing vibration for fracture cases. *a*, Anchor hook; *b*, chain; *c*, spiral spring; *d*, traveller; *e*, side of coach; *f*, fracture slat.

canvas is extended into a triangle, the apex of which is fitted with a lanyard and an "eye" for slinging purposes, while the canvas at the sides is wide enough to overlap, and so affords extra warmth and protection to the occupant. Each cot is fitted with a mattress, pillow, pillow-case, and two blankets. Thus it is in itself a complete bed wherever situated. From the time a patient is placed in a cot on board a fighting ship until he is finally put to bed in a hospital he is never moved out of it. He and his cot travel together all the way, thus saving much of the pain and suffering involved in the frequent transfers by stretchers, ambulances and trains.

To carry this out all the ambulance trains, motor ambulances, bearer-parties, and so forth, have been specially organized in a standard and uniform manner with regard to each individual link of the transport chain. This may be best described by tracing the journey of a patient from the commencement. The patient and his cot complete with bed and bedding are landed from the ship and turned over to bearers specially trained in the handling of cots. These bearers are drawn from ratings of the Royal Naval Auxiliary Sick Berth Reserve attached to the Medical Transport branch in the case of large naval centres, and in other places they are drawn from Voluntary Aid Detachments of the Order of St. John of Jerusalem in England and the British Red Cross Society. The bearers carry the cot to the ambulance or ambulance train as the case may be, and there it is placed in position. In exchange for the "loaded cot" the ambulance or the ambulance train gives a clean, empty, and fully-equipped standard cot for return to the ship from which the patient was received. In this manner the fighting ship always maintains her complement of clean cots.

When an ambulance or train is filled it moves off to its destination, and on arrival, the same exchange of cots is made as before, and so on throughout each link until the patient is finally taken out of his original cot and put in bed in hospital. By this method there is a constant outgoing stream of clean cots from the base to the ships at sea all ready for further service. Everything connected with the land transport of wounded is maintained in a state of immediate readiness, and finally, and most important of all, the wounded themselves are spared the sufferings caused by repeated transfers from ambulance stretcher to ambulance train and back again to another ambulance stretcher, etc. Also the time taken thus to empty an ambulance train is very brief, and the delay to ordinary passenger traffic practically *nil*. At the large naval bases arrangements exist for the cleaning of all cots and bedding, and a store of clean cots for exchange purposes is also established.

In the ambulance trains the cots are suspended in two tiers from the roofs of the coaches. They are prevented from swinging by a spring clip, devised by Staff Surgeon Elder, which presses the cot against two padded buffers built in to the side of the coach. By this method the cot and patient do not form a component part of the coach. The jolting of the train over the metals is largely taken up by the suspension, while lateral jars when rounding curves and the like are absorbed by the padded buffers. Thus the cot has just enough "play" for comfort and *no more*, while the train is under way. The tension of the spring clip is adjustable at will, and, unlike the "fixed bunk" of military ambulance trains, every jarring movement of the coach is so minimized as practically not to disturb or distress the patient. Moreover, the coaches themselves when empty of cots have no fittings except a few chains and hooks, and are easily cleaned and disinfected.

As regards the ambulances in general, beyond being fitted specially to take naval cots instead of the military stretcher, they present nothing else of interest except a squadron of thirty motor buses. These buses were taken over from the London General Omnibus Company at the commencement of hostilities and were fitted with spring trestles on which the cots rest. They have proved satisfactory in every way and are just as comfortable for patients as the latest pattern specially built ambulances.

The emergency medical dépôts previously referred to and located at various places along the coast are supplied with "cot," "clothing," "hospital," and "medical units" respectively. The cot unit consists of completely equipped service cots, which can be used to form the nucleus of a temporary hospital in suitable local buildings selected in advance for this purpose. The hospital and medical units containing all the necessary utensils, drugs, and dressings, etc., are kept available for immediate use in these extemporized hospitals. The clothing unit, as its name implies, is for use of men suffering from immersion and lack of clothing, so as to enable them to proceed in dry clothes to wherever they may be sent.

In addition to preparedness for "The Day," the Medical Transport Department is continuously engaged in the removal of ordinary sick from the fleet at the various ports. The unloading of hospital ships from the fleet and overseas is also part of its duties. As far as the sick from

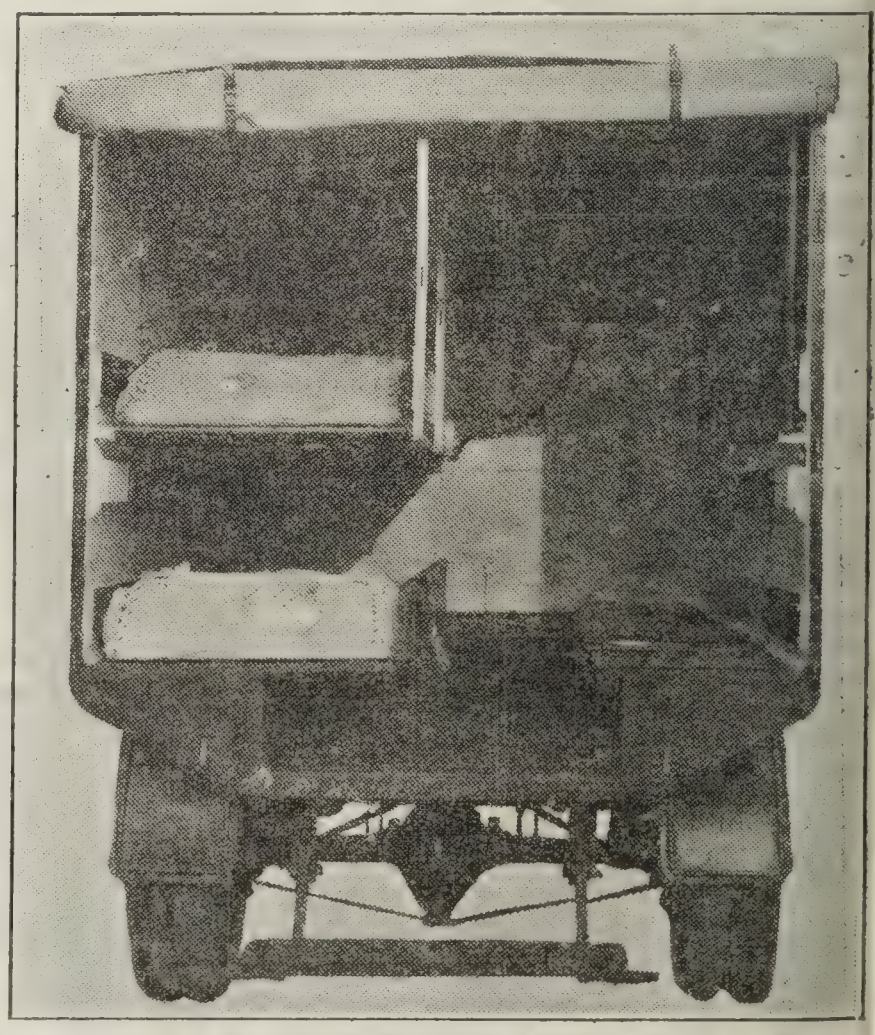


FIG. 18.—Interior of Naval Ambulance.

the fleet are concerned, an ambulance train leaves Edinburgh once a week, travels down the East Coast, picking up cases at towns previously notifying cases for removal, and then proceeds to Plymouth, where cases belonging to

LIBRARY OF THE UNIVERSITY OF CALIFORNIA-CLINICAL

that port are transferred to hospital. From Plymouth the train goes to Gosport, and thence to Chatham, where the journey ends, landing cases at their respective hospitals in each place. Thus the sick are taken each to his home port, and in close touch with friends and relatives. The round journey from Edinburgh to Chatham takes about thirty-four hours. During this time the patients are fed, each according to his prescribed dietary scale. In fact, everything is done for them while in the train. No stops are made except for gas and water or railway requirements when they arise. Owing to the pressure on the railway systems in the north of Scotland the full-sized ambulance trains do not as a rule proceed north of Edinburgh. Cases are brought as far south as Edinburgh from the north by a smaller train, a class of conveyance also found convenient and economical for distributing smaller numbers of cases to auxiliary hospitals, and so aiding in keeping the sea coast hospitals from congestion in emergency.

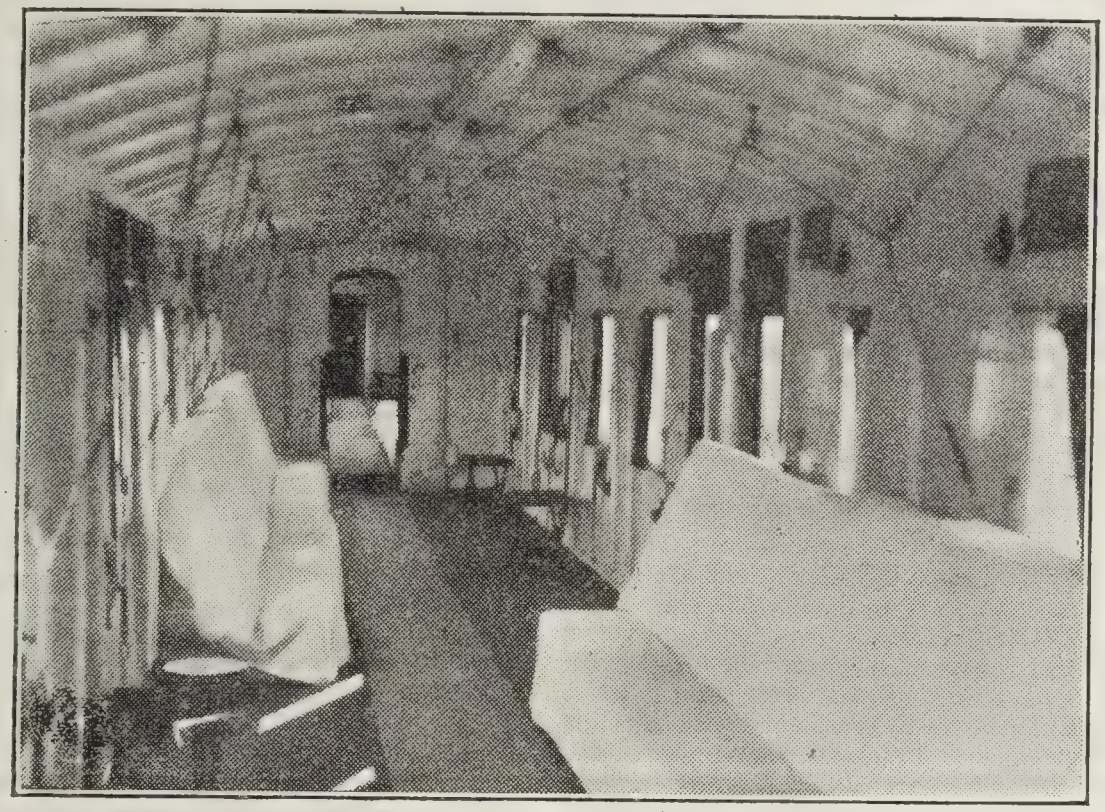


FIG. 19.—Sitting accommodation, ambulance train.

A full-sized naval ambulance train carries 136 cots and a smaller sized train 40 cots and 36 sitting cases. On routine journeys only the number of patients which a train has cot accommodation for are carried as a rule, so that every patient has a cot to sleep in at night. During daylight hours sitting accommodation is provided for non-cot cases by stacking two cots on the floor all along one side of the coach, a third cot being placed sideways on the uppermost one, and resting against the side wall of the coach. This forms a back-rest, and by this means very comfortable sitting accommodation is obtained which allows the men to sit back and stretch their legs, without interfering with or being disturbed by the ordinary traffic through the coach. Washable canvas covers are supplied for use when cots are thus stacked to keep them from being soiled. At night the cots are slung in position and the coach transformed into a dormitory.

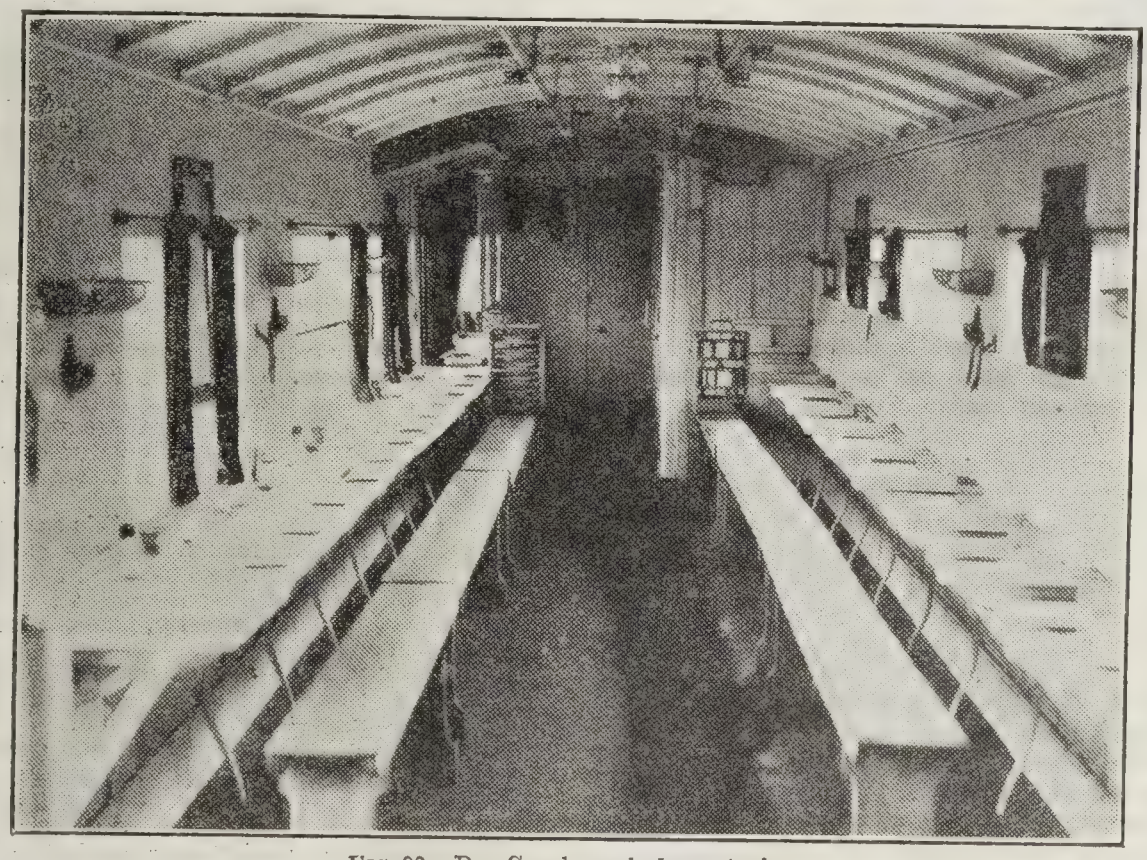


FIG. 20.—Day Coach, ambulance train.

All the trains are self-contained and, when in motion, self-supporting, carrying everything in the way of provisions, stores, and so forth, likely to be required on the journey.

The staff consists of two medical officers and thirty-six men, including cooks, clerks—all Auxiliary Sick Berth Reserve ratings—who live in the train continuously. In fact, the trains are practically commissioned like ships and worked as such in the way of duty, regular sea watches being kept day and night. For ordinary routine journeys nursing sisters are not carried, but a cabin is set apart for two in each train for use when required, as after a naval engagement or when any cases calling for their presence are being transported. The nursing itself is done, as in the navy afloat, by trained male Sick Berth ratings.

An interesting feature of the large naval ambulance trains is what is known as the "Day Coach." It is fitted along the sides with sections of flap tables, lifting upwards, at which non-cot cases can sit and have their meals or do anything else. Under these tables is a row of wash-basins connected with water supply. These are for use after a night journey or as required, and become available by lifting up the flap table. At one end of each of these coaches two padded rooms are fitted for the more violent mental cases.

A small dressing station supplied with instruments and drugs is also provided. It may, however, be stated here that, practically speaking, there is very little to be done in the way of "dressings" except while the train is at rest. For this reason also no "operating theatre" has been arranged, on the assumption that a case likely to require operation would not be travelling, and also, if such a case were encountered, operative measures would probably have to be applied at the cot side—time would not permit of the case being taken to the "theatre"; or, alternatively, the patient would be landed at the first opportunity.

A portable electric signalling device is fitted at each end of the train and coupled up with the engine, so that communication can be made with the driver by means of a code of signals with reference to speed, heating, etc. The principal parts of the train are connected by intercommunicating telephone. The trains are lighted by electricity—dynamo while running and accumulator when at rest. Electric fans are fitted where requisite, and portable lights are

arranged for in all the ward coaches. Gas is used for cooking only, and is carried under the kitchen cars and one car adjoining each kitchen, the cylinders being coupled up together; thus the danger of fire is reduced to a minimum. Heating of the coaches is by steam from the engine, carried in overhead pipes suspended from the roof. While running the internal air current circulates the heat very evenly, and at the same time the floor space is clear of any obstacle which might get in the way of a bearer party while handling a cot. Sanitary arrangements are ample—about 10 per cent. of the carrying capacity of each train, and consist of water-sealed pans. Arrangements are made for "trapping" these while trains come to a halt for any length of time. Large storage capacity for water, domestic and sanitary, is supplied to each train. For administrative purposes a small office is fitted up centrally in the train, and contains typewriter, safe, and the usual office furniture.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INTRAVENOUS INJECTION OF SODIUM BICARBONATE IN DELAYED CHLOROFORM POISONING.

ON January 12th, 1916, I removed a gangrenous appendix from a soldier who had been gassed. The anaesthetist began with ether, as chloroform is avoided at this hospital in acute appendicitis and also in cases where there has been starvation or vomiting for some days before operation. It was soon found, however, that ether was dangerous in this case, causing extreme cyanosis and profuse bronchial secretion, owing probably to the bronchitis that still remained from the "gassing," and it was decided to continue with chloroform, which the patient took well.

Next day the temperature had fallen, the pulse was good, there had been little or no vomiting, the abdominal condition was quite satisfactory, and the patient seemed much better and was reading the newspaper on my arrival. He had been getting sodium bicarbonate by the mouth and was taking fluids well.

Two days after the operation the house-surgeon reported that the patient was very sleepy, and was beginning to get jaundiced. Calomel and enemata were given, but the drowsiness increased. On the third day he was very yellow and in a state of coma, from which he could not be roused; it was accompanied by restless movements of the head and body when attempts were made to examine the pupils or to pass the catheter. Urine and faeces were passed involuntarily, and no specimen was procured to be tested for acetone and diacetic acid. To all the surgeons who saw him the diagnosis seemed obvious—secondary chloroform poisoning—and the outlook hopeless. His relatives had come from another town to see him, but he could not be roused. Hoping for a temporary rally, I decided to inject intravenously a solution of sodium bicarbonate, as recommended by Langdon Brown in diabetic coma.

The incision was unnoticed by the patient, and two pints of sterile water containing five drachms in all of sodium bicarbonate were injected into the median basilic vein. Before leaving the table the patient drawled out the words "Oh, I say," again and again, but still could not be roused, and continued to pass urine and faeces unconsciously till next day, when a slight return to consciousness was noticed, and he tried to answer questions, but at first with no sign of understanding them. A pint of sodium bicarbonate solution was given subcutaneously every six hours and also occasionally by the rectum.

Two days after the intravenous injection the return to consciousness became more marked and he began to talk a little, but seemed childish. On the third day the mental condition was practically normal. The appendix wound healed by first intention, but convalescence was delayed somewhat by an abscess in the pectoral region caused by the repeated subcutaneous injections, when the patient was restless, making it difficult to avoid sepsis. Otherwise recovery was uneventful and complete.

The interest of the case lies in the fact that recovery took place even after the onset of coma with involuntary passage of urine and faeces. In most cases of delayed chloroform poisoning (of which I have, unfortunately, seen several), the pulse is rapid and weak, the patient is breathless before the onset of coma, and death is almost certain when this stage is reached. Whether intravenous injection of sodium bicarbonate solution can avert a fatal ending in any of these is doubtful, as in the case recorded above the pulse was never weak and running, but the treatment is, at any rate, worth a trial.

GEORGE G. FARQUHAR, F.R.C.S.,
Honorary Surgeon, Darlington Hospital.

CASE OF TETANUS SUCCESSFULLY TREATED WITH ANTITOXIN.

THE following case is interesting not only on account of the success of the treatment adopted, but also owing to the probable mode of infection. The patient was a boy, aged 16, who worked in the gardens of a reformatory school, and probably infected himself with tetanus by scratching irritable vaccination marks with fingers contaminated with garden soil:

He was vaccinated with calf lymph on August 29th. The vaccination ran an ordinary course until September 10th, when the two scabs were knocked off by a boy in play. On September 14th he complained to the nurse matron that his arm was painful. When it was found that the arm was swollen and inflamed and the vaccination sores were discharging pus, mild antiseptic dressings were applied, and in a few days the arm was apparently quite well.

On September 23rd the boy reported himself sick to me, when I saw him for the first time since his admission. He complained of pain in the back, and that his vaccinated arm was sore; there was no pyrexia and the tongue was clean, but the vaccination marks showed as two ulcers with surrounding local inflammation, and the axillary glands were swollen and tender. He was sent into the school hospital for observation, and the arm was dressed with weak lysol. On September 25th he complained of severe pain in the back and stiffness in the muscles, which he said "passed off and then came back again." I was called in the afternoon and saw him at 6 p.m., when tetanus was evident. The spasms were characteristic, and risus sardonicus was present. Serum was not obtainable until 12.30 a.m., and then only 1,500 units. The dose was injected under the skin without chloroform anaesthesia. When I began to withdraw the needle it broke off in its entire length (1¼ in.) owing to a very violent spasm; the needle was left *in situ* (the skin of the thigh). On September 26th more serum was not available, but the boy's condition was worse, the spasms being more frequent and more intense. His temperature was 99.2°, pulse 100 to 120. Slides from the discharging sores on the arm showed club-shaped bacilli; these were recognized as "presumably *B. tetani*" by Mr. W. Gough of Leeds.

On September 27th serum was at last obtained; 3,000 units were given in the early morning and another 1,500 at night. All injections were given hypodermically under chloroform anaesthesia.

The boy had become progressively worse (twenty-eight spasms were noted within three hours at night), there was marked opisthotonos, and occasionally pleurothotonos was noted; there was cyanosis, most intense during the spasms, with profuse perspiration. The breathing was much embarrassed, and he had bitten his tongue, which was a source of much trouble in feeding. The temperature was 99.8° (the highest recorded during the illness), the pulse-rate 100 to 140; chloretone in 5-grain doses every two or three hours and chloroform inhalation during the spasms were ordered as the occasion required. On September 28th there was no change; 3,000 units were injected. The tongue was much swollen, with septic lacerations on either lateral margin; hydrogen peroxide and thymol were used frequently for swabbing, etc.

On September 29th the spasms were less frequent; he had begun to improve. On October 3rd he was covered with urticaria (13,500 units were injected from September 26th to October 2nd). On October 6th there were two spasms, the last recorded. After this he made an uneventful recovery. The broken needle was removed on October 20th through a superficial incision.

The great difficulty in treating this case was to obtain serum. There was a Zeppelin raid in progress on the night of September 25th; I only got serum, and that in an insufficient quantity, by motoring thirty-six miles; the night journey was enlivened by the activities of the Zeppelin, and the zeal of the policeman professional and otherwise.

In treating the case, the lacerated tongue rendered feeding most difficult; any form of gag—for example, a piece of wood or other substance—provoked spasm.

Chloretone made the spasms less painful, and chloroform inhalation was useful. I may here pay a tribute to the nursing, which was most excellent night and day throughout the critical time.

The incubation period was probably from nine to eleven days until the first local muscular rigidity, which I did not recognize as being due to tetanus until the superadded clonic spasm appeared on September 25th.

A "sore arm" after vaccination in this school is not uncommon by reason of the boys "ragging." This is the first case of tetanus recorded in the school since its institution in 1856.

Malton. NOEL C. FORSYTH, M.D.

Reviews.

DIFFERENTIAL DIAGNOSIS.

WE welcome the appearance of the second edition of Dr. H. S. FRENCH'S *Index of Differential Diagnosis of Main Symptoms*.[1] The first edition of the valuable book came out in 1912; the new edition is an improvement in many ways on the old, and has been recast on ampler lines, with a large number of illustrations and coloured plates. Every article has been revised and several new ones have been added, and larger type is employed throughout the volume.

The book has been written with the object of supplying medical men and students with a treatise on the application of differential diagnosis to all the main signs and symptoms of disease. It covers the whole ground of medicine, surgery, gynaecology, ophthalmology, dermatology, and neurology. It is an index or dictionary in the sense that it consists of an alphabetical list of signs or symptoms—for example, albuminuria, baldness, convulsions, dysphagia, enlargement of the heart, and so forth, to quote a few of the headings in it. At the same time it is a work on differential diagnosis, in that it discusses the methods of distinguishing between the various diseases in which each individual sign or symptom may be observed. Dr. French appears to have chosen both his two-and-twenty collaborators in the writing of the *Index* and the headings of the articles they should write with equal skill and success. Having read most—we will not say all of the articles in the book, for fear we should not be believed—we have no hesitation in saying that it is a work that should be in the hands of all medical practitioners and senior medical students. Variety in authorship is a great asset to medical dictionaries of this type, for it provides the differences in style and in point of view that do so much to lighten the reader's labour when he comes to consult their pages. Dr. French has succeeded in imparting this variety to his *Index* very happily. Particular mention should be made of the very full and admirably printed general index, with some 50,000 entries, which occupies the last 135 pages of the book. The reader is encouraged to refer freely to this general index when reading the volume, so that he may be able to turn to all the places in which is discussed the disease with which he is dealing. This is very sound advice; for while each sign or symptom is discussed but once in the volume, it is clear that each disease is likely to come up for general description under the heading of each of its more important symptoms. The publisher is to be congratulated upon the printing of the book and its illustrations, and, perhaps most of all, upon the excellence of the many coloured plates it contains. They could not be better, and do great credit to British colour printing.

URINARY ANALYSIS.

THE third edition of Dr. HEITZMANN'S book[2] on the examination of the urine preserves the characteristics of the second edition; the volume is meant for the clinician rather than the man of science, for the test-room rather than the laboratory. The author lays great stress on the microscopical examination of urinary cells and sediments, and upon the diagnostic indications afforded by these; he claims to be able to identify the epithelia derived from each separate tract traversed by the urine, from Bowman's capsule to the meatus urinarius, in the great majority of cases, and appears to argue that if epithelial cells from a certain tract are present in the urine, then that tract is the seat of disease. Dr. Heitzmann goes even further than this, and asserts that urinary "pus-corpuscles, when present in moderate or large numbers, will invariably allow us to form an opinion as to the constitution of the patient. All pus-corpuscles are granular, the nature of this granulation varying with the constitution of the individual." He classes constitutions in four groups, as excellent, good, medium, and poor; the coarser the granulation of the pus cells, the better the patient's constitution. He does not appear to connect this granularity with the reaction or osmotic pressure of the urine in any way. Dr. Heitzmann also describes and figures ciliated pus cells; these, he says, justify the diagnosis of endometritis. He gives no account of the use of the polarimeter in the quantitative estimation of sugar in diabetic urine, and offers an erroneous explanation of the nubecula that appears in normal urines on cooling. The illustrations, highly diagrammatic in execution, are mainly by the author's own hand and from specimens in his possession; he emphasizes the importance of using high magnifying powers—400 or 500 diameters—in the microscopic examination of urinary sediments. The book is an honest if uninstructed piece of work, and may be of service to medical men of discretion.

[1] *An Index of Differential Diagnosis of Main Symptoms.* By Various Writers. Edited by Herbert French, M.A., M.D.Oxon., F.R.C.P.Lond. Second edition. Bristol: John Wright and Sons, Limited. 1917. (Sup. roy. 8vo, pp 20 + 912; over 300 figures in text; 37 coloured plates. 42s. net.)

[2] *Urinary Analysis and Diagnosis by Microscopical and Chemical Examination.* By L. Heitzmann, M.D.New York. Third, revised, and enlarged edition. London: Baillière, Tindall, and Cox. 1915. (Roy. 8vo, pp. 364; 131 plates. 15s. net.)

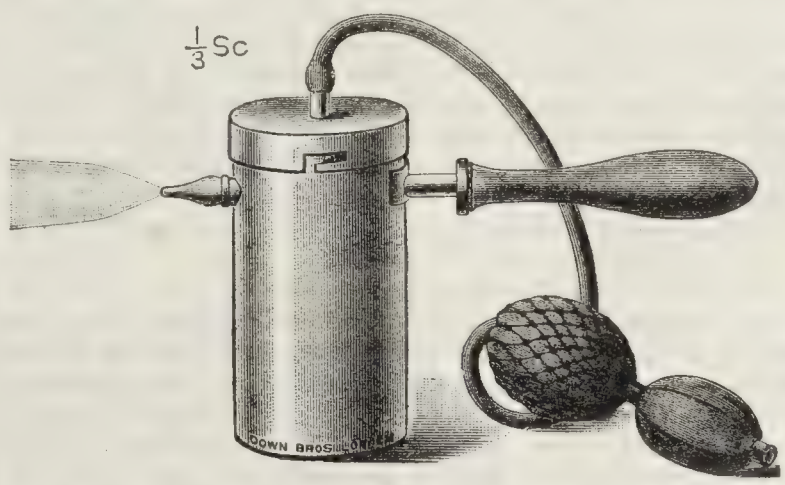
MEDICAL AND SURGICAL APPLIANCES.

Paraffin Treatment of Burns.

THE paraffin treatment of burns was introduced by Dr. Barthe de Sandfort (BRITISH MEDICAL JOURNAL, July 29th, 1916, p. 153), who used a proprietary article to which the name "ambrine" was given. This is, we understand, used in the Navy; but, judging from the paper by Lieutenant-Colonel A. J. Hull, F.R.C.S., R.A.M.C., the formula he recommends gives as good results. It is as follows:

Beta naphthol	0.25 per cent.
Eucalyptus	2.0 ,,
Olive oil	5.0 ,,
Hard paraffin	25.0 ,,
Soft paraffin	67.75 ,,

Colonel Hull recommended that it should be applied with a broad camel-hair brush sterilized in wax. Dr. Barthe de Sandfort prefers to put it on with a spray, and this practice is, we believe, followed in the Navy for the first coat at least. In using a spray the paraffin must be at a temperature of about 50° C. (122° F.). We are indebted to



the Director-General R.N. for particulars of the spray used. The barrel is made of solid drawn brass tube 2 inches in diameter and 4 inches long. A brass stiffening ring is fixed inside the barrel to form a seating for the cover. The cover is fixed so as to be readily made air-tight, either by a bayonet catch, as shown in the illustration, or by a coarse screw. The height over all is 4½ inches. A wooden handle is fixed 3 inches from the bottom. The nozzle is made to screw off for easy cleaning. A capillary tube leads from the nozzle to the bottom of the barrel; it is well curved, and allows a cleaning wire to be easily passed through. The necessary air pressure is obtained by an indiarubber spray bellows of suitable size. The apparatus is made for the Navy by Messrs. Down Bros., St. Thomas's Street, S.E., to whom we are indebted for the illustration. We are informed that if the paraffin is introduced into the barrel at a temperature considerably above its melting point it will remain fluid long enough for the application, but it can easily be melted again by plunging the apparatus into water a little below the boiling-point. (See also p. 540.)

Messrs. John Bell and Croyden, Ltd. (Wigmore Street, W.) inform us that they are making a paraffin application for this purpose, consisting of two parts of paraffin, with the addition in the ordinary preparation of kaolin and oil of wintergreen. To this preparation they apply the name of Parakao. They are also making, at Colonel Hurry Fenwick's suggestion, similar preparations, one containing sulphur and the other dilute nitrate of mercury of the same strength as the dilute nitrate of mercury ointment (*B.P.*) which has been found useful in the treatment of eczema and scabies.

THE REGISTRAR-GENERAL'S ANNUAL REPORT.

THE vital statistics of England and Wales for the year 1915 are analysed in the 78th Annual Report of the Registrar-General (Cd. 8484, price 5s.), which has just been published. Some reduction in the tabulation of marriage statistics and in the classification of secondary causes of death has been effected in the present report, but generally speaking all the new features introduced into the 1911 report—in which statistics were for the first time given in respect of each urban and rural district in the country—have been maintained. Following the practice adopted in recent years some subjects have been selected for special notice; these include deaths on which inquests have been held, and deaths in which the cause was not certified by a registered practitioner or by a coroner. Summary tables relating to infant mortality in the quinquennium have also been inserted, and attention is drawn to the fact that, owing to the extensive movement of population due to the war, new methods of estimating population had to be devised. The method finally adopted is explained on page ix of the report; it is based on the returns furnished by local authorities in accordance with the National Registration Act, and the estimates for the several districts are, therefore, necessarily restricted to the civil population, the death-rates throughout the report referring to deaths of civilians only. In calculating birth-rates, however, the total population has to be taken into account, and in view of the impossibility of framing reliable estimates for the current year, these rates are based on the existing estimates for 1914, though local conditions will have seriously invalidated those estimates in some districts.

An interesting innovation in the work of the department, made at the request of the Local Government Board, is alluded to in the report. It consists in furnishing local mortality statistics for 1916 to the various sanitary authorities, and was undertaken with the immediate object of economizing labour in the local sanitary offices during the war. If, however—as there seems little reason to doubt—the experiment should prove successful, the system may be continued permanently, and the duplication of work which has hitherto existed, in the tabulation of causes of death locally by medical officers of health and centrally in the General Register Office, may be avoided.

Marriages.

The marriage-rate in 1915 was the highest recorded since civil registration of marriages has been in force. The number of marriages registered during the year was 360,885, being equal to 19.5 persons married per 1,000 of the estimated (1914) population. This rate was 3.6 per 1,000 above that recorded in the preceding year, and was 4.0 per 1,000 above the average for the ten years 1901–10. Since 1838 the rates have ranged from a maximum of 17.9 per 1,000 in 1853 to a minimum of 14.2 per 1,000 in 1886, the mean rate for the whole period 1838–1915 being 15.9 per 1,000. The extraordinary rise in the marriage-rate, due of course to the war, was very unequally divided over the four quarters of the year; thus in the first quarter the rate was only 0.7 per 1,000 in excess of the quinquennial average, while in the later quarters the excess was 5.3, 4.4, and 5.8 per 1,000 respectively. The mean age at marriage (omitting re-marriages of widowers and widows, for which the details have not been worked out) continues to rise, being the highest on record, namely, 27.33 years for bachelors and 25.47 years for spinsters in 1915, against 26.30 and 24.54 respectively in 1896. A calculation has also been made showing a curious change in the seasonal distribution of marriages in recent years. Thus in the 40 years ending 1880 more marriages were celebrated in the six winter months, October to March, while in the 35 years ending 1915 the greater proportion were celebrated in the six months April to September; the proportion of marriages in the March quarter has fallen by about 20 per cent., while that in the September quarter has risen by about the same amount.

Births.

The birth-rate was the lowest on record, being 22.0 per 1,000 of the total (1914) population. This rate is 1.8 per 1,000 below that recorded in 1914, and 5.2 below the average for the ten years 1901–10; the maximum birth-rate occurred in 1876, when it was 36.3 per 1,000, and since that date there has been an almost uninterrupted decline. The fall in 1915, however, was greater than that recorded in any other single year, but it compares favourably with that which the figures for the principal cities indicate as having occurred in Germany, Austria, and France. Taking the main geographical divisions of this country, the rates for 1915 show that, as in previous years, the greatest proportional fertility is found in Wales; the Northern Counties are next in order, followed by the Midlands, the Southern Counties showing the lowest rate (20.0), which would be lower still but for the inclusion of London, where the rate (22.6) was above the average for the whole country. Of the 814,614 births registered during the year, 415,205 were males and 399,409 females, the ratio of male to female births being 1,040 to 1,000; this is precisely the average for the whole period 1838–1915. In connexion with statements that have been made to the effect that war-time conditions increase the ratio of male to female births, it is observed that in the first quarter of the year the ratio was very low—namely, 1,032; in the second quarter it rose to 1,043, and in the third and fourth quarters to 1,044; moreover, the figures for 1916 which are now available show that for the four quarters of that year the ratios were 1,050, 1,051, 1,045, and 1,050 respectively. Of the total births in 1915, 36,245 were illegitimate; this number is equal to 7.4 per 1,000 of the estimated number of unmarried and widowed women aged 15–45 years, and shows a fall of 48.6 per cent. from the proportion recorded in 1876–1880. It is the lowest rate (calculated on this basis) yet recorded, but owing to the fact that the legitimate birth-rate has shown a greater decline the proportion of illegitimate to total births is the highest since 1889.

Deaths.

The deaths registered in 1915 numbered 562,253, and included 292,381 deaths of males (of whom 8,777 were non-civilians), and 269,872 deaths of females. The civilian deaths corresponded to a rate of 15.7 per 1,000 of the estimated civil population. Corrected for sex and age deviation of this civil population from the standard population of 1901, the rate is reduced to 14.6 per 1,000. The extent of this reduction is, of course, due to the withdrawal from the civil population of males at an age when mortality is below the average, and the standardized rate for the *civil* population would therefore be comparable with the standardized rates for the total population in other years if the males withdrawn from the civil population were subject to the same rates of mortality as the males of the same ages remaining in civil life. It must be assumed, however, that the withdrawals represent selected lives; consequently standardization for sex and age only cannot correct fully for the effect of such withdrawals, and some part of the excess of the standardized rate for the civil population in 1915 over the standardized rates for the total population in other recent years may be ascribed to this factor.

The rate of infant mortality, measured by the proportion of deaths under one year of age to registered births, was 110 per 1,000; this rate is 5 per 1,000 below the average for the ten preceding years, but is 15 per 1,000 above the minimum rate, which was recorded in 1912. For males the rate was 123 per 1,000 and for females only 96 per 1,000; the mortality among illegitimate infants is almost twice as great as among legitimate.

The principal causes of death contributing to the general excess of mortality in 1915 over that recorded in 1914 were the tuberculous diseases and diseases of the respiratory and circulatory systems. Cancer showed a higher mortality as measured by the crude rates; the influenzal mortality was the highest since 1900, and that from measles the highest since 1896. Other special features were the abnormally high death-rate from cerebro-spinal fever and the remarkable decrease of male suicides. Two tables appearing in the present report analyse by cause and age the 39,128 deaths on which inquests were held, and the 7,684 cases in which the cause of death was not certified either by a coroner or by a registered practitioner. Inquiries respecting ill-defined causes of death were sent in 6,869 cases, and in spite of the special difficulties created by the war nearly 6,000 replies were received.

UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN

THE CALLING UP NOTICE.

RESOLUTION OF JOINT MEETING OF THE CENTRAL MEDICAL WAR COMMITTEE AND COMMITTEE OF REFERENCE.

THE publication in the newspapers of Saturday last of Lord Derby's letter to medical men of military age, informing them that the War Cabinet had decided to call them up at once under the Military Service Acts, was the first intimation to the profession that the War Office intended to cease to rely on the machinery which had been working with remarkable efficiency for the last two years, and, since the second Military Service Act (May, 1916), with the recognition of Parliament. The policy hitherto approved by the Government has been guided by the sound principle that it is necessary to estimate and balance the medical needs of the army and those of the civilian population, including such essential occupations as munition making, shipbuilding, and agriculture. The duty of adjusting the balance was in Scotland placed upon the Scottish War Emergency Committee, and in England and Wales on two Committees—the Central Medical War Committee representative of the British Medical Association and medical teaching institutions acting for the profession generally, and the Committee of Reference of the Royal Colleges for the staffs of hospitals in London and other large towns. The Committees addressed themselves diligently to this task, and their success is proved by the fact that to their efforts it is due that the military services have been supplied with the larger part of the many civilian medical men, probably not far short of ten thousand, who are now serving, while at the same time the essential medical service for the civilian working population has been maintained in a condition of efficiency which, if it falls short of ideals, is not seriously inadequate.

The publication, on April 21st, of the letter of the Secretary of State for War, and the action of the Recruiting Department, then already taken, which it purported to explain and justify, brought about a situation which urgently demanded investigation. A special joint meeting of the Central Medical War Committee and of the Committee of Reference was held on Tuesday, April 24th. It was very fully attended by members of both Committees, and the following resolution was unanimously adopted, on the motion of Sir Watson Cheyne, President of the Royal College of Surgeons of England, seconded by Mr. J. B. Turner, Chairman of Representative Meetings of the British Medical Association:

> That the Central Medical War Committee and the Committee of Reference cannot continue to bear the responsibility in the eyes of the medical profession and of the community for protecting the medical needs of the civil community while meeting the requirements of the army, unless they still have the duty of deciding how many doctors and which individuals can, in fact, be spared at any given time from civil work in a particular place to enter military service, and that, therefore, unless the War Office will undertake not to grant any commission to a doctor, even though volunteering for service, whom the Committees consider to be for the time being indispensable for civil work, the Committees will be unable to take any further part in the selection of doctors for military service.

The joint meeting decided, also by unanimity, at once to send copies of this resolution to the War Cabinet, the Secretary of State for War, and the Director-General of Army Medical Services. The letter addressed to the Secretary of State for War was in the following terms:

Central Medical War Committee,
April 25th, 1917.

My Lord,

We are instructed to forward for your information a copy of a resolution carried yesterday at a Special Joint Meeting of the Central Medical War Committee and the Committee of Reference, which has been forwarded to the War Cabinet, together with a Memorandum by the Central Medical War Committee, which has also been sent to the War Cabinet.

We are,
Your Lordship's most obedient Servants,
N. BISHOP HARMAN,
A. COX,
Secretaries.

The Right Hon. the Earl of Derby, K.G.,
War Office, S.W.

MEMORANDUM BY THE CENTRAL MEDICAL WAR COMMITTEE.

I.

[The resolution printed above is set out.]

In order to make the position plain the Central Medical War Committee conceives it to be its duty to the civil community to place on record a statement of the reasons which lead the Committee, in virtue of its special knowledge gained from the work it has done, statutory and otherwise, for the Government, to the conclusion that, unless special precautionary measures are adopted, the immediate calling up of all doctors under 41 for military service effected by the War Office must inflict grave injury on the civil community in many parts of the country, particularly in the industrial areas upon which so much depends, both as to the production of war material and otherwise, for the carrying on of the war.

II.

It is obvious that, in order to avoid a breakdown in a locality, it is essential that before any doctor at present engaged in civil work is actually withdrawn from his duties, the question as to whether he can at the time safely be spared from civil work shall have been properly investigated, to the extent required by the nature of the case, either by the Central Medical War Committee, or by some other body acting on behalf of the Government possessed of the knowledge requisite for gauging the needs of the locality.

III.

Hitherto the Central Medical War Committee, aided by its local committees in all parts of the country, and in co-operation with the Government departments concerned, has performed this duty for the Government, watching continuously the varying conditions of the medical services in each locality, and determining from time to time, in the light of those conditions, how many and which doctors could be spared at any particular moment.

IV.

The Notice issued by the Recruiting Department on Wednesday, April 18th, calling up all the doctors under 41 for immediate departure on service on April 26th threw the Committee's machinery entirely out of action, and, although it would seem from certain phrases in Lord Derby's letter published subsequently that some revival of the former arrangements with this Committee is contemplated, it is clear that nothing short of a Government decision to maintain the complete continuance of the requisite scrutiny will suffice to avert grave danger.

V.

The following places may be mentioned as illustrating the dangers which in the absence of such scrutiny must inevitably arise in many areas:

Town A: Chemicals and munitions. Population over 20,000. Number of doctors 4, all of military age.
Town and District B: Ship-building. Population over 60,000. Number of doctors 10, 7 of military age.
District C: Coalmining. Population over 37,000. Number of doctors 7, 6 of military age.
District D: Agricultural area. Population (of town alone) 3,628. Two doctors, both of military age.
Town E: Population over 20,000. Number of doctors 4, 3 of whom are of military age.
Town District F: East-end industrial area. Population about 126,000. Number of doctors 25, of whom 4 are of military age. There is at present only one doctor to over 5,000 people.

VI.

It is clear that from none of these areas could all the doctors liable under the Military Service Acts be withdrawn simultaneously without complete breakdown. But under the arrangements so far made in connexion with the immediate calling up of the doctors there is nothing to secure that these men will not in fact be withdrawn.

VII.

Doubtless the War Office, if aware of the facts, would not propose to take all the doctors from the town A and leave a population of about 17,000 in a munition area entirely without any medical practitioners to look after them. But the War Office is not in possession of the knowledge requisite for avoiding the mistake, nor is it possible for any general or mathematical rules to be formulated for such purpose. The necessary safeguards can only be applied by a body which is continuously surveying the needs and the comparative conditions of the various localities.

VIII.

It is clear, therefore, that if the situation above indicated is to be avoided, as the Government must obviously desire to secure, it must be definitely provided that no doctor, even if himself offering no objection to going, shall be withdrawn by the War Office from the work of the civil community until the competent body authorized by the Government has ascertained and reported that his departure will not cause a breakdown.

April 25th, 1917.

REPLY OF THE SECRETARY OF STATE FOR WAR.

The following reply has been received from the Secretary of State for War:

Gentlemen,

I am in receipt of your letter of April 25th, and in answer to it I beg to state that I agree that the procedure prevailing up to last week with regard to the selection of doctors shall be continued, and I will further agree not to give a commission to any doctor except on the recommendation of your Committee.

Your Committee is asked to provide the Army with * doctors by May 1st, and * doctors per week after that date until the requisite number * has been found. In the event of the number so asked for not being forthcoming, I must reserve to myself the right at any time to reconsider the position.

I trust that this arrangement will be agreeable to your Committee, and that they will continue doing the excellent work for the War Office that they have done in the past.

Yours faithfully,

25th April, 1917. (Signed) DERBY.

* The figures given in this letter are left blank for obvious reasons.

The text of Lord Derby's letter, together with the instructions issued by the Army Recruiting Department are printed in the SUPPLEMENT. Answers in the House of Commons will be found at p. 556. A very large number of letters of inquiry have been received to which it has not been possible, in spite of working early and late, to reply individually. It is believed that the matter here published will in most instances supply the information required.

British Medical Journal.

SATURDAY, APRIL 28TH, 1917.

THE BIOCHEMISTRY OF MUSCULAR CONTRACTION.

THE publication of the Croonian Lecture[1] given before the Royal Society in 1915, by Dr. W. M. Fletcher and Professor F. G. Hopkins, has for various reasons been delayed until the otner day, so that we have not previously had an opportunity of referring to it. It dealt with the respiratory process in muscle and the nature of muscular motion, and thus piously fulfilled the directions of Dr. William Croone (1633–1684) that it should be delivered "on the nature and laws of muscular movement." With the lapse of years it often becomes difficult to conform to the injunctions of an ancient benefactor, and as a matter of fact the last sixteen Croonian lectures have, strictly speaking, disobeyed the terms of the endowment. Croone was one of the founders and original Fellows of the Royal Society, and as the author of *De Ratione Motus Musculorum*, published at London in 1664, is appropriately commemorated by the Croonian lecture of 1915, which gathers into a connected whole the advances since the end of the nineteenth century.

Study of the respiratory changes in muscle is the most probable means of throwing light on the metabolism of the animal cell in general, and the interest of this discussion is therefore fundamental. The researches described have been carried out in the physiological laboratory at Cambridge by various workers, but especially by Dr. W. M. Fletcher and Mr. A. V. Hill; the latter by ingenious modifications of the thermopile and by a sensitive galvanometer has been able to record the changes of temperature associated with a single muscular contraction.

Until now the orthodox conception of the origin of muscular energy has been the explosive splitting up of a molecular complex rendered highly irritable by the inclusion of "intramolecular oxygen"—Hermann's hypothetical "inogen"—into lactic acid and carbon dioxide. After the explosion of this precursor it was supposed that fresh carbon bodies, and perhaps lactic acid also, were combined again in a newly oxygenated irritable molecule of "inogen." This hypothesis was extended to cellular metabolism in general, which was regarded as an alternating process of construction (anabolism) of unstable complexes of oxygen-containing protoplasm succeeded by a catabolic discharge of energy with the formation of recognizable end-products. An entirely new conception is foreshadowed in the Croonian lecture on the basis of the recent researches on muscle.

It is impossible to give here any detailed account of so closely reasoned a document, or of the researches on which it is founded, but the outcome may be baldly stated. The oxidations which are always associated with muscular activity are separated in time from the moment when mechanical energy is liberated; they occur immediately afterwards, and are concerned not with the induction of the contraction, but with a restoration to the *status quo ante*. For example, the greatest production of heat is always subsequent to the contraction, when oxygen is available. Oxygen enters muscle for the purpose of immediate oxidation, and

[1] *Proc. Roy. Soc.*, B, vol. lxxxix, 1917, pp. 444–467.

UNIV. OF ILL. URBANA-CHAMPAIGN

ot as a builder-up of an explosive "inogen," and ontraction is an anaërobic function. The conception f a chemical "inogen" is erroneous, and a simpler xplanation should be substituted — namely, that a arbohydrate body in muscle by relatively simple hange gives rise to the formation of lactic acid, vhich before it leaves the muscle in its final combus- ion induces tension changes causing contraction.

We are accustomed to speak of an apparatus for he production of energy as an engine, and are there- ore entitled to speak of muscle as an engine. The vord suggests at once to most people a heat engine— he steam engine, for instance—and the suspicion nust arise that this analogy somehow will not do. n a heat engine, such as the steam engine, only a art of the "total energy," known as the "free energy," s converted into work; the conversion depends on he temperature difference between one part of the ngine (the furnace) and another (the condenser). Heat passes from one to the other through interposed pparatus in such a way as to convert some of it into vork; the rest of the total energy escapes as heat nd is wasted. Efficiency is the ratio of work btained to the total heat energy used up; this is enerally far below 20 per cent.—that is to say, 80 per cent. escapes as lost heat. Evidently muscle annot be a heat engine because, in the first place, he necessary temperature differences cannot be sup- osed to be compatible with cell life; because, in the econd place, muscle efficiency is very high—apparently igher than that of the best types of heat engine; nd in the third place because heat evolution in nuscle is for at least its larger part separable in time rom the work done in contraction; the chief heat volution is after the contraction, when oxygen is resent. With oxygen absent there is a very small eat evolution on contraction, which is an anaërobic ct. With oxygen thereafter introduced a large heat roduction occurs without contraction. The authors rgue, therefore, that muscle is to be regarded "as a hemical instead of as a heat engine." Free energy esiding in chemical compounds, and available upon heir undergoing change, may be converted to work irectly, without the interposition of a heat stage, as n the case of the chemical battery—current—electro- notor. The efficiency of such an engine may be oo per cent.

The events in muscle occur in material held in olution, and under this condition free chemical nergy can be displayed in work either through smotic energy (imbibition being here held to be a ariety of osmosis) or through surface energy. If ugar yields lactic acid, then the acid might be in ylindrical spaces to which a flow of water would be determined by the increased osmotic energy, and ause, by expansion of each cylinder to a sphere, a ongitudinal tension capable of doing work; or (*b*) the cid, or its H-ions, by increasing the surface charge nd surface energy of a row of connected globules night force each to a more strictly spherical shape, he result of this alteration in form being that work vas done. The time-relations of muscle contraction oint to a surface energy change rather than to an smotic energy change working through diffusion of water, which would be relatively slow. The quickness of surface changes is well seen in the movement of the mercury column in a capillary electrometer. The authors put the matter thus, to quote their own words: "In a system of colloidal fibrils or of longitu- dinal surfaces, into relation with which H-ions of lactic acid lie ready to be brought, we have a potential of energy which may be discharged as work, with or without heat, on the development of a new state of tension in the fibrils, whether tension due to imbibition or to added surface tension along the longitudinal surfaces." The potential is lost after contraction and restored by subsequent oxidation. If lactic acid accumulates in the muscle, fatigue results from clogging of the machine; but with a sufficient supply of oxygen the lactic acid is oxidized with the production of CO_2, some of the heat of the combustion of lactic acid being stored in potential form in the muscle as it returns to the resting state, with the result that a normal contraction may follow.

In conclusion, therefore, a simple hypothesis for muscular contraction is fully justified, and this step in advance gives promise of a similar clarity in our conception of general cell metabolism.

THE FOOD ECONOMY CAMPAIGN.

The shortage of food is due partly to the depredations of the German submarines and partly to a poor wheat crop throughout the world, and a poor potato crop in this country. The situation is so grave that it becomes a duty to call attention to any errors which are to be observed in dealing with it, whether due to want of judgement or want of knowledge. We therefore feel bound to say that some of the means which are being used by the Food Controller are open to criticism. A short time ago we noticed with regret a passage in a speech by Lord Devonport which was greeted with laughter in the House of Lords, but must have made the judicious grieve. He spoke of "his experts, who talked in terms of averages and used all sorts of curious expressions, which he was careful not to understand." Such a contemptuous reference to scientific methods by a responsible minister on an important occasion is calculated to bring this country into contempt not only with our enemies, but with our allies the French, and our friends the Americans, whose administrators take the very small amount of trouble necessary to understand the expressions and terms our Food Controller finds "curious." The recent pamphlet issued by the Ministry of Food with the title *The Food Economy Campaign Handbook* affords an illustration of the evil results of neglect of scientific methods in high places. Experience has often proved how relatively easy it is to conjure a man's savings out of his pocket by a mixture of the arts of the company promoter and sensation monger, and it becomes easier when the conjuring is based on an appeal to a sense of patriotic duty. But it is another thing by such appeals to seek to induce a man to give up that daily ration of food which suffices to keep going his body warmth and vital energy, the two great bases of existence. Moreover, there is some cause to fear that the hustling manner in which the campaign now in progress is being conducted may have a most injurious effect upon growing children and adolescents. Take, for instance, the case of the inmates of institutions who are not free to satisfy the cravings of the appetite, and cannot protect themselves by supplementing their stated diet. As an instance in point, we may mention the case of a spare, growing girl of 17, keen in work and play, who, at a private school last term, lost, owing to injudicious rationing, 10 lb. in weight, which she could ill afford. She returned home in a depressed state of health and with a report which stated that she had inexplicably fallen off in interest in her work in the last half of term. At this school the bread was rationed, irrespective of individual needs, to eight half-slices a day, and there were instituted two meatless days, on one of

which a thin soup served with sippets of toast and a helping of rice or tapioca pudding formed the meal. No bread was allowed at dinner. Physiological inquiry has proved that it is children in the growth period who want meat with its readily assimilable proteins needed for body building, and yet the Food Controller, while urging his ration, which yields only half the calories required by a girl of 17 and a third of those needed by a hard worker, upon schools and institutions, permits the far ampler allowance of 5¼ lb. a week to the frequenters of hotels and restaurants, in addition to 3½ lb. of bread, 14 oz. of flour, and ½ lb. of sugar. Is the old and sedentary clubman, who is better for abstinence, to have more than the restless, growing child, and the virility of the future generation to be impoverished?

While very properly urging saving and economy, the *Handbook* contains misstatements and exaggerations of such a kind that they bring discredit upon the Ministry of Food. For example, the *Handbook* states that "half-chewed food gives half its nourishment. . . . Eat slowly, you will eat half as much as you eat now, grow healthier and stronger on it, double your power of work." These are statements unsupported by an atom of scientific evidence. The physiology of dietetics and metabolism has become in its main principles as exact a science as that which governs the utilization of the energy of fuel in combustion engines, and yet the draft of this *Handbook* was not submitted to the criticism of the Food Committee of the Royal Society, but left to amateurs and food cranks to prepare. Can the shade of Dickens keep quiet? Is the Bumble of the day to say, "Oliver, chew the slice slowly, and you won't want another, and meanwhile read what the kind Food Controller says"? The poor little imp cannot run out to the shop and fill the empty pail as Bumble can. Again, the *Handbook* says: "Before the war the nation could have lived on its waste. It could have lived on what went into its dustbins and down its drains. That waste goes on." Now the report of the Food Committee of the Royal Society, based on the figures supplied by the Board of Trade, shows that the quantities of foodstuffs, imported and home produced, sufficed to give each individual of the population 3,091 calories a day, or the "man" population 4,009 calories. The hard-working labourer requires at least 4,000 calories, and we may take the average "man" requirement as 3,500 calories. The quantities include the inevitable loss due to bone (even after stewing for soup), the husks of vegetable food, and food which is lost in handling, marketing, in hot weather, and so on. Either, then, there was little waste before the war or many went half starved.

As useful cats, dogs, poultry, and pigs are fed largely on the leavings of human food, the waste of food on them must be small. The waste of servants, intensely realized, as seems probable, by the writers of the *Handbook*, is chiefly a waste of their employer's money, not of food. Servants probably give away more food, which is utilized by others, than they waste. The number of people estimated before the war by the British Association to pay income tax—that is, the number of those earning over £160 per annum—was 800,000. Suppose these, together with those living on unearned incomes and their families, number in all 3 million, an outside estimate, their possible saving of bread can have only a very small influence on the needs of the 40 million of the working population who cannot afford to purchase, or do not know how to use, substitutes; at the outside, the saving of the 3 million might yield 5 per cent. of the calorie needs of the 40 million.

It is obvious, then, that the present very critical situation cannot be met by a campaign of saving and economy alone. Captain Bathurst has stated that the present rate of consumption of bread-stuffs is 50 per cent. more than the supply which is in sight for the months between now and the harvest. This being the case, the Government will be impelled to take the grain stuffs—barley, maize, and oats—consumed by all horses not doing work of national importance, of cattle, and of poultry, and use this grain for diluting wheat and making bread for human consumption. At the same time, it must reduce the herds and cheapen meat, and so substitute meat and fat for part of the bread now eaten. If this does not suffice, grain must be regarded as a munition of war of first importance, and be shipped in sufficient quantity even at the expense of other munitions. For the bread eaten by the workers is the source of their energy, and cannot be reduced in any significant amount by any method which will not also reduce their working power.

If the energy of the workers is seriously reduced the war must cease. No amount of saving of waste and of economy, even to the extent of underfeeding the sedentary class, can make any material approach to the 50 per cent. beyond the visible supplies which Captain Bathurst tells us is being consumed.

In the *Handbook* there is no attempt to insist on the complete national utilization of the energy value of the food. The well-to-do are not told to diminish the number of their domestic servants, who do things that need not be done in war time, or to give up luxuries which employ needless labour. On the contrary, the rich man who dines on lobster salad is called a patriot! And yet labour goes to the procuring of this dish which might be spent in growing foodstuffs which would yield a value a thousandfold greater. The greatest economy which the "useless mouths" can effect—those who cannot do work of national importance—is to keep warm and at rest, and so lessen their bodily need of food. A man cannot be active and at the same time go short of food without losing weight, then working power, and, in the end, health.

The nation is working far harder than before the war, the women and girls who used to lead sedentary lives are now engaged in active labour. The national need for more food has increased in exact proportion to the extra physical labour done. The supply of potatoes has gone, meat and butter and grain substitutes are dear, therefore an increased and not diminished consumption of bread by workers must inevitably arise at this time. This increase can be met in the first place by national control and cheapening of meat and fat with reduction of herds, and substitution of meat and fat for some of the bread now eaten. In the second place, the dilution of wheat with the grain foods now consumed by horses, cattle, and poultry would, we are informed, increase the bread supply by some 25 per cent. The third means is to provide for the adequate importation of these grains, even at the expense of munitions of war.

THE NAVAL MEDICAL SERVICE.

WE publish this week the first series of a set of articles by writers of authority, giving an account of the manner in which British medicine has reacted to the stimulus of the new problems in medicine, surgery, pathology, and administration created by the war. This first group of articles deals with the achievements of the medical department of that great silent service upon which the safety of the realm and of the British empire rests.

UNIV. OF ILLINOIS-URBANA-CHAMPAIGN

ubsequent articles which will be published at intervals uring the next few months will deal with other aspects f the part medicine has played in the war, and will ndicate some of the enduring lessons that have been earnt. In his brief introductory note to the collection f naval papers, Sir Arthur May, the Medical Director, .N., modestly ignores the great part which it is well nown he has played in producing the highly satisactory condition of the department of which he is he head. We are much indebted to him and to he other distinguished officers who have collaborated n the task of furnishing to their colleagues in the rmy and in civilian practice this first authoritative icture of medicine, surgery, hygiene, and sick transport n the Navy at war. Every one is, of course, profoundly nterested in the work of the Navy, but the service moves o quietly and is so much hidden from ordinary view that he tendency is at times to take it somewhat for granted nd await details until the history of the war at sea is vritten. We feel much satisfaction, therefore, in being ble to publish this series of articles, which will bring ome to our readers in vivid fashion some of the actual onditions under which their colleagues in the Navy work nd the special problems they have to solve in order o keep the fighting efficiency of the Navy at the ighest pitch. An outbreak of infectious disease in he specialized population of a battleship, or in the eneral personnel of the Navy, might well have mili- ary results of the most serious kind. The article n medicine and pathology, by Fleet Surgeon Bassett- mith and Surgeon-General Rolleston, an instance of the uitful combination of regular and temporary officers, hows how successful the Naval Medical Service has been n the prevention and limitation of all forms of epidemic isease. When cerebro-spinal fever seemed to threaten ur land and sea forces two years ago, the most igorous measures were taken to check its spread, o that the number of cases in the Navy during he first year of the war was kept down to 170; in he second year, when the numerical strength was far reater, they fell to 104. The precautions taken in this nstance illustrate the zeal with which the latest scientific ethods are applied to control the beginnings of infectious isease. The same spirit is reflected in the article on aval surgery by Surgeon-Generals Axford and Lenthal heatle, who summarize the patient researches, *in vivo* nd *in vitro*, carried out by many workers into the chnical problems of wound treatment at sea. The ction on naval hygiene by Fleet Surgeon Munday, will, o doubt, be read with special interest, for here, perhaps r the first time during the war, we are given a glimpse the special difficulties with regard to air space, ventila- on, and water supply in fighting ships, and the admirable ay in which sanitary improvements have been brought out in the construction of the newest ships and in the fitting of older vessels. The varying means of transport sick and wounded ashore and afloat are dealt with in parate articles which may well be studied side by side. r James Porter and Staff Surgeon Elder's descrip- on of the Land Medical Transport arrangements of e Navy show how the machinery for evacuation on shore as been developed during the war. The special difficulty this branch of the service lies in the fact that arrange- ents for the disposal of casualties cannot be made before- nd, since before a naval action takes place no one can ll where it will occur, or where or in what numbers the ounded may be landed. Fleet Surgeon Lomas, in his teresting account of the work and equipment of a modern spital ship, carries the story a stage further back; while eputy Surgeon-General Hill and Fleet Surgeon Penfold ing vividly before our minds the task of the naval rgeon in action and his contrivances for first aid and sposal of the wounded in anticipation of "The Day." he general impression which one gains from these studies the manifold activities of the Royal Naval Medical Service is that of keenness, foresight, and resourcefulness —before the war and during the war—from the Director-General right down to the humblest member of the sick berth staff; it is an organism working smoothly and effectively in all its parts.

LIFE ASSURANCE IN WAR TIME.

THE decision of the War Office to establish more hospitals oversea, due to the German attacks on British hospital ships, has already led to a considerable number of medical men undertaking to go abroad to serve these hospitals, and whatever the result of the recent action of the War Office embodied in Lord Derby's letter of April 21st may finally be, it can hardly be doubted that it will involve an additional number of medical men of military age being sent abroad. Many such men who have to consider their position will probably be forced to consider the question of safeguarding or increasing their policies of life assurance. At the moment, however, many life offices are unwilling to cover any risk arising from active war service abroad, so that it is not an easy matter to obtain a suitable policy. We are informed that the Medical Insurance Agency has been able to make arrangements with a well known office under which (1) all risk of foreign service can be assured on payment of an extra premium, or (2) the war risk can be suspended without ultimately invalidating the policy. Under the first plan the war extra becomes payable when the doctor leaves this country; but, if he should never go within ten miles of the firing zone, at least 50 per cent. of the extra is refunded on his return to this country in good health. Under the second plan policies can be issued under certain tables, without extra rate, in which the risk of death is excluded during active service abroad or within six months thereafter. At the expiry of the period of suspension the risk revives without further medical examination or inquiry, and should death occur during the period the premiums paid are returned. Full particulars can be obtained from Mr. Guy Elliston, secretary and agent of the Medical Insurance Agency, 429, Strand, W.C.

CEREBRO-SPINAL FEVER.

A REPORT on bacteriological studies in the pathology and preventive control of cerebro-spinal fever among the forces during 1915 and 1916 has been issued by the Medical Research Committee.[1] In January, 1915, the Committee was consulted by the Director-General A.M.S. with regard to the occurrence of cerebro-spinal fever among the troops at home, and it was recognized that in the state of knowledge at that time it was necessary not only to provide for the immediate application in preventive work of what was then certainly known, but also for organized research work to improve the light by which further administrative action should be guided. Dr. Mervyn Gordon, assistant pathologist to St. Bartholomew's Hospital, who had previously done the chief work in this country on the subject, was selected by the Committee and his services placed at the disposal of the War Office as bacteriologist. He assisted Surgeon-Colonel Reece in arranging for proper bacteriological work at various local centres and in securing its co-operation with that of himself and his colleagues at the central laboratory, Royal Army Medical College. The Committee published in January a report on the work done down to that time, and the new report contains an account of the work done by Lieutenant-Colonel Mervyn Gordon and his colleagues, together with two additional reports, one by Fleet Surgeon Bassett-Smith, C.B., R.N., on the result of the examination of nearly 5,000 men for the presence of the meningococcus, and the other by Dr. Martin Flack (honorary captain, R.A.M.C.), a member of the Committee's scientific staff, who was supplied to the War Office for work in the London Military District, on cerebro-spinal fever in that district.

[1] His Majesty's Stationery Office. 1917. To be obtained from any bookseller. (Price 1s. 6d. net.)

A report by Major T. G. M. Hine, M.D., R.A.M.C., on the work of the department of the central laboratory concerned with the supply of media and other requisites for the bacteriological examination of military cases and contacts, is also published. In his preliminary account of the bacteriological measures adopted for dealing with the outbreak in February, 1915; and the improvements effected as the result of research, Lieutenant-Colonel Gordon explains the general principles underlying the campaign and the special methods whereby the meningococcus was attacked. The healthy carrier was recognized as the chief mode of spread of the malady, and all the measures undertaken kept this factor in the foreground. Much of what was accomplished has already been recorded in our columns, and need not now be taken up again in detail, since the Medical Research Committee expressly state that the present series of reports do not pretend to have scientific finality. In the main they are published as interim reports upon investigations still in progress. At a later stage in the inquiry the Committee hopes to issue a further report, in which the conclusions derived from experimental work and organized observation may lead to a final settlement of the main principles governing future administrative measures, for the civilian no less than for the military population.

THE ANKLE-JERK.

THE ankle-jerk is one of the physical signs that does not receive the attention to which it is entitled. Temporary Surgeon Hildred B. Carlill, neurologist to the Royal Naval Hospital, Haslar, has recently published two papers[1] in which he shows how serviceable this deep reflex may prove in diagnosis. The ankle-jerk is tested in the following manner: The patient kneels upright with both legs on some soft substance, such as the seat of an armchair, with his ankles projecting from it. The examiner squeezes the calf muscles to make sure that they are relaxed; complete relaxation is shown when this action produces extension of the ankle-joint. With one hand the examiner next supports the sole of the foot, pressing it gently forwards. This causes the tendo Achillis to be put on the stretch. The tendon is now smartly struck with a rubber-topped percussion hammer. In health the blow causes an immediate contraction of the calf muscles, with extension of the ankle. This reflex is present normally in all healthy people, and can be obtained without removal of the shoes; in advanced age it may sometimes be difficult to elicit. The muscles concerned in the production of this reflex are the gastrocnemius and the soleus, chiefly the latter. The centripetal path of the impulse which produces it is by way of the sensory fibres of the posterior tibial, internal popliteal, and great sciatic nerves through the last lumbar and upper two sacral nerves to the cord. The centrifugal path from the cord to the muscles concerned is by way of the same nerves. The jerk itself depends on a direct mechanical excitation of the muscles, which are normally maintained in a state of tonus by reflex influences. The ankle-jerks are absent in numerous abnormal conditions or general disorders, such as spinal anaesthesia, narcosis, coma, great fatigue, or pneumonia. They are also absent in cases in which the integrity of the reflex arc (at the level of the third sacral segment) is impaired at any point; in injuries or myopathies affecting the gastrocnemius and soleus muscles, for example; or in affections of the peripheral nerves concerned; or in certain diseases of the spinal cord, meninges, and brain. In the course of an examination of 1,052 officers and men on one of His Majesty's ships, Dr. Carlill found total absence of one or both ankle-jerks in 15 instances only. In 49 of the men "reinforcement" by the methods usually employed when the knee-jerk is being tested was found necessary, and it is noted that occasionally the outer side of the tendo Achillis is more responsive than the inner. Of the 15 abnormal cases 3 were the result of infantile paralysis, 2 of sciatica, and it was thought that early tabes dorsalis accounted for the abnormality in several of the others. It is pointed out that the calf muscles may contract and produce an ankle-jerk when struck in many of the cases in which the tendo Achillis jerk is absent. The general conclusion reached is to the effect that the best known and most commonly tested tendon reflex is still the knee-jerk, "though the Achilles-jerk," to quote Ferrier's words (1906), "is of equal or even greater importance."

[1] *Journal of the Royal Naval Medical Service*, London, 1916 and 1917.

Medical Notes in Parliament.

The Calling up of Medical Men.

IN the House of Commons on April 25th Mr. Pringle asked Mr. Bonar Law whether notice had been served upon all doctors of military age to report themselves for service at 9 a.m. on April 26th; whether the doctors so called up were to be required immediately to accept commissions and to be ready to go on service at forty-eight hours' notice on or after May 6th; whether, in the case of doctors who refused to apply for commissions, the recruiting officer was instructed immediately to enlist them as privates in the R.A.M.C.; whether, in view of these instructions, adequate steps were being taken, and if so what steps, for securing that the essential needs of the civil community were met, in order that a serious breakdown, which must otherwise certainly take place in medical services in many localities, might be averted.

Mr. Bonar Law replied: Notice of a similar question has been addressed by an hon. member for Norfolk to the Under Secretary for War, and I will reply to both. The calling up of these doctors was necessitated by the attacks upon hospital ships, but the danger of the civil population in particular areas being left without doctors is fully realized. Although all the doctors of military age are being formally called up, they will be taken only after consultation which is now taking place with the Local Government Board and the National Insurance Commission.

Mr. Pringle asked for an assurance that where a man was willing to accept a commission, and even where he refused a commission, he would not be taken away without consultation with these authorities.

Mr. Bonar Law: That is the substance of the answer which I have given. The whole subject is being considered.

Sir Walter Essex: Is the Government considering the question of replacing these doctors by others who will be liberated from employ owing to the probable closing of hospitals in this country?

Mr. Bonar Law: The National Insurance Commission and the Local Government Board are fully alive to this, and realize that the problem can be satisfactorily remedied only if men who are older will undertake a portion of the duties hitherto performed by those who have been called up.

Sir J. D. Rees asked whether efforts would be made to include among those medical men who were left behind such doctors as were able to pursue research to public advantage.

Mr. Wedgwood asked Mr. Law to say whether the Minister of Munitions would also be consulted on this question, seeing that doctors were very important in connexion with the manufacture of gas and in steel works in the country.

Mr. Bonar Law: I can assure the House that this whole subject is being thoroughly gone into from the point of view of making the best use of the material available, in the view of the Government, and I am sure it is the view of the House that the wounded must have attention.

Mr. Broughton asked the Under Secretary for War whether, to prevent great difficulties arising by reason of the withdrawal of medical services in any area, Insurance Committees or other authorities responsible for the public health would be allowed a right of appeal against the recent order calling up medical men, similar to that accorded to individuals?

Mr. Macpherson replied: Each individual affected by the Military Service Acts has got his right of appeal, and a doctor can appeal to a tribunal who would refer his

DIGITIZED BY THE INTERNET ARCHIVE IN 2010 WITH FUNDING FROM UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

use to the Central Medical War Committee. The procedure as to the action, if any, which an Insurance Committee or other authority may take is now being discussed by the Departments concerned.

The Venereal Diseases Bill.

New Statistics of Progress in Free Treatment.

The second reading of the Venereal Diseases Bill, which has already passed through the Upper House, was moved in the Commons on April 23rd by Mr. Hayes Fisher (Parliamentary Secretary to the Local Government Board). Mr. Fisher recapitulated the arguments for the measure which were advanced by Lord Rhondda in the House of Lords. Its purport he summarized admirably. What the Bill does, he said, is to prohibit all persons except qualified medical practitioners from treating venereal disease, or prescribing or advising in connexion with it. The bill makes it illegal to dispense any drug or other preparation as a remedy for venereal disease except on the written prescription of a qualified doctor. It does not apply to the sale of these substances to doctors nor to wholesale supply. It will operate only in areas to which it is applied by order of the Local Government Board, and that Board will have to be satisfied that free centres for the treatment of the disease have been set up before they apply the bill to any area.

Regarding what has already been done to forward free treatment, Mr. Fisher reported progress since Lord Rhondda spoke. Schemes for the diagnosis and treatment of the disease had now been submitted to the Local Government Board by ninety-nine out of 145 councils charged with the execution of these recommendations. The total population of the area of those schemes was 39 millions. Sixty-one schemes—serving a population of over 16 millions—had been approved. Considering the extraordinary difficulties under which hospitals are working with depleted staffs, a great debt of gratitude was due to those hospitals which had, on the whole, very freely come forward to co-operate with the local authorities in the new task.

Questioned as to the extent of actual working of the schemes, Mr. Fisher said that in London alone, in six hospitals out of twenty-two which were dealing with these diseases, 1,195 males had been treated, and 350 females, during the first three months of this year. In the Newcastle district 309 males and 154 females had been treated in the same period.

Anticipating objections to the bill, Mr. Fisher took up in advance the suggestion that the Government was trying to drive out from practice all those who were not qualified medical practitioners. He denied that this was so. The reason they singled out these cases for prohibition was clear. If a man suffered from lung trouble and went to a quack it did not matter to the community. In the case of venereal disease it did matter. There was evidence that infectivity instead of lasting several months could be reduced to several weeks. They had a right to say to a sufferer, You shall not go to someone who will drive the disease into you, but you shall go to somebody who will cure you, and therefore release the community of infectivity. Mr. Fisher acknowledged that the policy must be largely one of persuasion, but he trusted that there would be a State Publicity Department connected with this work, and that it would give, as far as it could, the same information as to what it thought right treatment as the quack had given about his methods.

In the ensuing debate Mr. Joseph King argued against the bill as infringing liberty in treatment.

Captain Frederick Guest expressed a fear that the machinery of the free treatment scheme would be too slow adequately to tackle the disease for the purposes of the war. In his opinion, there were only two ways in which good could be done. The first was to remove temptation from the soldier and the second to subject the civil population to compulsory treatment and detention until cured. It had been stated that the percentage of the disease in the army was 43 per 1,000. Reckoning such an army as we might be imagined to have had last year, Captain Guest said this percentage showed something like 107,000 cases. Those seemed to him very serious figures when we were hunting to get recruits in hundreds. These were the War Office figures, and he did not know whether they covered all the cases that had occurred in France as well as in England. He had certain figures which made him rather suspicious. His own figures were open to challenge. He submitted them for the purpose. During two and a half or two and three-quarter years there had been admitted into the hospitals of England over 70,000 cases of gonorrhoea, over 21,000 cases of syphilis and over 6,000 cases of soft chancre. What the figures were in France we did not know, as they were wisely kept wrapped up. But he did know of a British hospital in France instituted to deal with such cases where accommodation for 500 or 600 had been expanded to accommodate 2,000, and it was continually full. He would be delighted if the Government could inform him that he was wrong in saying that during this war between 40,000 and 50,000 cases had passed through our hospitals in France. Some of these cases reappeared as admissions to England, but he believed not many. Coming to the figures for gonorrhoea, Captain Guest said the figures given him suggested that the number was between 150,000 and 200,000 cases, and that few of them reappeared in England. Passing down to the sectional considerations, Captain Guest said, as to the Canadians, that in one camp during sixteen months there were 7,000 cases. Having pointed out in the army it was a military offence to contract the disease, and that the penalties were serious, Captain Guest pursued his argument that the strongest action should be taken in reference to the civil population. He insisted that there should be compulsion for notification.

Sir William Collins in a brief speech took a non-committal attitude. He regarded the practice of quacks in the case of these diseases as most pernicious and objectionable, but was not certain that the tuberculosis quack was not more shameful, or the cancer quack not worse than either. If unqualified practice was to be put down, to put it down altogether might be better. But medicine was a progressive science, and he preferred to see the practice of scientific medicine and surgery stand on its own merits without illegitimate rivals being suppressed by penalty.

Mr. Glyn-Jones, speaking for the pharmacists, urged that if the Apothecaries' Act were enforced against unqualified people nine-tenths of the evil which this bill was intended to hit would be removed. He considered that Clause II of the bill was unworkable. The way to deal with this portion of the matter was, he thought, by an amendment dealing with advertisements, but at present the provisions of this bill and of the Criminal Law Amendment Bill overlapped.

Sir J. D. Rees thought this particular bill hardly needed, but, if it were, it must be filled with safeguards, and Mr. Dillon offered the opinion that this bill and the Criminal Law Amendment Bill were rather bad specimens of panic legislation. Sir Hamar Greenwood, on the other hand, supported the bill as an instalment of legislation greatly needed. He spoke with special reference to what Canadians had suffered. Sir George Radford objected to the bill as one not properly thought out. Mr. Boyton welcomed this and the other bill, but made it clear that, though he represented a London constituency in which were many medical men, none had made any direct representation to him on the subject, and he was satisfied it was not their desire to get any close legislation of a trade union character. Mr. D. M. Mason supported the measure. The second reading was carried without division, and the bill was sent to the same Grand Committee as considered the Criminal Law Amendment Bill. It is to meet on May 1st.

The Cost of Artificial Limbs.—Major W. A. Chapple asked the Pensions Minister whether the prevailing price of an artificial limb for soldiers was £15; whether several artificial limbs had sometimes to be made in succession for the same man; whether over 6,000 limbs had already been made, and whether the Minister had taken any steps to ascertain if such limbs could be produced, consistently with the utmost efficiency, for about £5 each if made under the direction of the Ministry of Munitions. Mr. Barnes said that the cost of artificial limbs varied considerably. It was the case that occasionally the first limb supplied proved unsatisfactory and had to be replaced, and also that over 6,000 limbs had been supplied since the beginning of the war. It might be possible to reduce the price (though whether by so much as was suggested he had no means of judging) by undertaking wholesale manufacture, but the stage for that had not been reached. Improvements were being effected daily in the various types of limbs required, and it would not be expedient to standardize them at present.

DR. JAMES LITTLE, Regius Professor of Physic in the University of Dublin, left £68,500.

THE WAR.

MEDICAL WORK IN THE ARRAS ADVANCE.

THE series of actions known—for the present, at any rate—as the Battle of Arras, and involving the neighbourhood of Vimy Ridge, a point of very great strategical importance, have put a severe strain upon the forward medical organization. This has been due in part to the very bad weather, which has made wheeled transport in some districts practically impossible and hand carrying very difficult, in part to the length of the line involved in the operations—about twenty-eight miles in all—and in part to the difficulty of getting the casualty clearing stations as close to the actual front as is now deemed desirable. This last difficulty was due to two causes—the very hilly nature of the ground, and the fact that the area is not traversed by railways, though it is skirted by railways on the north and south. The difficulty was met by arranging a large number of main dressing stations at moderate distances from the casualty clearing stations and evacuating the casualties from them, some along the southern and some along the northern railway. The state of the roads rendered rapid transport impossible. Most of the roads which had to be used were the country lanes of a hilly country branching off from sections of old Roman roads or national highways, but their surfaces had been broken up by previous traffic, and what between mud and snow and other obstructing conditions, distances that could have been traversed easily by a motor ambulance in forty minutes often took twice as long. In the interspace between the main dressing stations and the advanced dressing stations the conditions of the roads were much the same in some places, but usually very much worse.

Here the old horse ambulance had an opportunity of proving its usefulness when roads are thoroughly bad. On a fairly high-cambered road, say a crown of 6 in. and a rut 9 in. deep on either side, the automobile ambulance is very apt sooner or later to find itself balanced on its differential casing, and its back wheels whizzing round uselessly. A horse ambulance has at least twice as much clearance, and even if the back wheels sink up to the back axle at some particularly bad bit in the road, the horses, if strong enough, can still drag it through. With an automobile carriage, power of progression stops the instant the back wheels cease to grip the ground, and this must always happen if the differential casing impinges on the road surface. The wisdom of retaining a certain number of horsed ambulances was therefore again evidenced. From the trenches to the advanced dressing stations transport was at some places possible by tramway lines, but where these were not available, and beyond the point where they ended, casualties had to be carried through a sea of mud and a wilderness of broken wire and deep trenches. It is a marvel how the work was done when it is remembered that the advance everywhere covered upwards of a mile in depth and in several places many miles, and that over all these miles of deep and sticky mud stretcher-bearers had to carry their burdens. To carry a man weighing some ten or twelve stone over roads a foot deep in mud is an exhausting task, and to carry him over morasses such as those formed by the belt of the original British and German front line trenches one would be inclined to say was impossible had it not been done many thousands of times on Easter Monday, Tuesday, and Wednesday alone. The personnel of the R.A.M.C. at the actual front ought to be composed of the strongest kind of men, as stretcher lifting and carrying is, under any circumstances, tiring work, and stretcher carrying on bad ground is absolutely exhausting. Between our advanced dressing stations and the German trenches were several thousands of yards of country sliced and resliced by trenches, and these trenches had been so battered out of shape that they were resolved into a string of deep ditches and holes.

During the advance in the Arras region the corps main dressing stations were from the very first moment an absolutely invaluable part of the whole arrangement; the advance was so rapid, the weather conditions so appalling, the carries so long, and the roads so awful, that attempts to get the wounded to the rear except by stages must have led to hundreds of deaths through mere shaking and jolting. Looking back on that momentous period, the recollection is one of days of storm, wind, rain, and snow, and nights bitterly cold. The nights were pitchy black, illumined now and again by gun and shell flashes, but otherwise so dark that a tent a few yards off was hardly to be recognized; even when a tent flap was pushed aside and a stretcher taken in or out the tent itself was scarcely more visible, for only oil lamps could be used.

In the daytime at the advanced dressing stations the water oozed steadily through the overhead ground, dripping on to everything. There were very few periods of real dryness during the week, though sometimes the sun shone brightly for an hour or two. The men were splendid, but the rain and cold little by little had its effect upon the wounded, who arrived at the dressing stations soaked, and often very collapsed.

The medical staffs in the advanced formations rose magnificently to the occasion. There must have been very many men who worked continuously for two or three days; but they have their reward in knowing that their share in an organization which worked admirably is well recognized; and also in learning that in the opinion of those who have been receiving the cases at the base the men have come down in very good order. Though many of the wounds were severe, the proportion of light cases is large.

THE TORPEDOING OF HOSPITAL SHIPS BY GERMANY.

DECLARATION BY THE BRITISH ADMIRALTY.

THE Secretary of the Admiralty made the following announcement and issued the accompanying historical explanatory statement on April 23rd:

On the evening of April 17th the s.s. *Donegal* and *Lanfranc*, whilst transporting wounded to British ports, were torpedoed without warning.

Owing to the German practice of sinking hospital ships at sight, and to the fact that distinctive marking and lighting of such vessels render them more conspicuous targets for German submarines, it has become no longer possible to distinguish our hospital ships in the customary manner. One of these two ships, therefore, though carrying wounded, was not in any way outwardly distinguished as a hospital ship. The distinctive marking of the other had not yet been removed. Both were provided with an escort for protection.

The *Donegal* carried slightly wounded cases, all British. Of these, 29 men, as well as 12 of the crew, are missing, and presumed drowned.

The *Lanfranc*, in addition to 234 wounded British officers and men, carried 167 wounded German prisoners, a medical personnel of 52, and a crew of 123. Of these the following are missing and presumed drowned:

2 Wounded British officers.
11 Wounded British other ranks
1 R.A.M.C. Staff.
5 Crew.
2 Wounded German officers.
13 Wounded German other ranks.

One hundred and fifty-two wounded German prisoners were rescued by British patrol vessels at the imminent risk of being themselves torpedoed.

The illegal and inhuman submarine warfare which Germany has waged upon merchant shipping has for some time been openly adopted against hospital ships flying the Red Cross flag and otherwise acting in complete conformity with the requirements of the Hague Convention.

This culmination of savagery has brought the world face to face with a situation that is without parallel in civilized warfare. It has no justification in any conceivable distortion of international law, nor in the most brutal creed of necessity.

The British Government, in considering fully the measures to be adopted in these circumstances, has had in review the entire facts on which the German Government claims to have acted. These may be recapitulated in brief for the consideration of the civilized world.

On January 29th, 1917, the German Government addressed a memorial to the American and Spanish Embassies for transmission to the British and French Governments. In this it was stated that the hospital ships of the Allies, and of Britain in particular, were employed for the purpose of transporting troops and military supplies. The evidence of a number of witnesses, the majority of whom were anonymous and the remainder German, was cited in support of this outrageous statement. The German Government, in conclusion, declared that no hospital ship would be "tolerated" in the tract of sea lying between lines connecting Flamborough Head

UNIV. OF ILL. URBANA-CHAMPAIGN

and Terschelling on the one side and Ushant and Land's End on the other.

The substance of this memorial was embodied in an official German wireless message, and on the evening of January 31st the British Foreign Office issued a statement to the effect that although no communication had been received through the customary channels alleging the misuse of British hospital ships they most emphatically denied that such ships had been used in any way contrary to the Hague Convention. It was pointed out that under this Convention Germany had an obvious remedy in cases of suspicion—the right to visit and to search any hospital ships encountered on the high seas. From the refusal of the German Government to tolerate the hospital ships within certain limits only one conclusion could be drawn—"namely, that it is the intention of the German Government to add yet other and more unspeakable crimes to the long list that disgraces their record."

The Government of the United States was requested to inform the German Government that if the threat were carried out immediate reprisals would follow.

The course dictated by humanity and common sense was plain, and needed no reminder such as was given by the British Government. Yet in spite of their emphatic denials of the German falsehoods and the subsequent warning conveyed, the British hospital ship *Asturias* was torpedoed without warning on the night of March 20th. The ship was steaming with all navigation lights burning and the proper Red Cross sign brilliantly illuminated. The cumulative evidence that she has been torpedoed and not mined was only accepted after it had been confirmed beyond all doubt and after exhaustive investigation. The loss of life on this occasion included a nursing sister and a stewardess, a fact which might have brought home to any enemy but Germany some sense of the enormity of the outrage.

But the nation responsible for the murder of Nurse Cavell appears to have accepted the intelligence with composure, if not with satisfaction. The German official wireless message of the 26th finally established the guilt of the German Government, who, having boasted of the deed, published on the 29th a further message which said: "It would moreover be remarkable that the English in the case of the *Asturias* should have abstained from their customary procedure of using hospital ships for the transport of troops and munitions."

On the night of March 30th–31st the hospital ship *Gloucester Castle* met with a similar fate. On this occasion the Berlin official wireless message again cynically published a notification that she was torpedoed by a U boat, thus removing any possible doubt in the matter.

The British Government thereupon authorized prompt measures of reprisal in accordance with the announcement already referred to, and on April 14th a large squadron of British and French aeroplanes bombarded the German town of Freiburg with satisfactory results.

In spite of the warnings conveyed to Germany that her barbarous attacks on hospital ships would result in such action on the part of Great Britain, the German Government published through the wireless message of April 16th an abusive protest which "categorically contested any justification" for this reprisal. Nothing could afford a better illustration of German mentality and reasoning. On the other hand, the spirit in which the Allies exacted retribution is shown by the purely military character of the measures adopted. The airmen who carried out the attack were exposed to, and did in fact incur, precisely the same dangers from the town defences as they would have been in the course of an ordinary action.

It was plain, however, that any retaliatory measures open to a Government upholding the principles of humanity and justice would not prove a deterrent to Germany in the future. Such reprisals could be only punitive in effect, and it was necessary to reconsider the entire status of hospital ships in the light of the attitude taken by the German Government.

The markings agreed upon at the Hague Convention, which had hitherto guaranteed the immunity of hospital ships from attack, rendered them no longer inviolable. The custom of showing all navigating lights and illuminating the distinctive markings at night only afforded a better target for German submarines. It was therefore decided that sick and wounded, together with medical personnel and supplies, must in future be transported for their own safety in ships carrying no distinctive markings, and proceeding without lights in the same manner as ordinary mercantile traffic.

Notice has accordingly been given to the German Government that the British Government have withdrawn certain vessels from the list of hospital ships published by them in accordance with international law, and they will no longer appear thereon.

During the recent fighting on the Western front a very large number of wounded German prisoners have fallen into our hands. These officers and men have to be transported to England for treatment by the same means that our own wounded are brought over, and practically all ships transporting wounded are bound to carry a proportion of German wounded. These will naturally share with British wounded equal risks from the attacks of German submarines.

Whether the policy of the German Government is likely to be deflected from its abominable course by the knowledge that it can only be pursued at the expense of their own wounded remains to be seen.

In conclusion, it may be recalled that although Germany did not frame any formal allegation of the misuse of hospital ships against the Allies until the commencement of 1917, the British hospital ship *Asturias* was fired at and missed by a German submarine on February 1st, 1915, in broad daylight while flying the Red Cross flag. In the light of recent events it seems reasonable to suppose that the hospital ships *Braemar Castle* and *Britannic* were also torpedoed in November, 1916, although the evidence at the time was not considered conclusive as to whether their losses were occasioned by mines or torpedo.

PROTEST BY THE INTERNATIONAL RED CROSS COMMITTEE.

A Reuter's telegram from Geneva, dated April 22nd, states that the International Red Cross Committee has addressed a note to the German Government referring to the German order issued on January 29th, 1917, regarding the sinking of hospital ships and the torpedoing of the hospital ships *Asturias*, *Britannic*, and *Gloucester Castle*. The protest is in the following terms:

The International Committee, whose right and duty it is to enforce respect for the principles of the Red Cross and the Geneva Convention by reporting violations of them, draws the very serious attention of the German Government to the responsibility which it would assume towards the civilized world by persisting in a resolution which is in contradiction to the humanitarian conventions which it has pledged itself solemnly to respect.

In torpedoing hospital ships it is not attacking combatants, but defenceless beings wounded or mutilated in war and women who are devoting themselves to the work of relief and charity. Every hospital ship is provided with the external signs prescribed by international conventions, the use of which has been regularly notified to belligerents and should be respected by belligerents. The latter may, according to the Hague Convention, exercise the right of search, but have in no case any right to sink a ship and expose to death the hospital staff and the wounded.

The *Asturias* appears to have been torpedoed without any care having been taken to ascertain her character or her destination. Even if the correctness of the facts were admitted upon which Germany bases justification of her order, the International Committee considers that nothing can excuse the torpedoing of a hospital ship, and expresses the hope that such an order, contrary to international conventions, will cease to be carried out.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN E. J. BLAIR, R.A.M.C.

Captain Edward James Blair, R.A.M.C., was killed in action on April 11th, while going to the relief of a wounded officer. He was the son of the late John Blair, of Markinch, Fife, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1914. Before the war he held a commission as Captain in the 5th (Territorial) Battalion of the Royal Scots, the Queen's Edinburgh Rifles, but transferred to the R.A.M.C.(T.F.) as lieutenant in the Highland Cyclist Battalion on November 26th, 1914, and was promoted to captain on April 1st, 1915. He had been at the front about two years, was wounded by a shell

eighteen months ago, and was gazetted as a recipient of the Military Cross on January 10th last.

CAPTAIN S. J. LINZELL, M.B., M.C., R.A.M.C.

Captain Stanley James Linzell, M.B., M.C., R.A.M.C., previously reported missing, but now officially reported killed in action on April 2nd, was born on July 20th, 1888, the only son of Mr. H. J. Linzell of Felixstowe. He was educated at Bishop's Stortford and Edinburgh University, where he was president of the Royal Medical Society, and graduated M.B., Ch.B. in 1912. He had also held the posts of house-physician to the Edinburgh Royal Infirmary and medical officer to the Central Branch of the Manchester Royal Infirmary. He entered the R.A.M.C. as lieutenant on January 30th, 1914, and was promoted to captain on March 30th, 1915. He was wounded early in the war and again slightly a few weeks before his death, when he was D.A.D.M.S. to a division. He was gazetted the Military Cross on April 17th, a few days after his death, for the following acts:

For conspicuous gallantry and devotion to duty in superintending the evacuation of the wounded. He continually visited the forward battalion head quarters, passing under very heavy fire. He set a splendid example of courage and determination throughout.

CAPTAIN T. W. MARTIN, R.A.M.C.

Captain Thomas Whittle Martin, R.A.M.C., was killed in action on April 9th. He was the younger son of the late Dr. J. Y. Martin, J.P., of Walkden, Lancashire, and was educated at Rossall and at the Victoria University, Manchester, where he graduated M.B. and Ch.B. in 1912, subsequently going into practice at Hale, Cheshire. He entered the Special Reserve of the R.A.M.C. as a lieutenant on October 7th, 1914, joined for service on April 7th, 1915, and was promoted to captain six months later. He went to France in May, 1915, and had received the Military Cross for gallantry in action. When killed he was attached to the Royal Scots, a regiment which has suffered severely in the recent fighting.

CAPTAIN G. R. PLAISTER, R.A.M.C.

Captain Geoffrey Ratcliffe Plaister, R.A.M.C., was killed in action on April 11th. He was educated at the London Hospital, and, after taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1905, went into practice at Tottenham, where he was honorary secretary of the North-East London Clinical Society. He was also a member of the British Medical Association. Early in the war he served as a chief inspector of the Special Constabulary. He took a temporary commission in the R.A.M.C. in 1915, and was promoted to captain a year later. He went to France in September, 1915, had served in the battle of Loos and of the Somme, and was attached to the York and Lancaster Regiment when killed.

CAPTAIN V. K. SADLER, R.A.M.C

Captain Vyvyan Kendall Sadler, R.A.M.C., was killed in action on April 17th, aged 38. He was the son of Mr. A. C. Sadler, of Richmond, Surrey, was educated at Rossall and at University College Hospital, London, and, after taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1907, filled the post of resident medical officer of Tiverton Infirmary. When the war began he was serving as a surgeon in the P. and O. Company. He then joined the hospital ship *China*. Subsequently he took a commission in the R.A.M.C., and, after serving in the hospital ship *Cambria*, went to the front in January, 1917.

CAPTAIN T. WELSH, S.A.M.C.

Captain Tom Welsh, South African Medical Corps, was killed in action on April 13th. He was the younger son of Mr. Welsh of Edinburgh, and was educated at Merchiston School and at Edinburgh University, which he represented both in athletics and in Rugby football, and where he graduated M.B. and Ch.B. in 1910. After filling the posts of resident house-surgeon in the gynaecological wards and of resident house-physician in the Royal Infirmary, Edinburgh, and of resident house-surgeon at Ramsgate General Hospital, he went out to South Africa as assistant medical officer of the Knight Central Mines at Johannesburg. He took a commission as captain in the South African Medical Corps on November 4th, 1914, and received the Military Cross on January 10th, 1917.

LIEUTENANT E. EVANS, R.A.M.C.

Lieutenant Edward Evans, R.A.M.C., temporary, attached Royal Welsh Fusiliers, who is reported as killed in action, was educated at Trinity College, Dublin, and at Mercer's Hospital, Dublin. He was son of the late Dr. Henry Evans, of Portmadoc, North Wales. He took the University Licence in Medicine and Surgery in 1914, and before he joined the R.A.M.C. in 1916 acted as house-surgeon at the County Hospital, Inniskillen.

SECOND LIEUTENANT H. SNELL, L.D.S.

Second Lieutenant Herbert Snell, L.D.S., of the London Regiment, was killed in action on April 9th, aged 36. He was the second son of Mr. Joseph Snell of Horsell, Surrey, and was educated at Guy's Hospital, taking the L.D.S., R.C.S.Eng., in 1905. He was in practice at Woking, Surrey, till he joined an O.T.C. in January, 1916. He got his commission in January, 1917, and shortly afterwards went to the front, attached to the Lancashire Fusiliers. He was killed while returning from patrol duty. His elder brother, Captain Norris Snell, L.D.S., of the East Yorkshire Regiment, was killed in action in July, 1916. He also was educated at Guy's, took the L.D.S., R.C.S.Eng., in 1896, and was in practice at Ipswich, till he took a commission on November 30th, 1914.

Accidentally Killed.

CAPTAIN J. J. WEAVER, R.A.M.C.

Captain John James Weaver, R.A.M.C., was accidentally killed by a fall from his horse in Ireland on April 20th, aged 57. He was the elder son of the late James Weaver, M.D., of Southport, was educated at University College, London, and took the diplomas of M.R.C.S. and L.S.A. in 1886, also taking the D.P.H.Camb. in 1900. After filling the post of house-surgeon at the Oldham and Southport infirmaries successively, he became medical officer of health of the County Borough of Southport in 1900, where he was also medical superintendent of the infectious diseases hospital, and medical officer of the police force. He took a temporary commission in the R.A.M.C. towards the end of 1915, and was promoted to captain a year later. He leaves a widow and a daughter.

Died on Service.

LIEUT.-COLONEL S. W. HEWETSON, M.D., C.A.M.C.

Lieutenant-Colonel Samuel William Hewetson, C.A.M.C., whose death on March 6th at the Royal Free Hospital, London, after an operation, was announced in our issue of March 24th, was born at Port Elgin, Ontario, in 1873. In August, 1914, he was in practice at Pincher Creek, Alberta, and volunteered for active service, being appointed medical officer of an overseas battalion. Later he was gazetted A.D.M.S. of Military District No. 13, and when the eighth field ambulance of the Canadian Expeditionary Force was authorized Lieutenant-Colonel Hewetson was given the command, and in due course proceeded overseas with the unit. Some time ago it was reported that he was suffering from nervous breakdown and shell shock.

CAPTAIN T. MCCOSH, R.A.M.C.

Captain Thomas McCosh, R.A.M.C., died on service on April 16th, aged 34. He was the third son of the late Thomas McCosh of Rutherglen, Glasgow, and was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1905. After serving as house-physician and house-surgeon in the Glasgow Western Infirmary he went into practice at Woodford Green, Essex. He took a temporary commission in the R.A.M.C. in July, 1915, and was promoted to captain a year later. He was attached to the Welsh Regiment when killed, and had received the Military Cross.

LIEUTENANT L. G. SCUDAMORE, R.A.M.C.

Lieutenant Leonard George Scudamore, R.A.M.C., died after a short illness at a camp in England on April 17th. He was educated at St. Thomas's Hospital, took the diplomas of M.R.C.S. and L.S.A. in 1891, and after serving as clinical assistant in the skin department at St. Thomas's and as clinical assistant at St. Luke's Asylum, went into practice at Abertysswg, New Tredegar, Monmouthshire. He had only recently taken a commission in the R.A.M.C.

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

L. A. R. FENNELL, L.D.S.

Mr. Linton Albert Ramsey Fennell, L.D.S., died at Romford Hospital on April 14th, aged 37. He took the L.D.S. of the R.C.S.Eng. in 1909, and was in practice at Camborne, Cornwall, where he was platoon commander in the Camborne Volunteer Corps, till he recently joined the Artists' Rifles with a view to a commission in the army.

THE LATE CAPTAIN J. R. GYLLENCREUTZ, R.A.M.C.

The late Captain James Randolph Gyllencreutz, whose death on board the hospital ship *Salta* was recorded in our issue of April 21st, p. 524, volunteered for service in the first days of the war, went to France in October, 1914, and was for some months attached to a base hospital at Boulogne; from there he exchanged to the *Salta* in July, 1915, and had remained with the vessel since that time. A. A. S. writes:

His had been a roving life, during which he had visited many parts of the world, both East and West. Whilst at home no man possibly had acted as locumtenent in so many hospitals as he. His knowledge of the methods and peculiarities of the different institutions of England was probably unique, and the experience gained in his various sojournings was never wasted. A sound surgeon, an able physician, an excellent anaesthetist, and possessed of an extensive practical knowledge of pathology and bacteriology, he was a man of infinite parts; always ready for the hardest work, and ever calm and collected in an emergency, he was an invaluable member of any unit to which he was attached.

Socially his unfailing good humour and cheery nature, combined with his gift for narrative and comic song, made him friends the world over, and the mere appearance of his well-known figure in the doorway at once dispelled all gloom and sadness and had the power of generating an optimistic and light-hearted atmosphere at the most trying times. Enemies had he none, and many a heart in many a land will have felt the sadder for the appearance of his name in the roll of honour. He was an "all-round" man in the finest sense of the phrase.

Wounded.

Major G. J. Boyce, Canadian A.M.C.
Captain J. G. Brown, R.A.M.C. (temporary).
Captain R. J. Gardiner, Canadian A.M.C.
Captain W. G. Goudie, R.A.M.C. (temporary).
Captain G. R. Johnson, Canadian A.M.C.
Captain J. R. Kemp, M.C., R.A.M.C. (temporary).
Captain J. F. Murphy, M.C., R.A.M.C., S.R.
Captain W. Parker, R.A.M.C. (temporary).
Captain J. S. Prentice, R.A.M.C. (temporary).
Captain R. A. W. Proctor, R.A.M.C. (temporary).
Captain A. Short, New Zealand A.M.C.
Captain T. C. Storey, R.A.M.C., S.R.
Captain A. H. Thomas, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Bristowe, Vivian Ernest John, youngest son of the late Dr. John Syer Bristowe, F.R.S., LL.D., died on April 14th, while serving with the R.A.M.C. in East Africa.

Browne, Albert Edward, Lieutenant Canadian Forces, son of the late Dr. Browne, killed April 9th, aged 23.

Caleb, C. D. N., Second Lieutenant Devonshire Regiment, only son of Dr. C. C. Caleb, M.B., Professor of Physiology, Leeds University, killed April 2nd, aged 23. He was educated at Berkhamsted School and at Birmingham University, enlisted in the Public Schools Battalion in September, 1914, and got a commission in October, 1916.

Douglas, Archibald Stirling, Private, Highland Light Infantry, youngest son of the late Dr. Douglas, of Sanchez, San Domingo, West Indies, reported missing on July 1st, 1916, now presumed killed, aged 18.

Patterson, Robert Arthur, Second Lieutenant Rifle Brigade, second son of Dr. Charles S. Patterson, of Eastbury, Berkshire, killed April 12th, aged 21. He was an undergraduate at Jesus College, Cambridge, when he took a commission on December 1, 1914.

Richard, Lawrence Brown, Lieutenant Canadian Forces, younger son of the late Benjamin Maule Richard, surgeon, Dumbarton, killed April 9th.

Rundle, Beaumont, Lieutenant Australian D.A.C., of Luna, Man-ama, Queensland, youngest son of the late Dr. G. E. Rundle, of Creewood, Sydney, and of Looe, Rooty Hill, New South Wales, died of wounds on April 15th, aged 31.

Spence, Geoffrey S., Second Lieutenant South Wales Borderers, younger son of the late Dr. J. W. Spence, of Bedford, died of malaria in Queen Alexandra's Military Hospital, Millbank, on April 15th, aged 22. He got his commission in February, 1916.

Taylor, W. B., Second Lieutenant Yorkshire Regiment, son of Captain D. M. Taylor, R.A.M.C., of Shelf, Halifax, died in hospital in France from wounds received in action, aged 20. He was seriously wounded in one leg, which had to be amputated on April 15th. On the following day he seemed to be improving, but death took place on April 17th. He was educated at Archbishop Holgate's Grammar School, York, and afterwards at St. George's College, London, and entered the civil service. He joined the Inns of Court O.T.C. in August, 1915, and obtained a commission in July, 1916. He was wounded in the battle of the Somme, and rejoined his original regiment, the Yorkshires, in January last.

Todd, Valentine O., Captain King's Own Royal Lancaster Regiment, second son of Colonel O. Todd, Army Medical Staff, killed April 10th, aged 33. He joined the army in 1905, and became captain on February 22nd, 1915. He was attached to the Royal Flying Corps.

Trevor, Herbert Edward, Brevet-Major Northampton Regiment, temporary Lieutenant-Colonel Essex Regiment, second son of Surgeon-General Sir Francis Trevor, K.C.S.I., C.B., Army Medical Staff (ret.), of Over Worton, Steeple Aston, killed April 11th, aged 32. He was educated at Eastbourne College and at Rugby, and got a commission in the Northamptons from Sandhurst in 1903, becoming captain on November 30th, 1910. He completed his course at the Staff College in 1914; had been chiefly employed on the staff at the front; and had been mentioned in dispatches, and promoted to brevet-major for distinguished service in the field.

Webb, Arthur Pelham, Second Lieutenant King's Shropshire Light Infantry, second son of Dr. H. Pelham Webb, killed April 9th, aged 32.

MEDICAL STUDENT.

Hemphill, Richard Patrick, Second Lieutenant Leinster Regiment, and Royal Flying Corps, reported killed as the result of an accident. He was the second surviving son of the Rev. Samuel Hemphill, D.D., Dublin, and was a second year medical student at the School of Physic, Trinity College, Dublin. Before he joined the army he had been for several years a member of Campbell College and Dublin University O.T.C. In Trinity College he had many friends who anticipated for him a most successful career. He was an honours man in classics and in natural science. His commission was dated December, 1914, and he was in service abroad since May, 1915; at first he was at Ypres, Armentières, and the Somme, more lately he was at Salonica and was transferred to Egypt on joining the Flying Corps. At the time of his death he was 22 years of age.

HONOURS.

A SUPPLEMENT to the *London Gazette*, issued on April 17th, contains a list of honours and awards conferred by the King in recognition of gallantry and devotion to duty in the field, in which the names of the following medical officers are included:

To be Companion Distinguished Service Order.

Temporary Lieutenant John Maximilian Hammond, M.B., R.A.M.C., attached Devon Regiment.

For conspicuous gallantry and devotion to duty in evacuating a large number of wounded under the most difficult conditions. He was himself subsequently wounded, and, although both his feet were practically blown off, he ordered his stretcher-bearers to carry away another wounded man first.

Bar to the Military Cross.

Temporary Captain Ernest Emrys Isaac, M.C., R.A.M.C., attached Royal Fusiliers.

For conspicuous gallantry and devotion to duty. He worked continuously under very heavy fire and was responsible for the successful evacuation of the wounded. He set a splendid example of courage and determination throughout the operations. (M.C. gazetted October 20th, 1916.)

Temporary Captain Patrick Joseph Lane, M.C., M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. On several occasions he led out squads of stretcher-bearers under very heavy fire and succeeded in bringing in many wounded men. He set a splendid example of courage and determination throughout. (M.C. gazetted November 25th, 1916.)

Captain Rudolph Albert Peters, M.C., M.B., R.A.M.C., attached King's Royal Rifle Corps.

For conspicuous gallantry and devotion to duty. He continually tended the wounded under very heavy fire. He set a splendid example and showed an absolute disregard for his own personal safety. He has on many previous occasions done fine work. (M.C. gazetted October 20th, 1916.)

Temporary Captain John Caruthers Sale, M.C., R.A.M.C., attached Royal Fusiliers.

For conspicuous gallantry and devotion to duty. He displayed great courage in collecting and dressing the wounded in the face of a very hostile barrage. He set a splendid example to all ranks. (M.C. gazetted November 25th, 1916.)

Military Cross.

Temporary Surgeon Frederick Hugh Lester Cunningham, R.N.

For conspicuous gallantry and devotion to duty. He displayed great courage and determination in searching for the wounded in exposed positions and tending them under very heavy fire. He has previously done fine work.

Temporary Captain Victor Thomas William Eagles, R.A.M.C.

For conspicuous gallantry and devotion to duty. He organized and led search parties for wounded and worked continuously under very heavy fire for over twenty-four hours. He set a splendid example of courage and determination throughout.

Captain Gladston Montague Hunt, A.A.M.C.

For conspicuous gallantry and devotion to duty. He showed an absolute disregard of danger and set a splendid example to his stretcher-bearers, working with them over ground continually swept by heavy fire. He worked for six consecutive weeks in a forward area in charge of an advanced dressing station.

Captain Norman Parsons Jewell, M.B., East African Medical Service.

For conspicuous gallantry and devotion to duty. He worked continuously for sixty-two hours and single-handed, attending to over 100 wounded men. He has on many previous occasions done fine work

Temporary Lieutenant Charles Gordon Kemp, M.B., R.A.M.C., attached Northumbrian Regiment.,

For conspicuous gallantry and devotion to duty. He worked unceasingly for two days under very heavy fire and succeeded in evacuating a large number of wounded. He displayed great courage and determination throughout the operations.

Captain Harrie Bertie Lee, A.A.M.C.

For conspicuous gallantry and devotion to duty in evacuating the wounded. He set a splendid example throughout and worked continually under very heavy fire. He has previously done fine work.

Captain Stanley James Linzell, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty in superintending the evacuation of the wounded. He continually visited the forward battalion head quarters, passing under very heavy fire. He set a splendid example of courage and determination throughout.

Temporary Captain Thomas McCosh, M.B., R.A.M.C., attached Welsh Regiment.

For conspicuous gallantry when his aid post was subjected to heavy shell fire for over three hours. He, with absolute disregard for his own personal safety, set a splendid example of courage and devotion to duty.

Temporary Surgeon William James McCracken, M.B., R.N.

For conspicuous gallantry and devotion to duty. He continually attended to the wounded under very heavy fire. He has previously done fine work.

Temporary Captain Herbert Walker, R.A.M.C.

For conspicuous gallantry and devotion to duty. He led his stretcher-bearers with great courage and determination for a period of thirty-six hours. It was due to his energy and resource that a large number of wounded men were evacuated under the most trying conditions.

In addition to thirteen non-commissioned officers and men of the R.A.M.C. and one sergeant in the A.A.M.C. who have been awarded the Military Medal for bravery in the field, one private in the R.A.M.C. has been granted a bar to the Military Medal and one receives the Distinguished Conduct Medal.

Foreign Decorations.

The King has granted the recipients of the following orders unrestricted permission to wear the decorations conferred upon them by the Allied Powers for distinguished services rendered during the course of the campaign:

Conferred by the King of the Belgians.

Ordre de la Couronne: Temporary Colonel Sir Almroth E. Wright, C.B., M.D., A.M.S., and Captain Stewart Ranken Douglas, late I.M.S. (Officiers). Temporary Lieutenant Eric Shaw, M.B., R.A.M.C. (Chevalier).

Conferred by the King of Serbia.

Order of the White Eagle (4th Class): Lieutenant-Colonel E. T. F. Birrell, C.M.G., M.B., R.A.M.C., and Major M. J. Cromie, R.A.M.C.

Cross of Karageorge (2nd Class Silver Star with swords): Sergeant-Major G. S. Harrington, R.A.M.C.

Order of St. Sava: Temporary Lieutenant R. MacKenzie Morison, M.B., R.A.M.C.

Conferred by the Sultan of Egypt.

Order of the Nile (3rd Class): Major R. G. Anderson, R.A.M.C., late Assistant Adjutant-General Recruiting Department, Egyptian Army, Major William Byam, R.A.M.C., late Medical Corps (Egyptian Army); (4th Class): Captain Edward Gibbon, M.B., R.A.M.C., attached Medical Corps, Egyptian Army.

NOTES

The Secretary of the County of London Branch of the British Red Cross Society announces that in several Red Cross auxiliary hospitals in the county the number of beds has been increased at the instance of the War Office. In one case an annexe to accommodate 108 patients has been opened, at another hospital a second hut has been erected providing for twenty-five more patients, and in a third the accommodation has been increased by 10 beds. In view of the increasing shortage in medical and nursing staff the Army Council has recently notified that no offers will in future be accepted of auxiliary hospitals which do not contain at least 20 beds in hospitals for officers or 40 beds in hospitals for other ranks. The offer of a hospital of 50 beds in Southwark has been refused on the ground that the building, in which there is accommodation for some 200 patients, could be utilized to greater advantage if the military authorities established a hospital in it themselves.

England and Wales.

Laboratory Arrangements in Manchester for the Diagnosis of Venereal Diseases.

In supplement to the note in the Journal of April 14 on the Manchester scheme for the treatment and diagnos of venereal disease, it may be stated that the arrangemer for carrying out the laboratory work under the direction Professor Delépine at the Public Health Laboratory of t University are intended to cover every requirement r only of Manchester but the surrounding district. guarantee the laboratory against loss which might occ if the examinations did not reach the large number e pected, each authority sending cases may be required pay a minimum yearly fee of 3s. per 1,000 of its populati and to pay all incidental expenses, which will not exce 2s. 6d. a case during the first year. The work of examini specimens will be so divided up among the staff as ensure both accuracy and expedition, and the laborato will not only supply medical officers of health with outf and directions for the collection of specimens but w make provision for the taking of samples of blood a other material from patients sent by medical men. early as last October the laboratory issued a pamphl giving a list of the various methods for diagnosis, a minute directions for the taking of specimens, includi the proper method of taking juice from a chancre or oth superficial lesion, obtaining discharges from the urethr instructions for making films of blood, pus, and oth exudations, collecting blood from veins for the compleme fixation test or for cultivation purposes. The method performing a Wassermann test is described in detail Professor H. R. Dean, who will take charge of this part the work at the laboratory. A subsequent pamphlet ga a list of the materials suitable for examinations, a it is to be noted that quite a number of products a mentioned beyond those specified in the Local Governme Board regulations—for example, rubbings from organs the organs themselves of fatal cases of congenital syphil cerebro-spinal fluid, urine, articular exudations, and blo in gonorrhoea. Moreover, the directions for the taking specimens are so greatly amplified that practitioners w may have had little experience in the taking and prepari of specimens for examination can hardly fail to satis the requirements. The method of lumbar puncture f diagnostic purposes is described, and there are notes the collection of blood for agglutination tests and f microscopical purposes, including the counting of co puscles, the estimation of haemoglobin, and for dete mining the kinds of corpuscles and their differential cou A section is included on the precautions against infecti of patients, operators, and laboratory workers, and fi directions for the transmission of specimens.

It will thus be seen that the Manchester Laborator under the able direction of Professor Delépine, provides f all the requirements of practical diagnosis, and at the sam time has kept in view the importance of research wor Professor Delépine recognizes the importance of close c ordination between the medical officers in charge of trea ment at clinics and the pathologist. He also suggests th for many patients who, on account of their social positio would not go to the general hospitals, arrangements migh be made to go, in company with or at the request of the medical attendant, to the laboratory where specimens blood, pus, etc., might be taken, and if necessary treatme given without creating at the laboratory any speci venereal clinic. Such patients might be expected to pay suitable fee, while patients sent by the medical officers health, or with the sanction of the authorities connecte with the laboratory, would be examined and treated fre It is estimated that the laboratory will supply the needs a population of about 4 millions, and that more than 1,00 Wassermann tests and some 2,000 examinations for spir chaetes and gonococci will have to be done yearly. Th out-of-pocket expenses for this will be about £600, an guarantees for this amount can be apportioned among th various authorities using the laboratory according population.

Proposed Public Health Laboratory for North Wales.

For some time past the medical practitioners of Nort Wales have felt that there was a real need for the esta

lishment in North Wales of a bacteriological laboratory where pathological material could be examined to facilitate diagnosis and treatment, and, as a result of a deputation of medical men to the Senate of the University College of Bangor, a joint committee was formed representative equally of the senate and the medical profession to consider the question and, if thought desirable, to draft a scheme. The question was soon widened by the inclusion of the question whether the requirements of sanitary and other public authorities might not also be met at the same time by combining a chemical laboratory where foods and drugs and fertilizers and feeding stuffs could be analysed. Hitherto all this kind of work has had to depend on commercial enterprise outside North Wales, and it was felt that if a laboratory were established in connexion with the University College of Bangor, at least five counties would give it their support and help to provide a satisfactory revenue. The joint committee has therefore recommended that a public health laboratory should be established in organic relation with the university. The draft scheme presented suggests that the laboratory or institute should consist of a bacteriological and a chemical section. The bacteriological section would examine and report on all pathological material from diseases affecting men or animals, to prepare vaccines, etc., for treatment, and carry out research work. It would meet the wants of medical officers of health, tuberculosis officers, medical practitioners, veterinary surgeons, and the agricultural department of the university. The chemical section would undertake analyses under the Food and Drugs Act and the Fertilizers and Feeding Stuffs Act, and of miscellaneous materials sent by sanitary authorities, agricultural societies, and other bodies. For the bacteriological section a qualified medical man would have to be appointed as bacteriologist and pathologist, and for the chemical section an associate or Fellow of the Institute of Chemistry, and skilled assistance would be needed in each section. The draft report suggests that the appointment of the experts would be finally determined by the council of the University College subject to the approval of the Local Government Board and the Board of Agriculture, the candidates being first selected by a special committee representative of the sanitary authorities, agricultural bodies, medical officers of health, and medical and veterinary practitioners. The provision of the necessary accommodation in the new science buildings of the university would greatly reduce the cost of the scheme, and the department would be under the control of a joint committee representative of all the interests concerned. The capital charges in providing and equipping the laboratories are estimated to amount to about £4,000 and the annual charges to about £1,200; and though possibly for the first three years or so the income would hardly cover the expenditure, after that, when the value of the provision becomes widely known, it is practically certain that the project will succeed financially. The medical profession in North Wales is to be congratulated on starting the movement, and on its share in the production of an excellent working scheme. We believe that we are right in saying that a large part of the credit belongs to Dr. E. O. Price of Bangor, who formerly represented North Wales on the Council of the British Medical Association.

Ireland.

FOOD CONSUMPTION OF WORKING CLASS FAMILIES.

PROFESSOR THOMPSON presented to the meeting of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland, on March 16th, an essay on the food consumption of working class families in Great Britain and Ireland, founded on the calculation of the food values of working class families collected by the Board of Trade in 1903–4. The figures were divided into two groups—urban and rural, and further subdivided into five groups, according to wages. Under 25s. a week, the food value of the diet, calculated on the recognized standard, was hardly sufficient. The figures for the Midlands of England were in all groups generally the lowest, and the Irish figures tended to be highest. The amount of protein taken tended to rise with increasing wages. The amount of energy taken in the form of bread decreased with increasing wages. At 25s. a week and lower, over half the energy was from bread; at 40s. and above 42 per cent.

DUBLIN HOSPITAL SUNDAY.

The report presented to the forty-third annual meeting of the Dublin Hospital Sunday Fund on April 20th, when Lord Monck was in the chair, stated that collections were made on November 12th, 1916, in 315 places of worship. The total amount contributed was £4,808 15s. 8d., being an increase of £670 12s. 6d. as compared with 1915, and only £24 19s. 11d. less than 1914, which was a record. The expenses for the year were equivalent to 4.8 per cent. on the total sum collected. As there had been a great increase in the cost of paper, printing, and postage, this result was very satisfactory, and showed that the fund is being worked economically. The report was adopted on the motion of the Archdeacon of Kildare, seconded by Lieutenant-Colonel W. T. Johnston, R.A.M.C. Sir John William Moore, in moving a vote of thanks to the ministers of religion, said they, by their zealous and earnest advocacy of the fund, had contributed to its success for so many years. A question had been raised as to how far the clergy were justified in making a special appeal, on the grounds that wounded soldiers were treated in the hospitals, seeing that the Government paid for the soldiers. Inquiries made by the secretary of the Meath Hospital showed that the amount received during the last year from the War Office was £1,659 8s., or an average of £71 12s. 6d. for each bed occupied. But even if beds were not occupied the expenses went on all the same, and the result was that the hospital had received less than it was entitled to in that respect. The wounded soldiers were fed as they deserved to be, and their special dressings were expensive, so that the hospital had to make up £212 over and above what it received from the War Office. It was objected in some quarters that soldiers were taking the places that ought to be available in the hospitals for civilians, but the truth was that the soldiers were not interfering materially with the treatment of civilians.

THE PROPHYLAXIS OF VENEREAL DISEASE.

We have received from the clerk of the Non-subscribing Presbyterian Church of Ireland a copy of the following resolution, passed by the General Purposes Committee at its quarterly meeting in Belfast on April 19th:

> That we protest against members of the medical profession degrading their profession by providing men with information or appliances which may enable them to consort with immoral women without fear of contracting disease; or by teaching people of either sex the method of preventing conception.
>
> We implore medical men to assist the teachers of religion and morals in the campaign against vice and disease.

Scotland.

DR. JAMES B. SIMPSON, of Golspie, has been appointed Deputy-Lieutenant of the county of Sutherland.

THE INHUMAN TREATMENT OF BRITISH PRISONERS IN GERMAN CAMPS.

The following resolution with regard to the treatment of British prisoners of war in internment camps in Prussia was adopted some time ago by the Medical Faculties of the Universities of St. Andrews, Glasgow, Aberdeen, and Edinburgh, and by the Royal College of Surgeons, Edinburgh, and the Royal Faculty of Physicians and Surgeons, Glasgow:

> The Faculties of Medicine of the Scottish Universities, together with the Presidents and Councils of the Royal College of Surgeons of Edinburgh and of the Royal Faculty of Physicians and Surgeons of Glasgow, desire to record their condemnation and detestation of the neglect and inhumanity which characterized the conduct of certain members of the Prussian medical staff to whom the treatment of British prisoners of war was entrusted, especially in the internment camps at Wittenberg and Gardelegen, during outbreaks of typhus fever which had been largely provoked by overcrowding, insufficient food, and entire absence of all sanitary measures.
>
> The facts as stated in the recent reports of a British Government Committee, which are based mainly on the testimony of officers of the Royal Army Medical Corps, themselves prisoners of war, are of such a nature as to bring indelible disgrace upon the medical men concerned,

and upon the German Government which remains ultimately responsible for the treatment meted out to prisoners of war.

As members of a profession which has hitherto, in every quarter of the civilized world, been inaccessible to the shameful influences which make for barbarity in warfare, we are reluctantly forced to the conclusion that a spirit of gross inhumanity has not been absent from the Prussian Medical Service.

Correspondence.

THE USE OF GUM SOLUTIONS FOR INTRAVENOUS INJECTION.

SIR,—In view of the numerous inquiries which I have received as to the preparation and use of gum solutions for intravenous injection, a few remarks may be of assistance.

There are several conditions in which it may be desirable to raise the blood pressure. The simplest case is that in which a large quantity of blood has been lost by a healthy man, as from a wound of the femoral artery. It appears that many such cases could be saved if the blood pressure were kept up for twenty-four hours or so. In the absence of the possibility of transfusion of blood, what is required here is a solution which has the same viscosity as blood, with a content in colloids having an osmotic pressure equal to those of the blood. There is then very little tendency for water to pass to the tissues. The salt concentration must also be equivalent to that of blood—namely, 0.9 per cent. of sodium chloride. A solution of this kind may be made by dissolving 70 grams of best gum acacia and 9 grams of sodium chloride in 1 litre of water, most easily by the aid of a water bath. Distilled water is not essential, unless for bacteriological reasons. If a free flame be used for heating, the gum is apt to be burnt before it is dissolved. The solution must be strained through linen or fine muslin to remove particles of fibre, etc., and it may then be sterilized by boiling. Commercial gum consists chiefly of the calcium salt of an acid pentosane, so that the calcium content of the above solution is somewhat greater than that of Ringer's solution. It is not necessary, however, to remove the calcium for clinical use, since the vaso-constrictor action of calcium is probably of value. It may be precipitated by alkaline sodium phosphate, if desired. There is stated to be in the gum a certain small proportion of the potassium salt, so that it is not necessary to add the usual potassium chloride of Ringer's solution.

In the second place, it appears from the work of Dale, Bainbridge, and others that there are pathological conditions in which the permeability of the blood vessels is increased in such a way that blood plasma itself escapes without the corpuscles. In other cases water and salts alone escape, leaving proteins in addition to the corpuscles. In the former of these cases the blood clearly requires diluting with a solution which has the viscosity of blood plasma, not that of the whole blood. The above gum solution diluted with about twice its volume of Ringer's solution would be correct as regards its viscosity, but the osmotic pressure of its colloids would be too low. Dextrin may replace gum with advantage for this reason. Its viscosity is lower than that of gum, while its osmotic pressure is higher. A 2.5 per cent. solution has a viscosity rather less than that of the plasma, while its osmotic pressure is about 56 mm. of mercury, rather higher than that of the blood colloids. This would be an advantage, leading to withdrawal of water from the tissues. I find in the normal cat that such a dextrin solution is more effective than pure saline, although the rise of pressure is less permanent than that produced by gum. In the clinical cases in question the concentration of dextrin might well be higher than 2.5 per cent. owing to the low viscosity of such a solution (1.1 times that of water).

When water and salts leave the blood vessels without proteins the blood is very concentrated, and requires the addition merely of 0.9 per cent. saline. Hypertonic (2 per cent.) saline may be of advantage to attract water when there is oedema in the tissues, but it does not seem likely that it would have much effect, since equal concentration of salt within and without the blood vessels would be rapidly established. The addition of a colloid of low viscosity and high osmotic pressure might be better, such as detxrin in 3 per cent. or stronger solutions.

If there is reason to believe that a low blood pressure is due to peripheral dilatation, as, experimentally, after section of the spinal cord high up, the effect of gum solutions, although much more permanent than that of pure saline, is not as great as after mere loss of blood. I have been unable to discover a satisfactory reason for this. Langley has recommended the use of barium chloride in such cases, and I find, in the cat, that the injection of 1 mg. per kilogram of body weight is very effective in combination with gum solution. Such a dose has no effect on the reflexes of an anaesthetized animal, and, if injected intravenously, no ill effects were noticed twenty-four hours afterwards, although for two or three hours there seems to be some stiffness in movement.

It does not seem probable that there is any risk of anaphylaxis if a further injection of gum should be required at a later date. But it was desirable to test the possibility. I injected two guinea-pigs subcutaneously with 5 c.cm. of 7 per cent. gum saline, and a cat with 40 c.cm. of the same solution intravenously. Three weeks later intravenous injection of a similar solution produced no signs of anaphylaxis. One guinea-pig—a very small one—died of heart failure when a volume of gum solution equal to rather more than half of its calculated blood volume had been injected.

An interesting physiological question arises as to what becomes of the gum. I collected the urine from a cat during some six hours after injection, but could not detect any pentose reaction. The gum does not, apparently, escape through the kidney, or with great slowness. The blood of the cat, into which gum had been injected three weeks previously, after removal of the greater part of the proteins by acidulation and boiling, gave no pentose reaction. The problem is worth investigation, since it does not seem altogether impossible that pentose may be utilized to some extent. Dextrin would, no doubt, be slowly converted to glucose.

As regards the technique of intravenous injection, the device of Messrs. Creuzet et Grimberg,[1] to be obtained from M. Adnet, of 26, Rue Vauquelin, Paris, 5e, will be found useful, especially in preventing the vein from slipping away from the needle during its insertion.

I may add that I shall be pleased to send a copy of my paper in the *Proceedings* of the Royal Society to anyone who wishes to examine the physiological justification for the use of gum solutions.—I am, etc.,

University College, London, April 21st. W. M. BAYLISS.

THE TREATMENT OF FRACTURES BY SPLINTS.

SIR,—In the BRITISH MEDICAL JOURNAL of April 14th, p. 475, Mr. Morton writes:

> I do not believe that in every fracture a really perfect anatomical position of the fragments is essential to good function. Indeed, I am sure it is not.

Now I venture to regard this as bad doctrine, which will lead readers to be satisfied with results which fall short of the best. It must be the experience of all hospital surgeons to see many old fractures in which function is impaired because the psychological moment for the reduction of displacement has been lost—that is, the first few days after the accident—as the surgeon treating the case had trusted to some such fallacy as Mr. Morton's statement. It was to be hoped that the conclusions of the committee appointed by the British Medical Association in 1912 had put an end to such beliefs, for in the clearest way statistical evidence led to Conclusion 7:

> Although the functional result may be good with an indifferent anatomical result, the most certain way to obtain a good functional result is to secure a good anatomical result.

Again, in speaking of fixing bones with screws and plates, Mr. Morton writes, "all the screws get loose before long." Now, this is a fallacy which takes a lot of killing, for if the wound remains aseptic there will be no rarefying osteitis, and if there is no rarefying osteitis the screws will not get loose. Rarefaction will be shown as an area of less opacity round the screws in an *x*-ray plate, and I have yet to see screws getting loose in which rarefaction does not exist. I regard it solely as due to infection, which may not be sufficient to inhibit the normal healing of the wound, but which in most cases leads later to formation of

[1] *C. R. Soc. de Biol.*, 80, p. 207.

DIGITIZED BY U. OF ILLINOIS URBANA-CHAMPAIGN

sinuses, and subsequently necessitates removal of the plate and screws.

After plating operations for compound fractures, or for fractures in the vicinity of the epiphysial lines in children, it is usually necessary to remove the plates and screws. It has been my uniform custom when doing this to demonstrate the fact that in every clean case—and often in others which are septic—the screws can only be removed with a screwdriver, which, if Mr. Morton's statement were true, would neither be necessary nor possible.

Only this morning one of my colleagues at Hampstead Military Hospital was removing a plate which had been left exposed for twelve weeks over a gunshot fracture of the tibia. A heavy sixteen-hole plate was used, with four screws at each end, as far from the septic fracture as possible. To-day seven of the eight screws required a screwdriver for their removal.—I am, etc.,

London, W. 1, April 17th. C. H. Fagge.

MEDICAL EXAMINATION OF RECRUITS.

Sir,—Your correspondents who have dealt with the injustice of the lay press to Army Medical Recruiting Boards have given various reasons why the work of these boards is occasionally imperfect, though as good as possible on the whole. There is another which I should like to state shortly, and it is due to the impatience of the military authorities themselves. The usual medical board consists of four men, including the president, who is generally an R.A.M.C. man. These men are supposed to work for three hours, and are paid on the basis of three hours' work. At first the board of which I am a member had reasonable time to do its work carefully and well, but soon the military complained that recruits were not being put through fast enough, and we were "speeded up," until on three consecutive days recently we saw 90, 85, and 120 recruits in a morning of three hours. Two of the men on the board have to see each recruit—namely, the president, and the man who tests visions, is responsible for correct weights and measurements, examines teeth, physique, ascertains medical history and absence of hernia or other external disability, examines feet and legs, and puts recruit through physical exercises; the other two men each see half the number of recruits presented, and examine hearts, lungs, abdomen, etc. How can a man adequately examine 90 recruits in three or even four hours? Such hurried and breathless work asks for mistakes and oversights, and they no doubt happen; but I contend that it is not the fault of the overworked medical boards but of those who overwork them. Personally, after seeing 90 men without a pause in a limited time, I feel as if I have been well beaten, and not at all in a condition to begin the heavy work of general practice which has to be crowded into the rest of the day.—I am, etc.,

April 22nd. Another Examiner of Recruits.

SHOCK FOLLOWING INTRAVENOUS INJECTIONS OF CHEMIOTHERAPEUTIC PRODUCTS.

Sir,—In view of the interest attaching to the important subject of shock, and owing to the varied causes which may bring it about, I venture to hope that these few notes *re* the etiology and prevention of the form which may follow the intravenous administration of chemiotherapeutic products will prove of some assistance. I will first tabulate four experiments I performed on rabbits: (1) If 1 c.cm. of colloidal aluminium hydroxide is injected intravenously instantaneous death occurs; (2) if calcium chloride is injected intravenously in one ear before aluminium hydroxide is injected intravenously in the other ear the animal does not die; (3) if calcium chloride is injected intramuscularly the night before the colloidal aluminium is injected intravenously the animal does not die; (4) if glycine or gelatine is added to the colloidal suspension before it is injected, several cubic centimetres may be injected intravenously without mishap.

I will now tabulate four changes, which are most noticeable in the blood withdrawn from animals suffering from shock: (1) The blood is more fluid; (2) the clotting time is delayed; (3) complement disappears; (4) many of the colloidal protein particles go into solution.

From the above I think it may be concluded that shock is due to an alteration in the colloidal state of the protein particles in the serum. The protein particles are emulsion colloids—that is, they contain water and have salts attached to them, and they form the "solid" part or internal phase of the serum. The "liquid" or external phase of the serum is water containing salts and some protein in solution. The particles of the internal phase are kept in their emulsoid state by the normal hydrogen ion concentration. If this normal hydrogen ion concentration is upset the colloidal particles of the internal phase alter their colloidal state, and some go into solution, hence the reason why the blood is more fluid in cases of shock. There can be little doubt that complement is the same as this normal hydrogen ion concentration. The alteration of the colloidal state of the internal phase results in the colloidal particles being deprived of some of their salts; doubtless the calcium salts are some of those which go into solution in the external phase, hence the reason why the clotting time of the blood is delayed in cases of shock.

Any suspension colloid will produce shock if it is injected intravenously, and the shock may be prevented if it is given an emulsoid "coating." Ions readily precipitate a suspension colloid, but not an emulsion colloid, hence when colloidal aluminium hydroxide is injected intravenously, owing to its being sensitive to even univalent ions, it immediately upsets the normal hydrogen ion concentration (complement vanishes), and destroys the emulsoid character of the protein colloidal particles. As I believe the protein particles of the internal phase are mainly concerned in the processes of oxidation and reduction, naturally any change in their colloidal state will rob the body of the oxygen necessary for existence, with the result that the animal dies.

The reason why calcium chloride prevents shock is doubtless its action in increasing the stability of the permeability of the protein particles in the internal phase; in other words, it prevents the protein particles giving up their salts, and thus saves them from going into solution. Shock, even resulting in sudden death, may follow the intravenous administration of the arsenical products now in use. It is highly probable that in such cases some of the arsenic acts as an ion, and produces changes similar to those described above as occurring with aluminium hydroxide. The shock following intravenous injections of the chemiotherapeutic products in man may be of two kinds: (1) cardiac; (2) pulmonary. In my experience the cardiac type is more frequently met with than the pulmonary, and it is the type which may end in death. I have not seen a pulmonary case end fatally.

In the pulmonary type the lips and tongue swell, severe coughing follows, then the patient struggles for breath and becomes asphyxiated. In the cardiac type the patient faints, and he thinks he is going to die; the pulse becomes weaker and weaker till it cannot be felt, the skin becomes blanched and sweats profusely. Often the patient passes his urine and faeces. The faeces are always very fluid owing to the fall of blood pressure, with consequent hyperaemia of the intestines. If the patient recovers he vomits and complains of excruciating pains in his feet and legs. In the mild cases pituitrin, ether, camphor, and adrenalin hasten recovery, but in the severe cases these drugs appear to be valueless. If pituitrin or adrenalin are injected before the arsenic compound, then shock may be avoided, but as severe shock is rare, such a procedure does not seem necessary. In severe cases and indeed in all cases of shock, the wisest plan is to inject intravenously as soon as is possible 10 c.cm. of a 2.5 per cent. solution of calcium chloride. I never give an intravenous injection of an arsenical compound unless I have ampoules of a sterilized solution of calcium chloride handy.

For the protection of suspension colloids I have found that the addition of 3 per cent. of gelatine and 5 per cent. of glucose is the most suitable. As to whether better results in the treatment of shock could be obtained by adding gelatine and glucose to the calcium chloride than by using the latter alone, only experience could prove. Theoretically, such an addition would hinder the further action of the arsenic, but it might at the same time act in the same way on the calcium chloride.—I am, etc.,

London, W., March 25th. J. E. R. McDonagh.

BLASTOMYCOSIS.

Sir,—Your leading article (p. 460) opens by stating that "much confusion obtains in the literature and nomenclature here." The article ought not to pass without

comment, the more so as it is founded on a monograph of the Rockefeller Institute for Medical Research, an institute which deservedly commands respect throughout the world.

1. The authors deal first with coccidioides. For a long time it has been clear that the organism with this hideous name beggars the descriptive powers of medical writers. Now America is rich in mycologists of incomparable merit, and the Rockefeller Institute would confer another boon on medicine if it sought the help of one of these to tear the veil from the obvious.

2. We are told that blastomycosis "connotes infections with true yeasts, with torulas, and with oidiums." But an oidium has nothing whatever to do with blastomycosis, and it is clear that the authors have fallen into the same mistake as Ricketts and Castellani. That their oidiums have been known as monilias for twenty-five years I have tried to explain in terms which cannot be misunderstood (*Lancet*, 1913, vol. ii, p. 44). Even in the students' *aide-mémoire* series, the French describe true oidiomycosis, which is an entirely different infection to the American oidiomycosis. Surely it is not carping criticism to insist on this.

3. The authors think that the term blastomycosis "obscures the real differences," etc. The source of obscurity depends on these facts. Practically every saccharomyces may be fixed in its torula stage. This is sometimes taken advantage of in commerce to simplify biological analysis of a pitching yeast. As saccharomyces is rarely pathogenic, this probably concerns us little. But I have proved (BRITISH MEDICAL JOURNAL, 1913, November 29th, p. 1460) that at least one pathogenic monilia occurs also in the torula form, retaining its pathogenicity. There is no reason why this should not occur in other monilias. (Intermediates are really less embarrassing because more amenable to cultural development.) Thus a torula is a mere fungal residue, an unknown quantity. It follows that a diagnosis of torula infection is a confession of failure. It is sometimes all that can be done, but more often it is all that is attempted.—I am, etc.,

Ealing, W., April 8th. ROBERT CRAIK.

Obituary.

PROFESSOR COUNT KARL MÖRNER,

RECTOR OF THE ROYAL KAROLINSKA INSTITUTE, STOCKHOLM.

ON March 30th Count Karl Axel Hampus Mörner, Professor and Rector of the Royal Karolinska Medico-Chirurgical Institute, passed away, after a short illness, at the age of 62. He matriculated in 1872, and, after studying in Upsala and Stockholm, he qualified as a practitioner of medicine in 1884. Two years later his thesis on the pigments of melanotic tumours gained him the doctorate of medicine, and at the same time he was appointed professor of chemistry and pharmacy at the Karolinska Institute. His association with that institute synchronized with its advance in scientific productiveness, to which he contributed both directly and by his stimulating influence on his subordinates. In 1892 he was appointed rector of the Karolinska Institute in succession to Keys, and it was rather as the central figure of the institute than as a scientist that he was best known to the Swedish public. As Rector of the Karolinska he participated in drawing up regulations for the Nobel Prize Committees, and he was President of the Nobel Medical Committee. His addresses on the prize-winners, their work and achievements, were a conspicuous feature of the Nobel presentation ceremonies, and were highly appreciated by the Swedish lay public as well as by the members of his own profession. His straightforwardness and modesty endeared him to his associates, who found in him an enemy of all humbug and time serving.

Sir Ronald Ross writes: "Count Mörner spoke English very well, frequently visited this country, and was conversant with most of the work done here in medical and pathological subjects. In 1912 he attended in London the celebration of the 250th anniversary of the founding of the Royal Society. During my two visits to Stockholm I was able to appreciate the high honour in which he was held there. He took the most careful interest in the work of the Nobel Medical Committee, and therefore necessarily in all work done in medical and pathological subjects. As regards personal type he was a gentle and somewhat silent man, but otherwise very genial and affectionate. He suffered severely some time ago from the accidental death of one of his sons. He leaves a widow, Grevvina Mörner, and sons and daughters."

HUGH R. JONES, M.A., M.D., D.P.H.CANTAB.,

LIVERPOOL.

WITH much regret we have to record the death, at the age of 53, of Dr. Hugh R. Jones, which occurred on April 14th from acute pneumonia after a few days' illness. He was actively engaged in his professional work; he was a member of No. 2 Recruiting Medical Board, and his loss at this time will be specially felt. Dr. Hugh R. Jones was born in Liverpool, and received his general education at the Liverpool Institute. He was a brilliant pupil, and gained a scholarship, which took him to Cambridge. In due course he graduated B.A. in the Natural Science Tripos (honours in physiology and chemistry). Two years later he graduated B.Sc. in the University of London. He entered the medical school of St. Bartholomew's Hospital, where his career was punctuated by many distinctions. In 1887 he graduated M.B., B.C.Camb., and in 1890 M.D. In 1892 he took the D.P.H., and returned to Liverpool, and for some time, with Mr. Herbert E. Davies, the analytical chemist, set himself with characteristic vigour the task of coaching medical men for the Diploma in Public Health. Not a few of his professional brethren who now hold the D.P.H. in Liverpool and its environments can bear witness to his ability as a teacher. In his own house he, with Mr. H. E. Davies, had a thoroughly equipped laboratory for the practical subjects in hygiene. Dr. Hugh R. Jones's mathematical trend of mind gained for him the Howard Medal Prize of the Royal Statistical Society. This honour was conferred upon him in 1894 for a remarkable and lucid investigation of the perils and protection of infant life, based from the statistical point of view on the annual and decennial reports of the Registrar-General. The medical information embraces the diseases occurring in childhood, and the main conclusion, now thirteen years old, still, alas! holds good. As an educationist, he insisted that the remedy was education. The bronze medal now adorns the walls of the Liverpool Medical Institution, of which Dr. Hugh R. Jones was a member since 1890. To the *Liverpool Medico-Chirurgical Journal* he contributed papers on excessive infant mortality and on the feeding of infants.

Dr. Hugh R. Jones was in general practice, and at the time of his death held the post of pathologist to the Liverpool Hospital for Cancer and Skin Diseases. At one time it was thought he would have attained by his undoubted merit to a high position, for whatever he undertook he brought all his forceful energy to accomplish, and was an indefatigable worker in any subject in which his interests were enlisted.

The funeral took place on April 19th at Allerton Cemetery, where many of his friends and sorrowing relatives were present to pay their last respects to one whose life was so prematurely shortened. He leaves a widow and one child to mourn his loss, and to cherish the memory of one whose life-stream might not inappropriately be termed torrential in its vigour.

DR. CHARLES MOON, who died at his residence in Dundee on April 13th, was born in 1843 and received his early education at the Tay Square Seminary, at that time one of the chief educational institutions in Dundee. He afterwards went to the High School and at the same time attended the surgery of Dr. Munro. He subsequently studied at the University of Edinburgh and at the school of the Royal College of Surgeons of Edinburgh, and graduated M.B., C.M. in 1866, and M.D. in 1885. After graduating he started practice in Dundee and was appointed to take charge of one of the districts during the outbreak of cholera. He acquired an extensive practice and won the esteem of all the citizens with whom he came in contact. He was a member of the Dundee Branch of the British Medical Association. He is survived by a widow and five sons, two of whom are serving in the army. The funeral, the attendance at which included a large number of medical men, took place at the Eastern Necropolis, Dundee, on April 16th.

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

The Services.

INDIAN MEDICAL SERVICE.

New Regulations as to Pay.

E pay of officers of the Indian Medical Service in itary employ, in common with that of officers of the ian Army, consists of two parts: (1) "Grade pay," (2) aff pay," and when an officer holds an appointment rying specific staff pay, he draws the two together. officers up to seven years' service there is a rate, her than grade pay, somewhat inappropriately termed nemployed pay," which is the minimum rate to be wn by an officer who does not hold an appointment rying specific staff pay.

hese rates are as follows:

	Unemployed Pay.	Grade Pay.
Lieutenant	Rs. 420	Rs. 350
Captain	475	400
Captain after 5 years and under 7 years	475	450

he minimum rate of staff pay to be drawn with grade is Rs. 100, and in peace conditions an officer must s the lower standard in Hindustani before he can draw staff pay.

n normal times a young officer of the Indian Medical vice began his service in India on so-called unemployed (Rs. 420 *per mensem*)—that is, the minimum rate en an officer holds no appointment carrying specific ff pay. His first advance is usually obtained by apntment to officiate in medical charge of a regiment, and then receives, provided he has passed the lower ndard, grade pay Rs. 350 *plus* staff pay Rs. 100 = Rs. 450. attaining the permanent medical charge of a regint, provided he has passed the lower standard, he eives, while a lieutenant, consolidated pay at Rs. 500 *mensem*.

lardships arose, when officers were ordered on field vice, from restriction to "unemployed pay" through s of opportunity of passing the language test, and of aining or retaining an officiating appointment; and in er to remove this hardship the Secretary of State ided that

(*a*) an officer of less than two years' service who, when ordered on field service, was in receipt of minimum staff pay of Rs. 100 *per mensem*, or who, after proceeding on field service, obtained an appointment carrying minimum staff pay, should continue to receive it, even if afterwards transferred to employment on field service carrying no specific staff pay;

(*b*) an officer of two years' service or over should receive, on field service, minimum staff pay, if no higher rate of staff pay were admissible to him.

he period of two years in (*b*) was adopted as being that hin which an officer who passed the language test ght reasonably expect to obtain Rs. 100 staff pay, and it s recognized that the language test could not be insisted during war.

n the light of subsequent experience these arrangements e been amplified, and, with retrospective effect from beginning of the war, officers in class (*a*) if once in eipt of minimum staff pay continue to receive it if, when urning to India, they are placed on duty carrying ordily no specific staff pay, and officers in class (*b*) of less n seven years' service receive minimum staff pay ether on field service or not.

With a view to providing for officers of seven years' vice and over who may not hold an appointment carrying cific staff pay it has now been further decided (also with ct from the beginning of the war) that any such officer on itary duty is to receive as a minimum the substantive of an officer of his seniority in permanent medical rge of a regiment. An officer recalled from civil employ o before his transfer to a civil department had held manent medical charge of a regiment receives, of course, recall, the pay of such permanent charge, even if he not completed seven years' service. The consolidated nthly pay of a lieutenant or captain in permanent dical charge of a regiment is as follows:

	Per Mensem.
Lieutenant	Rs. 500
Captain	550
Captain after 5 and under 7 years' service...	600
Captain after 7 and under 10 years' service.	650
Captain after 10 years' service	700

n addition to the above rates of pay, horse allowance y be drawn in certain circumstances which are detailed Army Regulations, India.

SLOW PROMOTION.

I.M.S. writes: The officers of the Indian Army have been given accelerated promotion all round owing to war conditions. The officers of the R.A.M.C. have long since had accelerated promotion owing to the automatic increase in their cadre due to war conditions. The officers of the I.M.S. have been left severely alone. Up to the present over 150 temporary commissions have been given in the I.M.S., and its cadre increased accordingly. No promotion, however, has been made on that account. Officers of the I.M.S. find themselves serving under officers of the R.A.M.C. junior to them in service but senior in date of army rank due to this accelerated promotion. The officers of the I.M.S. deeply resent the treatment meted out to them at present.

Universities and Colleges.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—*†E. W. Diggett, *D. E. Hearn, *†T. F. Reason, *F. A. Unwin, *†L. J. Vincent.
MEDICINE.—*†G. W. Coombes, †F. A. Unwin, *†C. G. G. Winter.
FORENSIC MEDICINE.—G. W. Coombes, W. H. A. Pratt.
MIDWIFERY.—C. A. W. Chapman.

* Section I. † Section II.

The diploma of the society has been granted to C. G. G. Winter.

Medical News.

DR. PIERRE MARIE has been appointed to the chair of clinical neurology in the University of Paris in succession to the late Professor Dejerine.

THE University of the Cape of Good Hope has conferred the degree of Doctor of Medicine upon Dr. H. Fielden Briggs, an elected member of the Transvaal Medical Council.

THE Oliver-Sharpey Lectures will be given before the Royal College of Physicians of London by Dr. Charles Bolton on Tuesday and Thursday next, May 1st and May 3rd, at the College at 5 p.m. on each day. The subject is "Observations on the pathology of cardiac dropsy."

IN response to an appeal on behalf of the research fund of the pathological institute of the Middlesex Hospital, a donation of £1,000 has been received by the treasurer from Sir John and Lady Bland-Sutton, and a gift of £250 from Mr. G. Vaughan Morgan.

DR. FRANK R. LOGAN has given to the University of Chicago a fund providing an income of £600 a year for the endowment of three research fellowships—one in pathology and bacteriology, one in medicine, and one in surgery.

AT the eleventh annual meeting of the British Science Guild, which is to be held at the Mansion House, London, on Monday next at 4 p.m., with the Lord Mayor in the chair, Lord Sydenham will give an address on national reconstruction. Among the speakers will be the Minister of Education and Mr. H. G. Wells.

MR. DELISSA JOSEPH, F.R.I.B.A., the architect concerned in the rebuilding of No. 299, Oxford Street, formerly the premises of the General Medical Council, came across the original foundation stone during the demolition of the old building, and presented it to the Council. It has now been placed in its new premises. The stone bears the following inscription: "This stone was laid by His Royal Highness Prince Albert for the laboratories of the Royal College of Chemistry in presence of the council and members, June 16th, 1846."

THE annual meeting of the Professional Classes War Relief Council (Incorporated) was held on April 18th, at the Mansion House, under the chairmanship of the Lord Mayor, President of the Council. Among others supporting him were Major Leonard Darwin, Chairman of the Council, Dr. Samuel West, President of the Royal Medical Benevolent Fund, and many other members of the council and of committees representing professional associations. The report for 1916 showed that 177 babies were born in the maternity home during the year; a sum of £7,000 was spent on the education of children; and the total amount expended in the relief of members of the professional classes was more than £30,000.

THE first number of a new periodical devoted—as its title, *La Chirurgia degli Organi di Movimento*, imports—to the surgery of the organs of movement, has recently appeared in Italy. It is published by Licinio Capelli of Bologna (Via Farini, 6) under the editorship of Professor V. Putti. The first number contains among other papers one by the editor on the surgical mobilization of ankylosis of the knee and another by A. Serra on the histology of bone transplantation.

THE council of the British Hospitals Association, 14, Victoria Street, London, S.W., has published its report for the year 1916. The objects of the association are the consideration and discussion of matters connected with hospital management and administration. The continuance of the war has again seriously affected the work of the association, and has necessitated the suspension of the annual conference, but the general work has been carried on. Various problems in connexion with the position of voluntary hospitals have been considered by the council. Viscount Sandhurst, treasurer of St. Bartholomew's Hospital, has accepted the office of president of the association, of which the honorary secretaries are Mr. J. Courtney Buchanan and Mr. Conrad W. Thies.

THERE is a shortage of facilities for the collection, cartage, and destruction of domestic refuse, and the proposal that refuse should be totally consumed by fire on the premises on which it is produced has much to commend it from the hygienic point of view. The April issue of "A Thousand and One Uses for Gas," published by the British Commercial Gas Association of 47, Victoria Street, Westminster, S.W. 1, describes how this may be simply and economically accomplished with the aid of specially designed gas apparatus, or the coke furnaces commonly used for water heating, and it is suggested that local authorities would find it profitable to offer some rebate to householders thus destroying their domestic refuse.

THE annual report for 1916 of the Kashmir Medical Mission, by Dr. Ernest F. Neve, gives a brief record of a busy year's work accomplished in spite of shortage of staff and other difficulties due to the war. A large number of operations, both major and minor, were performed, and the clinical laboratory and *x*-ray apparatus were kept busy. Dr. Neve writes significantly: "Tuberculosis appears to be still rapidly increasing in Kashmir, and the mortality is appalling." The Kashmir Estate Leper Asylum, in connexion with the mission hospital, contained on an average more than a hundred in-patients daily through the year. Nastin was used systematically in one early case with distinct benefit. Several patients were treated with chaulmoogra oil, but with no apparent success.

THE Health of Munition Workers Committee has prepared a form of medical certificate for use in respect of munition workers. It becomes immediately applicable to national factories, and copies will be supplied to medical practitioners in the neighbourhood. It is hoped that controlled establishments will take the same course. The certificate will furnish the information required to avoid difficulties which at present arise in dealing with absences of munition workers on account of illness. It will also, it is considered, have the incidental advantage of providing a basis for the collection of valuable data as to the incidence of different types of illness and as to periods of absence involved. In the covering letter there is no statement to the effect that national factories and controlled establishments are prepared to pay a fee for the certificate, but we may presume that this point has not been overlooked.

A MEMORANDUM has been issued by the Child Study Society, London, on the educational principles upon which all future school reform should be based. In his introduction Professor John Adams, vice-president of the society, argues that the present time is exceptionally favourable to the course of educational reform, owing to the awakening of general interest in education in spite of the war. In the division of labour between the various committees investigating the subject, the Child Study Society has limited itself largely to the more scientific and psychological aspects. The memorandum consists of five sections, the contributors to which agree with the council that it would be best for the results of joint deliberation to be published impersonally. The pamphlet concludes with a series of practical recommendations arising out of the memorandum. It can be obtained from the offices of the Society, 90, Buckingham Palace Road, S.W.1, price 4d., including postage.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630 Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

LETTERS, NOTES, ETC.

GLYCERINE IN DISPENSING.

NOW that the Government has refused permission for the supply of glycerine to pharmacists for dispensing purposes the presence of glycerine, and preparations containing glycerine, as ingredients in medical prescriptions, is a source of embarrassment to dispensing chemists. Glycerine now being no longer available, the proper course for the chemist to take, when a prescription containing it is brought to him would be to communicate with the prescriber, and ask whether it is his wish that the glycerine should be omitted or replaced with a "glycerine substitute." At any time this procedure would involve delay and inconvenience, but now that so many practitioners are carrying on work at home under increasing stress, the dispenser's duty is far from clear. We should be glad to hear the views of our readers upon the matter, which presents certain real difficulties.

THE TREATMENT OF CANCER BY CUPRASE.

DR. CASSIO DE REZENDE (Guaratinguetá, Brazil) writes: Having read the article on cuprase by Dr. Cooper (BRITISH MEDICAL JOURNAL, January 13th, 1917, p. 48) and the correspondence following it, it seemed to me to be useful to record my own experience with that remedy. My case, similar to that mentioned by Dr. A. Christie Reid in the BRITISH MEDICAL JOURNAL, January 20th, was one of multiple melanotic sarcomata in a man aged 46 years. The development of the tumours assumed a very acute form, and, since I had nothing to oppose to such a condition, I suggested the use of cuprase. As I knew from a friend that the injections were extremely painful, I took the precaution of first injecting at the site a little stovaine, leaving the needle in place, and through it injecting cuprase. In this way I prevented pains, but I could not prevent my patient from dying in a very short time.

A MEDICAL PRACTITIONER'S CONVICTION QUASHED.

IN the Court of Criminal Appeal, before the Lord Chief Justice and Justices Ridley and Avory, an appeal was made by Dr. William Birch Caley against his conviction and sentence of eighteen months' imprisonment in the second division in February last at the Central Criminal Court on the charge of conspiracy. Appellant was a member of the White City Medical Board, and it was alleged at his trial that he was a party to a conspiracy whereby recruits who were willing to pay were placed in a lower classification than they should have been under the Military Service Acts, and were rejected as unfit for military service; and, further, that he participated in bribes paid by recruits to obtain priority in medical examination in contravention of the Prevention of Corruption Act, 1906. In support of Dr. Caley's appeal it was argued that there was no evidence against him to give to the jury, and that even if there was evidence the learned judge failed in his summing up to give proper direction to the jury. The Lord Chief Justice, in giving judgement, said it was difficult to find evidence which it was said proved sufficiently that Dr. Caley was a party to the conspiracy. There was no evidence that he received a penny of the money which Mitchell had accepted, and in which the other persons charged had shared, or that he did anything which would show that he knew the medical reports he gave were false. In two of the five cases which formed the subject of the charge against Dr. Caley he did not classify the men at all, and two others were detectives, one of whom, as a matter of fact, Dr. Caley classified "A," as fit for active service. The court was satisfied that the evidence against Dr. Caley was not sufficient, and the conviction was therefore quashed.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£ s. d.
Seven lines and under	0 5 0
Each additional line	0 0 8
A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

IE INTRAMUSCULAR OR SUBCUTANEOUS INJECTION OF NEO-SALVARSAN.

BY

. W. HARRISON, LIEUTENANT-COLONEL R.A.M.C.,
OFFICER IN CHARGE AND LECTURER IN VENEREAL DISEASES, MILITARY HOSPITAL, ROCHESTER ROW;

C. F. WHITE, MAJOR R.A.M.C.;

AND

C. H. MILLS, M.R.C.S., L.R.C.P.,
SURGEON TO ST. PAUL'S HOSPITAL.

E intravenous administration of the arsenical com-inds which are now used for the treatment of syphilis hedged around with many obvious difficulties which iously limit their use. It is true that certain compounds, h as neo-salvarsan and substitutes, galyl, and luargol, be administered in concentrated solution with com-atively little trouble, but the precision demanded by operation and the odd chance that the patient may play alarming symptoms immediately afterwards are errents to the practitioner carrying out these injections his private consulting-room. It is clear, therefore, that the hypodermic method proved therapeutically as ective as the intravenous, and could be freed from the advantages of local pain and reaction, it would simplify arsenical therapy of syphilis and extend its use.

Previous to the investigation detailed below there were ne grounds for supposing that the hypodermic injection neo-salvarsan might prove therapeutically more effective an the intravenous injection of salvarsan. For example, Wechselmann and Eicke[1] have stated that they can ect more with deep subcutaneous injections of neo-varsan than with intravenous injections of salvarsan, ough we cannot remember any publication in which the nt has been proved by statistics. (*b*) Various workers ve indicated their impression that when the perfected varsan of to-day is given intravenously it is too quickly sorbed and excreted to produce its full effect. Thus Gennerich[2] stated that latterly he had found it essary, in order to produce the same effect, to ad-nister more salvarsan than formerly on account of greater speed of excretion of the present-day paration.

c) Scholtz[3] commences his course of treatment by ad-nistering four small doses of salvarsan intravenously on first two days, on the principle that it is not so neces-y to ensure the presence of as large a quantity of varsan as possible in the circulation at one moment as continuous action of some salvarsan over as long a e as possible.

d) Neo-salvarsan is more soluble and quickly excreted n salvarsan, and many good authorities (with whom we ee) hold that, when administered intravenously, it is so effective as the older preparation. t is probable, therefore, that it is an advantage to ure slower absorption, as would be done by hypodermic ection. It is, of course, possible with regard to the er that if, as we now believe, the effect of hypodermic ection is better, it is because the derivative of the enical preparation which is produced by the sub-aneous tissues is more effective than that which ults from intravenous injection.

n order to compare the effects of the two methods we e treated two parallel series of cases of syphilis (*a*) by avenous injections of salvarsan (or "substitutes"), and by deep subcutaneous or intramuscular injections of -salvarsan (or "substitutes"). The investigation was carried out in two separate hos-ls, and the remedies used were (1) salvarsan, khar-n, arsenobenzol, and arsenobillon for intravenous ection; and (2) neo-salvarsan, novarsenobenzol, and arsenobillon for subcutaneous. Since the results ob-ned by salvarsan agreed substantially with those by h of its substitutes—and the same applies to neo-varsan and its substitutes—we have combined them in h series, and, to avoid repetition, will refer to them ntravenous salvarsan and subcutaneous neo-salvarsan pectively.

The cases in the intravenous series were as far as sible similar to those in the subcutaneous.

The best comparison between the two series would be obtained by observing them for a prolonged period afterwards, but this would be impracticable at present, and we have based our comparison on the results of Wassermann tests carried out at the end of each course of treatment. For the tests we are indebted to Captains A. Dawson and McWhirter, R.A.M.C., and to Mr. N. Clarke, Military Hospital, Rochester Row.

The treatment administered to the respective series consisted of 2.8 grams salvarsan intravenously and from 3.9 to 4.2 grams neo-salvarsan (equivalent to from 2.6 to 2.8 grams salvarsan) subcutaneously, as shown below. In addition, seven injections of mercury at weekly intervals were administered to every case.

TABLE I.—*Cases Treated and Doses.*

Days of Treatment.	Intravenous Salvarsan Series. Doses of Salvarsan in Grams.	Subcutaneous Neo-salvarsan Series. Doses of Neo-salvarsan in Grams.
1st	0.3 to 251 cases	0.45 to 139 cases; 0.6 to 22 cases.
4th	0.3 ,,	—
8th	0.3 ,,	0.45 to 99 cases; 0.6 to 67 cases.
15th	—	0.6 to 161 cases.
22nd	0.4 to 251 cases	0.6 ,,
29th	0.5 ,,	0.6 ,,
36th	—	0.6 ,,
43rd	0.5 to 251 cases	0.6 ,,
50th	0.5 ,,	—
	2.8 grams to 251 cases.	4.2 grams to 22 cases. 4.05 grams to 40 cases. 3.9 grams to 99 cases.

The results obtained in the two hospitals agreed substantially with one another and have been combined. Table II shows the results obtained by the different methods of treatment in different stages of syphilis. The secondary cases in each series contained a substantial proportion of patients who had either suffered from syphilis for at least three months before commencing treatment, or, having been under treatment before, had relapsed. As is well known, such cases are much more difficult to influence from the point of view of the Wassermann reaction. Stage for stage, the cases in both series were, as far as possible, similar, but, if anything, the subcutaneous series contained a larger proportion of these advanced secondary cases.

A study of the table shows that in the primary and secondary stages the results were distinctly better in the subcutaneous series than in the intravenous.

With regard to the tertiary cases, the intravenous apparently gave slightly better results, but the number of patients treated was so small and the results so indifferent in each series that a judgement could be formed only from a much larger number of cases treated for a longer period of time.

In almost all of the subcutaneous series the Wassermann test was applied weekly, and Table III shows the results obtained one week after the fourth injection, and at the end of the course.

Table III is interesting in showing how much more quickly the Wassermann reaction is influenced in the primary than in the secondary and tertiary stages.

In 126 cases (including a number not mentioned in the tables because they had not completed the full course) the *Spirochaeta pallida* was found in one lesion or another before the first injection, and in 123 of these it could not be found twenty-four hours later, though no antiseptic had been applied to the lesion. In one of the cases where the spirochaete was found twenty-four hours after injection the initial dose was 0.3 gram, in another it was 0.4 gram, and in the third it was 0.6 gram. In no case were spirochaetes found forty-eight hours after the first injection. Spirochaetes are found in at least the same proportion of cases twenty-four hours after the intravenous injection of 0.3 gram salvarsan.

In some other cases we have failed to find spirochaetes after a subcutaneous injection of 0.2 gram neo-salvarsan.

We have similarly examined seventeen cases after intramuscular injections of galyl (0.3 gram in two cases and

TABLE II.—*Showing the Wassermann Reaction after the Injection of 2.8 grams Salvarsan Intravenously and after the Subcutaneous Injection of 4.2 grams Neo-salvarsan, or Less, respectively.*

Stage of Disease.	Method.	No. of Cases.	Wassermann Reactions at End of Course.							
			Actuals.				Percentages.			
			+	±	± (=)	−	+	±	± (=)	−
Primary	Subcutaneous	67	0	0	3	64	0	0	4.4	95.5
	Intravenous	79	3	6	4	66	3.7	7.5	5.0	83 5
Secondary	Subcutaneous	76	11	4	7	54	14.4	5.2	9.2	71.0
	Intravenous	141	35	16	8	82	24.8	11.3	5.6	58.1
Tertiary	Subcutaneous	18	10	3	1	4	55.5	16.6	5.5	22.2
	Intravenous	31	18	1	3	9	58.0	3.2	9.6	29.0

Interpretation of symbols: + = Positive reaction; ± = doubtful reaction, nearer positive than negative; ± (=) = doubtful reaction, nearer negative than positive; − = negative reaction.

Notes.—22 received 4.2 grams neo-salvarsan (equivalent to 2.8 grams salvarsan); 40 received 4.05 grams neo-salvarsan (equivalent to 2.7 grams salvarsan); 59 received 3.9 grams neo salvarsan (equivalent to 2.6 grams salvarsan). All cases in each series received one weekly injection of mercury gr. 1.

0.4 gram in the remainder), and have found the *Spirochaeta pallida* twenty-four hours after the injection in fifteen. In two of these cases spirochaetes were found after the second injection a week later, out of a total of four which received a second injection. In the remainder of the cases the course was continued with neo-salvarsan, and, owing to their comparatively feeble effect on spirochaetes, we have discontinued intramuscular injections of galyl.

Although clinical observations are not so valid for purposes of comparison, being open to the objection that they may be biassed, we think it right to say that we early formed a strong impression that the subcutaneous injection of neo-salvarsan influenced syphilitic lesions more rapidly than did intravenous salvarsan. Our judgement in this respect may have some weight from the fact that our experience of the results of intravenous injections is based on some thousands of cases. We have now given over fifteen hundred subcutaneous or intramuscular injections of neo-salvarsan.

TECHNIQUE.

A disadvantage of subcutaneous or intramuscular injections is the pain and local swelling which they may cause, and we have been at some considerable trouble to eliminate these.

According to patients' accounts of it the pain was negligible in many cases. In others it caused considerable discomfort for a week or more, making the patient lame and preventing his sleeping on the same side. At its worst it was not nearly so severe as an injection of salvarsan, but might be compared to a bad mercurial or a calomel injection. In fact, a number of patients complained more of the mercurial injection than the arsenical. We have not been requested by any patient to change over to the intravenous method.

Methods Tested.

We think we have now succeeded in making the injections tolerably free from discomfort, but since others may wish to improve on our technique an account of the methods we have tried up to date may assist them. They are as follows:

1.

Intramuscular injections in very small bulk. The remedy was dissolved in the ampoule itself in 10 to 15 minims of distilled water and injected into the gluteus medius muscle. This caused a fair amount of pain with some lameness afterwards. Accompanied, however, by a hypodermic injection of morphine gr. ⅓ into a different site, it has generally proved almost as comfortable as any of the following.

2.

Deep subcutaneous injection of the same solution as in (1), the injection being made on to the fascia covering the gluteus medius muscle. This was on the whole less painful immediately afterwards but often caused the formation of a tender lump at the site of the injection some days later.

3.

Similar to (2) but preceded some hours previously by an injection of quinine and urea into the site. This was not a great improvement.

4.

Similar to (2), but the neo-salvarsan was dissolved in a saturated solution of chloretone. The later reactions from this injection were troublesome. Large swellings formed and in three cases sterile abscesses followed. These were aspirated and the fluid examined. It contained leucocytes but no micro-organisms or arsenic.

5.

Intramuscular and deep subcutaneous injections of concentrated solutions of neo-salvarsan emulsified in "creo camph" cream of a melting point of 22° C. On the whole this was an improvement. There was pain for some hours afterwards, which kept the patients awake, but as a general rule the patients could allow the site of the injection to be massaged vigorously the following and subsequent days. The discomfort was rather less than that

TABLE III.—*Showing the Wassermann Reaction after the Fourth and after the Seventh Injection of a Course of Seven Subcutaneous Injections of Neo-salvarsan.*

Stage.	No. of Cases.	Wassermann Reactions.															
		Actuals.								Percentages.							
		After Fourth Injection.				After Seventh Injection.				After Fourth Injection.				After Seventh Injection.			
		+	±	± (=)	−	+	±	± (=)	−	+	±	± (=)	−	+	±	± (=)	−
Primary with negative Wassermann reaction	39	0	0	0	39	0	0	0	39	0	0	0	100	0	0	0	100
Primary with positive Wassermann reaction	28	10	1	5	12	0	0	3	25	35.7	3.5	17.8	42.8	0	0	10.7	89.2
Secondary	74	41	9	7	17	10	4	7	53	55 4	12.1	9.4	22.9	13.5	5.4	9.4	71.6
Tertiary	18	14	1	1	2	10	3	1	4	77.7	5.5	5.5	11.1	55.5	16.6	5.5	22.2

Symbols the same as in Table II.

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

which follows an intramuscular injection of galyl. After a few days a dull aching pain was experienced which lasted for a week or longer.

6.

Similar to (5), but to overcome the immediate pain the injection was accompanied by a hypodermic injection of morphine into a different site. The results were successful in a few cases but on the whole uncertain, the later reaction being still rather troublesome.

7.

The solution of neo-salvarsan in glucose and stovaine solution with the addition of guaiacol, as recommended recently by Balzer and Beauxais-Lagrave.[4] These authors recommend a dose of 0.2 gram neo-salvarsan at one time, and in this amount the injection is practically painless. The disadvantage is that the injections have to be repeated more frequently. In a dose of 0.6 gram the local reaction was rather similar to that of (5) and (6). It is claimed by the authors of the glucose, guaiacol, stovaine mixture that the neo-salvarsan in it remains unchanged though exposed to the air. We have injected it a week after our own preparation without untoward effect. A similar preparation of uncertain age which was supplied to us by Messrs. May and Baker in a convenient form, ready for injection, was safely administered three weeks after receipt. It shares with the creo-camph mixture the disadvantage that unless prepared in the syringe itself it is rather wasteful of neo-salvarsan, since a fairly substantial proportion of the mixture sticks to the sides of the mixing vessel, and more than the required dose has to be made up to allow of this.

8.

Injection of 0.6 gram neo-salvarsan dissolved in 1 c.cm. of a 4 per cent. solution of stovaine, and made up to 2 c.cm. with creo-camph cream melting at 15° C.* (Burroughs, Wellcome, and Co., special formula).

This has proved the most comfortable injection up to the present. In some cases it has been accompanied by a hypodermic injection of morphine gr. $\frac{1}{3}$. This has been sufficient to overcome the dull ache in the site of the injection, which may last for about six hours afterwards.

The solution is effected by dissolving the neo-salvarsan in the syringe, the creo-camph is added, and the mixture well shaken.

The injection is made about a point three finger-breadths below the crest of the ilium on a line joining the tuber ischii with a point on the crest of the ilium which is perpendicularly above the great trochanter when the patient is upright. The detached needle is driven into the muscle vertically to the skin.

The general reaction which follows an intramuscular injection of neo-salvarsan is much less than after an intravenous, and we have not experienced any cases of vasomotor disturbance—flushing, constriction of the throat and chest, etc.—such as sometimes follow an intravenous injection. The tonic effect is greater when the injection is intramuscular than when the remedy is administered intravenously. It will be remembered that in the early days, when salvarsan was administered intramuscularly, the tonic effect was a pronounced feature in all reports on the subject.

CONCLUSIONS.

1. The intramuscular or subcutaneous injection of neo-salvarsan, novarsenobenzol, or novarsenobillon is superior in immediate therapeutic effect to that of the intravenous injection of salvarsan, kharsivan, arsenobenzol, or arsenobillon.

2. Spirochaetes disappear from syphilitic lesions just as rapidly after the first intramuscular as after the first intravenous injection, and the Wassermann reaction is more quickly influenced.

3. Solution of the dose of neo-salvarsan in 1 c.cm. of 4 per cent. stovaine and emulsion in creo-camph cream eliminates discomfort sufficiently to make the intramuscular injection of neo-salvarsan practicable for routine use.

REFERENCES.

[1] *Berl. klin. Woch.*, March, 1914 [2] *Muench. med. Woch.*, March 10th, 1914. [3] *Lehrbuch der Haut- und Geschlecht-Krankheiten*, p. 417. [4] *Le Bulletin Médical*, February 17th, 1917.

* Since the above was written we have given a number of injections in which the creo-camph was replaced by campho-phénique, with, so far, encouraging results.

THE LIFE-HISTORY OF BACTERIA.

[WITH SPECIAL PLATES.]

BY

EDWARD C. HORT, F.R.C.P.EDIN.,

DIRECTOR OF THE CONSTANCE TROTTER RESEARCHES; HONORARY PHYSICIAN TO THE ADDINGTON PARK WAR HOSPITAL; AND DIRECTOR OF THE BACTERIOLOGICAL LABORATORY, ADDINGTON PARK.

ACCORDING to current bacteriological theory the "lower" bacteria, whether living a parasitic or a saprophytic existence, are unicellular organisms which are only capable—apart, in certain cases, from endosporulation of a special type—of reproducing themselves by a simple process of transverse binary fission into two equal parts.

In previous publications [1] on the life history of bacteria I have brought forward evidence which strongly suggested, if it did no more, that the life-cycle of certain of the "lower" bacteria is one of great complexity. From this evidence the conclusion was difficult to escape that under parasitic conditions simple binary fission is probably only one of many phases in the bacterial cycle, which includes an invisible, or almost invisible, filterable stage, and that this also applies to laboratory cultures of organisms of certain diseases. In passing, I may note that my observations in 1914 in typhus fever, and, later, in the same disease,* in cerebro-spinal fever, in scarlet fever, and in measles, as to the existence in the infected body fluids of filterable infective viruses, and of growth from these of non-filterable bacteria, have since been confirmed in the case of laboratory cultures of the azotobacteria by Löhnis [2] in the summer of 1916. This observer, however, has recorded no details of his filtration experiments, and does not state if his cultures were from single colonies, or from single organisms, or if he carried out direct observations of growth from single individuals on the warm stage.

In the present communication I propose to present further pictorial evidence of the complicated life-history of the enteric group of bacteria in so far as this can be studied in laboratory media as opposed to the more natural milieu of infected tissues and body fluids. And to morphological studies of the members of the enteric group I have also added observations on a single strain of a coliform bacillus.

The strains of organisms of the enteric group examined are as follows, their source being also indicated:

B. typhosus.—4 strains. Strain 1, Lister Institute. Strains 2, 3, 4, carrier strains, Addington.
B. paratyphosus A.—3 strains. Strain 1, Lister Institute. Strains 2, 3, carrier strains, Addington.
B. paratyphosus B.—5 strains. Strain 1, Lister Institute. Strains 2, 3, 4, 5, carrier strains, Addington.
B. Shiga-Kruse.—1 strain. Lister Institute.
B. Y of Hiss.—5 strains. Strain 1, Lister Institute. Strains 2, 3, 4, 5, carrier strains, Addington.
B. Flexner.—3 strains. Strain 1, Lister Institute. Strains 2, 3, carrier strains, Addington.

In Charts 1 to 8 will be seen the results obtained by study of dried film preparations from young cultures from single colonies, whilst in Chart 9, A, B, C, will be seen growth of living organisms from single individuals studied on the warm stage.

All the strains of organisms shown were obtained from the Lister Institute, except the coliform organism.

It is not possible to reproduce here evidence that the morphological results noted in the case of all the strains enumerated above are identical with the results shown in the drawings and photographs of the selected strains. I must be content, therefore, with stating that the essential results were the same in all cases, approximately 1,000 films having been examined. The organisms which I have chosen in order to illustrate my points here are the *B. typhosus* of Eberth, the *B. dysenteriae* of Shiga-Kruse, the *B. dysenteriae* Y of Hiss, and a bacillus of the coliform group.

In order to reduce the chances of error to the minimum, I have, in addition to rigid precautions against contamination to be described later, submitted each strain of the organisms of the enteric group to searching identification

* Microphotographic evidence of growth from filterable virus to non-filterable bacteria in typhus fever, together with experimental evidence of pathogenicity at each stage, as well as evidence of complexity of life-history of the enteric organisms, was presented [3] to the Royal Microscopical Society in November, 1916.

tests—cultural, biochemical, and serological—both at the beginning, during the course of, and at the end of each set of observations, the additional precaution being taken of frequent replating on MacConkey's medium and on agar, and of repeatedly restarting the whole process of examination by subculture from fresh single non-lactose fermenting colonies on the former medium.

In every case the cultures under examination successfully passed at every stage the necessary standard identification tests, the final agglutination results of the three strains of members of the enteric group selected for demonstration being detailed below:

Shiga-Kruse Strain.

Final culture in broth + 10 to phenolphthalein, direct from broth + 20 to phenolphthalein.

Dilution of antiserum 1 in 10; titre 1 in 1,500; date of tubing, September 20th, 1916 (Lister Institute, D. 31).

Final Dilutions.	Result.
1 in 40	Agglutination C.
1 in 80	,, ,,
1 in 160	,, ,,
1 in 320	,, ,,
1 in 640	,, ,,
1 in 1280	,, ,,
1 in 2560	Nil.
Control	Nil.

C = complete.

Incubated for two hours at 56° C., and read after twenty-four hours at room temperature.

B. typhosus Strain.

Final culture in broth + 10 to phenolphthalein, direct from broth + 60 to phenolphthalein.

Dilution of antiserum 1 in 20; titre 1 in 6,000; date of tubing, March 31st, 1916 (Lister Institute).

Final Dilutions.	Result.
1 in 80	Agglutination C.
1 in 160	,, ,,
1 in 320	,, ,,
1 in 640	,, ,,
1 in 1280	,, ,,
1 in 2560	,, ,,
1 in 5120	,, ,,
Control	Nil.

Incubated for two hours at 56°C., and read after one hour at room temperature.

Bacillus Y of Hiss.

Final culture in broth + 10 to phenolphthalein, direct from broth + 20 to phenolphthalein.

Dilution of antiserum 1 in 10; titre 1 in 1,500.

Final Dilutions.	Result.
1 in 40	Agglutination C.
1 in 80	,, ,,
1 in 160	,, ,,
1 in 320	,, ,,
1 in 640	,, ,,
1 in 1280	,, ,,
1 in 2560	Nil.
Control	Nil.

Incubated for two hours at 56°C., and read after twenty-four hours at room temperature.

The precautions taken against contamination were as follows: The culture media employed throughout were peptone agar and peptone broth, the latter + 10 to phenolphthalein, + 20 to phenolphthalein, and + 60 to phenolphthalein, the last being only exceptionally employed.

1. The acid broth in each case was, after tubing, autoclaved for thirty minutes at 120° C. under a pressure of 20 lb.

2. Control tubes of uninoculated acid broth were incubated at 37° C. for the same length of time as the inoculated tubes. In no case was any turbidity or deposit observed after prolonged incubation.

3. In many of the cases the acid broth was contained in specially-made silica glass flasks, the narrow necks of which were closed with rubber teats sterilized by one hour's immersion in pure lysol, and subsequently dried in sterile metal boxes for twenty-four hours at 56° C. In this way it was possible entirely to avoid the use of plugs of wool, and to inoculate, or withdraw fluid from, the tubes with sterile Pasteur pipettes in the actual flame of a Bunsen burner. The use of these flasks also gave an absolute guarantee that only clean vessels were employed, each flask being heated to not less than 300° C. before use.

4. Deposits were obtained in all cases by centrifuging for three to five minutes the broth in small pointed serum tubes, each tube being sufficiently heated before filling to ensure carbonization, and subsequent destruction, of any material left after routine cleaning by previous use. In this way it was possible to be certain that no organisms foreign to the inoculated broth under observation were present in the tubes employed.

5. All glass slides for microscopical examination were treated in the same way, even after thorough cleansing with boiling acid and bichromate solutions. New slides were employed throughout.

6. The Congo red emulsion (vide infra) was made up daily, or on alternate days, with freshly distilled water, this being obtained for each set of experiments by distilling from a clean Jena flask fitted with new glass tubing. The emulsion was finally boiled in each case before use. In control films of Congo red alone no organisms could be seen. In this way a dangerous source of error, due to mixing with tap water, or with distilled water from the ordinary laboratory still, was entirely avoided.

NOTE.—In the case of dried films I employ a 1 per cent. solution of HCl in alcohol in order to avoid distortion of outline, control observations without the acid-alcohol bath showing that if heat be not employed in drying, the use of a bath of this strength does not cause shrinkage or other distortion.

At the outset of the work considerable difficulty was encountered in making satisfactory morphological studies of the organisms in question on account of their small size, ordinary cultures of members of the enteric group providing organisms varying in size from approximately .5 μ to 2 μ. In Benians's Congo red adsorption method, described by him in 1916,[4] I found, however, an invaluable method for studying the morphology of killed organisms, without any of the disadvantages inseparable from the use of basic stains, though in all cases the results obtained by the Congo red method were confirmed by staining methods as well. The chief advantage of the method is the apparent increase in size of bacteria when emulsified with Congo red, as compared with the results obtained by staining methods, or even by Burri's adsorption method.

This apparent increase in size, however, was not sufficient for my purpose, as, although evidence of complex life-histories can—once one's attention has been arrested thereby—be unmistakably made out, both in stained films and in Congo red films of ordinary cultures in + 10 broth, the size of the organisms in these cultures is not sufficiently great to enable one to arrive with certainty at a correct interpretation of the different forms seen.

By the use, however, of broth + 20 to phenolphthalein, and by subculture from this to agar or to MacConkey's medium, thence back again to ordinary broth + 10 to phenolphthalein, I found that a great increase in size can with patience be obtained, still giving the classical cultural, fermentative, and serological reactions. This was particularly the case with the *B. typhosus*, with the bacillus of Shiga-Kruse, with the Y bacillus of Hiss, and with the coliform organism examined. In the case of both the paratyphoids and of the *B. dysenteriae* of Flexner, a considerable increase in size was also obtained by using these acid cultures, though so far I have not succeeded in obtaining the same increase as in the case of the other organisms mentioned.

Before going through the drawings, for which I am mainly responsible, and the photographs, for which Mr. Martin Duncan's skill and tireless enthusiasm are solely responsible, it is necessary briefly to deal with the possibility that many of the types of organism shown are merely involution forms.

That this is not the case is shown by the following considerations:

1. The "aberrant" forms shown are young, freely growing, freely dividing organisms. By the use of the Congo red method, the relative age of organisms can be fairly accurately gauged, owing to the fact that young organisms are brightly refringent, older organisms being faint or dark in colour.

2. In the case of the *B. typhosus*, the Y bacillus of Hiss, the bacillus of Shiga-Kruse, and the coliform organism, the growth in broth + 20 to phenolphthalein was no less

UNIV. OF ILLINOIS-URBANA-CHAMPAIGN

free and vigorous than in broth + 10 to phenolphthalein, and it was in these that the largest and most "aberrant" types of organism occurred in the greatest numbers. Moreover, in broth + 60 to phenolphthalein, the degree of turbidity produced by the *B. typhosus*, and by the organism of the coliform group, was greatly in excess of that produced by these organisms in standard broth + 10 to phenolphthalein.

3. These "aberrant" types maintained their "aberrancy" for several subcultures when put back into broth + 10 to phenolphthalein, even when the latter was inoculated direct with single colonies from MacConkey's medium.

4. They were seen in small numbers, if carefully searched for, in cultures in broth + 10 to phenolphthalein, which had never been inoculated from broth of a higher acid titre.

This was also true of single colonies on MacConkey's medium, or on agar, that had not at any time been derived from incubated broth cultures, but had been isolated direct from the faeces or urine of carriers.

5. The same types of "aberrancy" were seen in every one of the different organisms shown, as well as in all the strains of all the organisms not shown, and of the different strains of the organisms, single strains of which are shown.

In the accompanying photographs and drawings attention is called to the following points:

1. It is not claimed that a complete history of bacterial life-cycles can be worked out in acid broth cultures. This can only be obtained by extensive experimental observations, side by side with comprehensive morphological studies of organisms as they occur in the infected tissues and body fluids of subjects of disease. These, in the case of members of the enteric group, have yet to be undertaken.

2. In all the broth cultures studied reproduction by simple binary fission was still the predominant feature, and in studying the "aberrant" types of reproduction of single living organisms on the warm stage on solid media, such as gelatin-agar, ordinary binary transverse fission was found eventually to hold the field mainly, though not absolutely, to the exclusion of other types of reproduction. It appears from these observations from single living individuals on the warm stage that reproduction by gemmation occurs freely, in conjunction with ordinary binary fission, only so long as growth proceeds in the thin layer of broth on the coverslip, and largely comes to an end when colonies are beginning to form on the solid medium. This abrupt transition is well seen in Chart 9, as is also the familiar "slipping" phenomenon described by Hill in 1904.

3. The percentage population of "aberrant" forms in ordinary broth cultures + 10 to phenolphthalein was low, but the chief types of "aberrancy" recorded could always be found if persistently searched for.

4. The percentage population of "aberrant" forms in broth cultures + 20 and + 60 to phenolphthalein, as well as in subcultures of these in ordinary broth cultures + 10 to phenolphthalein, was high, each field of the microscope yielding, in good films, characteristic types.

5. Each photograph is designed to show at the optimum focus not more than a very small number of types.

6. The number of types which can be seen in any acid culture exceeded one hundred. To reproduce a comprehensive picture by photographs alone was therefore impracticable.

7. In consequence it became necessary to make composite drawings with the camera lucida of the chief types observed in one, or at the most two,-film preparations from one strain. These drawings represent, in the case of killed organisms, selected individuals from a large number of fields, and must therefore not be read as representing average fields.

8. At first sight, inspection of the drawings in Charts 1 and 2, and in the photographs of killed organisms, suggests meaningless chaos.

9. Once, however, it is grasped that reproduction by gemmation is the key to the "aberrant" forms shown, and that gemmation may be terminal, median, or superficial, the main types fall into line. That true gemmation occurs of these three types is shown in Chart 9, representing growth from single organisms on the warm stage.

10. There is no evidence that a given strain represents a mixture of several strains, this suggestion being largely excluded by study of gemmating forms before fission has taken place, and by study of the actual process of gemmation on the warm stage.

11. The correct explanation of the superficial gemmation origin of the crucial and radiate forms shown is more difficult to establish than is that of the terminal, median, and simple superficial forms of gemmation.

The points against a mere apposition explanation of these crucial and radiate forms are as follows:

(*a*) Strict rectangular symmetry is the rule.

(*b*) The diameter of the central brightly refringent node is frequently twice that of the organism which might otherwise be interpreted as lying in contiguity.

(*c*) Superficial buds can frequently be observed on the parent bacillary stem before "sprouting" has commenced, and during the act of sprouting.

12. Sagittal segmentation of buds can frequently be seen, both in the case of dried organisms and of single living organisms, before separation from the parent stem has begun. This sagittal segmentation can be seen in terminal, median, and superficial buds.

13. Transverse segmentation of buds—ordinary binary fission—also frequently occurs, the parent stem also presenting buds undergoing sagittal segmentation, the actual occurrence of which was watched on the warm stage, as shown in Chart 9.

14. Undetached buds may vary in size from about 0.1 μ to several μ in their greater diameter, every intermediate size—from the filterable to the non-filterable—being capable of recognition in the same film in favourable cases (vide photographs of dried films).

15. The appearance of minute buds on a large scale is inconstant in broth cultures, as observed in dried films. In the study of growth from single organisms on the warm stage it occurs frequently, only a relatively small number, however, coming to maturity on solid media, the majority fading and disappearing.

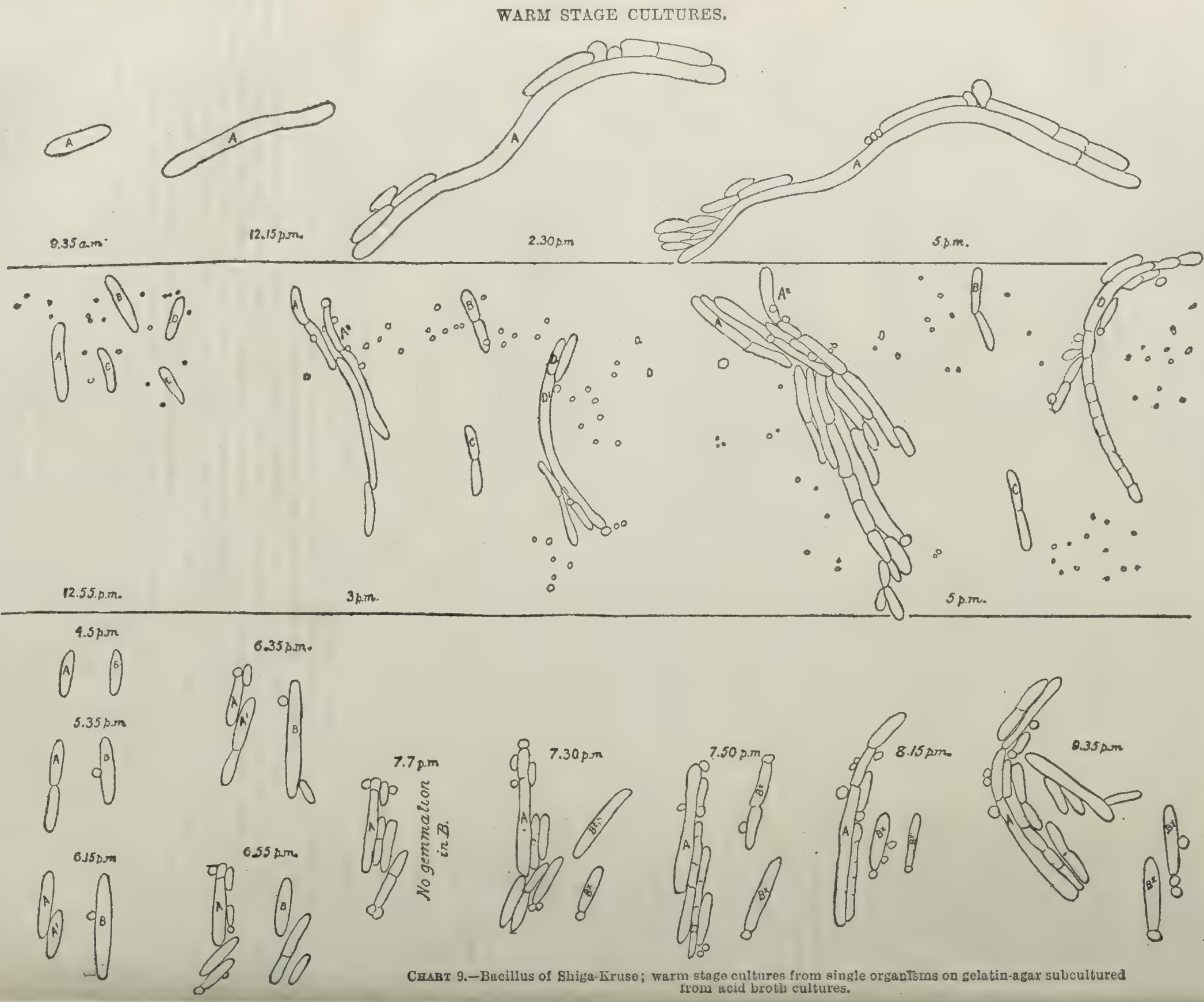
16. The appearance of the very minute forms seen in Charts 1, 3, 4, 5, and 9, makes it impossible to be certain, without prolonged observation on the warm stage, that in attempting to obtain cultures from single individuals of normal size by Barber's method, or by the fragmented slip method of isolation, one is not in reality cultivating from several individuals. Unless, therefore, the presence of these minute forms can be excluded, the use of these two methods for obtaining cultures in liquid media from single organisms cannot be relied on.

17. In the warm stage studies the use of oil-immersion lenses was found to be essential to detection of minute buds, control observation with $\frac{1}{6}$ dry lenses, even with high compensating oculars, often failing to reveal their presence.

18. The presence of these minute forms is probably the explanation of the apparent filterability through Chamberland filters of such relatively large organisms as the *Bacillus bronchisepticus*, and is perhaps responsible for the general view that even well-made Berkefeld filters are not suitable for bacteriological work.

19. By the dark-ground method of illumination many of these small detached buds appear as minute bacilli in the act of undergoing binary fission. Not infrequently these appear as coccoid bodies, if binary fission has not begun. In the study of aberrant bacterial forms with dark-ground illumination the use of the hanging drop method, apart from the inherent fallacies of dark-ground work, is fatal to correct interpretation unless streaming movements have first been reduced to a minimum. For example, it is frequently stated that apparent branching in bacteria is in reality simulated by mere apposition, and that observation of a hanging drop with dark-ground illumination will soon dispel the illusion, separation of apposed organisms sooner or later always taking place. On casual inspection of dark-ground hanging drops this statement appears to represent the truth, especially if streaming movements are still free. If, however, a drop of emulsion be firmly pressed under a cover-slip and then examined it will be found, streaming movements now being reduced to a minimum, that detachment does not invariably take place. That this is not the result of pressure is shown by the fact that in favourable cases long lateral buds will exhibit wide lateral movements,

LIBRARY U. OF I. URBANA-CHAMPAIGN



Culture A (camera lucida drawing. × 3,000).

Culture B (freehand drawing).

Culture C (semidiagrammatic).

CHART 9.—Bacillus of Shiga-Kruse; warm stage cultures from single organisms on gelatin-agar subcultured from acid broth cultures.

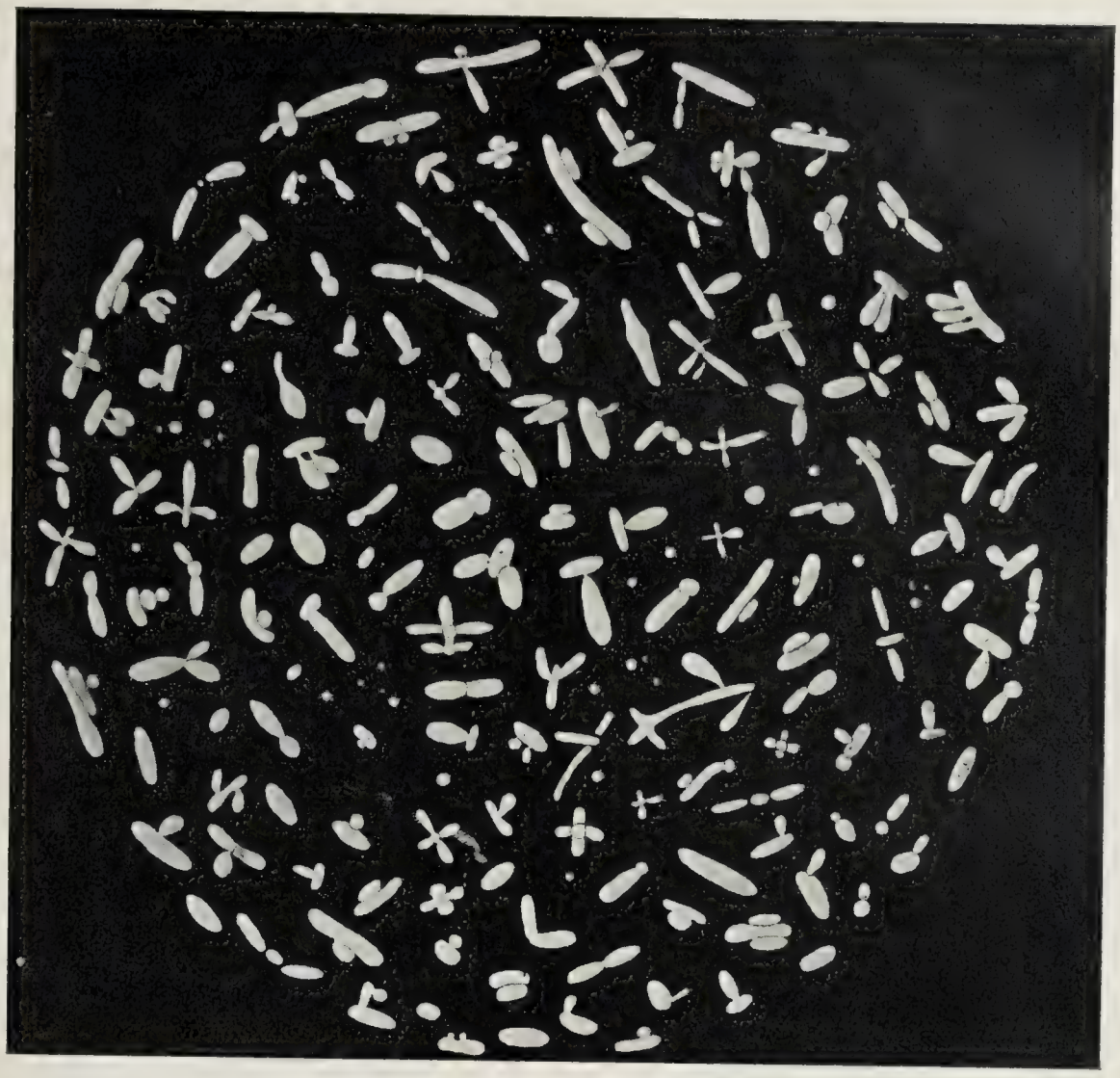


CHART 1.—*Bacillus typhosus.* + 60 to phenolphthalein broth culture, mixed with + 10 to phenolphthalein broth culture from same. (Camera lucida drawing. × 3,000. E. C. H. *del.*, E. A. H. *pinx.*)

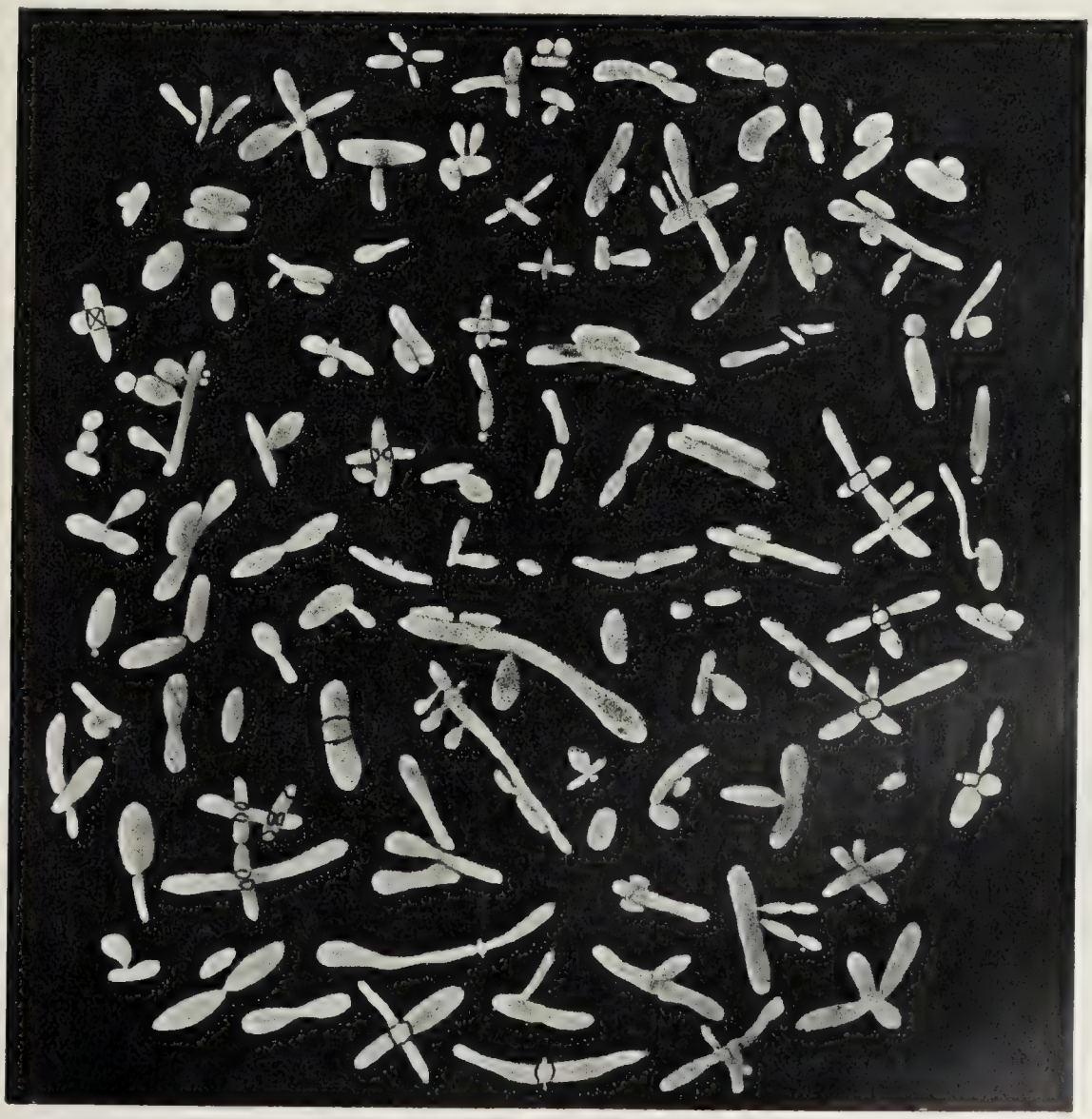


CHART 2.—*Bacillus coli communis.* Acid broth + 10 to phenolphthalein, mixed with broth subculture from the same. (Camera lucida drawing. × 3,000. E. C. H. *del.*, E. A. H. *pinx.*)



1. 2. 3. 4.

5. 6. 7. 8.

9. 10. 11. 12.

13. 14. 15. 16.

17. 18. 19. 20.

CHART 8.—*Bacillus coli communis.* × 1,500 and 2,300. (F. Martin Duncan, Photo.)

LIBRARY U. OF I. URBANA-CHAMPAIGN

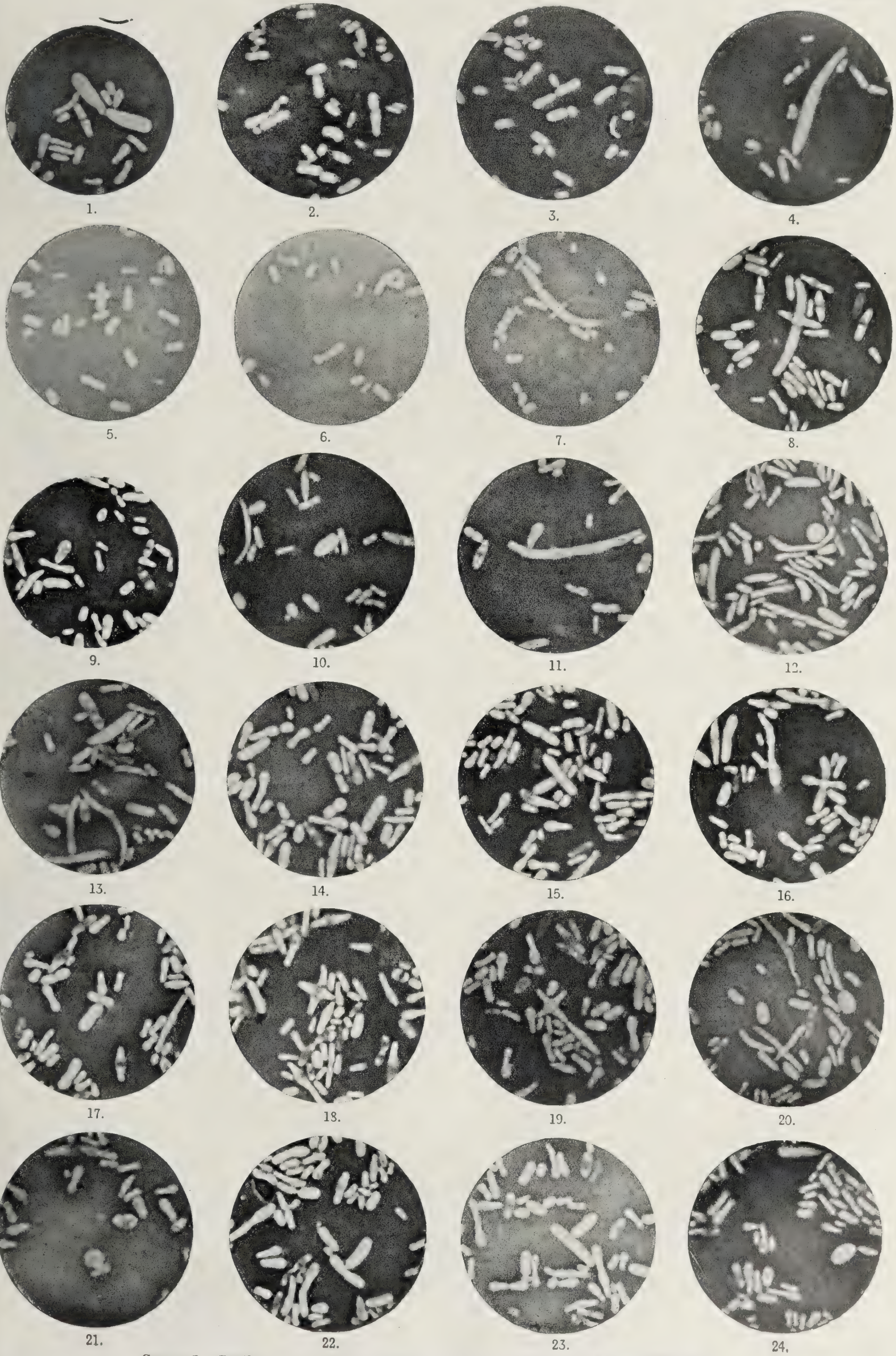


CHART 7.—*Bacillus Y of Hiss.* Dysentery. × 1,500. (F. Martin Duncan, Photo.)

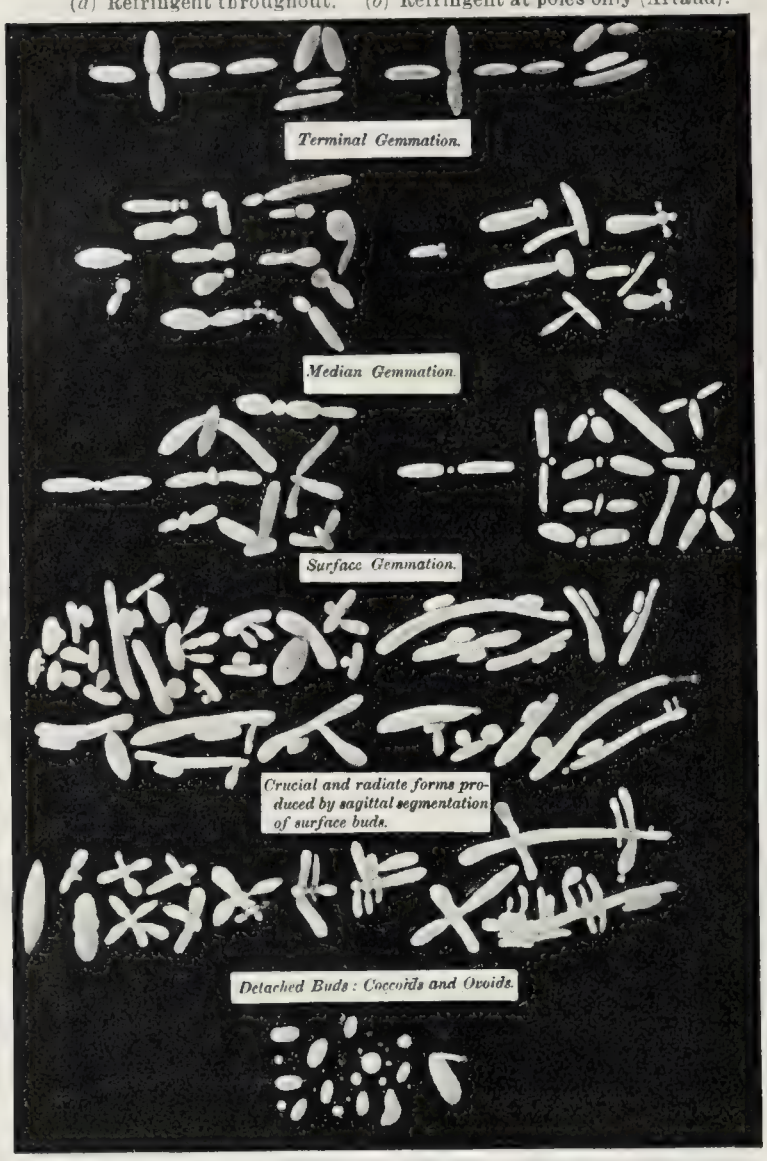


CHART 3.—*Shiga-Kruse Bacillus.* Dysentery. Acid broth + 10 to phenolphthalein mixed with broth subculture from the same. (Camera lucida drawing. × 3,000. E. C. H. *del.*, E. A. H. *pinx.*)

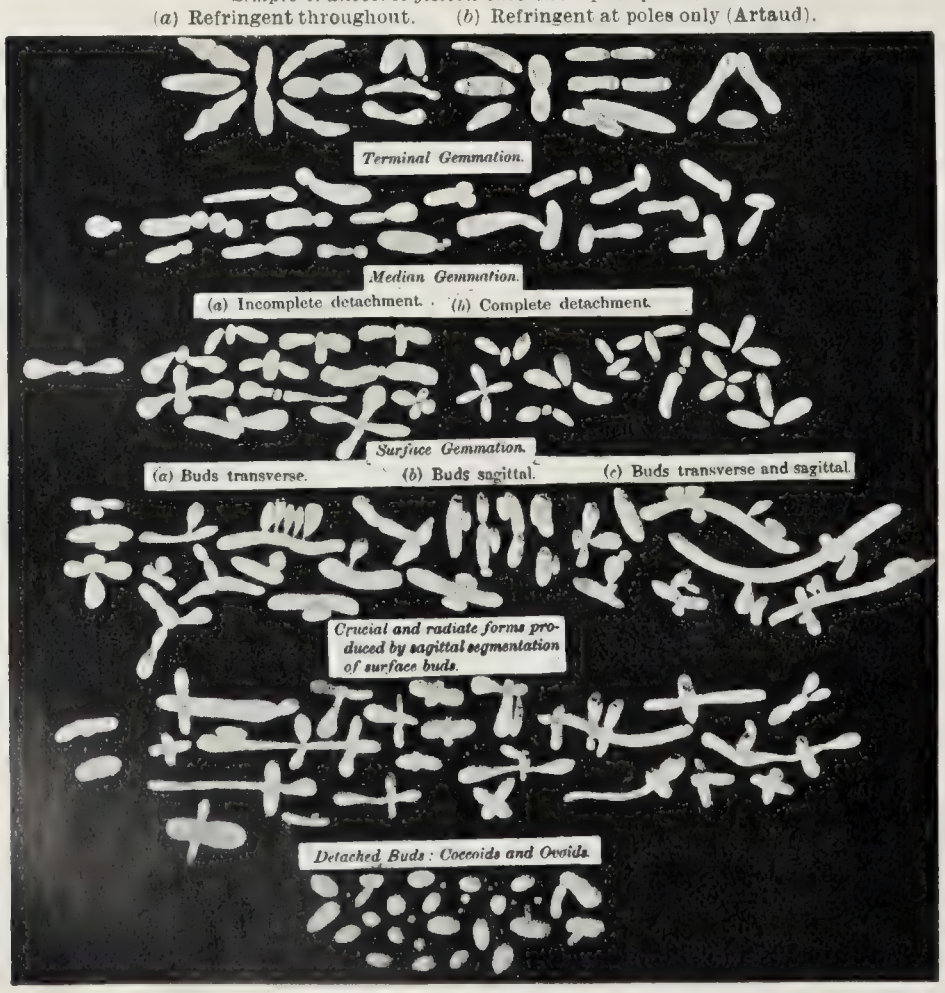
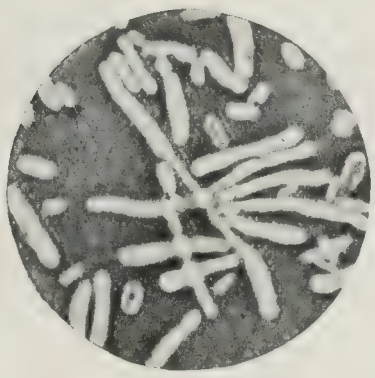
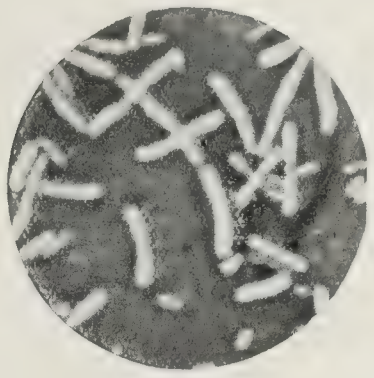


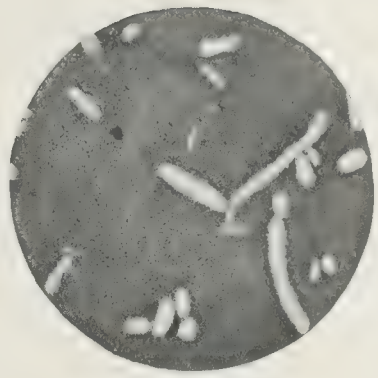
CHART 4.—*Bacillus Y of Hiss.* Dysentery. Acid broth + 10 to phenolphthalein mixed with broth subculture from the same. (Camera lucida drawing. × 3,000. E. C. H., F. M. D. *del.*, E. A. H. *pinx.*)

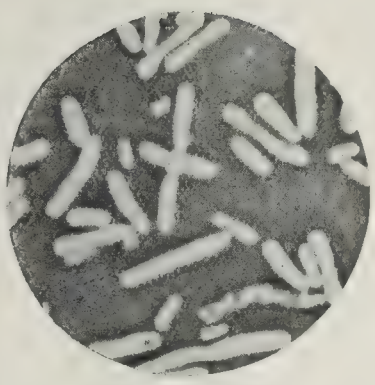
LIBRARY U. OF I. URBANA-CHAMPAIGN

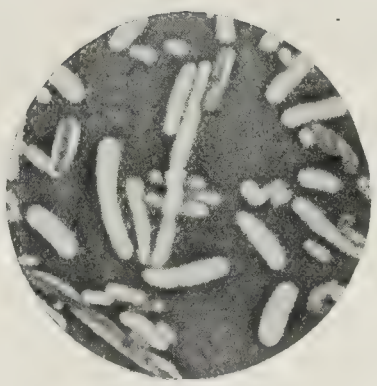

1.

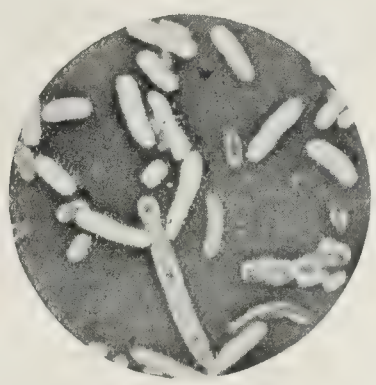

2.

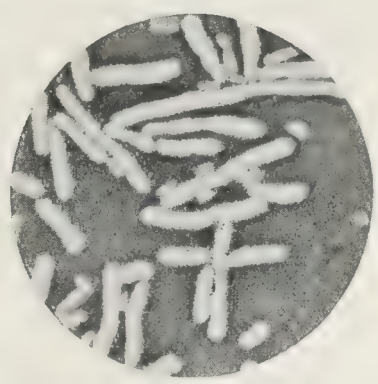

3.

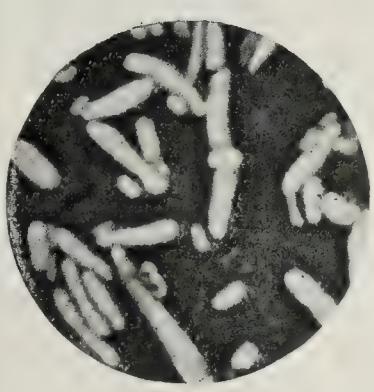

4.

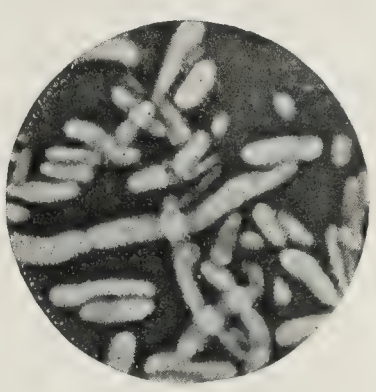

5.

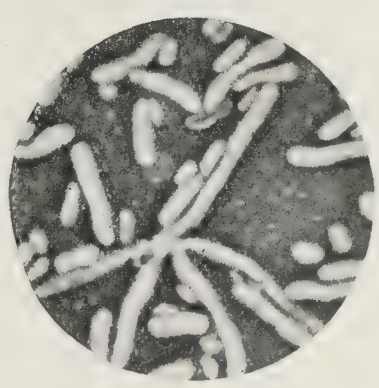

6.

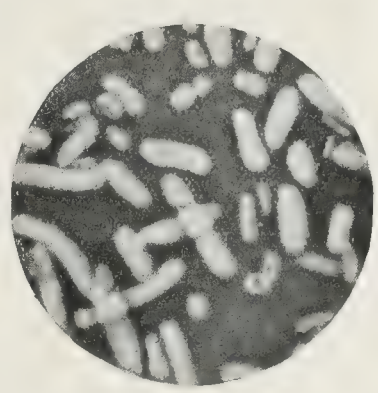

7.

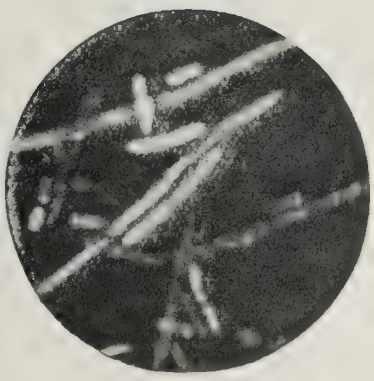

8.


9.


10.

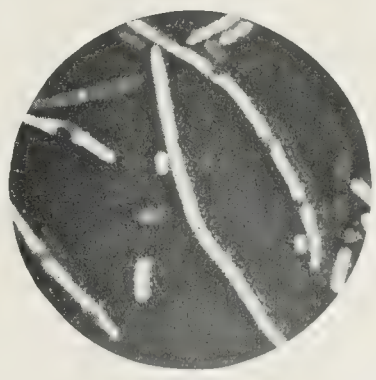

11.

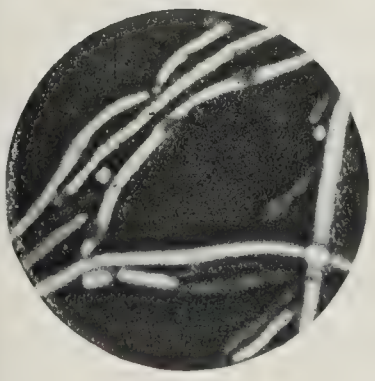

12.

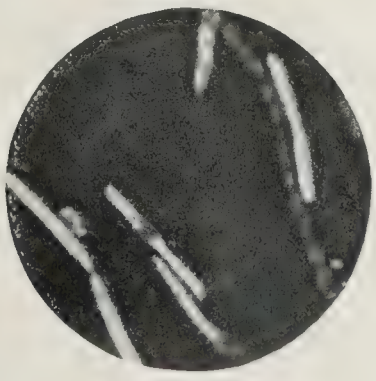

13.


14.


15.


16.

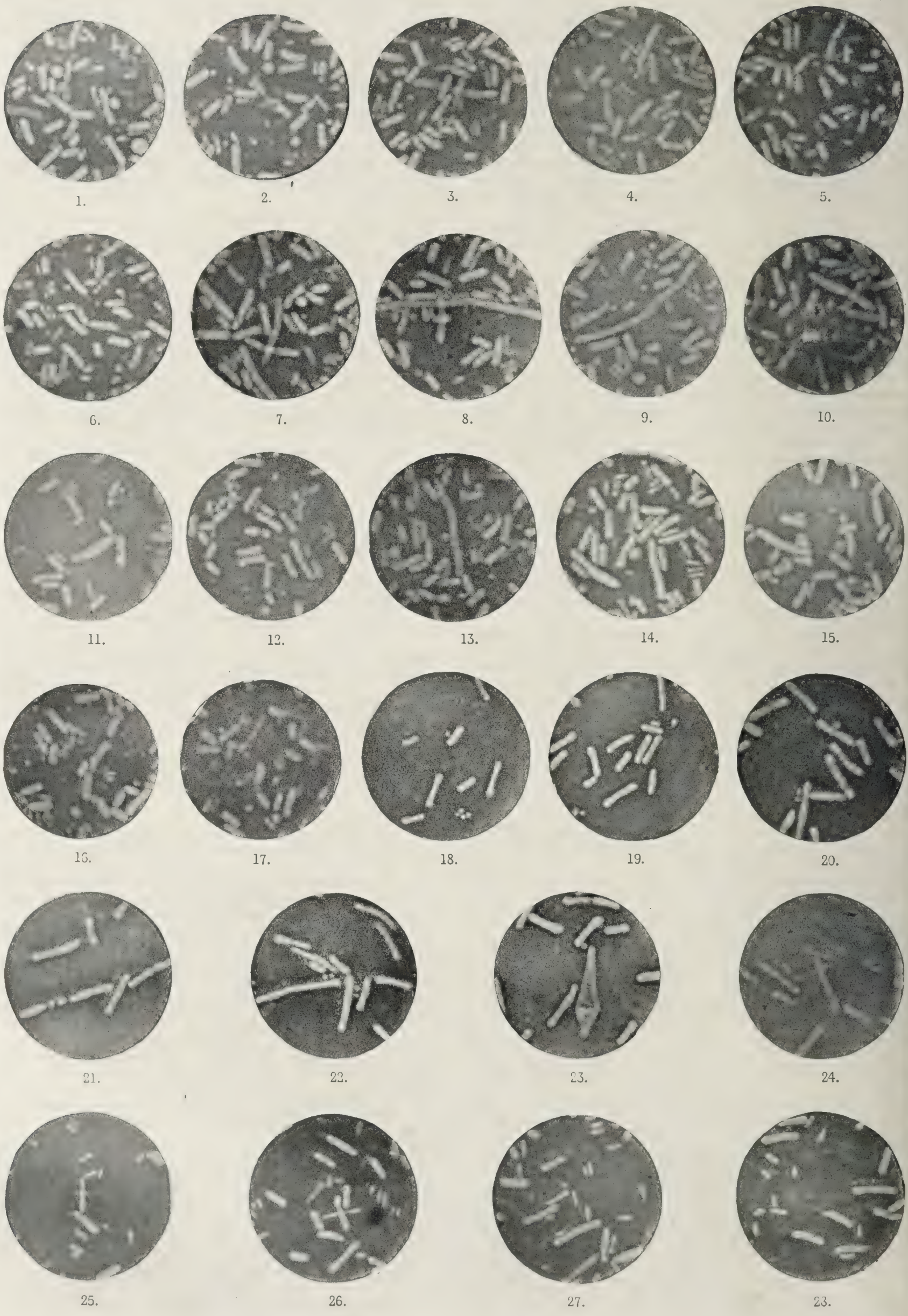

17.


18.


19.


20.

CHART 6.—*Shiga-Kruse Bacillus.* Dysentery. × 1,500. (F. Martin Duncan, Photo.)



1. 2. 3. 4. 5.

6. 7. 8. 9. 10.

11. 12. 13. 14. 15.

16. 17. 18. 19. 20.

21. 22. 23. 24.

25. 26. 27. 28.

CHART 5.—*Shiga-Kruse Bacillus.* Dysentery. × 1,500. (F. Martin Duncan, Photo.)

LIBRARY U. OF I. URBANA-CHAMPAIGN

whilst the base, or point of attachment to the parent stem, remains fixed. In other cases short lateral buds retain their relative position to the parent stem, itself exhibiting unfettered rotatory movements. The accuracy of these observations is confirmed in Chart 9 of warm stage studies.

CONCLUSIONS.

It has, of course, long been recognized that changes in the cultural environment of bacteria may sometimes be followed by corresponding morphological adaptations.

By many students such changes in form have been summarily dismissed, on the facile theory that cultural contamination has occurred. The rigid precautions taken in these experiments to exclude such accident, and the fact that gemmation took place under observation on the warm stage, disposes of the contamination theory.

By other students aberrant morphological types of bacteria are frequently put aside on account of their supposed involutionary nature. The term "involution form" may, perhaps, be legitimately applied to the bizarre deformities seen in dying or dead individuals in old or otherwise unsuitable media. But to apply the term to young, freely growing, freely dividing organisms under the optimum cultural conditions employed throughout in these experiments would be hardly reasonable.

By still other observers the morphological changes which may follow alteration of bacterial environment have in the past been looked upon as genuine mutation phenomena, and by some authorities the term "polymorphic" or "pleomorphic" is inaccurately restricted to such alleged examples of mutation. These latter writers deny the occurrence of bacterial mutation, and dogmatically assert that pleomorphism—in the limited sense above defined—is unknown amongst the bacteria, heedless of the fact that the genuine type of pleomorphism exhibited, for example, by the protozoa and the parasitic fungi in the orderly sequence of the manifold cycles of their complex life-histories, would equally apply to the bacteria, once it was proved that they too can reproduce themselves in other ways than by simple transverse binary fission into equal parts.

Finally, it is often assumed that because bacteria appear to breed true to type—that is, to laboratory type—in standardized laboratory cultures, simple transverse binary fission is the sole method of reproduction under natural saprophytic and parasitic conditions which are not, and never can be, standardized.

As, however, I have shown, evidence of complex bacterial life-cycles is constantly before us even in ordinary standardized laboratory media, though it may, and often does, require persistent looking for.

The truth, in fact, appears to be that we have gone astray in this matter because we have in the past invoked too easily the theories of contamination, of involution forms, and of mutation (vide note, infra *), and have forgotten that the normal habitat of bacteria, both as saprophytes and as agents of disease, is under perpetual assault, leading to endless instability of environment.

From these morphological observations it is clear that bacteria can, and do, reproduce themselves in other ways than by simple binary fission, and that the life-cycle in some cases includes an invisible or almost invisible phase. Our present conception, therefore, of the rôle played by bacteria, both as saprophytes and as causal agents of disease and its sequels, will have to be profoundly modified.

I wish to take this opportunity of recording my grateful thanks to Mr. Martin Duncan, not only for his beautiful photomicrographic work, but also for the material assistance he has given me throughout. I wish also to acknowledge my great indebtedness to the Committee of Management of the Addington Park War Hospital, in the laboratory of which the experiments were carried out, for the far-sighted policy which has provided every possible facility for the prosecution of the work.

REFERENCES.

[1] Hort and Ingram: The Etiology of Typhus Fever, BRITISH MEDICAL JOURNAL, May, 1914. Hort and Ingram: The Etiology of Typhus Fever, British Medical Association Meeting, Aberdeen, July, 1914. Hort: Typhus Fever, BRITISH MEDICAL JOURNAL, April, 1915. Hort, Lakin, and Benians: Epidemic Cerebro-spinal Fever: The Place of the Meningococcus in its Etiology, BRITISH MEDICAL JOURNAL, March 27th, 1915, and April 24th, 1915. Hort: Relation of the Meningococcus of Weichselbaum to the True Infective Agent in Epidemic Cerebro-spinal Fever, *Journ. Roy. Army Med. Corps*, February, 1916. Hort and Caulfeild: Epidemic Cerebro-spinal Fever: The Place of the Meningococcus in its Etiology, *Journ. Roy. Army Med. Corps*, September, 1916.

[2] Löhnis: Life-Cycles of the Bacteria (Preliminary Communication), *Journ. Agricultural Research*, July 31st, 1916.

[3] Hort: Studies in Pleomorphism in Typhus and other Diseases, Trans. Roy. Microscop. Soc., *Journ.*, December, 1916.

[4] Benians: BRITISH MEDICAL JOURNAL, 1916.

[5] Horrocks, W. H.: Variability and Possible Variation of the *Bacillus typhosus*, *Journ. of the Roy. Army Med. Corps*, March, 1911.

* As already stated, the observations here recorded are confined to cultures from single primary colonies, and in consequence these observations only deal with changes in morphology which are not associated with observed changes in fermentative and serological reactions. I have, however, noted, especially in the case of the bacillus of Shiga-Kruse and of *B. paratyphosus* B, that profound "biochemical," and even serological, changes may take place in the case of secondary colonies from pure cultures in some of the plates after prolonged standing, and repeated subculturing from acid media. Changes in fermentation reactions of secondary colonies of bacteria have in the past been frequently noted by numerous observers, and the occurrence of a genuine form of bacterial mutation has been invoked to explain these changes. In many such cases the occurrence of morphological types of aberrancy has also been noted, and again the mutation theory has been used in explanation thereof. The most striking of these are the observations of Horrocks[5] in 1911 in the case of the *B. typhosus*, independently confirmed by Almquist in the present year. In all these observations, however, of changes in morphology, whether associated or not with fermentation and serological changes, the question of such changes representing phases in bacterial life-histories in orderly sequence does not appear till now to have been raised. And this appears to be due to the fact that the morphological changes have not been studied by continuous observation of growth from single organisms on the warm stage. As, however, I have shown, this is essential to correct interpretation of alleged mutation phenomena, whether of a morphological or of a "biochemical" nature, though the ultimate fate of the bacillary buds here described, and of the associated changes of fermentation and serological reactions of these daughter cells when living an independent existence in laboratory media, must be left to a further communication.

TETANY AND THE FUNCTIONS OF THE PARATHYROIDS.

BY

D. NOEL PATON AND LEONARD FINDLAY,

In conjunction with

A. WATSON, D. BURNS, J. S. SHARP, AND W. WISHART.

(From the Physiological Department, Glasgow University.)

THE following is a brief abstract of a series of papers published in the *Quarterly Journal of Physiology*, vol. x, Nos. 3 and 4 (March 26th, 1917), giving a detailed account of an extensive experimental investigation upon the physiology of the parathyroids and the relationship of the tetany which follows removal of these structures to the idiopathic tetany so common in childhood. The clinical importance of the subject is the reason for bringing it in this way under the notice of the medical profession generally.

A. *The Nature of Idiopathic Tetany and the Various Theories which have been from time to time advanced regarding its Etiology.*

One hundred years ago Clarke for the first time described, as accurately as can be done to-day, the symptomatology of this clinical entity, and suggested a cerebral change as the *fons et origo*. This pioneer's work, however, was not accepted by his immediate successors, and it was not until fifty years later that the common origin of all the different manifestations (carpo-pedal spasm, laryngismus and convulsions) was admitted. Trousseau in 1860 considered it of rheumatic nature; later, Cheadle and Kassowitz looked on it as merely a manifestation of rickets; still later, Henoch suggested an error of metabolism, which for Biedl was the production of a toxic substance from the decomposition of histidin, for Quest a deficiency of calcium, and for Stoelzner a calcium intoxication. Finally, Janasse has more recently, on the ground of histological examinations of the parathyroids in cases of tetany, incriminated these structures.

B. *Previous Work on Tetania Parathyreopriva.*

The work already done on the tetany following removal of the parathyroids may be considered in three periods: First, that preceding the discovery of the parathyroids; secondly, that during which the independence of the thyroids and parathyroids was not recognized; and, thirdly, that in which the complete independence of these structures had been established. As a result of the evidence forthcoming, the conclusion may be drawn "that

the nervous symptoms are due to the removal of the parathyroids."

This being so, the method adopted in our experiments was that of complete thyro-parathyroidectomy, since by no other method can removal of the parathyroids associated with the thyroid be carried out with certainty. The existence of supplementary parathyroids in the thymus, especially in cats and dogs, renders it impossible in every case to secure complete removal of all parathyroid tissue.

C. *The Symptoms following Parathyroidectomy.*

These may be classified as those of depression, emaciation, spasticity (chiefly extensor), tremors and fibrillar twitchings, jerkings, convulsions, and disturbances of balance. Great variation in these symptoms occurs in different animals and in the same animal at different times, and considerable difficulty is thus introduced in determining the value of remedial measures.

The development of spasticity is most characteristic of young animals, and in monkeys it may lead to the manifestation of the typical position of the hand seen in idiopathic tetany—the clenched fist or accoucheur's hand.

D. *The Part of the Central Nervous System Affected.*

All the nervous symptoms of tetania parathyreopriva are due to the condition of the central nervous system, since they are at once abolished in any part of the body by section of the nerve. Decerebration has been found to increase the violence of the symptoms by removing the controlling influence of the cerebral arc. Section of the cord, by removing the influence of the cerebellar arc, prevents the development of spasticity in the parts of the body behind the level of section, but leaves the tremors and jerkings unaltered. Section of the dorsal roots of the spinal nerves to the hind legs does not stop the tremors and jerkings.

These experimental results indicate that the structures primarily affected in the production of the symptoms are the cells of the efferent neurones in the anterior horns of the spinal cord. The occasional onset of epileptiform convulsions probably indicates a secondary implication of the cortex cerebri, and the disturbances of balance, which so frequently appear, point to a secondary affection in the cerebellum.

E. *The Increased Excitability of the Peripheral Nerves and of the Muscles (of the Neuro-myon).*

This was first described by Erb in 1874, and it is now generally accepted as the most reliable test of the existence of tetany, both idiopathic and following parathyroidectomy.

In this abstract it is not necessary to consider in detail the methods employed, the tests for the limits of accuracy of the method, or the nerve and muscle selected for stimulation. The want of any real knowledge of the factors modifying the electrical excitability compelled us to devote considerable time to a study of the limits of physiological variation from day to day, the effects of anaesthetics, of temperature, of asphyxia, of anaemia, of decerebration, of section of the spinal cord, and of section of the dorsal roots of the spinal nerves. It was found that none of these interfered with the application of the method to the study of the changes produced by parathyroidectomy or which occur in tetany. Since in the decapitated animal the action of curare leaves unmodified the reaction of the muscle, and since the reaction of the muscle persists for some time after degeneration of the cut nerve, it must be concluded that the muscle is directly stimulated by the electrode placed over it as used in our investigations.

The electrical hyperexcitability following parathyroidectomy has been clearly demonstrated by previous workers and is confirmed by us. The qualitative change described by some writers—that is, the relative increase in the A.O.C.—is shown to be a sign of no diagnostic significance. That the changes in the excitability of the nerve and muscle are independent of the changes in the cells in the spinal cord, and due to changes in the neuro-myon, is shown by the results of parathyroidectomy after, with, and before nerve section.

The change in the excitability of muscle generally follows that of nerve, but is not usually so marked. It is chiefly due to a change in the neural elements in the muscle, since (1) it is generally removed by curare, (2) it disappears as the nerve degenerates after section, and (3) it is not produced in muscle when it has degenerated. In some cases evidence of the implication of a post-neural structure—the "receptive substance" of Langley—was obtained.

That it is the nerve endings which are acted upon is demonstrated by a series of cross-circulation experiments in which the blood from a normal animal is circulated through the leg of a parathyroidectomized animal so that the posterior tibial nerve and its endings in the flexor brevis digitorum are bathed in normal blood while the sciatic nerve is fed by parathyroidectomized blood. Since the effect of stimulation of the sciatic nerve was reduced along with the reduction in that of the terminal branches, the conclusion is drawn that the nerve endings, and not the nerve fibres, are acted upon.

The symptoms are thus due to some change in the nerve cells of the cord and the increased excitability of the neuro-myon is caused by an action on the nerve endings.

It was found that there is no definite relationship between the symptoms and the electrical hyperexcitability, that the excitability of the peripheral nerve may be high when symptoms are absent, and low when they are present. In idiopathic tetany we found the correspondence between the increased excitability and symptoms to be somewhat closer, but that it is not sufficiently close to allow of the gravity of the condition being estimated by the electrical excitability of the nerve alone.

F. *The Etiology of Tetany.*

The evidence we already possess points to the condition being due to a disturbance of metabolism. The theory of calcium deficiency so ably supported by MacCallum cannot, however, be maintained. The effect of bleeding and transfusing calcium-free chloride of sodium in relieving the symptoms proves that there is not a deficiency of some essential substance, such as calcium, but rather the development of some toxic material.

Various substances have been suggested by previous workers as the possible toxic agent—for example, ammonia, xanthine, and β-iminazolmethylamine. But we have found these not to produce a true tetany.

Certain facts pointed to the possibility that guanidin or methyl guanidin in the body is the cause of the condition. By a series of experiments it is shown that the symptoms of guanidin poisoning exactly simulate those of tetany, and that the electrical excitability of the peripheral nerve is also increased by this substance.

Comparisons of Symptoms in the Conditions Enumerated.

	Idiopathic Tetany.	Tetania parathyreopriva in Man.	Tetania parathyreopriva in Animals.	Guanidin Poisoning.
Increased E.E. ...	+	+	+	+
Depression	+	?	+	+
Emaciation	+	?	+	+
Spasticity	+	+	+	+
Tremors and jerkings	*+	+	+	+
Mechanical excitation	+	+	+	+
Convulsions	+	+	+	+
Laryngeal spasm ...	+	+	+	−
Oedema of hands and feet	+	+	?	?

* This has been observed in the adult, but not, so far as we are aware, in the child.

G. *The amount of Guanidin and Methyl Guanidin in the Blood and Urine of Normal and Parathyroidectomized Dogs, and in the Urine of Children suffering from Idiopathic Tetany.*

The study of these questions by Burns and Sharp shows that these substances are found in increased amounts in the urine of patients suffering from tetany and of dogs suffering from tetania parathyreopriva. It is also shown that there is an increased amount of guanidin in the blood after parathyroidectomy. In the urine it is increased in children 100 per cent., and in dogs 500 per cent., and in

UNIV. OF ILL. URBANA-CHAMPAIGN

the blood after parathyroidectomy from 400 per cent. to 1,200 per cent.

It was thought that the action of guanidin in causing tremors of the excised muscle of the frog might be used as a test for its presence in the blood after parathyroidectomy. Wishart studied the action of the blood of parathyroidectomized animals upon such muscles. His experiments show that while the blood of normal animals fails to cause any twitching or any alteration in the form of contraction of the muscle, in several cases twitching, and in a greater number prolongation of contraction, occurred.

H. *The Metabolism after Parathyroidectomy and the Administration of Guanidin.*

A series of experiments carried out by Burns shows the similarity of the changes in the distribution of nitrogen in these two conditions.

These investigations have shown also the close association of idiopathic tetany in man and that following removal of the parathyroids, and that in both the symptoms are due to an increase of the guanidin in the body, but before remedial measures can be considered the exact nature of the change in metabolism must be further investigated. Degenerative changes in the liver have been described by Gozzi and others. Are these primary? Are they the cause of the development of guanidin or are they the result of its action? The question of the source of the guanidin has also to be investigated. It is known to occur in arginin, which is one of the constituents of most proteins. Is the guanidin formed directly from it? Normally the guanidin part yields urea, but a disturbance of metabolism might lead to its persistence as guanidin or methyl guanidin. Again, guanidin is the chief constituent of the creatin of muscle, and it might be derived by some change in the formation of a decomposition of this substance. So far the studies in metabolism afford no indication that such a change occurs, but further work upon the question is in progress.

CONCLUSIONS.

1. The symptoms of tetany are due to some change in the nerve cells of the cord, and the increased excitability of the neuro-myon is caused by an action on the nerve endings.

2. A comparison of the symptomatology of idiopathic tetany, post-operative tetany in man, tetania parathyreopriva, and guanidin poisoning in animals leads to the conclusion that all these conditions are of the same nature, and that the first three are due to the development of guanidin in the body as the result of some interference with the action of the parathyroids which normally control the guanidin metabolism, and by so doing probably influence the tone of the muscles.

3. There is a close association between idiopathic tetany in man and that following removal of the parathyroids; in both the symptoms are due to an increase of the guanidin in the body.

4. It will only be possible to consider remedial measures when these various problems have been cleared up, and further prosecution of the investigation by the combination of clinical and laboratory study seems to hold out the most hopeful promise of further advances.

The work has been done as part of an investigation upon rickets which is being carried out under the Research Scheme of the Medical Research Committee (National Insurance Act). The expenses of the earlier work were partly defrayed by the Carnegie Trust (Scotland).

[The Warren Triennial Prize in 1916 was awarded for this series of papers at the Massachusetts General Hospital. This statement is made at the request of the trustees of the hospital.]

IN the German academic year 1914–15 licences to practise medicine were granted to 1,038 men and 72 women. The corresponding figures for the preceding year were 3,822 and 148. This big drop was due to the granting of licences to many advanced medical students at the outbreak of the war. Thus, for the year 1912–13 there were 1,447 licences granted as compared with 3,822 in the following year, which included the first period of the war. The number of women medical students has increased from 334 in the winter term of 1908–09 to 1,229 in the corresponding term of 1915–16.

SIMULTANEOUS LIGATURE OF ARTERIAL AND VENOUS TRUNKS IN WAR SURGERY.

BY

E. M. COWELL, M.D., B.S.LOND., F.R.C.S.ENG.,

CAPTAIN R.A.M.C., S.R.

CERTAIN surgical ideas have undergone a complete revolution as a result of the additional experiences gained in the war surgery of the past two and a half years. Among these changes perhaps one of the most striking is the difference in attitude towards the question of simultaneous ligature of the main artery and vein of a limb.

C. G. Spencer,[1] writing on this subject, says: "If the vein is wounded as well as the artery the danger of gangrene is greater." In Jacobson's *Surgery*[2] is a short paragraph on ligature of the popliteal artery in which the following warning is given: "It would be well if possible to get leave for immediate amputation if the vein was found injured also, and beyond remedy by suture." Major A. J. Hull[3] says: "Ligature of blood vessels appears to be free from dangerous sequelae. Three exceptions may be made to this observation—the common femoral and the popliteal on account of the liability of gangrene of the limb, and the carotid vessels on account of their distribution to the brain." Lastly, among the small number of authors available at the time of writing, Penhallow,[4] referring to aneurysmal varix, says, "Great care should be taken not to injure the vein, as otherwise gangrene may result. It may be said that the vein is the more important vessel of the two in this respect."

The modern views on this important subject are clearly expressed by Surgeon-General Sir G. H. Makins in his Hunterian Oration of this year (1917). This authority goes so far even as to advise simultaneous ligature of the vein in those cases where it is found necessary to tie a damaged artery, "whether the vein be wounded or no." He gives the following reasons: First, "The elimination in part of the capacious main vein is a real advantage since this for the time affords a too ready channel of exit for the diminished arterial supply as well as an undesirable reservoir for stagnation." Secondly, "The result of the combined procedure being to maintain within the limb for a longer period the smaller amount of blood supplied by the collateral arterial circulation, and hence to improve the conditions necessary for the preservation of the vitality of the limb."

It should be remembered, as Sir G. H. Makins[5] and Delorme[6] have pointed out, that in many injuries of the arteries the vein is also contused and later becomes thrombosed. That the converse is true is well illustrated in Case V. The venous system may be even further restricted without loss of circulation occurring. In Case I, in addition to the popliteal artery and vein, both internal and external, the saphenous veins were tied, and the limb survived.

The following cases, which with one exception have all occurred at a casualty clearing station in the past few months, show the beneficial result of simultaneous ligature of the main vein where the corresponding artery is damaged beyond repair.

Case V is of interest because severe local sepsis was present with commencing gangrene of the group of wounded muscles. A thrombus was removed from the superficial femoral artery, which restored the circulation long enough for healing to commence, before the lumen became again occluded. Case VI, operated on by my colleague Captain G. McMullan, R.A.M.C., is an example of the benefit derived when this method of treatment is applied to the tibial vessels.

Injuries of the posterior tibial artery, whether complicated by fracture of the bones or not, are very likely to take an unfavourable course and end in amputation of the limb. The result in the case quoted was unusually successful, but in view of our previous experience great care was taken to ligature all the veins associated with the injured arteries. Case VII is included as an example of modern blood-vessel surgery. The case if left would have undoubtedly become an aneurysmal varix.

CASE I.

Pte. C. Admitted November 3rd, 1916, 10 p.m., with wound of right popliteal vessels.

On admission there was a wound perforating the calf trans-

versely at the lower part of the popliteal space. The calf was swollen and tense; no pulse at ankle; foot cold and white.

Operation (November 4th, 4 p.m.).—Popliteal space opened up in its whole extent through an internal incision. Remains of inner head of the gastrocnemius cut through. Damaged saphenous vein tied above and below. Both vessels found torn for about one inch. The popliteal vein was ligatured just above the entry of the short saphenous vein.

Result.—On November 5th the foot was warm, pink in colour, sensation present. The three following days gangrene threatened; the foot was purple and oedematous, but there was still some slow circulation. From the 9th to the 14th there was gradual improvement; the foot was pink again, though oedema persisted. The patient was evacuated on November 26th with the circulation apparently re-established in foot and leg.

January 1st, 1917. Letter from patient's brother: "Leg doing well, but patient very ill from septic poisoning."

January 20th. Amputation for sepsis in calf. Details supplied by officer commanding No. 3 A.G.H., Brighton. "Foot becoming white and bloodless."

CASE II.

Cpl. B. Admitted December 4th, 1916, 11 a.m., with wound of left popliteal vessels.

On admission there was a wound over the lower end of the posterior aspect of the thigh. Calf swollen; foot cold and pulseless.

Operation (2 p.m.).—Wound entering popliteal space; opened by dorsal incision. Both vessels torn; suture impossible owing to laceration; tied above and below. Wound drained and closed.

Result.—Uneventful convalescence. Condition of foot never gave rise to anxiety. No oedema. Sent down after three weeks; no pulse to be felt at ankle.

Three months later: "Foot in perfect condition."

CASE III.

Pte. L. Admitted December 13th, 1915, 1 p.m., with wound of superficial femoral vessels.

On admission there was a perforating wound 1½ in. in diameter entering the back of the left thigh and coming out in front through the middle of Hunter's canal. A tourniquet had been applied, and the patient was almost dead.

Operation (2 p.m.).—Anterior wound opened up; both ends of superficial femoral artery and vein tied. Oozing from posterior wound—? profunda vessels.

Result.—Condition gradually improved after twelve hours' severe collapse. The wound became septic, but eventually cleared up. The foot was in a critical state for two days, then circulation improved. Patient sent away after three weeks with small gangrenous areas on tips of toes—like Raynaud's disease.

Letter from England six weeks later: "Foot the same."

CASE IV.

Pte. E. Admitted January 3rd, 1917, 8 a.m., with wound of superficial femoral vessels.

On admission there was a small perforating wound of the upper part of the left thigh, missing the femur. The wound of entry was on the outer side of the thigh; that of exit on the inner side over the femoral vessels. The thigh was greatly swollen; foot cold, and no tibial pulse could be felt.

Operation (January 4th, 11 a.m.).—Hunter's canal opened; clot removed; both superficial vessels tied. Too severely torn to suture. A handful of dark clot removed from interior of thigh. Outer wound slit up.

Result.—On January 15th there was no oedema of the foot—circulation returned in a few hours. No tibial pulse felt. Condition of foot never doubtful.

Letter one month later: "Foot quite healthy."

CASE V.

Pte. H. Admitted January 3rd, 1917, 8 a.m., with wound of the left femoral vein and thrombosis of artery.

On admission the foot was cold; no pulse at ankle. The entry wound was in the upper third, outer side, of the thigh, and the exit wound in the adductor region. A foreign body was found embedded in the opposite adductors.

Operation (January 4th, 12 noon).—The inner wound was widely opened up; dead stinking muscle was freely excised, including nearly all the adductor longus, parts of the pectineus and vastus medialis. The two ends of the superficial femoral vein were found torn across transversely, and sealed by clot, too far away to be united—tied off. The artery was found uninjured but thrombosed—a firm lump two inches above the apex of Scarpa's triangle, and no pulse in Hunter's canal. An incision, one third of an inch, was made into the artery and a small white granular clot squeezed out; from below, three inches of soft red clot was pressed out, like lanoline from a tube. The vessel was closed in the ordinary way, and the pulse returned to the vessel in Hunter's canal, although it was not felt in the foot.

Result.—Fourteenth day: Wounds very septic, but now cleaning up and granulating well. The condition of the foot had never giving rise to any anxiety. No pulse to be felt at ankle; slight oedema below malleoli. Twenty-first day: Slight secondary haemorrhage. Wound opened up; artery found thrombosed again. Circulation in foot good; slight oedema.

CASE VI.

Pte. G. Admitted February 13th, 1917, with compound fracture of right tibia; injury to peroneal and posterior tibial vessels.

On admission there was a penetrating wound of the leg; calf swollen and tense; no pulse in foot.

Operation (12 hours after injury).—Wound in calf freely opened up: peroneal artery on back of fibula torn—ligated together with vein. Haemorrhage persisting, the posterior tibial artery was exposed through attachment of soleus to tibia—found torn; artery and venae comites ligatured. A third incision was made in the calf to relieve tension. Carrel's tubes inserted; Thomas's knee splint applied.

Result.—Some oedema of foot, but perfect circulation. Patient doing well when last heard of.

CASE VII.

Pte. M. Admitted November 8th, 1916, with wound of right femoral vein and artery (partial).

On admission there was a perforating wound of the thigh over the line of the artery. Foot cold; faint dorsalis pedis pulse.

Operation (18 hours later).—Lateral tear in vein one inch long, sutured. Partial tear in artery—intima bulging like a small aneurysm—repaired by stitches, and fascial flap from roof of Hunter's canal sewn round.

Result.—Uneventful convalescence.

CONCLUSION.

Only a small series of cases has been brought forward, but the results are interesting. The experience of those who have ligatured the main artery alone will probably show that amputation has often to be resorted to, especially in popliteal cases.

REFERENCES.

[1] C. G. Spencer, *Gunshot Wounds.* [2] Jacobson's *Operative Surgery*, 1915, vol. i. [3] A. J. Hull, *Surgery in War*, 1915. [4] Penhallow, *Military Surgery*, 1916. [5] BRITISH MEDICAL JOURNAL, February 17th, 1917. [6] Delorme, *War Surgery*, 1915.

FURTHER REPORT ON THE EFFECTS OF HIGH EXPLOSIVES ON THE EAR.

BY

J. GORDON WILSON, M.A., M.B., C.M.EDIN.,

PROFESSOR OF OTOLOGY, NORTH-WESTERN UNIVERSITY, CHICAGO; CAPTAIN, C.A.M.C.

I HAVE had under observation at the West Cliff Canadian Eye and Ear Hospital, during a period of four months, over one hundred cases of injury to the internal ear and its central connexion from high explosives. The chief symptoms are deafness and disturbance of equilibrium (dizziness, etc.). As these cases were first seen after an interval of several weeks or months, in order to observe the more recent effects of such explosives on the ear I was sent to France for six weeks. During this time I was stationed first at a Canadian casualty clearing station (Colonel Blanchard) and then at a Canadian stationary hospital (Colonel Davis). In addition to examining cases of injury to the ear at these stations I was permitted by the courtesy of the officers commanding to examine cases at adjacent casualty clearing stations and at a stationary hospital. The few cases of shell concussion deafness seen may be accounted for by the quietness then existing at these fronts.

The following applies to recent injuries (the cases seen at West Cliff will be dealt with in a subsequent paper). The majority were observed from twenty hours to a week after injury.

I saw over 200 cases exhibiting nerve symptoms ascribed to high explosives. Of these, 50 complained of deafness of varying degree. Of these 50, 17 showed demonstrable signs of injury to the internal ear traceable to the explosive. Of the others, the deafness in many had been temporary and no objective signs of disturbance of equilibrium could now be seen. The persisting defect of hearing was due in some to old middle-ear inflammation, in others to blockage of the external canal from wax or some other cause.

Of the 17 cases—7 had symptoms of nerve deafness without perforation of the membrana tympani, 10 had deafness with signs of recent perforation; 6 had definite middle-ear trouble previous to the concussion; of the other 11, with no previous history of ear trouble, 6 had recent perforation; 12 complained of vertigo and had observable signs due to it, the others had no complaints or symptoms of equilibrium disturbances.

UNIV. OF ILL. URBANA-CHAMPAIGN

My conclusions are:

1. Exposure to high explosives may produce rupture of the membrana tympani. This rupture may occur at any part of the membrane. It varies in size, and two perforations are occasionally seen. Small perforations are most frequent, but there may be a large perforation, and in one of these the malleus was driven back.

2. The rupture in the membrana tympani tends in most cases to spontaneous closure. Its non-closure is usually due to its large size, or middle-ear suppuration following the rupture. Appropriate treatment hastens healing and diminishes the risk of suppuration. Adhesion of the malleus to the internal wall of the middle ear is frequent.

3. Concussion of the internal ear with nerve deafness and equilibrium disturbances occurs with or without rupture. In many cases the concussion passes off with slight damages to hearing, though equilibrium disturbances may persist for a considerable period.

4. The concussion may pass off, leaving an injured nerve mechanism demonstrable by (*a*) nerve deafness of a varying degree; (*b*) defect of equilibrium. The subsequent history of these will be referred to in the report of the cases observed at the West Cliff Hospital.

5. The treatment of recent perforated membrane which gives most satisfactory results aims at leaving the blood clot over the perforation intact. The following has been found satisfactory: A plug of cotton is placed in the meatus, and the lobe of the ear is cleaned and dried. The plug is removed, and then the outer part of the external meatus is cleaned by pledgets of cotton dipped in hydrogen peroxide. The meatus is then dried, and washed with pledgets dipped in alcohol and again dried. A piece of sterile cotton is then placed in the ear.

6. All the cases ought to be kept in bed for at least ten days to allow effects of the concussion to subside.

7. High explosives may cause a definite injury to the ear and its central connexions. The diagnosis requires considerable experience. A considerable proportion of the cases seen with deafness following exposure to high explosives had no sure definite trauma demonstrable, and the deafness present was accounted for by some other cause. Speedy recognition of those so injured by high explosives, with treatment, means more rapid recovery of hearing, diminution of the subjective symptoms of vertigo, so apt to persist, and subsequent usefulness. In view of these facts, an otologist of experience ought to be available at appropriate centres.

8. Apart from such injuries there were frequently seen cases of deafness or ear disease in which removal to the base was unnecessary—for example, wax in the ear, furunculosis in the canal, or slight serous discharge from old perforations; and cases where delay in treatment involved in transportation to the bases has aggravated the disease and delayed the recovery—for example, acute middle-ear disease. In such cases an otologist ought to be available.

A NOTE ON THE PREVENTION OF PEDICULOSIS.

BY

CAPTAIN J. A. GUNN, M.A., M.D., D.Sc., R.A.M.C.T.,

OXFORD.

THAT, under certain conditions of warfare, the difficulty of keeping the soldier free from pediculosis is a matter of great difficulty, is now too well known to require comment; and the prevention of pediculosis is of importance not only on account of the distress which the condition directly causes, but also by reason of the part it may play in the dissemination of disease.

A method of prophylaxis which I adopted nearly two years ago has perhaps some elements of novelty. Early in 1915 I learnt from officers and men who had taken part in the previous winter campaign that simple cleanliness, however scrupulous, was, under certain conditions, inadequate to prevent infection by pediculi. It appeared clear that some antiparasitic prophylactic was necessary.

The possibility which seemed at first practical and most likely of success was to obtain some solution of a parasiticide substance in a volatile solvent which could be sprayed on those parts of underclothing chiefly haunted by the parasite. While I was investigating a spray for this purpose, Mrs. Arthur Thomson brought me some undervests, which were being made by a work party in Oxford for distribution to soldiers, with the query whether they could be dipped, previous to distribution, in some antiparasitic solution. Those undervests were made of a material called butter-muslin, which is very thin and light and so cheap that I believe the intention was that the garments could be thrown away after being worn once. With such a tenuous material it appeared likely that dipping of the whole garment might be adopted without the use of such a quantity of solution as to render the cost prohibitive for wide use. There are, of course, other drawbacks to dipping the usual types of underwear in solutions of any kind.

From a consideration of such literature as was immediately available to me, the parasiticides which appeared most promising were naphthalene and sulphur, and, after some experiments, I finally adopted a solution of naphthalene and sulphur, 1 per cent. of each, in benzol. This solution, at first intended as a spray, was now used to dip the undervests; though it could still be used as a spray. When the undervests are dipped in this solution and wrung, the benzol, of course, evaporates in a few minutes and leaves the garments impregnated with sulphur and naphthalene in minute particles. I found that undervests so treated did not cause any irritation when worn next the skin, and that they retained the naphthalene and sulphur sufficiently long for practical purposes. By this method those substances not merely are deposited on the surface of the garment, but actually penetrate the fibre.

The cost of such an undervest in the spring of 1915 was about fourpence; and the cost of dipping, when batches of about fifty were done at a time, was about one farthing a garment. Owing to the increase in prices the cost both of the garment and of the dipping has about doubled when the various materials are privately purchased.

Benzol, which was first used, later became unobtainable, and the second grade of petrol was used instead. The latter does not seem to be quite such a good solvent, especially for sulphur; but in either case it is well to allow at least twenty-four hours for solution, the substances being used in fine powder. The solution can be made with sufficient accuracy by using an ounce and a half each of naphthalene and sulphur to one gallon of benzol or petrol. Solution may not be quite complete. The quicker the manipulation the larger the number of garments that can be dipped in a given quantity of solution; and various devices towards such economy will suggest themselves.

Undervests of this material are very comfortable to wear. Owing to their thinness they do not, in cold climates, constitute an undesirable addition to ordinary underwear; and in tropical climates I believe they have been worn alone. Impregnation with sulphur and naphthalene does not give rise to such an objectionable aroma as one might imagine. It would be an obvious advantage, for more complete protection, to have pants made and treated in the same way, and I understand that this is now frequently done.

Since June, 1915, undervests of this material and dipped in this way have been sent out in large numbers to officers and men at the seats of war. Those who received them were requested to return a report as to their value in preventing infection by pediculi. I should have published this note at an earlier date but for the fact that my knowledge was based largely upon hearsay. There was the obvious source of fallacy that men who received the garments as a gift would not perhaps care to send back adverse reports. I am indebted to Mrs. Gerrans not only for taking the actual dipping in hand, but also for her trouble in corresponding with the men who have received the vests. She has now distributed some thousands of these garments. The testimony of officers and men has been so unanimous in favour of the high or complete protection which these vests have afforded against *Pediculus corporis* that I feel that further hesitation in making the method more widely known may be unjustifiable. In any case this note may relieve me of further correspondence on the subject.

I have no personal knowledge of other methods which may be in use for the same object, but from recent evidence I am inclined to think that such as are in use are not entirely successful. Some weeks ago two officers admitted to my wards suffering from trench fever complained of having been infested with pediculi, and incidentally remarked that the only officer who seemed to

escape infection was one who was wearing one of the vests above described.

The experiments and observations of Kinloch and others have also shown that naphthalene possesses a high value in killing and warding off pediculi; its use for this purpose is, of course, not new. The value of sulphur, which one thought was established, has, however, been disputed. Nevertheless I have retained it, for two reasons. In the first place I hoped it might prevent the generalized spread of scabies, another parasitic disease which has been prevalent at home and abroad; and there is some evidence in favour of this view. In the second place, I am not yet convinced that sulphur is quite innocuous to the pediculus. This conclusion cannot, for instance, be drawn from the fact that the louse can remain alive on sulphur ointment. It is only when sulphur is changed into sulphides that it becomes active; and, at ordinary temperatures, the concentration of vapour of sulphide over sulphur ointment must be small. When, however, sulphur in the state of fine division in which it is precipitated from benzol is left in contact with the skin and therefore at body temperature, the vapour of sulphide, partly prevented from escape by surrounding garments, may reach a concentration sufficiently high to be injurious to the pediculus.

Dipping the garment in a solution of sulphur and naphthalene in benzol has advantages over merely sprinkling the garment with the same substances in powder (1) because the distribution of the powder is uniform and universal, (2) because, being impregnated in the fibre of the garment, it is longer retained, and (3) because the treatment is not left to the soldier himself, who receives the garment already treated. I may add an extract from a letter recently received from an officer in France who has taken much trouble to report on the efficacy of these antiparasitic vests.

> The shirts are doing good work and there is quite a demand for them. The billets we occupy at present are not very clean and consequently scabies is quite common. For scabies the shirts are excellent. For lice they do the work, but in some cases take time before they actually kill the lice. For some days the latter lie dormant on the shirts before they die. One man showed me a shirt with over 200 dead on it. This is encouraging as to their efficacy.

From this letter and others it may be gathered that a man who receives a prophylactic vest tends to keep it in reserve until he is actually infected. With a restricted distribution of the garments this is unavoidable. Indeed it may be suggested, to prevent disappointment, that there is probably no practical method possible which will ensure that a man, sufficiently exposed to infection, will never be bitten by a louse. Also it is obvious that such a prophylactic as here suggested has a time limit, and unless a man has a continuous supply for use he will be reinfected. If, however, all the individuals of a group of soldiers living in close association were systematically provided with such a prophylactic, it might go far towards solving the problem of pediculosis and scabies among them. The problem involves not merely infection of the individual but his infecting, and being infected by, his comrades. A complete solution is possible only when prophylaxis applies to them all. Moreover, the infection of bedding, etc., is a further problem which can only be partly attacked by depriving the parasites of possible hosts.

The evidence upon which this note is based is not the result of direct observation, and suffers from all the defects that such want involves. On the other hand, I have no reason to suppose that reports received steadily since June, 1915, can all be misleading, and I think the method is worthy of a more extended trial. I should suggest, therefore, that it would be a valuable experiment to provide all the members of an associated group of soldiers with antiparasitic vests and to observe the result in regard to the prevention of pediculosis and scabies. It has not been found possible to perform such an experiment by private effort directed at home.

It is possible that some such device might find its uses in civil practice. It is at once a method of prevention and treatment. For example, my friend Captain Girdlestone has applied the vests in patients underneath plaster jackets. In the cases in which he has so far used these vests there have been no cases of pediculosis, and no skin irritation has been produced.

PRELIMINARY NOTE ON A NEW TREATMENT OF BRONCHIAL ASTHMA.

BY

A. G. AULD, M.D.,

LONDON.

THIS communication refers to a particular treatment which I have recently been applying to certain selected cases of bronchial asthma. The patients have been free from all disease, other than the bronchial affection, and although more or less emphysema and bronchial catarrh have been present, they have not been of a high degree, or such as to create dyspnoea in the intervals of freedom (more or less) from the attacks.

I may be permitted, first of all, to make reference to the view as to the nature of bronchial asthma which I submitted in the course of a lecture on this subject in 1908.[1] It was to the effect that the asthmatic attack is a reaction on the part of the lungs to a toxic substance "either of distinctly pathological origin, or else a product of normal metabolism which gradually accumulates in the blood." In the following year Auer and Lewis,[2] of the Rockefeller Institute, showed that the lung of the guinea-pig in anaphylaxis presented conditions identical with those of bronchial asthma. They found the pulmonary distension to be due to imprisonment of the air in the alveoli from an intense bronchiolar constriction which was exclusively of peripheral origin. The symptoms could be relieved or averted by atropine. The anaphylactic nature of bronchial asthma has since then been expounded by Meltzer and many others, though the particular protein substance responsible is unknown. The various authorities also regard hay fever as an anaphylactic condition. Anaphylaxis does not attack the bronchial muscle in all animals, but it does so in man.

There are one or two points concerning anaphylaxis which require to be stated. It is generally believed that the reaction is one of extreme delicacy and very specific. So it is, but under certain conditions this specificity disappears, as has been clearly proved by the work of Dale,[3] who showed that if a guinea-pig be sensitized to several antigens simultaneously, and an anaphylactic reaction be subsequently induced by a fairly large dose of one of the antigens, the animal thereby may be made refractory to the other antigens. Again, he found that if an animal be immunized to an antigen by giving a certain number of doses subcutaneously at short intervals, the animal as a whole being thus rendered immune, yet the excised uterus, or other susceptible organ, remains sensitive, not only to the antigen, but also to other substances akin to the antigen—for instance, to sheep's serum, where horse's serum was employed for immunizing. As the organ becomes desensitized to a second dose of sheep's serum the genuine nature of the anaphylaxis is proved. In like manner Kraus, Doerr, and others showed that animals sensitized to their own lens protein were susceptible to lens protein in general. The fact that an animal may be itself insensitive while its excised organ remains sensitive is explained by the neutralization of the antigen in the blood by antibodies before it has had time to attach itself to the fixed cells of the organ. Certain of the above facts recall the Abderhalden reaction.

Just as animals may be sensitized with their own lens protein, so autosensitization may take place in the case of bronchial asthma. Another possible instance of autosensitization, according to Rosenau and Anderson, is eclampsia, due to placental protein.

In applying the foregoing considerations to the condition of bronchial asthma, it was necessary to select a substance for the purpose of immunizing, which, if it did not contain the actual anaphylactic protein poison, nevertheless might contain one nearly akin to it. This condition appeared to be fulfilled in the case of peptone. Certain experiments of Biedl and Kraus were of great interest in this connexion.[4] They obtained bronchial spasm in guinea-pigs after the administration of Witte peptone, and they claim to have produced an anti-anaphylaxis in serum-sensitized dogs by means of the same agent. They hold the Witte peptone to be identical with the anaphylactic poison.

The method I have been employing is immunization by the subcutaneous injection of a water solution of peptone,

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Not being able to obtain Witte peptone, that of Armour was used. Other kinds may be as efficacious, but it is necessary to remember that the various brands of peptone on the market may differ considerably in composition and thus affect the results. To begin with, ⅓ gram of peptone dissolved in about 5 c.cm. distilled water at blood heat is injected at an interval of three or four days during the first week. The next week two injections, each of ⅔ gram, are similarly given, and in the third week two injections of 1 gram in 7 to 10 c.cm. water. In certain cases this may be sufficient; severer cases may require 1 gram weekly or bi-weekly for three weeks more. No apparent constitutional reaction follows, and, properly carried out, there should be little or no local reaction.

In the limited number of cases tried the results have surpassed expectation. In several cases of moderate asthma the symptoms have become perfectly quiescent, while others have greatly benefited. In one case three months have elapsed without any recurrence. Sometimes the effect is very rapid, the patient experiencing relief after one injection. Where attacks of great severity occurred every two or three months, a few weeks' treatment beforehand has caused the attack to abort. I hope to submit further details in a future communication.

REFERENCES.
[1] BRITISH MEDICAL JOURNAL, 1908, vol. ii. [2] *Journ. Amer. Med. Assoc.*, vol. liii, 1909, p. 453. [3] *Journ. Pharm. and Exp. Therap.*, vol. iv, 1912, p. 167. [4] *Wien. klin. Woch.*, No. 11.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE CAUSE OF DEATH IN ACUTE PNEUMONIA.

WHAT is the cause of death in acute pneumonia? This is a question I have often asked, and the usual reply is—"toxaemia" (that is, the effects of toxaemia).

I have often wondered why all symptoms suddenly disappear, respirations, pulse, and temperature become normal, whilst for a time the physical signs continue more or less the same. On asking why the symptoms disappear the reply is that the "toxaemia" is overcome.

The fact that the consolidation is still present after all symptoms have disappeared, and the sudden appearance of symptoms before the physical signs, seems to show clearly that the rapidity of respiration, etc., is not due to the local condition. The increased action of the heart in the early stage must be due, like the respiratory change, to stimulation of the nerve centres controlling these organs.

The question, How are these centres "stimulated"? suggests itself, and the answer again is, through "toxaemia"; then to narrow the subject further one asks, through what channel? The answer does not appear so easy, for the channel of the "toxaemia," general or local, must be discovered, since upon that answer, it seems to me, treatment greatly depends.

Are all these symptoms which suddenly disappear, leaving the local physical signs still present, due to a sudden neutralizing of the pneumococcus toxins (this seems improbable), or are they due to something else, and if so, what? Is it cessation of absorption due to sudden decrease of intraspinal pressure?

In the old books on the treatment of pneumonia bleeding was often advocated, to be frequently repeated, with the result that the patient often died. May not the underlying motive for the bleeding, however, have been to reduce pressure with the object of preventing exudation? And though the means of attaining the object aimed at appear to have been ineffective, the amelioration of symptoms which followed for a time was probably due to a temporary diminution of absorption of toxins, possibly through diminished intraspinal pressure.

Physicians of the last generation were certainly, as observers of clinical symptoms, equal to the present ones, allowing for the absence of to-day's scientific knowledge; and though they were often wrong, there was generally a substratum of truth to their procedures, and bleeding in acute pneumonia may be an illustration of a practical truth.

If the symptoms are due to a poisoning of the nerve centre, it may be assumed, reasoning by analogy as in the case of spinal meningitis, that the toxin is absorbed from the spinal canal, probably under pressure, as in that disease. If it is absorbed from the spinal canal under pressure, then decrease of pressure would lead to decrease of absorption and gradual or more or less sudden disappearance of the symptoms.

If decrease of pressure leads to such a desirable result, why not adopt the method of tapping the theca as in the treatment of spinal meningitis, and by so doing follow a rational method of treatment? It could do no harm. No surgeon would rely upon using autogenous vaccine made from the organisms of a septic abscess without draining the abscess and so preventing fresh supplies reaching the economy. Clearly the indication is to prevent absorption as far as possible, and nature will do the rest.

If the poison is, as I am inclined to think, absorbed by the nerve centres under pressure, thus producing the symptoms, then draining these centres through the spinal canal seems to me rational treatment; more especially because it is known that intraspinal pressure is frequently, if not always, increased in acute pneumonia, and because meningitis is, I believe, found in a very large percentage of fatal cases.

H. V. DREW, F.R.C.S.,
Captain R.A.M.C.
Tidworth Military Hospital.

ATROPINE IN EYE WORK.

THE case reported below illustrates one of the many bad tricks atropine is apt to play in eye work. No one will condemn this very valuable drug on account of its tricks, but we must bear them in mind when using it. Perhaps more mischief arises from its use in unsuspected high tension than from anything else. Again, all are familiar with its habit of causing irritation of the conjunctiva with oedema (usually in unhealthy eyes, as witness its association with sympathetic ophthalmia). Further, not long ago I ordered the ointment of atropine sulphate (*B.P.*) for insertion into the conjunctival sac of a child aged about 6 years, preparatory to estimation of the error of refraction. Within two hours of the first application and early in the day, the child fell into a deep, almost comatose, sleep, lasting nearly twenty-four hours. Again, there are cases of prolonged paralysis of accommodation after atropine, and at least one instance of lasting paralysis has been brought to my notice. In cataract extractions the mere use of one drop of liquor atropinae sulphatis will sometimes evoke an attack of temporary maniacal insanity.

The special case I wish to record, however, is that of an alarming change in cardiac and respiratory action which came over the patient twelve hours after such a drop had been used after extraction.

The patient was aged 71 years, and very nervous. About twelve hours after the operation, having felt sick and faint for some time, she complained of difficulty in swallowing, and became dyspnoeic. She was very pallid and cold. The front of the neck was swollen and puffy, especially on the side of the eye operated on. The other pupil was wide and reacted feebly. The pulse was 90, scarcely perceptible, and a little irregular. The breathing was of the Cheyne-Stokes type with short rest intervals. The patient was collapsed and gave every appearance of dying. Speech was feeble and indistinct, and swallowing almost impossible. Strychnine was administered hypodermically, gr. $\frac{1}{30}$, together with the usual remedies for collapse. Fortunately within an hour the breathing improved with the pulse, and the patient gradually recovered. Morphine, whether rightly or wrongly, was not given on account of the respiratory condition.

HORATIO MATTHEWS, M.D.,
Honorary Ophthalmic Surgeon to the Eastbourne Eye Infirmary.

AFTER-HISTORY OF THREE CASES OF INTESTINAL OBSTRUCTION.

CASE I was a woman of 40, who refused operation till late, with gangrenous intussusception and polypus. Resection performed and lateral anastomosis with third size Murphy's button, owing to contracted state of distal gut. This woman died five years later at an asylum, of meningitis. A *post-mortem* examination was unfortunately refused. During the five years she had no signs or symptoms of stricture.

Case II was a woman of 38, who also refused operation till late, with gangrenous femoral hernia. Resection was performed and end-to-end union with third size of Murphy's button; no larger size could be used. Up to the present date this case shows no sign of stricture.

Case III was a woman of 76, with strangulated femoral hernia. At operation a knuckle of gut was found, black, shiny, and filled out; it was freed and returned just short of the abdomen; it perforated on the fifth day, the fistula remaining open for three weeks and causing much excoriation and discomfort. The woman has had no trouble since and is now 81 years old.

Authorities have established that stitching should be done whenever possible, and in skilled hands it is reasonably rapid. In Cases I and II resection was done rapidly, and was thought to be the only chance of recovery. The Murphy's button gave no trouble, immediate or remote.

R. V. DE ACTON REDWOOD, M.R.C.S.
Rhymney Cottage Hospital.

Reviews.

THE STUDY OF SOCIAL PHENOMENA.

DR. JAMIESON B. HURRY has followed up the line of thought he opened in his well-known work on *Vicious Circles in Disease* by a book on *Vicious Circles in Sociology*.[1] His hope is to be of assistance to reformers "by emphasizing the importance of analysing social problems into their constituent factors, and thus facilitating the discovery of the *locus minoris resistentiae*." At this point above all remedial measures can be applied with prospects of breaking up the morbid sequence, so that "the hound which had turned to hunt its own tail will once more follow the scent." Thus the vicious circle of poverty, impaired health, low wages, may in some cases be straightened out by a timely holiday; that of crime, loss of situation, indigence, by provision of suitable employment, and so forth. The visualization of the morbid process as well as of the suggested method of cure is facilitated by explanatory diagrams, and the little book seems more worthy of study than many much longer and more pretentious volumes.

A book which may be mentioned along with this, though it was published some time ago, is Professor BOWLEY'S work on the *Nature and Purpose of the Measurement of Social Phenomena*,[2] founded on a course of lectures given in the Faculty of Economics at London University in 1914. Its appeal to the general public is likely to be limited, but it deserves the careful attention of social workers and investigators. In the whole sphere of science there is probably no subject so rife with ambiguities of definition and other pitfalls for the unwary as modern statistical sociology. Regarding society as an organic whole, the statistician endeavours to give a quantitative description of all its parts, in the first place as a contribution to pure science, and secondly, with a view to the modification of unsatisfactory conditions in conformity with some social ideal. "On the one side, measurement should result in accurate and comprehensible description that makes possible the visualization of complex phenomena; on the other, it is necessary to the practical reformer that he may know the magnitude of the problem before him." The scope of the book can best be briefly indicated by the following list of main headings: The nation or society; relation of persons to areas; classification, industrial, by degree of dependence, by social position; classification by order, by incomes, individual family, nature of family income; production and consumption; the standard of living, conventional, minimum, the poverty line. Having analysed the available methods of classifying the individuals and families of a society as previously defined, the author shows how families typical of classes or occupying a numerically defined position in the economic scale are to be identified. In his last chapter he deals with economic progress, of which he considers there is no better test than that which shows what proportion of a nation are in poverty.

[1] *Vicious Circles in Sociology and Their Treatment.* By J. B. Hurry, M.A., M.D.Cantab. London: J. and A. Churchill. 1915. (Demy 8vo, pp. 34; 2 plates. 2s. net.)

[2] *The Nature and Purpose of the Measurement of Social Phenomena.* By A. L. Bowley, Sc.D. London: P. S. King and Sons. 1915. (Cr. 8vo, pp. 249. 3s. 6d. net.)

PHYSIOLOGY.

MEDICAL students engaged in the study of physiology are particularly well supplied with textbooks at the present time. No better or more interesting introduction to the whole subject than the *Principles of General Physiology* by Professor Bayliss can be imagined—a book combining depth of knowledge with wideness of vision in an unusual degree. In the same way Professor Starling's *Principles of Human Physiology* offers its readers a thoroughly clear and sound account of the subject written by one who has a first-hand knowledge of many branches of the science. Both these are books that will take the medical student as far as he may hope to go in the acquisition of his knowledge of physiology, and further than most examiners are likely to wish to take him.

We have before us a third excellent volume, the second edition of the *Essentials of Physiology*,[3] by Professor BAINBRIDGE and Dr. MENZIES, that sets out in a much smaller compass the main facts required by candidates for examinations in the subject. The book contains fifteen chapters, and by strict attention to business the authors have succeeded in covering the whole ground in a satisfactory manner. The text is clearly written, and its comprehension is aided by a large number of well chosen pictures and diagrams. It would perhaps be better if the magnifications at which some of the reproductions of microscopic pictures have been made were inserted, and in the descriptions of Figs. 10 and 11 the word "electromagnets" should read "poles of the electro-magnet"; on page 30, line 2, the word "magnet" should read "pole." The book is well got up and printed, and may be recommended to medical students as a sound and trustworthy short textbook of physiology.

NOTES ON BOOKS.

A MOST sumptuous book on surgical bandaging is that published by Dr. WHITING of Philadelphia.[4] It is the outcome of a class held by the author in the University of Philadelphia, and has the consequent advantage of being thoroughly practical. It is intended for beginners, and accordingly the author has attempted to follow the course of each bandage in detail, so that the student, when studying the turns in the absence of a teacher, may not make false ones which must be corrected later. The book is full of excellent reproductions of photographs taken from life. The author had the edges of his bandages blackened so that the lines of the turns show up perfectly in the half-tone reproductions. The success of the method is undoubted, and far more effective than the usual diagrams. On one point the reader must be wary: the author states that the art of bandaging has deteriorated from the too prevalent use of the gauze roller, and strongly recommends that muslin be used by all beginners. Muslin in England is a very flimsy tissue, and it is evident from the illustrations that some stout material is intended; we understand that what the Americans designate as "unbleached muslin" is known in this country as "unbleached calico."

A Textbook of Histology,[5] by Mr. H. E. JORDAN, of the University of Virginia, and Dr. J. S. FERGUSON, of Cornell University, is a sound and conservative exposition of the subject that contains all the medical student needs to know about it. Some of the illustrations are excellent; others, however, including most of the photomicrographs, leave much to be desired, a fault for which neither the paper nor the printer can be blamed.

How to take Care of Your Teeth[6] is a short and well written little book specially addressed to soldiers and

[3] *Essentials of Physiology.* By F. A. Bainbridge, M.A., M.D.Cantab., D.Sc.Lond., F.R.C.P., and J. Ackworth Menzies, M.A.Dunelm., M.D. Edin. Second edition. London: Longmans, Green and Co. 1916. (Demy 8vo, pp. 486; 173 figures. 12s. 6d. net.)

[4] *Bandaging.* By A. D. Whiting, M.D. Philadelphia and London: W. B. Saunders Co. 1916. (Post 8vo, pp. 151. 6s. net.)

[5] *A Textbook of Histology.* By Harvey Ernest Jordan, A.M., Ph.D., and Jeremiah S. Ferguson, M.Sc., M.D. London and New York: D. Appleton and Co. 1916. (Demy 8vo, pp. 837; 594 illustrations in text and 4 plates. 15s. net.)

[6] *How to take Care of Your Teeth.* With a chapter on the Care of the Feet. Specially written for soldiers and sailors by H. E. Sykes-Brown; foreword by J. Sim Wallace, D Sc., M.D., L.D.S. Soldiers' Handbook Series. London: Forster Groom and Co., Ltd. (Cr. 16mo, pp. 73. 1s. net.)

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

sailors, who will find simple and practical directions for the care of gums and teeth threatened with infection or already suffering from it. For long there has been a crying need for books such as this. Mr. SYKES-BROWN is to be congratulated on the success with which he has attempted to satisfy this need.

MEDICAL AND SURGICAL APPLIANCES.

Table for Armless Soldiers.

WE are indebted to the Munitions Inventions Department (Ministry of Munitions) for the following description and drawings of a table invented by Mr. C. A. Sheehan for the use of soldiers who have lost both arms. In cases where the stumps are too short for the fitting of a satisfactory artificial arm of the usual type, such a table will enable a man to occupy himself during the absence of his attendant, and as he gains the necessary dexterity it should be possible for him to feed himself, perform various operations, and write. Fig. 1 is a front view of the table, and Fig. 2 a sectional view showing the arrangement of the turntable with its ball bearings and central leg, and of the sliding platform with its actuating lever. Fig. 3 is a plan view of the complete table. Figs. 4, 5, and 6 show

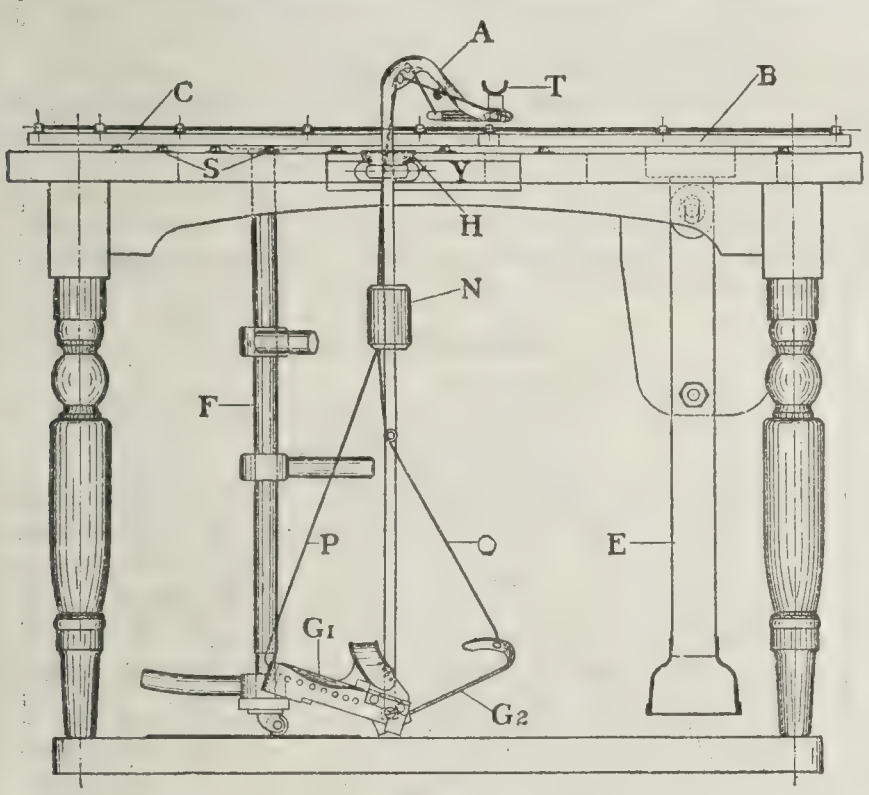


FIG. 1.

details. The appliance is operated chiefly by the use of the legs and feet, with the occasional assistance of the head. The operator sits in front of the table with the mechanical

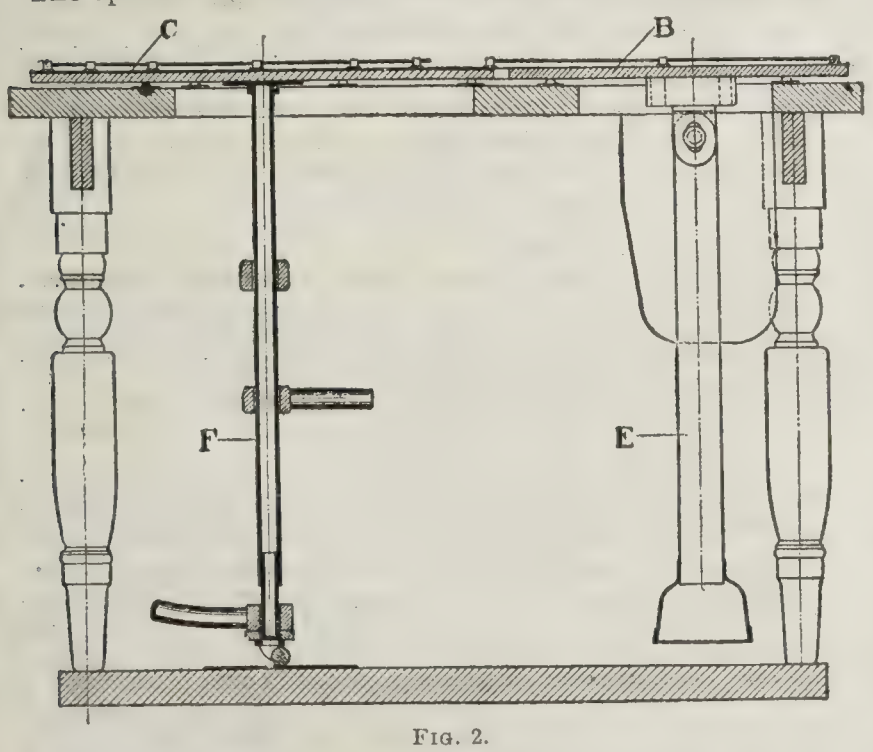


FIG. 2.

arm A before him, and is thus able to move the sliding platform B by means of the lever E, and the turntable C by means of the leg F, so as to bring objects on them within reach of the tongs, D, of the arm. The turntable C rests on ball bearings, S, and can thus rotate and also move slightly in a linear direction in the plane of the table. The tongs

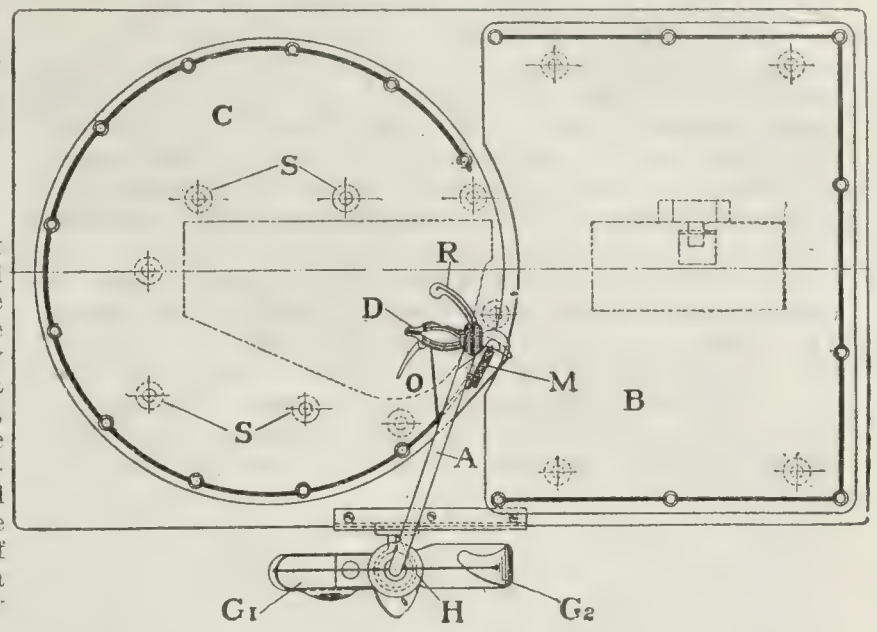


FIG. 3.

are controlled and the arm moved by the ball of the operator's foot, which is placed in one of the shoes G_1 or G_2; pressure on the shoe G_2 opens the tongs (which are normally held closed by a spring M and a weight N) by means of a flexible wire, O, passing over guide pulleys. On releasing the pressure on the shoe G_2 the sliding weight N falls and closes the tong jaws with sufficient grip for most purposes without any force being exerted by the operator. If, however, a specially strong grip is required, it is obtained by pressure on the shoe G, which forcibly closes the jaws by means of a flexible wire connexion, P, fixed to the weight N. The arm, which is a rigid, inverted L-shaped member, is universally suspended by a ball and socket joint H, so that by appropriate motions of the foot the arm can be twisted or raised in practically any direction. An article gripped in the jaws can thus be raised even to the top of the head of the operator. The ball and socket joint H, together with the arm A, can be moved slightly relatively to the table along a slide. Vessels

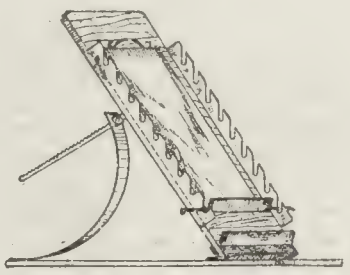


FIG. 4.

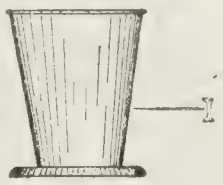


FIG. 5.

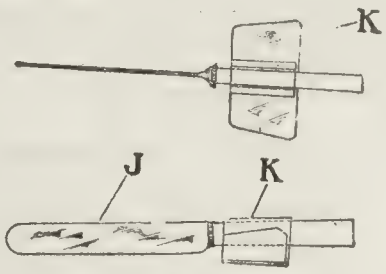


FIG 6.

and cutlery for use with the table require to be specially shaped or adapted in order that they may be firmly gripped by the tongs; for example, the cup (Fig. 5) is a conical vessel, and is gripped close to the bottom flange, and the knife J (Fig. 6) is held by the rubber-faced attachment K. A sheet metal attachment, R, is provided on the arm A for turning over the pages of a book, and for dealing with sheets of paper, and a shaped attachment, T, for a cigarette, etc., is provided. Fig. 4 shows a writing easel. The writing-pad is laid on the front face after having been folded round a wire frame, projections of which rest in the notches of the plates, so that the frame can be pushed up notch by notch as each line of writing is completed; the easel is hinged at the bottom and supported by a saw-toothed bar resting on a curved spring. Under the pressure of the pencil, which is held in the tongs, the easel yields slightly, and this movement facilitates the formation of the upstrokes necessary in writing.

PROPOSED MINISTRY OF HEALTH.

Society of Medical Officers of Health.

The Need of an Elected Board of Health.

At a meeting of the North-Western Branch of the Society of Medical Officers of Health on April 2nd, at which the proposals with regard to a Ministry of Public Health were discussed, a letter was read from Professor Sheridan Delépine, director of the public health laboratory, University of Manchester, who had been invited to speak, but was unable to be present. In the course of this letter he recalled that though not personally concerned with the administrative duties of medical officers of health, he had during the last twenty-five years, owing to his official position, had many opportunities of observing the loss of time, money, and power for good, resulting from the present unco-ordinated and sometimes antagonistic state of the various departments interested directly or indirectly in public health. The letter continued as follows:

> These sources of weakness, serious as they were when the medical advisers of the Local Government Board and Home Office had to contend with only a few Departments, such as the Board of Agriculture, have become intensified by the interference of the Board of Education and the Departments responsible for the administration of the National Insurance Act.
>
> It appears to me that this unsatisfactory state of things is in great part the result of political influences which should not have the power to affect a new Department, the function of which would be to promote the Health of the Community.
>
> The Society of Medical Officers of Health should exert all its influence to modify a state of things which makes it possible for irresponsible advice to outweigh the views of those best acquainted with the various aspects of administrative and scientific problems bearing upon Public Health.
>
> I would therefore suggest that the institution of a Ministry of Public Health should not be considered independently of the formation of a representative Board of Health.
>
> By representative Board of Health I mean a Board to which, in addition to *ex officio* representatives of the Local Government Board, Home Office, Board of Education, etc., members would be elected by bodies such as the Society of Medical Officers of Health, British Medical Association, the General Medical Council, the Universities, the Society of Civil Engineers, the Institute of Chemistry, etc., in numbers proportional to the importance of their work in connexion with Public Health. (Such a Board would in all probability appoint an executive committee at suitable intervals.)
>
> The Minister, who would, as in the past, be appointed by the Government, partly on political grounds and partly on account of some general acquaintance with the work of his Department, would have the benefit of advice of the experts forming the Board of Health, both in connexion with the appointment of permanent expert members of the staff of his department, and also when new problems required a more wide and varied experience than any single expert could command.
>
> For the reasons which I have just stated briefly I would, had I been present, have moved:
>
> 1. That the creation of a Ministry of Public Health is desirable.
> 2. That the creation of a representative Board of Health is essential.
> 3. That a Committee of the Society of Medical Officers of Health be appointed to consider the means by which these objects can be attained, and an adequate representation of Medical Officers of Health be secured.

The meeting adopted a series of resolutions for submission to the council of the society, one of them advising the formation of a special committee to consider the whole question and watch developments. At a meeting of the council of the society on April 20th the recommendation was approved and a special committee appointed.

London Insurance Committee.

At the meeting of the London Insurance Committee on April 26th Mr. H. Kingsley Wood, L.C.C., moved:

> That the Insurance Committee of the County of London would welcome the formation of a Ministry of Health, and are of opinion that such Ministry should be entirely dissociated from the Local Government Board, but should, with the National Health Insurance organizations as an integral part, unify the existing Health Departments of the country; and that for this object the Committee do respectfully urge upon His Majesty's Government to set up a Representative Committee to investigate and advise upon the best methods that should be adopted, and that a copy of this resolution be forwarded to the Prime Minister.

He expressed the hope that the projected Ministry would not be a Ministry in the ordinary sense, liable to the usual political vicissitudes, and that in the selection of its head the precedent followed in the choice of the present Minister of Education would be followed. He did not wish to see all the power concentrated in the permanent under-secretary; some council or committee should be set up and invested with more than advisory powers. The Ministry should be dissociated from the Local Government Board because the Board had already in hand too vast a number of undertakings; because its long record of failure in public health matters disentitled it to assume that it should be the principal heath authority; and because its association with the Poor Law would prejudice it from the beginning. Mr. Coysh, who seconded, thought that the mover had laid too much stress upon the prejudice likely to be created by the association of the Local Government Board with the Poor Law. Dr. H. H. Mills, Chairman of the Medical Service Subcommittee, contested the allegation that the Local Government Board had been a failure in matters of public health, and described the Ministry of Health as being at present only a newspaper project. Sir Edward Smith said that while every one would welcome the reform of public health administration he himself felt sceptical as to any practical result from the proposals now made. He considered the motion inopportune, unnecessary, and unwise, and proposed an amendment referring the whole matter to a subcommittee. Dr. Lauriston Shaw agreed, but asked the subcommittee not to bring up a recommendation so absolutely impossible as that embodied in the motion—namely, that the work of the Ministry of Health should be dissociated from that of the Local Government Board. It was all very well also to talk of unification, but specialization had to be considered. Mr. Kingsley Wood accepted Sir Edward Smith's amendment, which was agreed to.

AUXILIARY ROYAL ARMY MEDICAL CORPS FUND.

The following donations for the Officers' Benevolent Branch have been received during the quarter ending March 31st:

Sum of £180.—Officers' Mess, Ripon Training Centre.
Sum of £100.—Dr. J. Douglas (New York), per Sir William Osler, Bt.
Sum of £69.—Per Lieutenant-Colonel Sir William Osler, Bt.
Sum of £50.—Birr Training Centre Officers' Mess.
Sum of £48 6s.—Officers' 3rd Northern General Hospital.
Sums of £25.—Mr. G. R. Footner, F.R.C.S., Lieutenant-Colonel H. Littlewood.
Sums of £21.—Lieutenant-Colonel Sir William Cheyne, Bt., Captain J. H. Walker.
Sums of £10 10s.—Officers R.A.M.C., Lichfield; Captain F. Balkwell.
Sums of £10.—Major R. Lawford Knaggs, Captain Sir John Broadbent, Bt.
Sum of £6 6s.—Sir Rickman Godlee, Bt.
Sums of £5 5s.—Colonel Astley V. Clark, Lieutenant-Colonel R. Pemberton, I.M.S., Major A. Martin Leake, V.C., Captains A. E. Barclay, R. Ellis, Dr. F. H. Wood (per Lieutenant-Colonel Collier), and P. D. H. S.
Sums of £5.—Colonel C. A. Ballance, C.B., M.V.O., Major H. Pickering, Dr. R. Clement Duke, Dr. J. Stewart (Leeds).
Sum of £4 4s.—Captain J. Fawcett.
Sum of £2 12s. 6d.—Rev. A. H. Johnson (per Lieutenant-Colonel Collier).
Sums of £2 2s.—Major W. S. Telling (Leeds), Captains W. Longley, H. Williamson.
Sums of £1 1s.—Captains W. A. Alexander, R. O. Brownson, J. J. Crawford, J. Hill, J. Hendry, C. Irving, J. Kirton, L. A. Lewis, P. E. Lones, J. B. Minch, G. A. D. McArthur, H. F. Mullan, P. W. Moone, J. Polter, Lieutenants E. Baldwin, J. P. Crawford, M. M. Cummins, R. B. Eadie, T. P. Hutchinson, F. W. O'Regan.
Sums of £1.—Captains B. Carter, Pigot, Waddington, Lieutenant A. C. Mackay, Mr. H. M. Dowler, Rev. A. E. B. Leachy.

The post of Director of the Institute for Experimental Therapy and of the Georg-Speyer House in Frankfurt-a.-Main, left vacant more than a year and a half ago by the death of Professor Ehrlich, has been given to Professor Kolle. He was one of Koch's pupils, and was his assistant when he investigated the causes of rinderpest in British South-West Africa in 1896. Kolle was then only 28. In conjunction with Pfeiffer, he investigated the problems of typhoid immunization, and the typhoid vaccine experiments carried out at the time of the Herero rising were continued during the present war. He has also made observations on cholera, plague, and dysentery.

DIGITIZED BY THE UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

ALKALOIDS IN COLLOIDAL FORM.

CONSIDERABLE progress has been made during recent years in the production of substances in colloid form for use in medicine.* Colloidal preparations of the metals, of which those of silver and mercury are the best known, were followed by the manufacture of colloidal preparations of iodine and sulphur, and the principle has now been extended, we are informed, to alkaloids by the Crookes Laboratories, in which most of the work on the subject in this country has been done. The belief in the therapeutic value of these preparations depends upon the theory that as the body fluids and tissues are in the colloid state it is necessary that the drug, before exerting its full therapeutic action, should be converted into the same condition. On this assumption it is argued that the prior preparation of drugs in the colloid state will avoid delay and waste in the conversion of a molecular solution into a colloidal solution by the action of the body fluids. Experiments, we are informed, are in progress in the Crookes Laboratories with preparations of the alkaloids of quinine, morphine, and cocaine in colloid form. Cocaine and quinine can now be supplied.

Laboratory experiments on the toxicity and on the anaesthetic properties of colloidal cocaine have been carried out at King's College, London, by Professor W. J. Simpson, C.M.G., and Professor R. Tanner Hewlett, and at Guy's Hospital by Dr. John Eyre, director of the bacteriological laboratory there. The following reports have been placed at our disposal by the Crookes Laboratories:

Report by Professors Simpson and Hewlett.

The following experiments were performed:

TESTS OF TOXICITY.

1 per cent. of Collosol Cocaine.	*1 per cent. Cocaine Hydrochloride.*
I. *Rabbit No. 4.*—Weight 3,270 grams; 0.26 c.cm. injected intravenously. No effect. (March 13th.)	I. *Rabbit No. 3.*—Weight 2,070 grams; 0.20 c.cm. injected intravenously. No effect. (March 13th.)
II. *Rabbit No. 4.*—0.75 c.cm. injected intravenously. No effect. (March 13th.)	II. *Rabbit No. 3.*—0.5 c.cm. injected intravenously. No effect. (March 13th.)
III. *Rabbit No. 4.*—5.0 c.cm. injected intravenously. No effect. (March 15th.)	III. *Rabbit No. 3.*—3.0 c.cm. injected intravenously. Immediately after injection the animal collapsed and became insensible; five minutes later convulsive twitchings, eyes insensitive. Ten minutes recovering, but weak on hind legs and eyes now sensitive. Fifteen minutes practically recovered. (March 15th.)
IV. *Rabbit No. 3.*—3 c.cm. injected intravenously. No effect. (March 16th.)	IV. *Rabbit No. 4.*—5 c.cm. injected intravenously. Collapsed immediately after injection, with slight twitching, and died almost at once. (March 16th.)
V. *Rabbit No. 6.*—Weight 2,770 grams. 5 c.cm. injected intravenously. No effect.	V. *Rabbit No. 3.*—3 c.cm. injected intravenously. Immediately collapsed and died. (March 19th.)
VI. *Rabbit No. 6.*—10 c.cm. injected intravenously. No effect. (March 19th.)	VI. *Rabbit No. 5.*—Weight 2,750 grams. 3.5 c.cm. injected intravenously. Immediately after injection was convulsed and died almost at once. (March 19th.)

From these tests of toxicity we find that about 3 c.cm. of a 1 per cent. solution of ordinary cocaine hydrochloride (equivalent to about ½ grain) is a fatal dose for a rabbit of 2,000 to 3,000 grams weight, injected intravenously.

As regards the collosol cocaine, 10 c.cm. of the 1 per cent. preparation (equivalent to about 1.6 grains) produced no toxic effect whatever.

W. J. SIMPSON,
R. T. HEWLETT.

King's College, London,
March 23rd, 1917.

Dr. Eyre's Report on Collosol Cocaine 1 per cent.

The following experiments were performed:

A. *Toxic Properties.*

A full-grown rabbit, weighing 2,000 grams, received on March 1st 2 c.cm. of collosol cocaine 1 per cent., intravenously, the injection being made at the rate of 1 c.cm. per minute. No immediate or remote effects were observed.

On March 12th the same rabbit received 15 c.cm. of the same solution intravenously within ten minutes. No immediate or remote effects were observed. Five hours later 3 c.cm. of the 1 per cent. solution of cocaine hydrochloride were injected at the rate of 1 c.cm. per minute. Just before the injection of the third cubic centimetre had been completed, the animal was seized with convulsions and died within a minute.

Identical results were obtained on two subsequent occasions. In my opinion, therefore, collosol cocaine can be regarded for all practical purposes as non-toxic.

B. *Anaesthetic Properties.*

1. Two drops of collosol cocaine dropped into the left eye of a rabbit produced mydriasis and complete anaesthesia in three minutes.

2. Two drops collosol cocaine instilled into the left eye of the human subject produced complete anaesthesia, and enabled me to remove a foreign body embedded in the cornea without pain. (I can personally vouch for the completeness of the anaesthesia, as the foreign body was embedded in my own cornea, and I removed it myself in front of the looking glass.)

3. 0.8 c.cm. collosol cocaine injected into the male urethra (a very nervous and sensitive patient) produced complete anaesthesia in five minutes, and permitting the passage of a 7.5 mm. urethroscope.

The above three representative examples indicate the nature of evidence which, in my opinion, establishes the claim of the Crookes's collosol cocaine, that it can be regarded as an efficient local anaesthetic.

JNO. EYRE.

Bacteriological Department, King's College,
April 21st, 1917.

Colloid preparations of cocaine and quinine, under the names collosol cocaine and collosol quinine, are now on sale by the Crookes Laboratories, 50, Elgin Crescent, London, W., for administration by the mouth or by injection, at prices mentioned in our advertisement columns. Collosol quinine is stated to be compatible with either an alkaline or an acid solution.

The notification by the Army Council that it intends to take possession of all stocks of certain salts of quinine may give additional importance to the use of the alkaloid in colloidal form. Crookes Laboratories state that 1 oz. of the alkaloid quinine will yield 100 oz. of the colloidal solution of quinine, and that the therapeutic effect of the colloidal alkaloid substance is three times as great as that of the alkaloid in molecular solution. If we understand the matter correctly, the claim is that 1 oz. of molecular quinine alkaloid will yield the equivalent of 3 oz. of colloidal quinine, and that this colloidal quinine has three times the therapeutic efficacy. If so, conversion of the stocks of quinine into the colloidal variety would be a great economy. If we have calculated correctly, the dose of colloidal quinine by the mouth would, at the prices given, cost from 1d. to 3d. and by intramuscular or intravenous injection about 1½d.

CURATIVE WORKSHOPS.

EVERY day that the war continues adds to the number of cripples and maimed for whom the country must do the best that is possible. The future of these men is one of the gravest of the after-war problems. At the present moment there are ten military orthopaedic centres in the United Kingdom, each of which has, or soon will have, as an essential part of its equipment, a curative workshop. These workshops provide the maimed or partly paralysed soldier with regular occupation of an interesting kind whereby his energies are bent upon useful work and dormant functions of nerve and muscle are coaxed into activity. The beneficial effects of these curative industries are threefold—gymnastic, psychic, and economic. Thus the work supplies the particular curative exercises suitable to each case; the patient's interest is kept up by seeing something grow under his hand; and, lastly, a trade is learnt wherewith the man can afterwards support himself wholly or in part. The human aspect of the work is the key to its success. This is

* The theory of colloidal solutions, which dates back to 1861, when Thomas Graham published his first papers, will be found in the BRITISH MEDICAL JOURNAL of February 3rd, 1912 p. 252.

amply shown by the report of the work of the military orthopaedic centres during the first three months of this year, which has been furnished to the Joint War Committee of the British Red Cross Society and Order of St. John of Jerusalem, by King Manuel. This report begins with an account in some detail of the military orthopaedic hospital at Shepherd's Bush, in the organization and working of which the author has taken great interest. Great activity has prevailed in all departments of this institution. In the curative workshops at the present time eighty men are at work. In appendices to the report the various forms of occupation are analysed, and the cash value of the patients' labours is set out in tables.

King Manuel next records his impressions of visits paid to the other orthopaedic centres in Great Britain and Ireland, each of which has had the benefit of his help and advice in the establishment of curative industries. Describing the progress up to date of Alder Hey Hospital, Liverpool, he pauses to pay a deserved compliment to the wonderful surgical work carried out there: "We must remember," says His Majesty, "that Liverpool is the 'nursing mother' of orthopaedic surgery in this country, and that hospital is perhaps more than any other under the direct supervision of Colonel Robert Jones."

In describing the Welsh Metropolitan War Hospital at Whitchurch, near Cardiff, he notes with satisfaction the proposal coming from Lieutenant-Colonel Lynn Thomas that one half of this hospital should be devoted to orthopaedics, pointing out that small orthopaedic departments dotted throughout the general hospitals are wrong in principle. As a result of the personal appeal of King Manuel at Cardiff a sum of £5,000 has been raised, mainly at the docks, which will be devoted to building curative workshops and a gymnasium. At the 2nd Northern General Hospital, Becketts Park, Leeds, a similar appeal, made with the co-operation of Sir Berkeley Moynihan, has produced the same sum, and it is probable that the appeal to be addressed to the people of Bristol on May 5th will secure the necessary funds for building workshops at the Beaufort War Hospital at Fishponds. The report notes that one of the branches of the curative industries —namely, basket making—has already been very successful at this institution. "The results obtained for stiff hands and fingers or paralysed fingers are simply extraordinary." It is evident that at each of these centres a strong tide of enthusiasm is running.

The two orthopaedic centres in Ireland are as yet in their beginnings, but the work of organization has started at the Military Orthopaedic Hospital, Blackrock, Dublin, and at the Ulster Volunteer Force Hospital, Belfast.

In Scotland the administrative work is in the hands of the Scottish branch of the British Red Cross Society, but a profitable conference at which various questions were settled has been held between King Manuel, Colonel Robert Jones, and Major Harold Stiles (who is Deputy Director of Military Orthopaedics in Scotland), with Sir George Beatson, chairman of the executive committee of the Scottish Branch of the British Red Cross.

At the Bangour War Hospital, Edinburgh, the curative workshops are reported to be small and crowded at present, and new ones are necessary. The electrical department at this institution, under Mr. Rankine, is stated to be exceptionally good. The Bellahouston Hospital, Glasgow, receives very warm praise, but the workshops are not yet in use. When they are finished the centre will be complete. The orthopaedic department at Oldmill Hospital, Aberdeen, is not so advanced as the other two Scottish centres.

The financial section of the report shows that the Joint Finance Committee of the British Red Cross Society and Order of St. John has so far granted £20,000 for orthopaedic purposes. In Cardiff, Leeds, and Liverpool, King Manuel has raised nearly £15,000 by public appeals. In each of these three centres the money obtained locally has been applied to the construction of buildings; the cost of the equipment will be met from the grants provided by the Joint Finance Committee. So far the largest sums of money have been spent upon the Shepherd's Bush Hospital, which has been organized and equipped with the idea that it should be a model for the other centres.

The report closes with certain general propositions. The author points out that there is already a committee (formed by the Red Cross Committee, Pensions Ministry, and War Office) appointed to deal with each of four classes of men discharged from the army, namely, paraplegics, those with advanced tuberculosis, neurasthenics, and epileptics. He suggests that it is desirable that orthopaedic cases should be placed under similar control. "We have to remember that orthopaedics will have a very great importance in the future, because with treatment and training the great majority" of the men "will or might become very useful citizens to their country"—unlike those in the other four classes. Lastly, he underlines the great importance of the curative workshops in each centre, and the valuable results which have already begun to flow from them. After expressing gratitude for the assistance of Sir Berkeley Moynihan, Colonel Lynn Thomas, Professor Paterson, Major H. Stiles, and Major Hey Groves, the report concludes: "I have no words to express my deep admiration for Colonel Robert Jones and for his work, which would be still more wonderful than it is if he had had a more free hand."

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee, held on Tuesday, April 17th, twenty cases were considered, and £163 granted to sixteen of the applicants. The following is a summary of some of the cases relieved:

L.R.C.P. and S.Edin., aged 81, married, who became totally deaf a few years ago, and consequently lost his practice. His wife is an invalid, aged 80. Has three daughters, two married; the youngest, aged 46, looks after her parents. Total income from all sources £89, and pays £28 in rent. High cost of living and illness have made it necessary to apply for help. Voted £26 in twelve instalments.

Daughter, aged 79, of M.D.Glasg. who died in 1867. For many years, and until recently, lived with an old friend, a dressmaker, and they shared their slender resources. The friend now dead. Only income 7s. 6d. a week from a distant relative, but this may cease any time. She has applied for the old age pension. Health very bad. Voted £5, and the case to be reconsidered shortly.

Widow, aged 48, of M.B.Aberd. who died in July, 1916. Applicant left without means, with three children, aged 10 to 13. Friends have helped to furnish a house, so that she may take in lodgers, but so far has not been very successful. Her husband, who practised in Persia, left carpets and curios there valued at £380, but these cannot be moved at present. There are, however, debts to the extent of £260. Voted £10.

Widow, aged 65, of M.R.C.S.Eng. who died in 1914. Was left with slender means, and has a delicate daughter. Has £30 from another charity, and about £20 from investments. She has recently had a stroke. Relieved three times, £36. Voted £15 in twelve instalments.

Daughter, aged 55, of M.R.C.S.Eng. who practised at Newport, Mon., and died in 1892. Applicant left unprovided for. She is blind in the left eye and the other is weak. Has recently had an internal operation. Only income a pension of £21 from another charity and help from the Guild. Relieved six times, £72. Voted £15 in twelve instalments.

Daughter, aged 64, of M.R.C.S.Eng. who died in 1853. Owing to ill health was obliged to live on her capital, now exhausted. Has an annuity of £25 from another charity and endeavours to make a little by keeping poultry, and a friend lends her a small house. Relieved four times, £36. Voted £6 in twelve instalments.

Widow, aged 47, of M.B.Edin. who practised at Ballindalloch and died in 1910. Applicant was left unprovided for with four young children. The eldest, aged 18, has now joined the army, and the others are still at school. Tries to make a living by taking lodgers, but not enough to live on. Relieved five times, £50. Voted £10 in two instalments.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

MESSRS. HARRY W. COX AND CO., LTD., of 159, Great Portland Street, London, W., have issued a leaflet on means for the protection of radiographers from the injurious effects of *x* rays. A copy will be sent, post free, on request.

DIGITIZED BY U. OF I. URBANA-CHAMPAIGN

British Medical Journal.

SATURDAY, MAY 5TH, 1917.

MEAT VERSUS CEREALS.

THE French Minister of Agriculture has issued an ppeal to French farmers to raise more cattle. In ie course of it he points out that statistics collected 1 December last showed that the number of animals, oth fully grown and young, had seriously diminished. hough the institution of meatless days would do omething to liberate larger supplies for the army ie agriculturists ought to look to the future. uring the summer young cattle could be raised on reen food; and in reply to the argument that it ould be very costly to keep the animals during the inter it was urged, first, that there would be a great emand for meat in the autumn and early winter; id, secondly, that there would be a large demand so for restocking the regions devastated by the ermans and recently reconquered for France. The uestion, therefore, before France is rather special ving to the existence of these regions.

The French policy is not directly applicable to our-lves. Grain has a far greater energy value when nverted into flour and eaten by man than when ten by cattle and converted into meat to be eaten man. Everything, therefore, should be done roughout the world to promote the growing of grain ther than of meat, and the raising of cattle should limited to grazing lands in various parts of the rld where grain cannot be grown. When the eal shortage is over, at the end of the war or fore, the head of cattle could be quickly increased ain. For the moment we are suffering from a rtage of wheat, although there is plenty in Canada iting to be shipped; but by diverting the grain w fed to poultry, dogs, cattle, and horses not em-yed on work of vital importance, we seem able to mmand at present a sufficiency of maize, barley, s, rye, and rice, and by diluting the wheat can is keep up a supply of bread adequate to the rkers' needs. No cereal is so good a food as oats; ley and maize also are splendid foods.

How long we can expect to maintain stocks of se alternative cereals is not clear. Apart from the marine menace and the question of transport there ns to be approaching a danger of world shortage world semi-famine. We cannot go on indefinitely ng the energies of mankind from food production turning it over to the production of war material, ay nothing of the millions of men engaged for years ghting, or of the loss of life or the loss of working er owing to disablement. Women may make l in agriculture up to a limit, but it is a risky ness to deplete such grain-growing parts of empire as Canada and Australia of its grain-ving manhood while the grain supplies of Russia, nania, and other countries cannot reach us. It ld be a serious thing for America also to lessen gricultural manhood on now entering into the Unfortunately agriculturists make the most vart soldiers, but a wise mode of conscription ld avoid this danger. The remedy of the Presi-of the Board of Agriculture can hardly have h effect in increasing the harvest this year in this try; he wants to increase the amount of arable from nineteen million acres to twenty-seven million acres, and seems to imply that this would go a long way towards enabling us to grow at home 82 per cent. of all the food required. Mr. Lloyd George goes beyond the Board's figures of 300,000 acres and claims that a million extra acres have been tilled and these will yield two million tons of food! If this be cereal food it is a most important addition, for the total amount of cereals used in the years 1909–1913 was a little under five million tons. He said that the Government plan was to bring three million extra acres into cultivation in 1918, which would make us self-supporting. In the face of the shortage of labour Mr. Lloyd George seems an optimist. The farmer is to be persuaded to break up grass into arable land by the fixation of standard prices for a term of years. This is not the same thing as fixing maximum prices for cereals in a restricted market. The result of that plan in Germany was that it paid the farmer better to grind his cereals in his own grist mill and feed them to pigs and cattle. In this country there is evidence that the same danger has arisen. The price of meat must therefore be controlled, so that it pays the farmer better to sell his corn than to feed it to animals. This is a matter requiring immediate attention. The population will have to pay more for its food. It is most necessary that the land should be fully cultivated and as large a population as possible drawn back to healthy and happy agrarian life. The land policy of the governing classes in the past century has resulted in the slum city; 62 per cent. of the populations of Glasgow and Dundee live in two or three roomed tenements, with all the attended ills —loss of happiness in life, the terrible high infant mortality, the scourge of tuberculosis, etc.—ills which can only be remedied by a policy of reconstruction after the war, including not only the encouragement of agriculture but the establishment of factories in healthy spots surrounded by garden cities. This policy we have not yet seen brought into prominence by politician or publicist, yet it demands execution in as courageous a manner and with as unlimited scope as the management of the war. The war against disease is no less urgent and demands no less a national effort, and victory in it means not the waste of human endeavour but gain a thousandfold. Mr. Lloyd George, after receiving the freedom of the city, spoke eloquently at the Mansion House on party politics, which he seemed to think essential to the working of democracy. It is, he said, "a curious game whereby one set of men set themselves with all their strength, might, energy, thought, and ingenuity to thwart, embarrass, criticize, and overthrow another set of men who are trying to govern the country. But during a war such as this we must suspend all conflicts and concentrate upon the one great purpose. A war is like an illness. You cannot attend to the ordinary business and gains of life; you have to concentrate all on meeting the dread enemy that is eating your vitals. You have to concentrate all your strength, all your might, all your blood, all your brains, all your thought upon it."

It is strange that he seemed to have forgotten his own efforts to ameliorate disease or failed fully to remember that other war, the one which evil conditions wage against human life and happiness in peace time. How can one set of men set themselves out to thwart, and so on, another set of men who are trying to govern the country in the face of such facts as that infant mortality is 170 a 1,000 in certain large towns, and the victims of tuberculosis number 70,000 a year? Is there not national illness, "a dread enemy," eating at our vitals in peace time? Its very familiarity breeds such indifference that the pre-war

days of party government receive no censure from the Prime Minister. Is the outlook of pioneers in national hygiene and that of the politician still to remain poles asunder, or is the national life to receive a new birth by a complete reconstruction of the housing conditions of the people?

SMALL V.A.D. AND PRIVATE HOSPITALS.

THE Secretary of State for War has issued an appeal to nurses to meet the situation caused by the torpedoing of hospital ships by the enemy and the necessity for increasing the hospitals abroad. He recognizes that "as in the case of doctors, it is necessary to safeguard the welfare of the civil population at home, and that nurses should only be secured with the co-operation and good will of the authorities of every civil hospital, poor law infirmary, and institution supplying nurses." He therefore appeals to these authorities to review at once their present staffs, and to set free for military service every available certificated nurse willing to serve. He also appeals to every nurse who has retired to offer her services to her training school or to one of the local hospitals or institutions so as to release a nurse capable of undertaking the more strenuous duties of military service. He appeals also to those trained nurses who have left the military service to enrol themselves again. Every nurse who is in possession of a three-years' certificate for general training, and is free to offer her services, is asked to apply at once to the Matron in Chief, War Office, Adastral House, Embankment, London, E.C.4. Lord Derby concludes his urgent appeal by paying a tribute to the splendid work of nurses for the sick and wounded, and to the courage and devotion to duty displayed under fire in the field, and in mined and torpedoed hospital ships during this war. We do not doubt the generous response which will follow this appeal, but the supply of fully trained nurses is limited.

Lord Derby in his appeal refers to the need for safeguarding the welfare of the civil population, and this, as in the case of doctors, includes as an imperative necessity the special provision required by the Ministry of Munitions to be made in Government and controlled establishments for the making of munitions of war, and provision for maintaining the health of those engaged in the building of ships, and the general supply of the armies. It does not specifically include the needs of the military hospitals, large and small, in the United Kingdom. The needs of the military hospitals abroad are insistent, and it does not seem safe to assume that the military hospitals at home will feel any appreciable relief from the establishment of new units across the sea. The nursing members of the V.A.D. have already proved beyond a doubt their value to the base hospitals in France. Their zeal and devotion are beyond praise—that is well known to all who have seen them at work, and the same is true of the myriad ladies who pour out their time and energy in the service of the auxiliary hospitals at home. But in acknowledging the admirable way in which the amateur has supplemented the professional in military nursing, the question arises whether the time has not come for a review, in the interests of economy in both medical and nursing personnel, of the system of small scattered hospitals which has grown up. The War Office has recently invited County Associations to make new V.A.D. hospitals containing not less than forty beds for men or twenty for officers, but there can be little doubt that the multiplicity of small V.A.D. and private hospitals tends to cause overlapping, waste of effort, and uneconomical use of personnel both nursing and medical. All must respect the local sentiment which seeks to find expression in local work for the wounded; but we are living now in grim, practical times, and efficiency and economy on the largest scale are needed in every department of life—more, perhaps, in the medical and nursing services than in any other. If this urgent need here and there overrides local sentiment, and deals rather roughly with individual susceptibilities, that price must be paid. If some of the smaller home hospitals were closed and others expanded and reorganized to take over their work, this would certainly set free a considerable number of trained nurses as well as V.A.D. nurses who have gained experience, to say nothing of other economies in personnel and equipment which would follow. The convalescent soldier recovering from sickness or wound no doubt appreciates the sheltered life in a little country hospital where he is waited upon by sympathetic ladies, and military discipline is not very strict; but for every soldier whose recovery is hastened in this way there must be many whose return to duty is delayed. The result of a readjustment of the present arrangement with regard to the smaller hospitals throughout the country might therefore, there is good reason to think, lead not only to an economy in medical and nursing personnel, but also be of direct benefit to the men themselves.

A FILTERABLE PHASE OF CERTAIN PATHOGENIC BACTERIA.

WE publish in this issue an important paper by Dr. Hort, which was communicated last week to the Royal Society, a paper in which his previous hypothesis is converted into a demonstration, and it is shown that certain pathogenic bacteria can under certain conditions give origin to viable and vegetative forms so minute as to come within the category of filterable viruses.

This in itself is a notable advance. Whether he is justified in entitling his communication "the life history of bacteria" is another matter. It may well be asked if, because, by growth in strongly acid media budding and branching forms make their appearance in addition to others presenting the usual binary fission, this affords proof that budding and branching are normal processes which are bound to appear sooner or later in the life-cycle of these members of the typhoid-coli group. What Hort has proved is, as above noted, that there are conditions under which outside the body it is possible to induce a process of gemmation. That the acidity of the medium by softening the cell membrane is an important factor in the production of the buds is probable, but that the process is one of true gemmation and not merely a form of plasmolytic extrusion is evidenced by the continued growth and subsequent fission of the buds, as observed in drop cultures under the microscope. We are doubtful whether some at least of the cruciform and allied forms shown in Mr. Martin Duncan's excellent photographs may not be due to superposition. There is, however, a symmetry and "rectangularity" in the greater number of the forms which makes it difficult to believe that we are not dealing with true branching, and by analogy with what has been abundantly shown to occur in the *B. tuberculosis*, *B. diphtheriae*, and other members of the "higher bacteria"; we are fully prepared to find

LIBRARY U. OF I. URBANA-CHAMPAIGN

this occurs, and to regard the whole family of Schizomycetes (fission fungi) as potential or nerate "Hyphomycetes."

at from the point of view of the pathologist these econdary matters; what is of first importance is demonstration by Dr. Hort that outside the body ogenic bacteria are capable of giving off living so minute as to be filterable. If this can occur de the body, it is eminently likely that under the n of the body fluids and enzymes a like process occur in the tissues, and that along these lines nay be enabled to solve some of the outstanding lems of pathogenic bacteriology.

THE FOOD PROBLEM IN GERMANY.

ESSOR LOEWY has published in the *Deutsche zinische Wochenschrift* (February 8th and 15th, a review bristling with statistics of the food ion in Germany in 1916. He begins by criticizing estimate, published in 1881, that a mixed diet d contain 118 grams of protein,[1] 56 grams of fat, and 500 grams of carbohydrate. Langworthy's figure oderate work, from observations made in America, t may be remembered, 115 grams protein "as pur-d," the energy value of the total food being 3,800 es. Loewy's contention is that though this amount tein has received the stamp of official approval it can duced by one-third, and even to 70 or 50 grams, ut inevitably causing injurious effects. He gives the s of investigations made in April, 1916, on the g of 858 families, comprising 4,079 persons, in July, of 146 families, comprising 644 s. The figures for April gave 68.29 grams otein, and the total diet yielded 2,320 calories d. Loewy considers that "the composition of iet of these families fulfilled all the requirements dern food teachings." The Food Committee of the Society reported, on the basis of statistics supplied e Board of Trade, that the quantity of foodstuffs ble in this country during the five years 1909–1913 87 grams protein, 100 grams fat, and 440 grams ydrate, yielding 3,091 calories. From a rough cal-on made by us shortly after the issue of the ary rationing order of the Food Controller we came conclusion that in ordinary middle-class house-early this year the diet afforded in round rs, protein 98 grams, fat 132 grams, carbohydrate ams; yielding an energy value of 2,910 a head. rlin, in May, 1916, the official weekly ration con-of 250 grams of meat, 90 grams of butter and rine, 2 eggs, and 1,950 grams of bread. Every days 250 grams of sugar and 5 kilos of potatoes dded, and the wives of soldiers, paupers, and persons work were given a monthly dole of ¾ lb. of rice and f beans. The protein value of these rations was 3.3 grams, and the yield of calories 1,312. These , Loewy says, being absolutely inadequate, were nented by provisions purchased in the open market. bles and fruit available, however, were of slight for, with the exception of spinach, their yield of and calories was very low. Honey and marma-ere available, but, though their calorie value was he limit of the amount which could be consumed on reached. Theoretically, the rations could be nented by fish, game, poultry, cheese, maize, oats, rley, but in practice these foods were beyond the of the bulk of the people; either they cost too or they disappeared when maximum prices were or—and this was the case with the non-ration —the supply was inadequate. Finally, abandoning tly the results of his examination of the diets of the two sets of families, Loewy comes to the conclusion that the calorie value of the diet of the average German in the spring and summer of 1916 was too low, being inadequate to meet the requirements of bodily exertion. He maintains that if the calorie value of the rations diet was raised to the required level, no special measures would be required with regard to the supply of protein. His final conclusion is that, owing to the insufficiency of the official rations, only by providing food at moderate prices in the open market could the supply be raised so as just to meet the needs of persons doing light work.

[1] uses the word "*Eiweiss*," albumin, although from the t is evident he is referring to protein.

THE EAR IN MODERN WARFARE.

PROFESSOR GORDON WILSON, whose interesting paper on the effects of high explosives on the ear was published on March 17th, has now contributed a note upon some further observations he was enabled to make as an officer of the Canadian Army Medical Corps at a Canadian casualty clearing station and stationary hospital. In these units he saw cases shortly after the damage was inflicted. He concludes that exposure to high explosives may produce rupture of the tympanic membrane at any part. It is usually small, but may be large, and there may be more than one. The rupture in most cases tends to close spontaneously. With regard to the treatment of recent perforation, he says that the most satisfactory is that which aims at leaving the blood clot over the perforation intact. How he considers this may best be carried out will be seen by reference to his fifth conclusion on page 579, and he adds that all the cases ought to be kept in bed for at least ten days to allow the effects of the concussion to subside. Professor Kretschmann, who has recently published a long paper on the subject in the *Deutsche medizinische Wochenschrift* (January, 1917), also insists upon the avoidance of active treatment. He lays it down that blood clot should not be interfered with, and certainly should not be syringed, and that all that is necessary is to cover the external meatus with gauze and a bandage. In this respect he seems to be a less safe guide than Professor Gordon Wilson, but he agrees that the patient should be kept at rest in bed. Kretschmann attributes a large proportion of the cases of middle-ear suppuration following wounds of the tympanum in the German army to too active treatment. It may possibly be useful to add to Professor Gordon Wilson's conclusions Kretschmann's statement that when the tympanum escaped injury but the deeper structures of the auditory apparatus suffered, withdrawal of some blood in the region of the mastoid process was beneficial, particularly when the injury was some days old. Kretschmann also states that in cases of recent shell deafness he had found subcutaneous injections of pilocarpine beneficial, and thinks that in the absence of cardiac disease and gastro-intestinal catarrh they should be begun early. Apparently he believes that he sometimes got good results from the use of the galvanic current, but if no definite improvement followed six sittings he thinks it useless to continue. In this connexion we may refer to an interesting lecture given at the Royal Institution on April 27th by Dr. J. Dundas Grant on the organs of hearing and the war. It was illustrated by a large number of experiments and exhibits; the latter included at least one of historical interest in the shape of Helmholtz's model of the tympanic membrane and the ossicles. Dr. Grant said that defective hearing was always a drawback in military service, but a lack of acuteness in this respect might be made up to some extent by the exercise of the powers of attention and discrimination. The individual who could hear whispered words with each ear separately at a distance of 15 ft. was eligible for the ranks so far as hearing was concerned. No doubt deafness of one ear interfered with judgement as to the direction of sounds, but this difficulty did not arise to any great extent in the field, though in the French army complete deafness of one ear, even with good hearing on the

other side, removed a man from general to auxiliary service. Dr. Grant mentioned that he had recently seen two patients from the front who had been operated on many years previously for mastoid disease and cerebellar abscess resulting in one sided deafness. They had been in the fighting line for eighteen months and their impediment had not been observed. With regard to aviation, the ear tests for intending pilots were necessarily most exacting. It had been supposed that flying would induce vertigo, but Dr. Lacroix, of the French army, stated that among the numerous pilots he had examined vertigo was found only in two or three, and was traceable to a pre-existing condition. Dr. Grant said that as a result of an aeroplane voyage he himself had undertaken at a considerable height, he could confirm Dr. Lacroix's observation that as soon as the aviator left the ground the fear of vertigo disappeared. The effect of the noises at the front upon the hearing apparatus was not always what some might have expected, and there was good foundation for the statement of the French poilu that the noise of the guns did not annoy him nearly so much as the snoring of his mate. The so-called "whizz-bang," however, was particularly nerve-trying. The velocity of the projectile was greater than that of sound, so that the whizz of its passage was heard before the bang of the gun which sent it. Very severe damage had been done to the labyrinth as a result of air concussion due to a violent explosion, and it was usually by the bursting of a shell near at hand, and not by the continual dinning of the guns, that ear injuries were produced. Sometimes the labyrinth was saved by the giving way of the tympanic membrane; the force of the explosion expended itself in the tympanum instead of being communicated with great violence to the internal ear. The majority of the cases of deafness arising from concussion of the labyrinth recovered unless there was an actual wound. With regard to the prevention of deafness, such things as cotton-wool and wax were employed as ear protectors, but the experience of officers was that although these measures of precaution deadened the sound of bombardment, they made it impossible to hear orders at a short distance. The kind of protector which had proved the most effective in his experience was the Mallock-Armstrong plug, an ingenious contrivance designed by Mr. A. Mallock, F.R.S., and described in our columns in January, 1915. Dr. Grant concluded with an appeal for the absolutely deaf soldier who, he said, while not in so bad a case as his sightless comrade, was fully worthy of public commiseration. The only thing to do was to teach him lip-reading.

A VOICE FROM SPAIN IN PRAISE OF ENGLAND.

IT must be admitted, more perhaps in sorrow than in anger, that we are not loved by the Spaniards. Although the more enlightened classes recognize that the Allies are fighting for the deliverance of the world from a danger which was becoming ever more urgent as German ambitions waxed more aggressive their sympathy is bred in the head rather than in the heart. The unfriendly feeling of the majority of the Spanish people has been fostered by a carefully organized German propaganda which by appeals to ignorance and prejudice has enlisted clerical, military, social and commercial influences as aids in the furtherance of its aims. *Quidquid Germania mendax audet in historia* and the whole art of what Arbuthnot called "political lying" are brought to bear against us. But the propaganda would not be so successful if the soil had not been prepared long ago for the sowing of new seeds of distrust and enmity. We therefore welcome the appearance of a champion of our country in the person of Dr. José Armangué, a well known physician of Barcelona, whom we have the honour to count among our subscribers. In an article which appears in *La Publicidad* of March 27th he shows by a simple recital of facts how erroneous and ab is the charge, sedulously spread by our enemies, we have stood aloof from the active work of war allowed other nations to fight for us. It needed no courage on the part of a doctor to come forward a advocate of an unpopular cause among the people to patronage he has to look for a living. How strong i feeling against which Dr. Armangué raises his voice be gathered from the opening sentence of his ar "The hereditary hatred of the English is very widesp in my country; hence I fear I shall offend the major my readers if I tell them I am an Anglophile." He on to say that he is a lover of England because it wa English who by the Revolution of 1688 set free the m of men from the shackles that had bound them, thereby made the whole world their debtors. Armangué then shows in detail the immensity of our and achievement in the present war. By its Navy, holds the German fleet locked up in harbours and Germany to a large extent cut off from the outer w by the vast army created through the adoption of pulsory service, so contrary to all our traditions; b prowess of its soldiers on many battlefields in dif lands, and by the unstinted financial help given t Allies, England has done more than her share i war of "banded nations" against the common f humanity. Dr. Armangué's statement of the c admirable in its accuracy and lucidity, and is all the cogent from the moderation of its tone. We hope i do something to clear away misconceptions whi allowed to persist, must tend to make the future rel between England and Spain difficult if not posi unfriendly.

"CLEAN" MILK.

THE National Clean Milk Society was formed in 191 the object of improving the hygienic quality of milk. methods adopted are, first, the education of the to demand a pure milk supply, and secondly, the in gation of samples of milk. In continuance of its act the society has now published a report of an investi into the hygienic quality of the milk supplied to attending certain schools for mothers, together with suggestions for those responsible for the feedi children. Seven London schools for mothers suppli names of twenty-seven dairymen from whom the ma of women attending these centres, who were una suckle their babies, bought their milk. A sample each of these shops was taken in a sterile bottle an packed in ice to the Lister Institute, where eac examined for the total number of bacteria present, f number of *B. coli* present, and for the presen the tubercle bacillus. The examinations were con between July and November of last year. Of the tw seven samples, every one contained *B. coli*, and th number of bacteria present varied from 93,000 per centimetre to 104,300,000. Two samples showed scopic evidence of the presence of tubercle bacillus; was confirmed by guinea-pig test. An additional of milk sold by a London dairyman as "certified m clean bottles—direct from farm to customer," was fo examination to contain 12,500,000 bacteria per centimetre, 280,000 *B. coli* in dilution, and tubercle confirmed by guinea-pig test. Of these twenty samples of London milk, twenty contained more million bacteria per cubic centimetre, and twelv tained five million or more; the report unkindly poi that the number of bacteria found in the sewage o towns varies between two and six million per cubic metre. An instructive comparison is then made b these figures and the statistics of certain American which have tackled the milk problem during th twenty years. As the result of the steadily inc effort by official and unofficial workers, the dairy in in the United States is on a different plane from t

LIBRARY U. OF I. URBANA-CHAMPAIGN

and. In America milk is usually sold in grades based
s bacterial content. For example, in New York City,
the beginning of 1911, milk has been graded into
ilk for infant feeding, (*b*) milk for adults to drink,
(*c*) milk for cooking purposes only; and the infant
lity figures since that date have shown a marked
ase, some of which must almost certainly be due to
nprovement in the milk supply. During the period
06–10 the deaths of children under one year averaged
per thousand born; in 1911 the average was 111.6,
1915 it was 98.2. The report is timely, and should
late the demand for more vigorous action by the
nment and the local authorities. The address of
National Clean Milk Society is 2, Soho Square,
on, W.

GAS.

rather curious that the word "gas" in two quite
nt senses should have reached the everyday
ulary of disease during the early months of the war.
came gas gangrene, as it were out of the earth; then
drift gas and shell gas from the laboratories of *Kultur*
l the German lines. The result, we understand, has
ome little verbal confusion in medical circles across
hannel. The surgeon speaks familiarly of "gas
" meaning one thing, and the physician looks up
his copy of the BRITISH MEDICAL JOURNAL to find
f out of the conversation. The suggestion has even
nade that the northern and southern pronunciations
word should be used to discriminate between the
eanings. This reminds us of the story told by Sir
Murray in the preface to the *New English Dic-*
. He was once present at a meeting of a learned
where in the course of discussion he heard the
gaseous" systematically pronounced in six different
y as many different distinguished physicists.

IE RETENTION OF THE WHEAT GERM IN FLOUR.

Charles Bathurst, M.P., Parliamentary Secretary
Ministry of Food, presided over a meeting of the
Society of Arts, when Sir Francis Fox read a paper
subject of bread and flour, which contained a strong
r the retention of the wheat germ. It was the
g germ, eliminated by the steel roller process of
milling, which provided in a great measure the
and nourishment of the wheat. It was rich in
and fat, and its presence or absence made a great
ce alike in the palatability and nourishment of the
nade from the flour. Moreover, bread made from
hich contained the germ would remain fresh for
hile bread made from much of the roller-ground
mbled like sawdust within a much shorter time.
ection had been raised that the germ rendered the
cid if kept for long; leading millers not only
this, but said that flour containing the germ
eep longer than flour without it. The new order
h the very white (or 70 per cent.) flour was
d and the percentage brought up compulsorily
l the miller allowed voluntarily to take it up to 86,
a great improvement. It was rumoured that in
ses the germ was still being extracted; this
e prohibited, as it materially diminished the food
the flour. The recent bread was said by many to
more palatable, and this was due in great
to the retention of the germ, for although the
ge was only 1½, the influence of this ingredient
depend upon the weight. Some of Sir Francis
tements were freely contested by millers who
sent, and who appeared to defend white flour, but
contention of the paper was endorsed by Colonel
E. Cassal, who spoke from long experience as a
alyst, and said that valuable nutritive material
as a result of the rejection of the germ. He objected to the inclusion of maize among the articles which were permitted to be added to flour, though the same objection, he said, did not apply to barley or rye. Maize contained a certain amount of oil from which it could not be freed, and which, he believed, led to indigestion. Professor H. R. Kenwood said that he was not aware of any experiments which showed that 80 per cent. flour was less nutritious than 70 per cent., even after making allowance for the fact that there was rather more indigestible material in the former. A good set-off against the addition of this slight indigestible property in the 80 per cent. flour was the fact that it prevented constipation, and constipation was far more general than indigestion.

It is announced that 1,000 medical men to be selected by the American College of Surgeons will shortly be available for service with the allied armies in France. Colonel T. H. Goodwin, C.M.G., D.S.O., A.M.S., who accompanies Mr. Balfour on his mission to the United States, has been in communication with the medical committee of the Council of National Defence with regard to the medical needs of the British army and the recruiting of American surgeons.

Many members of the Association will have heard with personal regret of the serious assault committed recently upon Dr. J. M. Rattray, of Frome, for he was widely known not only in his own district (having been president of the Bath and Bristol Branch), but also because he was a frequent attendant at the annual meetings of the British Medical Association. It appears that Dr. Rattray, on April 21st, had been asked to see a resident in the neighbourhood. Finding him in a state of mental disorder, he advised that certain steps should be taken. The patient became worse during the night, and Dr. Rattray was summoned to him again early on the morning of April 22nd. The condition in which he found the patient led him to direct that a magistrate should be summoned, and the patient becoming aware of this obtained a short heavy sword, and with it struck Dr. Rattray a blow on the shoulder. He then obtained a rifle, with which he shot Dr. Rattray in the left shoulder at twenty paces. Dr. Rattray found refuge in the lodge, but the patient kept every one at bay with his rifle, so that it was impossible to go to the assistance of Dr. Rattray for four hours. He was then attended by Drs. Seddon and Harris of Frome, Dr. Evans of Beckington, and later on by Mr. James Swain of Bristol. It was found that the injury was of a very serious character, the bone being badly splintered. The patient was not secured until the assistance of the military was obtained. He was then removed wounded to hospital. Dr. Seddon was able to report on May 2nd as follows: "Dr. Rattray's progress is maintained; the flesh wound in the arm, which is freely drained, is healing in a very satisfactory manner. Several bony fragments were removed at the lower part of the humerus, but there is every sign that the cavity is doing well."

Medical Notes in Parliament.

The Venereal Diseases Bill.

The Venereal Diseases Bill, as passed through the House of Lords and given second reading in the Commons, came before Grand Committee of the Commons on May 1st. Mr. J. W. Wilson presided. Mr. Hayes Fisher, Parliamentary Secretary to the Local Government Board, was in charge of the measure.

Areas without Venereal Schemes.

The intention is that the provisions—to prevent the treatment of venereal diseases and the supply of remedies by other than qualified persons—shall be applied to areas after free institutions for the treatment of these diseases are established

in those areas. Mr. Glyn-Jones moved to omit the words "in any area in which the Act is in operation" in order to submit that the provision should apply throughout the country. He feared that persons who wished for treatment by unqualified practitioners would go from closed districts to open ones, and that this difficulty in working the measure would be quite as glaring in the matter of the sale of drugs.

Mr. Herbert Samuel suggested that the difficulties feared would disappear with time. Mr. Samuel said he regarded this bill with experience at the Home Office and at the Local Government Board. From the latter aspect he viewed it most hopefully, but from the police aspect he foresaw difficulties in securing its enforcement. It would be exceedingly hard to detect individuals who were giving surreptitious advice; that was the fact in cases of grave crimes such as illegal operations, and likely to be still more true in regard to these matters. The only alternative was to get the people accustomed to the use of the free institutions. It was possible that, as had been suggested, Manchester would not join with Salford, but he thought it would. London was joining with all the counties around. He was willing to insert in the second clause of the bill words definitely providing that the bill should not operate in any area until the free institutions had been established there. It was the intention in framing the bill that this should be so.

On a division the amendment was negatived by 21 votes to 8.

The 400 Herbalists.

Mr. Tyson Wilson next proposed that members of the National Association of Medical Herbalists should be allowed to practise—that is, to rank with qualified practitioners. He submitted that they stood in a different position from the ordinary herbalists.

Mr. Hayes Fisher replied that the matter had been carefully considered by the Royal Commission. Under this bill sufferers from these diseases would get the advice of men who were competent to treat them. How was it to be known whether the herbalists were competent? Medical men had had a five years' course of training, of which two or two and a half had been spent in hospital. He was aware that the Royal Commission had referred to the limited experience of many medical men of these diseases, but spoke hopefully of greater study being undertaken. He was present when a deputation of herbalists was received. They argued that the 400 were quite different from the other fellows. It was reckoned that there were 5,000 in the country, but with the other 4,600 they had nothing to do; they did not, however, make much impression. After a little further discussion, the amendment was negatived.

Proposed Special Certificate for Qualified Practitioners.

Another amendment that treatment should be only by qualified practitioners holding a special certificate of competency was also negatived without a division.

Passing on Prescriptions.

Mr. Joseph King raised the possible case of a man who had received treatment from a duly qualified practitioner, and wished to help a friend by passing on the advice. Mr. Hayes Fisher commented that there was nothing more unwise than to lend prescriptions, and Mr. King's amendment to licence such persons was rejected.

The Committee then adjourned until May 3rd, when the consideration of the bill was completed after the clauses had been recast and some changes of definition had been made.

The Criminal Law Amendment Bill.

The Criminal Law Amendment Bill came before the House of Commons on April 30th on report from Grand Committee. The notices of further proposed amendments included a set put down by the Lord Advocate (on behalf of the Home Secretary, who is ill) to modify a new clause added at the last sitting of Grand Committee—to give power to courts to order in certain cases of loitering, solicitation, behaving in a riotous and indecent manner, etc., the detention of girls under 18 years of age. Such detention, it was laid down, should be in approved homes or institutions, the limit of age for detention to be 19 years.

The "Loitering" Clause.

The clause has during the past fortnight been much discussed, the fear being expressed that it carried grave risk to innocent girls who might be wrongly charged with loitering for a purpose. To meet this anxiety the Lord Advocate now proposes that the clause shall apply only to girls who are "common prostitutes." He further proposes that instead of courts of summary jurisdiction being given the power to order to detention, they shall have only (in lieu of passing sentence) the power to commit to quarter sessions, which, before dealing with any such case, would have to consider a report from a probation officer or from a committee, whose duty it would be to inquire as to the "mode of life and associations" of the girls. Provision is made for the appointment of committees, each to include at least two women. It will be seen that numerous securities are offered against the danger that an innocent "flapper" should suffer loss of liberty.

At the outset of report stage in the Commons, however, Mr. Handel Booth moved to recommit the bill. He objected particularly to the detention clause, which, he said, slipped through Grand Committee without proper consideration. The clau struck at the sovereignty of women, and would never have be introduced if women had votes. Commander Wedgwo seconding the motion, said that the women of the coun were furious that such a clause had been introduced. He a pointed to the twenty-five pages of new clauses put down the report stage as a "crushing reason" why the bill should recommitted.

The Lord Advocate, replying, held that there had been mu misconception about the clause. There was no idea on part of the Government of making a fresh offence of "loit ing." It was not an offence to loiter or importune; it was offence for any one who was a common prostitute to loiter the purpose of importuning or soliciting, hence the fresh wo to make the matter perfectly clear. Further, to meet the fea one speaker that a mill hand who kicked up her heels in streets might be prosecuted for "behaving in a riotous indecent manner," he said it was intended to omit the wo "riotous and" from the definition of offences.

In the course of further discussion, Mr. Dillon said t members had received a communication from the metropoli probation officers strongly urging that the clause should amended so that detention in homes should be possible onl second conviction for distinctly sexual offences under the Ac

Ultimately the Lord Advocate accepted a suggestion fr Mr. Samuel that this clause should be recommitted to Gr Committee; and Mr. Booth withdrew his motion for recommittal of the whole bill.

Medical Examination in Prison.

A lengthy discussion afterwards took place on a motion Sir George Greenwood to add to the bill a clause for the med examination of persons sentenced for sexual offences, and their detention at the end of their sentences if they were suffering from venereal disease; or for their release or lice with directions for their treatment. He maintained tha large proportion of those attacked by venereal disease innocent women and children. He had had a letter from of the most experienced metropolitan police magistrates say that if this clause were passed it would be one of the bes the bill. Captain Guest, seconding, said he would like clause to go much further, and to give the Home Office po for the examination of all prisoners, whenever there was rea to suspect disease. The Lord Advocate said he was unab accept the clause, in face of the volume of opinion again which had been received by the Home Secretary, and in end the proposal was negatived.

Powers under the Public Health Act.

Mr. Rawlinson proposed another new clause to make offence for any person, knowing that he or she was suffe from venereal disease in a communicable form, not to reasonable precautions against the spread of the disease. Hayes Fisher (Secretary to the Local Government Bo declined to accept the clause, on the ground that it woul unworkable. It was possible for the Local Government B to draw up regulations under the Public Health Act of 1875, he was given to understand that the non-sexual communica of venereal disease was very rare. It was not so uncommo surgeons or nurses to become infected through attend on the sick; but it was a very rare thing for any on get the disease by using any convenience. Regulations m encourage persons with spite to bring proceedings in court. Government preferred, therefore, to issue circulars of advi

In the course of further discussion Mr. Burns supported policy of persuasion. Sir John Simon thought that the might be usefully modified, and Sir Wm. Collins said th Grand Committee he had proposed that it should be the du a medical man to make a notification to any person he treating, in order that the patient should take all neces precautions; that having been rejected he should not sup notification to a third party. Mr. Hayes Fisher, in a fu reply, held that under Clause V of the bill against "wilful munication of the disease" there were already powers of siderable strength, but Mr. Rawlinson maintained that word "wilful" would make conviction very difficult. Samuel said that after what Mr. Hayes Fisher had to House as to the powers possessed under the Public Healt to make regulations if thought desirable, he should against the proposed new clause. On a division it was rej by 107 votes to 20.

Security against the Common Informer.

Mr. Glyn-Jones moved a new clause that proceedings u Clause V (sexual intercourse by a person suffering from ven disease) or under the Indecent Advertisements Act, 1889, s be taken only at the instance of a local or public autho unless in England or in Ireland the consent of either Attorney-General or Solicitor-General had been obtained Scotland such a fiat was necessary, and he urged that, a bill stood, there was in regard to the offence created u Clause V a real danger of blackmailing. The person would publicity. Several other members having taken the same Mr. Hayes Fisher undertook to consider the matter. He th that an amendment might be inserted when the bill reache Lords, to the effect that while a person injured under Cla might act at once without losing time, and therefore, per valuable evidence, the fiat of the Attorney-General or Soli General should be required before action could be taken third person so that the measure should not give an o tunity to the common informer. Mr. Glyn-Jones there withdrew his amendment.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Additional Penalties.

Mr. Hayes Fisher next agreed to accept a new clause proposed by Mr. Duncan Miller, as to increase of penalty for certain offences where the offender was suffering from venereal disease in a communicable form. The offences were there scheduled to allow of a maximum sentence of two years' hard labour; the clause proposed to permit the sentence to be increased to five years' penal servitude. This was agreed to.

Disorderly Houses.

After a short discussion, Sir Albert Spicer withdrew a new clause which he submitted on behalf of a conference of metropolitan mayors held in London last year. The clause dealt with the occupation of flats and lodgings, and would have provided that persons found in disorderly houses should be treated as persons found in gaming houses when the latter were ordered—have their names taken for prosecution. The Lord Advocate said that it was impossible to make the house of a woman who lived by prostitution a brothel in law. However much her conduct might be reprobated it could not be said that she should have no shelter. The other proposal could not be accepted unless Parliament was prepared to make fornication a crime, and no one had been prepared for that course.

Medical Men and Notification.

Captain Guest proposed a new clause, (1) to require a person suffering from venereal disease to place himself (or herself) under medical treatment; and (2) to require a medical adviser, when a patient failed to attend during a prescribed period, to notify the medical officer of health; and (3) to empower the medical officer of health to require such person to submit to treatment. Captain Guest said the words of the clause were copied from an Australian Act, and he repeated arguments frequently given for notification.

Mr. Hayes Fisher, in asking the House to reject the clause, said it would militate against the policy which was promising much success; it would lead to concealment through the fear of publicity. The Local Government Board had given people definite assurance that they could go to free institutions without having their names or addresses known, they could go to institutions distant from their homes on the plea of taking a holiday and that policy had already been productive of good results. Sir William Collins in the subsequent discussion said he was well acquainted with the Act of Western Australia which was an example to be avoided. The clause put the medical profession in an unenviable position. If the patient failed to keep up attendance the medical man was to play the part of informer to the central authority. The clause further suggested that the medical man should be the joint instrument with a magistrate in securing a warrant for the patient. The policy of the Local Government Board was the right one. He did not find any request from the medical profession for this co-operation with the magistrate and policeman.

The clause was rejected.

The Age of Consent.

A discussion was begun on a proposal by Mr. Dickinson that the age of consent by a girl should be raised from 16 to 17 years. Under the bill the proviso by which an offender might plead "reasonable cause to believe" that the girl was over 16 was abolished, and in discussion in Grand Committee the Home Secretary had maintained that this gave considerable protection to girls over 16. Mr. Dickinson proposed to raise the age to 17, but to retain the proviso in the old form that reasonable belief that the girl was over 17 should be a sufficient defence. In Grand Committee his proposal to raise the age thus was defeated by a majority of one, the Home Secretary resisting it on the ground, amongst others, that it would increase the difficulty of getting convictions. The Lord Advocate renewed this and other objections. Mr. Samuel and Sir John Simon, on the other hand, submitted that the House would be acting below the real opinion of the country if it did not raise the age, and the debate was adjourned.

The Work of the Civil Liabilities Committee.—Mr. Hayes Fisher, replying to Captain Douglas Hall, said that the conditions under which grants are given through the Civil Liabilities Committee to officers' families were published in Special Army Order of March 14th. The forms of application had been available since March 15th, and a number of applications had already been made. The grants would, in the absence of special circumstances, run from the date of application. (The conditions set out in the Order will be published in our next issue.)

Treatment of Disabled Soldiers: Advisory Committees.—Mr. Duncan Miller asked the Pensions Minister how many local committees representing the various statutory committees had been set up in England, Scotland, Ireland, and Wales respectively in connexion with the treatment of disabled soldiers; and how many schemes had been approved by the Ministry of Pensions and by the central committee in each portion of the United Kingdom.

Sir A. Griffith-Boscawen (Parliamentary Secretary to the Pensions Board) said that the committees referred to were joint advisory committees to assist local committees in dealing with treatment and training of disabled soldiers and sailors. Fourteen of these committees were contemplated for England, one or two for Wales, four for Scotland, and three for Ireland. Eight, covering seventeen geographical counties in England, had been agreed to at meetings of local committees' representatives, and the four covering Scotland have been similarly agreed to. A scheme for one or two committees for Wales was under discussion, and some preliminary inquiries had been made in regard to the three proposed for Ireland. He was communicating with various local committees with a view to expediting the formal constitution of the Joint Committees so that they might proceed at once with their work of making available within their large areas the schemes for treatment and training which local committees had framed or were framing.

Pensions and Gratuities for Disabled Soldiers.—In answer to Mr. George Terrell, Sir A. Griffith-Boscawen said that 1,900 applications had been received, mainly in the last two weeks, from men who had been discharged from the army and refused pensions under the regulations hitherto in force. Up to the end of last week 200 pensions and 300 gratuities had been awarded. The remaining cases were in various stages of consideration.

Asked by Mr. George Terrell as to the reconsideration of claims by widows of soldiers and sailors, Sir A. Griffith-Boscawen said that the number of widows' claims rejected for pension or gratuity under the Old Regulations was 1,229, and the number rejected for pension but admitted for gratuity was 475, making a total of 1,704. Of this number 1,013 had up to date been reconsidered, 983 had been admitted to pension, and 30 had been finally rejected. The reconsideration of the remaining cases will be completed in a fortnight.

In reply to Mr. Hogge, Sir A. Griffith-Boscawen said that it was proposed to set up a tribunal to which disabled soldiers who had been awarded a gratuity on account of disablement neither attributable to nor aggravated by military service could appeal if they considered that a pension should be granted to them under the recently enacted Royal Warrant and Order in Council.

The Classification of Army Recruits.—Mr. MacCallum Scott asked the Under Secretary for War on May 1st whether men certified by medical boards as suffering from valvular disease of the heart were passed for service in medical categories B 1 and C 1, and whether there were any instructions dealing with the matter. Mr. Macpherson replied that no instructions had been issued dealing with such cases. The matter depended upon the judgement of the medical examiners. After more interrogations, Mr. Scott said he should on a subsequent evening raise this matter on an adjournment. Mr. Hogge on May 2nd asked whether, in view of the fact that men of B 3 and C 3 categories were not to be placed in higher categories unless their health had improved, he would state what men in those categories who had now been passed for general service should do if they were still suffering from the very same disabilities as placed them in B 3 and C 3. Mr. Macpherson replied that it was not necessarily the existence of a disability but the degree of disability which determined a man's classification. Thus varicose veins, if exceptionally severe, might lead to a man being rejected; if less severe, to his being placed in category C 3 or C 2, and so on. Their mere existence would not debar a man from being placed in category A. They might be quite unimportant. There could be no general rule; each case must be judged on its merits by the medical men before whom it came.

Malaria Patients in England.—In reply to Mr. Cowan, Mr. Macpherson said that centres for the treatment of malaria have been established in each command, and officers with experience of this disease have been placed in charge of them. Malarial cases are now being put through a course of treatment with the hope of eradicating the disease.

Army Medical Board Decisions.—In reply to Mr. Lambert, who asked if a man medically discharged from the army and called up again had the right of appeal from the decision of the army medical authorities, Mr. Macpherson said: A man called up and examined by a recruiting medical board under the Military Service (Review of Exceptions) Act has no right of appeal against his medical classification by the board. Each man, however, to whom the notice requiring him to be medically examined is sent under the Act, has the right of application to a tribunal within thirty days from the sending of the notice, for exemption from military service on any grounds set out in the Military Service Act, 1916, Section 2 (1), including the ground of ill health or infirmity.

Instructions to Medical Boards.—At the instance of Mr. Hogge, Mr. Macpherson has placed in the library of the House of Commons a copy of the fresh instructions issued to medical boards applicable to the men who may be recalled under the Review of Exemptions Act.

THE WAR.

ARTIFICIAL HYPERAEMIA IN GAS GANGRENE.

STABSARZT PROFESSOR A. THIES, writing on the treatment of gas gangrene,[1] stated that the value in particular cases of the method of hyperaemia known as Bier's had not been fully appreciated. In feeble, anaemic subjects, in whom the hyperaemia was often not produced, being replaced by a pale oedema, the method was not applicable; but in cases which displayed a well-marked inflammatory reaction it was often of distinct value. Frequently it arrested the spread of the infection, especially if the process had not advanced to actual necrosis. Operative measures were, of course, required in addition in many cases—where, for instance, abscesses, extensive lacerations, tension, or foreign bodies were present. But the value of the method was best seen where these conditions were absent. For example, in the case of a bullet wound of the calf with small apertures of entry and exit, swelling and redness of the skin, gas in the tissues, and the gas bacillus present in the discharges, hyperaemia was induced during three days, commencing fifty-two hours after wounding. The infection was rapidly arrested, and the patient was transported with the wound in a healthy condition on the seventh day from wounding.

When a foreign body was present it was preferable to remove it forthwith; but this was not always possible, nor necessary. When hyperaemia was employed before removal, the gas-phlegmon often became arrested and a well-localized abscess formed round the foreign body. Similarly with lacerated cavities, hyperaemia often limited the gas-phlegmon, and, the inflammatory area being more clearly defined, less extensive incisions were needed. It also had the effect of accelerating the demarcation of necrotic tissues, here again rendering the placing of incisions much more precise.

The method further enabled much economy to be ensured at times in the matter of amputation. It was customary to amputate through healthy tissues or through merely oedematous tissues, which were presumably free from infection. In such cases a secondary amputation was not infrequently needed on account of spread of infection in the stump. By using hyperaemia it was possible to amputate through the infected tissues and thus save a large part of the diseased limb. In cases in which amputation through the higher parts of the limb had been suggested as necessary, Thies had often amputated through the leg above the limit of actual gangrene, and had controlled the gas infection in the rest of the limb by the hyperaemic method.

Thies draws a distinction between the ordinary gas-phlegmon, which was characterized by the occurrence of brown patches beyond the gangrenous area, and the less common form, probably due to a different micro-organism, in which a dark purple discoloration alone was present, without any trace of yellow or brown. This latter form spread with extreme rapidity and without demarcation, and on section abundant haemorrhagic exudate and venous thrombosis were found in the tissues. Prompt amputation afforded the only hope in these cases, and the method of hyperaemia was valueless.

The method employed was that of intermittent hyperaemia, a compression of about 0.15 of an atmosphere being applied for about sixty seconds and then intermitted for about ninety seconds. A hundred cases of brown gas infection were thus treated, with five deaths, two of which appear to have been due to complications in other parts of the body.

TREATMENT OF TRAUMATIC ANEURYSM.

DR. K. RIEDEL,[2] writing on the treatment of aneurysms, recommended a more frequent recourse to conservative measures. The present tendency was to operate as early as possible in all forms of aneurysm, suture being the method of choice, though, owing to the frequency of infection, ligature was the operation commonly employed. Since untoward results, such as gangrene and paralysis, at times followed this operation and could never be with certainty excluded, it was justifiable to test the value of conservative methods, and accordingly at Riedel's station all aneurysms that did not require immediate operation were at first treated by compression. Continuous firm pressure was applied to the tumour by means of a rubber sponge held in place by a bandage. The pressure was subsequently increased by means of a sandbag. In addition, digital compression was applied to the artery above the wound for a quarter of an hour, gradually increased to one hour, every day. The treatment was carried out in twelve cases, a cure being effected in five (carotid, subclavian, two femoral, popliteal).

The most favourable cases for compression were those of arterial aneurysm. In arterio-venous aneurysm the conditions were less satisfactory, theoretically a cure being possible only by complete obliteration of the sac. The communication between artery and vein could, however, but rarely be effected by compression, and an arterio-venous fistula usually persisted, as occurred in one of the author's cases. This, however, did not necessarily lead to serious circulatory derangement. Aneurysmal varix was the least favourable form for compression.

The main disadvantage of the method was that operation was ultimately necessary in a considerable proportion of cases. But even here the treatment was not without its use, since it favoured the development of the collateral circulation, which was of advantage in the subsequent operation. A further objection to the method was the danger of rupture of the sac and the occurrence of acute haemorrhage. This complication could, however, hardly arise without warning, provided careful clinical observation were carried out; an encapsuled aneurysm did not suddenly collapse; rupture was always preceded by premonitory signs.

The method had its limits and was unsuitable for recent wounds of the vessels, with acute symptoms. Such were all forms of arterial haemorrhage where palliative measures were clearly out of the question, and all aneurysms which showed signs of infection or threatened rupture. Operative treatment was also indicated, where from pain or motor or sensory paralyses, it appeared that nerves were compressed by the aneurysm; such cases were not suitable for compression.

WAR SURGERY IN THE CARPATHIANS.

IN the *Medical Record* of March 31st Dr. B. F. Morowitz of New York, formerly military surgeon with the Austro-Hungarian and Bulgarian armies, gives an account of cases that came under his care from July 11th to November 28th, 1915, in the quarantine hospital at Munkacs at the foot of the Carpathians.

Owing to the severity of the shell fire the wounded often could not be brought in till after many hours. When possible, however, they were carried to a place of comparative safety, where they were quickly dressed with an antiseptic dressing by the Red Cross men or "Sanitäters" and afterwards taken to the first dressing station or "Verband-platz." These stations were generally situated in the second or third line of trenches, and there the men were properly dressed by surgeons and at once transferred to the field hospital just behind the line of big guns. After the application of splints and the performance of emergency operations, patients in "fairly" good condition were placed in the Red Cross trains and carried to the quarantine station for observation and further treatment; subsequently they were removed to the base hospital in the interior. The whole process took from one to two weeks provided that at the quarantine station the patient was found to show no rise of temperature and to be free from typhus, cholera, dysentery, small-pox, or other infection.

As far as Hungary is concerned Morowitz says the two stable institutions are the quarantine station at the border and the base hospital in the interior. The dressing stations, field hospitals, and hospital trains may be anywhere between the fighting line and the quarantine station. After the great offensive of the Central Powers in May, 1915, the front was gradually being pushed further and further from the Munkacs military quarantine station, so that the severity of the wound cases admitted was progressively less as the badly injured men were either almost cured or had died in the long transpo-

[1] Bruns's *Kriegschir.*, Heft 34, p. 595.
[2] *Deut. med. Woch.*, 1917, No. 8, p. 230.

LIBRARY U. OF I. URBANA-CHAMPAIGN

,160 cases which came under the personal care of witz 1,306 were wounds caused by bullets, modern ctiles of all kinds and the bayonet, the remainder ; diseases of one kind or another, including venereal. ng the 1,306 surgical cases there were 64 deaths; 155 tions were performed with 17 deaths. In cases not ted upon, the wounds were dressed with sterile gauze, times with a little tincture of iodine painted over the ce. Most of them were more or less infected, and witz attributes his success to his not using the probe. e surgeon of to-day the use of the probe is entirely essary as he can now avail himself of the *x* rays. modern highly explosive projectile may lodge in some ion which can be determined only by radioscopy. e cases operated on, twelve were fractures of the caused by shrapnel; in these Morowitz trephined a study of the *x*-ray plates and extracted the pro- es. In one of them an abscess formed which required on into the dura and drainage; the man eventually Six were injuries to the face; in three of these e plastic operations were performed. Fifteen opera- on the thorax included ten bullet extractions and ng of abscesses and five rib resections; of the latter one was a purulent pleurisy, two haemopyothorax, wo pyopneumothorax. Four of these thorax cases Morowitz is still of opinion that it is best to leave bdominal cases alone as much as possible. The nts should be kept absolutely at rest, with light fluid and the occasional administration of morphine for Irrigation with warm saline solution and dressings ile gauze were carried out daily. The mortality in vitz's cases is not definitely stated, but he says it high."

ury of the upper limb was very frequent, probably se that part is mostly exposed to fire, especially in warfare. Of the twenty-seven operations on the ree were extractions of bullets, sixteen sequestro- , curettages, and applications of plaster-of-Paris ngs for fracture; two were amputations for gangrene, mple incisions for abscess or pus infections, one was n of the brachial artery, and one a case of gas s infection in which multiple incisions were made; r case was a fracture of the clavicle by a rifle

Morowitz says that in all cases of fracture of the us fixation of the shoulder, elbow, or wrist-joints is ary. The arm should be placed in pronation with ow flexed at right angles; a triangular splint should ed under the axilla, one side reaching down to the joint, one apex being in the axilla and one just below ist; the lower angle is brought a little forward. A -of-Paris splint may be applied instead on the whole or surface of the extremity reaching from the neck finger tips, the elbow being flexed at right angles, e whole supported by a sling hanging from the neck. y-four cases operated on for injury to the elbow- orearm, and hand, three were simple bullet extrac- wenty-three fractures, two amputations for gangrene, isions for deep infiltrating pus infections, one a gas s infection, and one haemorrhage from the radial

For fracture of the elbow joint Morowitz used at right angles of the arm and forearm with plaster- s arranged so that the wound was entirely exposed, parts of the bandage being bridged by three arc- iron bands in as many directions over the seat of

There were twenty-eight cases of operations on the thigh, eight incisions for abscesses and extraction ectiles, fourteen fractures by shell and bullet, one e of the innominate bone, and five amputations for ve gangrene from all causes.

ure of the femur was treated by elevated extension whole limb. All loose pieces of bone were removed crotic splinters clipped off. Thorough drainage, rigation with potassium permanganate solution and gs of sterile gauze, performed with the patient n the extension apparatus, constituted the pro- employed at the quarantine hospital. Infections of e-joint involving the synovial membranes were, tz says, among the most serious conditions met ie chief danger being septicaemia. The mortality cases at his hospital was high. This was due to t that septicaemia was allowed to develop too far amputation was done. He thinks the surgeon be too radical in these cases. Of the twenty-six cases of operation on the knee-joint, leg and foot, fifteen were incisions for abscesses, pus infections and extraction of projectiles; nine were for fractures, the usual surgical procedure being employed, and two were amputations for severe gas bacillus infections. In addition to these statistics, Morowitz has collected the histories of 106 cases of tetanus. One was a case in which the condition came on after a wound of the abdomen, two after wound of the arm, fourteen of the forearm, twenty-one of the hand, fourteen of the thigh, twenty-six of the leg, and twenty-seven of the foot.

MEDICAL SERVICES IN MESOPOTAMIA.

A VERY reassuring account of the present arrangements for dealing with the sick and wounded of the Mesopotamia campaign is given in a letter addressed to the Secretary of State for India, by Sir Arthur Lawley, who went out at the end of last year as the chief Commissioner in Mesopotamia of the British Red Cross Society and Order of St. John. At that time, as he truly states, there was much misgiving and uneasiness in the minds of many people at home as to the adequacy of the provision made for the welfare of the troops on that front, and for the care of the sick and wounded.

Sir Arthur Lawley on landing at Bombay went to Delhi, where he discussed the present situation with the Viceroy, the Commander-in-Chief, Surgeon-General Sir Pardey Lukis, and Surgeon-General O'Donnell. He then visited Bombay, where he inspected the work of the hospitals, of the Red Cross, and of the organization for supplying comforts to the troops, and found everything highly satisfactory. Sailing from Bombay to Basrah in the hospital ship *Madras*, he familiarized himself with the arrangements for the reception of the sick and wounded, and for their care in transit. He watched the loading up of the hospital ship, and found nothing left undone that could add to the comfort and wellbeing of the patients when on board. At Basrah he visited the camps, hospitals, and convalescent homes. On all sides he heard praise of the Red Cross river launches. With regard to those black days when the Mesopotamia campaign was a series of disasters and breakdowns, he says that the "darkness is only relieved by the splendid patience and long-suffering of our sick and wounded, and the heroism and self-devotion of the doctors, the nurses, and the staffs of the river boats." To-day order has been evolved out of chaos. Communications of every kind, facilities for unloading and loading vessels, and abundant stores are all available. The medical equipment is lavish, the water supply and sanitation have been taken in hand, and great efforts are being made to subdue the fly plague. Of the new "P" boats we learn that these are adequately staffed and equipped, and that doctors and nursing sisters, medical orderlies and ward boys are in sufficient numbers for any emergency. At Shaikh Saad there are now two large hospitals and a casualty clearing station, and during his visit Sir Arthur Lawley saw the elaborate arrangements at work for evacuating the wounded. During a bombardment he visited the collecting stations in the trenches, the advanced dressing stations, and the field ambulances, thus seeing with his own eyes the *via dolorosa* of the wounded man. He cannot find words of praise too high for the efficiency of the medical machine in Mesopotamia.

Sir Arthur Lawley has himself played a prominent part in the Red Cross work in France, and his tribute to the medical services on the arduous Tigris front will bring encouragement and consolation.

HONOURS.

A SPECIAL supplement to the *London Gazette* issued on April 26th contains a list of honours and decorations conferred for gallantry and devotion in the field.

To be Companion Distinguished Service Order.

The following are the particulars of the deed for which Captain Allan Watson, M.B., R.A.M.C., has been awarded the D.S.O., as announced in the *London Gazette* of March 17th (BRITISH MEDICAL JOURNAL, March 24th, p. 405):

For conspicuous gallantry and devotion to duty. He went forward under very heavy fire, before his own unit was ordered to advance, and commenced to dress the wounded of another battalion. He worked untiringly under fire both day and night, never resting until all the wounded had been brought in.

Military Cross.

Captain John Hardie, A.A.M.C., receives the decoration of the Military Cross.

For conspicuous gallantry and devotion to duty. He attended a large number of wounded at the aid post under heavy fire, and continued to work after being wounded himself in two places. He set a fine example throughout.

Temporary Lieutenant Erach Ruttonji Daboo, I.M.S., also receives the Military Cross for distinguished service in the field in Mesopotamia.

The Military Medal has been conferred upon twenty non-commissioned officers and men of the R.A.M.C., seven of the Australian A.M.C., and two of the New Zealand M.C.; nine non-commissioned officers and men of the R.A.M.C. also receive the Meritorious Service Medal for valuable services rendered with the armies in the field.

A supplement to the *London Gazette* of May 1st contains a list of decorations awarded by the Allied Powers for distinguished services rendered during the course of the campaign. The list of honours conferred by the President of the French Republic include the following officers of the R.A.M.C. and colonial medical corps:

LÉGION D'HONNEUR.

Croix d'Officier: Colonel H. D. Rowan, M.B., A.M.S.

Croix de Chevalier: Lieutenant-Colonel A. Mignault, C.A.M.C., Captain V. B. Green-Armytage, M.D., M.R.C.P., I.M.S., Quartermaster and honorary Major H. W. Blaylock, C.A.M.C., Quartermaster and honorary Captain E. J. Buckley, R.A.M.C.

Croix de Guerre.—Major H. H. Woollard, A.A.M.C.; Captain A. C. Armstrong, C.A.M.C.; Temporary Captain (temporary Major) A. G. Whitehorne-Cole, R.A.M.C.; Temporary Captains K. G. Fraser, R.A.M.C., W. A. L. H. Henderson, M.B., R.A.M.C., H. L. G. Hughes, D.S.O., R.A.M.C., B. B. Noble, M.B., R.A.M.C., and R. R. Scott, M.B., R.A.M.C.; Temporary Lieutenant St. J. D. Buxton, R.A.M.C.; Quartermaster (acting Sergeant-Major) W. Stokes, R.A.M.C.

A number of non-commissioned officers and men of the medical services have also received the decorations of the Croix de Guerre and the Medaille Militaire.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

LIEUTENANT-COLONEL D. B. CHILES-EVANS, D.S.O., R.A.M.C.(T.F.).

Lieutenant-Colonel David Brynmor Chiles-Evans, D.S.O., R.A.M.C.(T.F.), was killed in action on April 23rd, aged 39. He was educated at University College, Cardiff, and at University College, London, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1903. After acting as house-surgeon of Bridgwater Infirmary, he went into practice at Landore, Swansea, where he was assistant medical officer of the Swansea Union. He attained the rank of captain in the R.A.M.C.(T.F.), in the 3rd Welsh Field Ambulance, on December 12th, 1908, went out in the original Expeditionary Force as captain in No. 18 Field Ambulance, R.A.M.C., Special Reserve, to which he was appointed on August 5th, 1914, and had since been promoted to major and to lieutenant-colonel. He received the D.S.O. on June 3rd, 1916.

CAPTAIN L. B. BAIRD, R.A.M.C.

Captain Leonard Barron Baird, R.A.M.C., was killed on April 21st, aged 29. He was the elder son of Dr. Baird, of Bury, and was educated at Manchester Grammar School, and at the Victoria University, Manchester, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1914. He joined the 5th (Territorial) Battalion of the Manchester Regiment as lieutenant and medical officer on September 5th, 1914, and was promoted to captain after a year's service. He had previously served in Gallipoli.

CAPTAIN J. E. BLACK, M.C., R.A.M.C.

Captain James Elliot Black, M.C., R.A.M.C., was killed on April 19th. He was the only son of the late Adam Elliot Black, chartered accountant, Glasgow, and was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1911, afterwards going into practice at Westbourne Terrace, Glasgow. He joined the Special Reserve of the R.A.M.C. as lieutenant on September 28th, 1914, and was promoted to captain after a year's service. He received the Military Cross on November 14th, 1916.

CAPTAIN G. D. FERGUSON, D.S.O., R.A.M.C.

Captain George Douglas Ferguson, D.S.O., R.A.M.C., was killed in action on April 22nd, aged 27. He was the second son of Mr. John Ferguson, of Edinburgh, and was educated at Edinburgh Academy and at the University of that city, where he graduated M.B. and Ch.B. in 1913. He took a temporary commission as lieutenant in the R.A.M.C. on August 14th, 1914, and was promoted to captain after a year's service. He received the D.S.O. on November 14th, 1916.

CAPTAIN E. HARRISON, R.A.M.C.(T.F.).

Captain Everard Harrison, R.A.M.C.(T.F.), was killed recently, aged 37, by the blowing up by a mine of premises recently vacated by the enemy, which were being used by the British as an advanced dressing station. He was the son of the late Mr. Stockdale Harrison, and was educated at Wyggeston Grammar School, at St. Bartholomew's Hospital, and at Cambridge, where he graduated B.A. 1900, B.C. in 1904, and M.B. in 1905. After acting as house-physician of the Hospital for Women, Soho, and senior house-surgeon of Scarborough Hospital, he went into practice at Leicester, where he was surgeon to St. Mary's Refuge. He had recently taken a commission as captain in the R.A.M.C.(T.F.), on the staff of the 5th Northern General Hospital, and was attached to the Gloucestershire Regiment when killed.

CAPTAIN G. R. PLAISTER, R.A.M.C.

In our last issue we printed a short obituary notice of Captain Geoffrey R. Plaister, R.A.M.C., who was killed in action on April 11th. A colleague writes: By the death of Geoffrey Plaister the medical profession of Tottenham sustains an irreparable loss. His gallant death in an attempt to relieve suffering was in keeping with his life. He was satisfied with the routine of a busy practice, he devoted much of his hard-earned leisure to hospital duties. His mental energy and untiring devotion to his profession kept him abreast of every measure that had for its purpose the advancement of medical science and its application to the healing of disease. Our heartfelt sympathy goes out to the bereaved father, brother, and sister.

Died of Wounds.

LIEUTENANT J. A. S. BURGES, R.A.M.C.

Lieutenant James Alexander Stuart Burges, R.A.M.C., died of wounds on April 23rd. He was educated at Glasgow University, where he graduated M.B., Ch.B. 1910. After filling the posts of house-surgeon at the Glasgow Western Infirmary and at the Glasgow Maternity and Women's Hospital, and of assistant physician to the Orphan Homes of Scotland and Consumption Sanatorium at Bridge of Weir, he went into practice at Carronshore, Stirling County, where he was medical officer of the parish of Airth. He had only recently taken a temporary commission as lieutenant in the R.A.M.C.

LIEUTENANT J. A. GREGORY, R.A.M.C.

Lieutenant James Alfred Gregory, R.A.M.C., was reported as having died of wounds in the casualty list published April 25th. He was the only son of Roger Gregory of Standish, near Wigan, and was educated at Manchester Grammar School and at the Victoria University, Manchester, taking the diplomas of M.R.C.S. and L.R.C.P. in 1914. He had only recently taken a temporary commission as lieutenant in the R.A.M.C.

Died on Service.

COLONEL J. H. E. AUSTIN, A.M.S.

Colonel John Henry Edward Austin, A.M.S., died in military hospital in London on April 21st. He was born on May 25th, 1863, the son of the late Rev. Edward Austin of Hendlesham, Suffolk, and was educated at St. George's Hospital, taking the diplomas of L.R.C.P.Edin. in 1887 and the M.R.C.S. in 1892. He entered the R.A.M.C. as surgeon in 1891, becoming major on November 29th, 1900, lieutenant-colonel on May 4th, 1912, being promoted full colonel on March 1st, 1915. He served in the campaign in 1898, receiving the medal and the Khedive's bronze star, and in the South African war from 1900 to 1902, receiving the King's and Queen's medals with clasps.

Lost at Sea.

LIEUTENANT I. R. R. BROGDEN, R.A.M.C.

Lieutenant Ingram Richard Rhodes Brogden, R.A.M.C., is reported as "missing, believed drowned." Presumably he is the medical officer reported as missing when the hospital ship *Lanfranc* was torpedoed and sunk in the Channel. He was the only son of Dr. R. W. Brogden of Ipswich, was educated at Cambridge and at

LIBRARY U. OF I. URBANA-CHAMPAIGN

spital, and took the diplomas of M.R.C.S. and R.C.P.Lond. in 1916. He accepted a commission in R.A.M.C., but was granted six months' leave to act house surgeon at Guy's Hospital. At the expiration of s period he joined up at Blackpool and was ordered to ypt.

Staff Nurse E. S. Gurney, Q.A.I.M.N.S. Reserve, is also ported as missing, believed drowned.

Wounded.

Major O. L. Appleton, R.A.M.C.(T.F.).
Captain A. Budd, R.A.M.C. (temporary).
Captain J. W. Burton, R.A.M.C.(T.F.).
Captain J. P. S. Cathcart, Canadian A.M.C.
Captain H. J. Cotte, R.A.M.C.(temporary).
Captain G. J. Linklater, R.A.M.C.(T.F.).
Captain N. Macleod, R.A.M.C. (temporary).
Captain A. G. Troup, R.A.M.C.(temporary).
Captain J. Walker, R.A.M.C.
Captain R. H. Wilson, R.A.M.C.(temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

arrett, Keith J., Captain Royal Fusiliers, elder son of utenant-Colonel J. W. Barrett, C.M.G., R.A.M.C., of Collins et, Melbourne, died of wounds on April 16th, aged 25. He educated at the Church of England Grammar School, bourne, and at Melbourne University, where he was studying agricultural science, and represented the university in heavy weight boxing championship. Enlisting in the tralian forces at the beginning of the war he got his commission while in Egypt in 1915, and joined his regiment at lla Bay. He was invalided thence to England, and, rejoining was wounded last July, but joined his regiment again in tember; he had been mentioned in dispatches.

epmell, William Dobree, Lieutenant Royal Sussex Regiit, son of Dr. Charles Chepmell, killed recently, aged 21. He his first commission on September 22nd, 1914.

rskine, William Robert, Canadian Forces, only son of the William Erskine, M.D., of Sydenham, killed between il 8th and 12th, aged 32.

oodman, E. G., Second Lieutenant Dorsetshire Regiment, of Dr. T. H. Goodman of Havarhill, Suffolk, killed il 12th. He was in the Civil Service before the war, enlisted y in the war in the 15th Battalion of the London Regiment, ce of Wales Own Civil Service Rifles, and got his mission in 1916.

allwright, W. W., Lieutenant Commander R.N., youngest of Dr. Matthew Hallwright of Edgbaston, killed April 21st, 33.

acpherson, Robert Nasmyth, Major Indian Army, youngest of the late Brigade-Surgeon-Lieutenant-Colonel R. N. pherson, R.A.M.C., killed April 18th, aged 37. He was on September 20th, 1879, joined the Duke of Cornwall's t Infantry as second lieutenant on August 3rd, 1898, was sferred to the Indian army on August 27th, 1900, and me captain on August 3rd, 1907, and major on August 3rd, When the war began he was at home on leave and was d to the Argyll and Sutherland Highlanders, with whom rved in France, being wounded at Loos. Subsequently he ned his own regiment. He had served in the 40th Pathans 1902, and took part in the Tibet war in 1903–4, including narch to Lhasa, and received the medal. He held an pretership in Russian.

xburgh, John Wood, Lieutenant Royal Scots Fusiliers, son . William Roxburgh, of Troon, killed on April 19th, aged He got his commission on August 14th, 1914.

MEDICAL STUDENTS.

lerson, William, Second Lieutenant Black Watch, eldest f ex-Bailie Robert Anderson, of Burnbank, died of wounds tly, aged 26. Before the war he was a second year al student at Glasgow University, where he was in the . He got a commission in 1915, and had twice previously wounded.

michael, Andrew W., Second Lieutenant, killed recently, medical student at Edinburgh University before he joined my.

e, William, Lieutenant Highland Light Infantry, killed 11th, was educated at George Watson's College, Edin-, and at the University in that city, where he was a al student when the war began. He then enlisted in the attalion of the Royal Scots, and got a commission on ary 26th, 1915. He was wounded last year, and returned front in January.

mson, Alexander Anderson, Private, Gordon Highlanders, Mr. Thomson, of Aberdeen, killed April 9th, aged 21. He ed his early education at the Aberdeen Grammar School, as a third year medical student at the University of urgh before he enlisted.

NOTES.

CURATIVE WORKSHOPS IN GERMANY.

FROM an article published recently by Professor Blind[1] of Strassburg, it appears that some German authorities are beginning to see the necessity, following the example of Belgium, France, and Great Britain, of taking steps to arouse the mental as well as the physical powers of soldiers by the establishment of curative workshops. In his own hospital he has added to the medico-mechanical department a workshop, so that surgical and orthopaedic treatment may be combined with work for the body and mind. He had set his face against the output of gimcracks, such as glasses plastered over with cigar wrappers and ash trays of gilded glass; the task he first set men with crippled fingers was basket plaiting, but, as he foresaw that an army of crippled basket makers would find an insufficient market for their wares after the war, he gave them other tasks as they became more nimble, with the result that his patients provided their own splints, artificial limbs, and even metal operating tables.

Scotland.

A CONFERENCE between the Pensions Minister, the Rev. Dr. Burns, and Sir C. Arthur Pearson, on April 26th, arrived at an amicable arrangement regarding the future working of Newington House, Edinburgh, for the care of Scottish blinded soldiers and sailors. Their care will be in the hands of Newington House, in a hostel which will receive the benefits of the large funds placed at the disposal of St. Dunstan's Institution in London. Probably the committee in Edinburgh will be enlarged by the introduction of representatives from different parts of Scotland.

THE FOOD PROBLEM.

Professor W. Russell, president of the Royal College of Physicians of Edinburgh, gave, on April 26th, the first of four lectures on the food problem. The Principal of the University was in the chair, and there was a large audience, consisting chiefly of ladies. Professor Russell said that there were four causes for the shortage of food: the first was that the supply of wheat was small because of the poor harvests; the second was the difficulty of transport; the third, increased consumption; and the fourth, submarine destruction of vessels and their cargoes. Judging from public statements made there was a possibility of definite famine in this country. He believed Prussian military autocracy would fight so long as it could command the men, would let its people starve, and shoot them down with as much indifference as it torpedoed hospital ships with its own wounded on board. Professor Russell then discussed the general principles of dietetics, pointing out incidentally that the amount of starch in potatoes was only 18 per cent. against 80 per cent. in tapioca, sago, and arrowroot.

THE EDINBURGH CHILDREN'S HOSPITAL.

The Lord Provost, in presiding at the annual meeting of the Royal Edinburgh Hospital for Sick Children, said that in regard to the east of Scotland it filled the place the Royal Infirmary held in regard to adults. The number of in-patients treated during 1916 was 2,250, larger than in any previous year and larger by 150 than in 1915. The number of out-patients had increased from 25,053 to 26,842. The cots in the convalescent home at Muirfield had also been fully occupied, 193 children having been sent there, as compared with 175 in 1915. The staff had been much depleted by the call of the war, but the work had been carried on with energy and efficiency by Drs. A. S. Cumming, R. Thin, and Mowbray Pearson, and Mr. A. P. Mitchell, who had been in full charge of the surgical work.

LUNACY IN 1915.

The second annual report of the General Board of Control for Scotland (for 1915) appeared unusually late and in a much attenuated form, owing to war exigencies. Its 37 pages comprise general statistics of the insane and mentally defective in Scotland, concise notes of the condition of establishments provided for them, and references also to the recognized accommodation for them in private dwellings. Like the corresponding figures for England and Wales (see BRITISH MEDICAL JOURNAL, March 24th, 1917, p. 406), the Scottish statistics for 1915

[1] *Med. Klin.*, No. 21, 1916.

show a falling off in the number of registered insane (of both sexes and all classes) as compared with 1914, and it is remarked that this is the first occasion since the Scottish Commission was instituted in 1857 that a decrease has been noted. On January 1st, 1916, there were in Scotland, under official cognizance, 19,108 insane persons as compared with 19,557 on January 1st, 1915, showing a decrease of 449. It is pointed out that part of this decrease is due to the fact that during the year 317 inmates of institutions for mental defectives, formerly registered under the Lunacy Acts, had been transferred to the special list under the Mental Deficiency Act, and that there were three fewer lunatics in Perth Prison. "There remains, however," the Commissioners state, "an actual decrease of 129 patients which cannot be accounted for in this way;" it would appear, however, that a diminished admission-rate and a higher death-rate are contributory factors to the result. War economy has precluded expenditure upon new buildings for the care of mental defectives, and the operation of the new Act has been largely in abeyance. On January 1st, 1916, 1,203 of this class were on the Board's Register, 305 in certified institutions for adults, 587 in certified institutions for juveniles, and 311 in private dwellings, all but 27 being "aided" from public funds.

Ireland.

THE Rathdown Board of Guardians has decided to send to each board of guardians in Ireland a resolution expressing the desire that a bonesetter should be appointed for each rural district in Ireland. At the meeting at which this resolution was adopted, the board had before it a letter from the Local Government Board transmitting the report of its inspector, made as a result of an inquiry with reference to the death of a patient in the Union Hospital. The evidence, it was stated, showed that great lack of supervision, amounting to negligence, had existed in the hospital.

DUBLIN HOSPITAL FOR ABROAD.

In pursuance of its policy of meeting the submarine campaign against hospital ships by establishing a larger number of hospitals abroad, the War Office has arranged for a hospital to be officered from Dublin. The arrangements made by the medical profession in Dublin to staff a hospital for France have now been completed and approved. Some difficulty was encountered because a condition eventually made by the War Office was that the members of the staff should be between 40 and 55 years of age; this has now been surmounted, and the first staff is in readiness to proceed. It has been arranged that its members shall work in relays, to be relieved every three months, according to a principle which is understood to apply to similar hospitals staffed from London.

AN ELECTION SCENE.

The *Belfast Daily Telegraph* of April 23rd contains a report of a stormy meeting of the Omagh Board of Guardians. We learn from it that the boardroom was very congested, and that on several occasions turmoil prevailed between the Sinn Feiners, Hibernians, and United Irish Leaguers. The trouble was about the appointment of dispensary doctors, and at times the shindy must have been tremendous. The liveliness began with the reading of a letter from the Local Government Board of Ireland declining to sanction the appointment of Dr. Patrick Clarke as a locumtenent, because he was eligible for service in the R.A.M.C. On a show of hands, a defiant motion to continue the appointment of Dr. Clarke was carried. Four applications were then considered for the position of medical officer of the Omagh No. 1 Dispensary District, and the proceedings rapidly warmed up. One of the candidates, Dr. M'Cartan, has been deported to England; another, Dr. Duncan, has retired from the Royal Army Medical Corps owing to an injury to the eye. The final vote was for Dr. M'Cartan 48, for Dr. Duncan 27, and the former was declared elected. Before the vote was taken we read of cheers and counter-cheers, frantic waving of arms, loud groans, and the interchange of polite epithets, which call to mind the Eatanswill election. It would seem that the supporters of the victorious candidat knowing their voting strength, discouraged anything i the nature of argument on the other side, one speaker remarks being inaudible in the din of hisses, boohs, an roars. Judging from the report, it does not appear th the meeting gave any consideration to the relative medic capacities of the candidates, the vote being on party lines

England and Wales.

CENTRAL MIDWIVES BOARD.

AT the monthly meeting of the Central Midwives Boar on April 19th, Sir Francis Champneys was re-elect chairman, and the Board resolved to inform the Nation Council for Combating Venereal Diseases that, in view the grave national dangers arising out of the neglect improper treatment of these diseases, legislation to rend it a penal offence for any person other than a qualifi medical practitioner to undertake the treatment should immediately introduced. The Board, in reply to a co munication from the Medical Committee of the Birmin ham Maternity Hospital, stated that it was unable accept the suggestion that two lecturers should authorized to deliver the course of lectures and to si the necessary certificates in respect thereof. At a per session on the following day seven women were struck the roll, the most serious charges including neglect, wi fatal results, in cases of concealed haemorrhage a puerperal fever.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

The annual meeting of the Governors and Council of Ki Edward's Hospital Fund for London was held on Ap 27th at St. James's Palace, when the accounts and repo for 1916 were received. The treasurer, in presenting t financial statement, pointed out that, notwithstanding t heavy calls entailed by the present state of affairs, t Fund had received such continued support as to enable to make a substantial addition to the reserve. The to receipts for the year were £326,474, and the amount d tributed £170,000, being £30,000 more than the amou applied to this purpose in 1915. The large addition to t grants did not by any means exceed the needs of t hospitals, upon whom the war has cast increasing burde In order to maintain the annual distribution of £170,0 about £80,000 has to be raised each year from subsc tions, donations, and legacies. It is satisfactory to n that the former two items show an increase of £154 o 1915, while the contribution from the League of Merc £15,000—was the largest for the past four years.

THE TREATMENT OF VENEREAL DISEASE IN BOOTLE.

The public health authority of Bootle has made arran ments for the free treatment of venereal diseases un the regulations of the Local Government Board. A cli will be established at the Bootle Borough Hospital, which the medical officer appointed for the work w attend two days each week. No evening clinic will arranged for, but arrangements will be made for the c venience of patients whose work prevents attendance the ordinary hours. Two beds will be reserved at hospital for such patients as may require indoor tre ment. Arrangements for diagnosis have been made b with the hospital at which the clinic is established a with the University of Liverpool. Routine examinati of smears will be made at the clinic, but the more co plicated blood tests at the university. Private pra tioners will be given the option of taking the mor specimens themselves, of sending their patients the centre for the collection of the material, or sending their patients to the university laboratory. T scheme does not include provision for consultation or treatment of patients in places other than the hospi Consultation with the medical adviser of any patient w be welcomed at the hospital, but if the medical office called upon to attend patients in their homes a special will be charged by him; the fee to be arranged with patient or his friends. On personal request from priv practitioners, reports on the previous treatment of patie will be furnished, but such reports will be given only w the consent of the patients. No estimate is given for

LIBRARY U. OF I. URBANA-CHAMPAIGN

cost of diagnosis. But it is estimated that the cost of the clinic for the first twelve months will be £400. The pay of the medical officer in charge of the clinic is put down as £100 per annum. This is not the rate of remuneration laid down by the British Medical Association—indeed, it is barely that which is the current honorarium for "clinical assistants" who work under the direction of a medical officer in charge.

Correspondence.

THE CALLING UP NOTICE.

SIR,—The ill-considered—or, more accurately speaking, unconsidered—instructions issued by the Director of Recruiting must have caused much annoyance to the medical profession. The extraordinary infelicity of the "Blackpool" allusion should become a classic of unfortunate phraseology.

There is, however, another aspect of the matter to which, basing a few remarks on the experience of an area of not inconsiderable size though sparsely supplied by doctors, which has already answered every call made upon it by the Central Medical War Committee, I should like to draw attention.

The Kesteven Local Medical War Committee met on April 26th to consider the very grave problem suddenly thrust upon it. All the members, seven in number, were present, and invitations were given to ten medical men of military age to attend. Nine of these came, the solitary exception being a doctor who was prepared to sign the form of contract to rejoin (in his case) the R.A.M.C.

Of the sixteen men, three lived in the locality, and the other thirteen had to travel distances which amounted in the aggregate to 403 miles to attend the meeting and return home, an average of thirty-one miles for each, and this at a time when railway fares are raised, when there is a shortage of petrol, and, more important still, when each of the men, without exception, was, in addition to his own work, helping to carry on the practice of a colleague absent on service. At the meeting the old ground was gone over again, as on previous occasions, and no important information could be supplied to the Central Medical War Committee.

On the following day, April 27th, we were able to read in the morning's paper that the War Office had receded from its impossible position, and that the meeting, with its waste of time and money, was therefore unnecessary. I consider that meetings like this took place all over the kingdom and calculate the wasted time and pecuniary loss to a profession already overworked.—I am, etc.,

CHARLES H. D. ROBBS,
Honorary Secretary, Kesteven Local Medical War Committee.

Grantham, April 29th.

DEATH FROM HIGH EXPLOSIVES WITHOUT WOUNDS.

SIR,—The following sentences are taken from a recent issue of a daily newspaper: "The extraordinary thing was that none of these huddled bodies showed any signs of wound. The monstrous concussion of a great shell exploding outside that confined space had apparently killed the whole of them instantaneously. One corpse had a telephone receiver in its hand."

In 1915 I described in your pages some strange wounds caused by the explosion of nitro-glycerine carelessly handled by one of three workmen who were sitting together in a cabin; and I ventured to suggest that the production of a sudden vacuum, and the consequent release of the internal pressure from the bodies had caused the strange and extensive wounds, and that the impact of any small portions of the old salmon tin in which the nitro-glycerine exploded provided the situation of the escape of pressure through the strange funnel-shaped wounds with, in most cases, no tear or other injury to the overlying garments.

After the battle of the Somme last year one of the American journalists described the finding of several uninjured bodies in a steel and concrete redoubt which had been subjected, but without destruction, to heavy firing from some of our largest guns, and attributed the deaths without wounds to the concussion, giving his readers to understand, as in the instance quoted at the beginning of this letter, that the stroke of death had come from without.

A little consideration must compel anyone to conclude that this was impossible, and that the true cause was the sudden snatching away of the atmospheric pressure in and around the bodies by the voracious vacuum suddenly produced outside.

A surgeon newly returned, nerve-shattered, from the Somme attack, described to me the awful sensations which accompanied a similar happening. He and his men were sleeping in one of the large underground caverns laboriously excavated by the Germans. His bed was near the mouth of the outlet ventilating shaft, 30 ft. long, the inlet being a long flight of steps. Being rolled out of his bed and experiencing a great strange shock were simultaneous. He and his men had a dreadful, indescribable, but momentary sensation, which was followed immediately by a rush of dust-laden air filling the dug-out. A huge shell had dropped and exploded above them quite close to the mouth of the ventilating shaft.

It seems evident that these men survived because, having an inlet to the dug-out their atmosphere was not entirely taken from them, but evidently nearly so, as indicated by the succeeding downrush.

The man with the telephone receiver in hand assuredly died because his atmosphere was suddenly taken from him.

Long before this war ends there must be more instances of this kind; and for physiological as well as pathological reasons it would seem important that *post-mortem* examination be made in order to clear up the causation of these strange happenings, which recall the classical experiment of the mouse and the air-pump.—I am, etc.,

J. LEWIS THOMAS, M.D., D.P.H.

Newport (Mon.), April 21st.

THE TREATMENT OF FRACTURES.

SIR,—From what Mr. C. H. Fagge writes in his letter in the BRITISH MEDICAL JOURNAL of April 28th, it is evident that he has misunderstood my meaning. It is not easy to express exactly what we mean by such terms as "perfect" and "good" and "bad" anatomical results. By a "perfect" anatomical result I mean such a result as would show in a skiagram with perfect alignment and no overlapping at all; and I feel sure most surgeons would agree that, as regards the overlapping, such a result was exceedingly unlikely to be obtained without operation, and very likely not even then. In connexion with the definition of a perfect anatomical result, I should like to call attention to an experience described by Mr. Robert Jones.[1] A patient called to see him with a skiagram showing slight overlapping in the union of a fractured tibia a year after the accident. He had climbed the Schilthorn since the union of the fracture, but he was so horrified at finding the overlapping in the skiagram that he came to Mr. Jones prepared to have it corrected by operation, attributing vague pains he could remember having had in the leg to it. Here was an instance of a result which was quite good for practical purposes, but could not be called with complete accuracy a perfect anatomical result.

All surgeons might agree with the conclusion of the Fractures Committee that the best way to obtain a good functional result was to secure a good anatomical one (not that a good functional result will invariably follow), and yet they might all have a different standard of how good that anatomical result should be. They must admit that it will not be perfect, and are agreed that, as I said in my paper, gross deformity must be corrected, but there would be much difference of opinion as to how much overlapping was permissible, if alignment were good. Accepting the conclusion of the Fractures Committee, one surgeon might consider the rectification of displacement in any particular fracture, as shown by a two plane skiagram, was good enough and another might not.

Mr. Fagge is very much mistaken if he thinks I undervalue the need of correcting the displacement. Indeed I urged in my paper that the neighbouring joints should not be moved in order that a correct position of the fragments should not be disturbed. But I do not accept all the conclusions of the Fractures Committee (of which Mr. Fagge was a member), some of which seem to me to

[1] BRITISH MEDICAL JOURNAL, 1912, vol. ii, p. 1594.

go too far in this matter. The Committee advocated operation on all simple fractures—certainly not very strongly, but that was the general trend of their conclusions[2]—and that operation is necessary in all simple fractures I do not believe.

Mr. Fagge says what I have written is "bad doctrine," and "will mislead readers to be satisfied with results which fall short of the best." If by the best he means such perfect anatomical position of the fragments as I have above described, and which he apparently thinks an endeavour should always be made to obtain by operation, then I must say I would urge that this is unnecessary. But I consider that every means should be taken, by reduction under an anaesthetic, the employment of adequate weight extension, and careful splinting, to overcome displacement and to maintain the improved position. And our result must be carefully judged by a two plane skiagram. If we cannot succeed by these means, then in most cases I think we must operate, but I should certainly try such measures first.

Mr. Fagge says he regards my statement that the screws inserted into living bone tend to get loose as a fallacy which dies hard. It is certainly not dead yet, and I should like to point out what I hope may even revive it in the minds of the sceptical. Mr. Fagge says when we find the screws loose it is always the result of sepsis causing a rarefying osteitis around them. Certainly it is in cases with some degree of sepsis—perhaps a very slight degree—that we usually remove the screws. If there is no sinus formation we rarely interfere with them. But I should require evidence from Mr. Fagge that that sepsis, which may be, as I say, only very slight, loosened the screws by causing rarefying osteitis around them, or in any other way, before I accepted his view. Indeed, I have evidence that the screw may become loose without any sepsis, however slight. I operated on an ununited fracture of the humerus a few years ago, and screwed the ends of the bones together. There was never any sepsis, early or late, but union of the bone did not take place, and I operated again three months later. Not only was the screw quite loose, but I remarked in my notes of the operation, made at the time, "the channel of the screw was much enlarged from absorption of bone around the screw." I do not believe it is rarefying osteitis from sepsis that loosens the majority of the screws, but that it is a pressure atrophy which may be present apart from any sepsis. This loosening process around portions of metal inserted into living bone has been described by Sir William Macewen in his book on the growth of bone (p. 21). He says: "A pin driven into the diaphysis so that it is firmly caught, will in the course of a few days become loose owing to the softening which the mechanical stimulation has set up in its periphery. The greater the pressure, the greater the area of softening."—I am, etc.,

Bristol, April 29th. CHARLES A. MORTON.

THE DANGER OF SMALL-POX.

SIR,—Dr. Millard's rejoinder in your issue of April 21st hardly requires any lengthened reply from me. I am quite ready to accept his oft-repeated assurance that he is not an antivaccinist. But I trust he will pardon me if I call him a very weak-kneed vaccinist! Listen to his words in your issue of March 24th:

> Germany, the much vaccinated and revaccinated Germany, which for years has been held up as a shining pattern to the world in the matter of vaccination, is now suffering from "several serious outbreaks of small-pox" . . . Surely it is time that existing theories about vaccination were re-examined.

These are undoubtedly the words of one who desires that vaccination should be "weighed in the balance and found wanting." Again, in his last letter, referring to the remarkable Irish statistics which I gave, all he will admit is that "vaccination must *at first* have produced a very real effect" and "*greatly accelerated* the tendency to decline which had already set in." (The italics are mine.) I submit that these words are an admission of the value of vaccination, but they are a grudging admission. Dr. Millard is reluctant to admit the value of vaccination—he regards the operation as a *pis aller*. In common with the vast majority of our profession, I look upon it as our sheet-anchor against small-pox, and can see no sufficient reason why it should not continue to be compulsory in infancy and be repeated after the lapse of five or seven years. This difference of mental attitude it is that really separates Dr. Millard's position from mine, and it seems as though no argument were likely to alter it.

Dr. Millard sees in possible errors of diagnosis in modified cases a reason for abandoning the compulsory vaccination of infants. I should prefer to see none but modified cases, or—as would happen were my programme carried out—no cases at all. Dr. Millard places his reliance on general sanitary measures and calls in the aid of vaccination only when he cannot help it. I, whilst perfectly willing to adopt the latest administrative developments, am apprehensive that in a sudden emergency, such as the outbreak of small-pox in the midst of an unvaccinated population, these methods might break down. I prefer the well-tried buckler which Dr. Millard would discard—or try to pick up when already at close quarters with the foe. With regard to what happened at Leicester and elsewhere, it seems useless chopping logic. The main fact is that in vaccination we possess an admittedly certain means of defence, and Dr. Millard will not have it compulsorily adopted. On the contrary, by his attitude, he encourages (I should hope, unconsciously) the fanatical antivaccinists to persist in their unreasonable prejudice, and thus help to throw open the door through which "one of our rarest zymotics" may yet stalk in.—I am, etc.,

E. J. MCWEENEY.

Pathological Department, University College, Dublin, April 30th.

EFFICACY OF APPLICATIONS FOR THE PREVENTION OF VENEREAL DISEASES.

SIR,—It seems opportune to revert to the original point at issue—namely, the efficacy of certain local applications in preventing the development of syphilis and gonorrhoea. In 1906 Metchnikoff and Roux, after the failure of their attempts to obtain an attenuated virus for prophylactic purposes against syphilis, tried the preventive effect of the local application of a 33 per cent. ointment of calomel to the point of inoculation of the syphilitic virus. They found that this procedure prevented the development of the chancre in the macacus monkey when rubbed in an hour after inoculation. The experiment was then tried on the human subject, a medical student whose personal and family history were guaranteed free from syphilis. Neither chancre nor secondary symptoms developed; but a macacus monkey inoculated from the same virus and not treated with the calomel ointment developed a chancre in due course. Metchnikoff, therefore, assumed that the application of calomel ointment to the point of inoculation of syphilitic virus within an hour would prevent the development of syphilis.

These experiments were repeated on monkeys by Neisser, but the results were not always successful; for in some cases a chancre developed. Since then this procedure has been adopted by several navies, and more recently by armies, with a view to diminish the incidence of syphilis. Prophylactic measures against gonorrhoea, by instillation of protargol and other solutions, have been used at the same time. The method adopted in Australia[1] consists in the instillation of a 20 per cent. solution of argyrol within the urethra, and inunction of calomel ointment 30 per cent. to the whole penis. It has occurred to me that these preparations might be improved upon. In the first place, protargol and argyrol—two of the multitude of preparations produced by the enterprising and commercial German chemists—are inferior to the permanganates in gonococcidal action. They are also much more expensive. A solution of potassium permanganate (1 in 1,000) is therefore to be preferred. A solution of mercury biniodide 1 in 1,000 is also good. Secondly, as regards the ointment, calomel is vastly inferior in bactericidal action to mercury perchloride. It also has the disadvantage of being in suspension in the ointment instead of in solution, and naturally these agents act more rapidly and more effectively in a state of solution. Now mercury perchloride can be made into an ointment when dissolved in glycerine. A suitable ointment consists of 1 grain of perchloride, 1 drachm of glycerine, to 1 ounce of lanoline. This contains approximately 1 in 500 of mercury per-

[2] BRITISH MEDICAL JOURNAL, 1912, vol. ii, p. 1505.

[1] Lieut.-Colonel J. W. Barrett, *Lancet*, March 17th, 1917.

LIBRARY OF THE URBANA-CHAMPAIGN

chloride, strong enough for bactericidal action, but not strong enough to cause much irritation.

As regards the efficacy of these prophylactic measures (a better term would perhaps be "abortive") it is a mistake to place too much reliance on them in actual practice, at any rate in the case of syphilis, for the point of inoculation is not known as it is in experimental inoculation. It is obvious that mercurial ointment applied to the penis will not prevent the development of a chancre of the lip. However, as the great majority of chancres occur on the penis, such measures are certainly worth trying.

Some correspondents appear to have an exaggerated idea of the value of these preventive measures, Mr. Hugh Elliot, for example, referring to them as "the means of preventing and abolishing syphilis."[2] Metchnikoff's ointment was introduced more than ten years ago, yet the pale spirochaete still pursues its evil course. It is well that the public should understand that, although the incidence of syphilis may be appreciably diminished by the widespread use of these local applications, it is Utopian to imagine that they will abolish syphilis from the face of the earth.—I am, etc.,

C. F. MARSHALL.

Military Hospital, Prees Heath, April 17th.

CHILD MORTALITY.

SIR,—At no time in the history of the British empire has the value of infant life as an asset of the State risen to the height that it is now doing, chiefly on account of the ravages of this dastardly war, mendaciously and stealthily provoked, but partly also on account of our steadily and regretfully declining birth-rate, a declension which has been in evidence for nearly a quarter of a century, and which is quite independent of our war conditions.

It is, of course, not feasible for the State to cause an increase in infant life, but it nevertheless can do much, and it is its bounden duty to do everything possible to preserve infant life with which it is presented.

In the JOURNAL of April 21st, in your leading article dealing with the recent report on child mortality emanating from the Local Government Board, you make pointed reference to the high hopes entertained by that Board of effecting a speedy and mighty reduction in our present lamentable infant mortality. Those hopes are expressed in the following terms: "In every area a very high proportion of the total present mortality could be obviated, and it is well within the range of administrative action to reduce the child mortality within the next few years to one half of its present amount." All who scan carefully the recent circulars and memoranda issued by the Local Government Board to local authorities on the question of child welfare must be extremely sceptical of the great results which are likely to be attained through the "administrative action" therein portrayed, and will readily subscribe to your statement that "there is, we fear, hardly a remote probability that anything like this saving of 70,000 children a year will be effected within the next few years." In the closing sentence of your article you very pithily remark, "even the measures that are now advocated and supported by grants are in many respects little more than tinkering with the problem," and this undoubtedly is the true position of affairs.—I am, etc.,

London, W., April 23rd. JAMES OLIVER, M.D., F.R.S.Edin.

GLYCERINE IN DISPENSING.

SIR,—When a chemist is asked to dispense a prescription containing an ingredient which he has not and cannot obtain, his duty, far from not being clear, is clearness itself, and no amount of economic conditions obscures it. He should inform the patient or the prescriber, or both, that the prescription cannot be dispensed for the reason stated; of course, in the case of an *error* in the prescription, the prescriber only should be informed.

In view of the fact that recently an insurance committee seriously made the preposterous suggestion that chemists should be instructed to omit glycerine and its preparations from prescriptions containing them, it may be well to point out that the chemist would be liable to an action at law for so tampering with a prescription, and a defence based on the committee's "instruction" would no more avail than a defence of pocket-picking or assault on the same ground.

Doctors are aware of the shortage of glycerine, and that it has practically no medicinal value, so that if they are so foolish and inconsiderate as to go on prescribing it, the way to bring them to reason will be the returning of the prescription, when the delay and the extra trouble of again seeing the patient and altering the prescription will probably be effectual. As a matter of fact there is very little glycerine or its preparations being prescribed at present, as an examination of the panel prescriptions sent in demonstrates.

In any case it cannot be too widely known that no one but the prescriber can authorize a dispenser to alter a prescription, and if without such authority a dispenser interferes with the formula he may find himself in a very unpleasant predicament. He certainly will if I am the prescriber.—I am, etc.,

London, S.E., April 29th. C. H. PRING.

*** With regard to the use of glycerine substitutes, Messrs. Squire and Sons, Ltd., inform us that they have recently examined two glycerine substitutes now on the market. One consisted of a solution of glucose about the same specific gravity as simple syrup, and the other of mucilage of tragacanth preserved with chloroform water. Glycerine is used in prescriptions (apart from its sweetening effect) partly to give viscosity, so that the solution shall cling to the mucous surfaces, and in lotions to prevent them drying too quickly. Either of the substitutes examined would give viscosity and would also retard evaporation, but the final effect on the skin would be very different. Glycerine is also used as a solvent and as a preservative, and for both these purposes could only be replaced by alcohol. Glycerine has also an osmotic effect as in cataplasma kaolini (*U.S.P.*), and cannot in this respect be replaced by any known substitute.

THE OLDEST AGE OF PARTURITION.

SIR,—The following case may be of interest to your readers. M. H., born March 10th, 1846, in the parish of B., and certified by Mr. Thomas Roberts, superintendent registrar, for the purpose of old age pension, which certificate I saw to-day, has had nine children; four are living; the youngest was born October 19th, 1895. He is in good health, and 5 ft. 11½ in. in height, but failed to pass into the army. The mother of M. H. died at the age of 98. M. H. is hale and hearty. Her husband died about twelve years ago of pneumonia; he had small-pox in his younger days. He was of moderate build and size.

M. H. was therefore 49 years and 7 months old when her youngest child was born. She ceased to menstruate at the age of 54.—I am, etc.,

R. OWEN,
Penygroes, N. Wales, April 3rd. District Medical Officer.

Universities and Colleges.

UNIVERSITY OF GLASGOW.

THE Arnott prize of £25 in physiological physics has been awarded to Mr. John Kirk, M.A., B.Sc., and the Bellahouston gold medal for eminent merit in the thesis for M.D. to Dr. Thomas Walmsley. The George Roger Muirhead prize of £2 5s. for chemistry has been won by Messrs. J. Shulman and J. Wilson, who were equal; Mr. W. Napier has been awarded the special prize in laryngology and rhinology.

UNIVERSITY OF EDINBURGH.

THE Business Committee presented a report to the meeting of the General Council of the University of Edinburgh on May 2nd, recommending draft ordinances for the foundation of chairs of French and of Medical Chemistry. The institution of the latter chair is welcomed as a most important step towards strengthening the faculties both of medicine and science. It is recommended that the endowment of the chair should be £15,500 and the salary of the professor not less than £1,000 a year. The adoption of a draft ordinance instituting a degree in commerce was also recommended.

Interim reports were presented on the general question of the development of the university after the war. The foundation of a central research fund, to be drawn upon to aid individual researches, was advised. It would be necessary to secure co-operation between manufacturers and the universities, and a beginning, it was suggested, might be made by the university offering to attempt the solution of problems presented to it by manufacturers under conditions of confidential treatment and

[2] BRITISH MEDICAL JOURNAL, February 24th.

remuneration, details of which could only be determined by the circumstances of each particular case.

A subcommittee advised that the University Court should be asked to call a conference of the Royal Colleges of Physicians and Surgeons, the School of Medicine (extra-mural) of the Royal Colleges, and the Edinburgh Dental School dependent upon it, to consider the future position of the schools and their relation to the university.

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary comitia was held at the Royal College of Physicians of London on April 26th, the President, Dr. Frederick Taylor, being in the chair.

Licentiates.

Licences to practise physic were granted to 101 candidates who had passed the required examination.

Election of Fellows.

The following gentlemen nominated by the Council were elected to the Fellowship of the College: Dr. Robert Henry Cole, Dr. David Nunes Nabarro, Dr. Henry Willoughby Gardner, Dr. John Telfer Calvert, Dr. Reginald Henry Miller, Dr. Carey Franklin Coombs, Dr. Percy Whittington Saunders, Dr. Wm. Errington Hume, Dr. Henry MacCormac, Dr. Charles Joseph Singer, Dr. Edward Palmer Poulton.

Proposed Suspension of Systematic Lectures.

The following communication from the Committee of Reference was referred to the Committee of Management for consideration and report: "That in consequence of (1) the depletion of the staffs of the hospitals and medical schools; (2) the reduction in the number of students; (3) the amount of time necessarily devoted by students in their fourth and fifth years to practical clinical work owing to the shortage of resident medical officers—the Royal Colleges of Physicians and Surgeons be requested to consider the desirability of suspending, during the period of the war, the regulations that students should attend systematic courses of lectures."

Proposed Inter-Allies Conference on Spas.

It was resolved to inform the Local Government Board that the College considers that it is advisable that His Majesty's Government should send a delegate to the proposed conference after the war, for the improvement of spas, etc., in the Entente countries, should such conference be held, and that the College would be glad, if it were desired in the future, to advise as to the selection of such a delegate.

Recognition of Schools.

On the recommendation of the Committee of Management the following institutions, already recognized for instruction in Chemistry and Physics, were recognized also for instruction in Biology: Cranleigh School; the Intermediate School, Pontypridd.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have passed the final examination: Mary G. Jones, R. Austin, S. S. Barton, R. L. Bellamy, A. B. MacDougall, A. B. Black, W. Brown, N. S. Bruce, L. W. Hughes, E. G. Jones, R. G. Battersby, J. J. Mulvey, Don Adrian Jayasinghe, R. N. Burton.

Obituary.

SIR MARC ARMAND RUFFER, C.M.G., M.A., M.D.OXON.,

PRESIDENT OF THE SANITARY, MARITIME, AND QUARANTINE COUNCIL OF EGYPT.

WE regret to record the death of Sir Armand Ruffer, the distinguished President of the Egyptian Sanitary and Quarantine Council, and one of the principal authorities on all matters relating to public health in Egypt. Marc Armand Ruffer was born in Paris in 1859, the son of Baron Alphonse Jacque de Ruffer. He was educated at Brasenose College, Oxford, where he graduated B.A. in 1883, and at University College, London. He took the degrees of M.B., Ch.B. in 1887 and proceeded to the M.D. two years later. From this time onwards he devoted a considerable share of his energies to research in bacteriology and pathology, and was a frequent contributor to these columns, scarcely a volume appearing without some record of original work from his pen.

For a time he was director of the British Institute of Preventive Medicine, which was then struggling for existence, and there is no doubt that his scientific habit of mind, wide reading, technical skill, and strong personal character, did much to lay well and truly the foundations of the Lister Institute of to-day. At that time he was well known in medical London and exercised a great influence over the men of his own generation. He was not a man of many words, but when his burly form rose and his voice, with its characteristic burr, was heard, men listened, for they knew that he would have something to say which would be based on personal experience and knowledge of what had been done in other countries. He seemed to have a great future before him as an exponent of bacteriology and pathology in this country when, much to the surprise of the majority of his friends, he accepted in 1896 the post of professor of bacteriology in the Cairo Medical School. In 1901 he became president of the Sanitary, Maritime and Quarantine Council of Egypt, which has its head quarters at Alexandria. That post he retained until his death, discharging its duties with wisdom and success. When he first took office, and for many years afterwards, Egypt was annually threatened by epidemics of cholera, introduced by the returning pilgrims, and the prevention of the disease was the greatest problem he had to solve. It was only solved by constant vigilance, by thorough organization, and by the exercise of arts of diplomacy which those who knew Ruffer in his early days hardly supposed him to possess.

While doing this important administrative work he continued his laboratory investigations and also undertook various public duties; thus he was a member of the Indian Plague Commission, Egyptian delegate to the sanitary conferences of 1903 and 1911 in Paris, and of 1907 in Rome, and the representative of Egypt at the International Bureau of Hygiene in Paris. Other activities of a very busy life included the presidency of the Alexandria municipal delegation, and for a while the post of Commissioner to the British Red Cross Society and Order of St. John. His services to science, and to Egypt, were publicly recognized on many occasions. His foreign honours included the Grand Cross of the Medjidieh; Grand Officer of the Osmanieh; Commander of the Order of Saviour of Greece; Commander of the Order of St. Anne of Russia; the Cross of Italy; and Officer of the Legion of Honour. The C.M.G. was conferred upon him in 1905, and a knighthood in 1916. The *Times* correspondent at Cairo states that his death occurred on the way back from Salonika where he had been engaged in the reorganization of the sanitary service of the provisional government of Greece. During recent years he took an increasing interest in archaeological matters, and published a number of papers upon subjects connected with the anthropology of ancient Egypt.

HENRY HETLEY, M.D.LOND., J.P.,

UPPER NORWOOD.

WE regret to record the death on April 13th of Dr. Henry Hetley of Upper Norwood. He was born in 1851 and educated at King's College, London, and Guy's Hospital. He had a brilliant student career. He held the resident appointments at Guy's Hospital of house-physician, house-surgeon, and resident obstetric officer, after which he was house-surgeon at Leicester Infirmary and medical officer to St. Luke's and the London Fever Hospitals. In 1878 he became partner to his uncle, the late Dr. Frederic Hetley, J.P., D.L., whom later he succeeded. During his forty years of medical practice in the neighbourhood, Hetley, by his strong personality and force of character, became the recognized leader of the medical profession in the district round about the Crystal Palace. In addition to building up a great general practice, he also acted as surgeon to the Norwood Cottage Hospital for thirty-five years, keeping abreast of the developments of surgery during that period.

In the medical activities of the district he always played a prominent part. He was the leading spirit in the Sydenham District Medical Society, in which he held office first as secretary and later as treasurer for a period of thirty-four years, and to his firmness and kindly wisdom the society largely owes its traditions, which have made it both successful and powerful. For many years also Hetley did good and useful work for the British Medical Association, holding the positions of chairman of the old Norwood Division and also of president of the South-Eastern Branch. His presidential address at the annual meeting of the latter upon some of the amenities of general practice will long be remembered by those present for its pungent wit and genial sarcasm.

The Surrey Benevolent Society is also greatly indebted to Hetley for his valuable services as treasurer for some years past. But his abundant energies were not exhausted by his medical work, public and private. His shrewd knowledge of men and kindly sympathy soon gave him a leading position on the Croydon Bench. Moreover, on the outbreak of war he threw himself with all his old energy into every useful movement organized in Croydon or

LIBRARY OF THE URBANA-CHAMPAIGN

Upper Norwood, and when the Croydon War Hospital was opened he was appointed senior physician at the Davidson Road Division. Such additional strenuous work was too much for him; early in the year he had a severe attack of influenza and bronchitis, and later when a dangerous internal malady was discovered he failed to recover from the necessary radical operation. His loss is deeply felt not only by his immediate circle of friends but also by the poor of the neighbourhood, to whom he freely gave his services at all times.

THE death of Dr. L. K. H. HACKMAN, of Portsmouth, announced in the JOURNAL of April 7th, was due, we have since learnt, to epidemic cerebro-spinal meningitis, no doubt contracted in the discharge of his duties as a civil medical practitioner attending military patients at the Reception Hospital and elsewhere. Dr. Leon, of Portsmouth, died nearly a year ago of the same disease, contracted apparently in the same way. Dr. Hackman became honorary secretary of the Portsmouth Division on the death of Dr. Mumby, but before that he had been for many years a constant attendant at meetings, and an active participant in every measure calculated to benefit the profession. This was especially illustrated by his work in connexion with the Insurance Act, which gave such satisfaction to his medical brethren that they raised a testimonial and presented him with a flower bowl and a cheque. On more than one occasion he represented the Division on the Representative Body; he also served on the Panel Committee and the Medical Service Subcommittee, and was the secretary of the local Medical War Committee. He served also on the Branch Council both as one of the Portsmouth elected representatives and as an *ex officio* member, by virtue of his holding the office of honorary secretary of the Division; Dr. Bodington, now president of the Branch, writes: "He always impressed me with his special knowledge of official affairs; he will be a great loss to the British Medical Association, apart from the personal loss to his many friends." He had the happiest of home lives; he had thirteen children, of whom ten reached adolescence; nine of them were boys, and six joined the army when war broke out. One was reported missing after Neuve Chapelle and was never again heard of; but his father bore this great sorrow with characteristic courage, and worked even more devotedly than ever. The funeral took place on March 26th, when over fifty medical men of the town and district, military and civil, were present. Dr. Ward Cousins, the senior member of the profession in the district, was prevented from attending by slight indisposition. The funeral was also attended by representatives of the St. John Ambulance, of the Philharmonic Society, of the Parish Church, and of the Ruridecanal Society, with all of which Dr. Hackman was connected.

DR. CHARLES S. BRADDOCK, who died at Haddonfield, New Jersey, on March 25th, at the age of 53, was born in 1863 and took his degree at the Jefferson Medical College in 1896. He served in a cruiser in the Spanish-American war, and afterwards practised for some years in his native place. In 1901 he was appointed chief medical inspector of the Royal Siamese Government and fought indefatigably for the sanitary betterment of that kingdom. One of his last acts in Siam was to draw up the code of health laws now in force there.

The Services.

INDIAN MEDICAL SERVICE.

THE Secretary of State for India again gives notice that applications for appointment by nomination to the Indian Medical Service should be addressed to the Military Department, India Office, Whitehall, S.W.1. Applicants must be over 21 and under 32 years of age; the appointments are made on the recommendation of a Selection Committee.

EXCHANGE.

Temporary Captain R.A.M.C., age 27, desires to exchange with Temporary Surgeon, R.N.—Address No. 1450, BRITISH MEDICAL JOURNAL Office, 429, Strand.

Medical News.

A STATUE of Berthelot, the great organic chemist and the founder of thermo-chemistry, will be unveiled this month in the gardens of the Collège de France. He did much of his work in the laboratories of the college.

THE Sydney Ringer biennial memorial lecture will be delivered on Friday, May 25th, in the lecture theatre of University College Hospital Medical School at 4 p.m., by Professor A. R. Cushny. The subject is digitalis and auricular fibrillation.

A QUARTERLY meeting of the Medico-Psychological Association of Great Britain and Ireland will be held on Tuesday, May 15th, at 11, Chandos Street, Cavendish Square, at 3 p.m., when Dr. R. H. Steen will read a paper on hallucinations in the sane.

THE Home Secretary has extended the permission to persons bona fide engaged in the practice of dentistry, but not registered, to purchase preparations containing not more than 1 per cent. of cocaine for use as local anaesthetics in dental work until July 31st next.

A REUTER telegram from Petrograd states that a conference of delegates of medical officers of the army and navy has adopted a resolution in favour of the immediate mobilization of doctors of both sexes to meet the needs of the army and the country.

THE Army Council has notified its intention to take possession of all stocks of quinine, phenacetin, and formaldehyde. The order will not apply to firms holding stocks of less than 100 oz. of quinine sulphate, or 25 oz. of quinine bisulphate, quinine hydrochloride, or quinine bi-hydrochloride, or 7 lb. of phenacetin, or 10 gallons of formaldehyde solution 40 per cent. Pending receipt of instructions firms may deal with the quantities of their stocks mentioned above.

A RECEPTION by the President and Council of the West London Medico-Chirurgical Society will be held at the West London Hospital, on Wednesday, May 23rd, at 8.30 p.m. A musical entertainment will be provided, and the West London Medal will be presented to Fleet Surgeon Francis Bolster, M.D., and Major Harold Edgar Priestly, R.A.M.C., for exceptional heroism in the discharge of medical duties. Applications for tickets, price 5s. each, should be addressed to Dr. Reginald Morton, 66, Harley Street, W. The whole of the proceeds will be given to the Officers' Families Fund, to be specially devoted to the families of officers of the Royal Army Medical Corps.

THE President of the Board of Agriculture has appointed a committee to consider the question of the production and distribution of milk, with Major Waldorf Astor, M.P., as chairman. Among the members are Major Gerald R. Leighton, M.D., Inspector of Abattoirs and Dairies to the Scottish Local Government Board, and Mr. A. W. J. McFadden, C.B., M.B., Chief Inspector of Foods to the Local Government Board of England and Wales. Communications may be addressed to the Secretary of the Committee, Mr. J. Mackintosh, at the Food Production Department, Board of Agriculture, 72, Victoria Street, S.W.1.

THE Triennial Prize of the Royal College of Surgeons of England, consisting of the John Hunter medal in gold to the value of fifty guineas, or, at the option of the author, a medal executed in bronze, with an honorarium of £50, will next be awarded for the best essay on "The development of the hip-joint and the knee-joint of man." Essays must be received at the college not later than Tuesday, December 31st, 1918. The subject of the Jacksonian prize for this year, essays in competition for which must be received on December 31st, 1917, is "The causation, diagnosis and treatment of traumatic aneurysm, including arterio-venous aneurysm." As already announced, the subject of the prize for 1918 is "Injuries and diseases of the pancreas and their surgical treatment."

AN inter-Allies conference for the study of the industrial re-education of disabled soldiers will be held from May 8th to the 12th, 1917, in Paris at the Grand Palais. The programme includes discussions on physical re-education, industrial re-educational establishments, and labour bureaux; the social and economic interests of disabled soldiers; and the care of the blind and deaf, and sufferers from grave central nervous lesions. The opening session will be presided over by the President of the French Republic. The presidents of the Franco-Belgian Committee of Organization are Baron de Broqueville, Belgian Minister for War, M. Léon Bourgeois, M. Justin Godart, and M. Roden. An Anglo-Belgian Committee for re-education has been formed, with offices at 6, Burlington Gardens, London, W.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediseora, Westrand London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

E. L. B.—The most suitable institutions for an epileptic boy, aged 12, would be the Epileptic Colony at Chalfont, Bucks, which has special schools for children, or the David Lewis Epileptic Colony, Sandlebridge, Alderley Edge (apply to the medical superintendent); our correspondent might communicate with Mr. G. Penn Gaskell, who is secretary both of the Epileptic Colony at Chalfont and of the National Society for Epileptics, Denison House, Vauxhall Bridge Road, London, S.W.

ACNE.

CAPTAIN, R.A.M.C., writes, in reply to "R." (April 21st, p. 532): Use plenty of hot water to the face and wash it night and morning with a mixture of equal parts of sapo mollis and sp. vini rect., and afterwards paint on with a camel hair brush lotio calaminae and allow it to dry on. I suffered from chronic acne for some years and after trying almost everything found the above the only remedy of any value.

MR. R. JOCELYN SWAN (Wallington) suggests the following reply to "R.": Let the child's face be well washed at bedtime, and some of the lotion mentioned below dabbed on with a sponge and allowed to dry on. In the morning let the adhering powder be lightly removed with a soft towel (no washing).

℞ Lac sulphuris ... ... ʒij
Zinci oxid. } ... ... āā ʒj
Lapis calamin. }
Glycerine ... ... ʒj
Aq., q.s. to the consistency of cream (about ʒiv)
M. Ft. lotio.

THYMOL MOUTH WASHES.

B. G. W.—When thymol is given in large doses—for example, from ⅔ gram to 2 grams (30 grains) in solid form as an anthelmintic—it is certainly necessary to exclude all good solvents of the drug (oils, alcohol, etc.) from the dietary, in case these large amounts should be absorbed. The thymol, referred to as harmless, in the paper on mouth-washes (BRITISH MEDICAL JOURNAL, April 14th, 1917, p. 474) is the minute amount present in aqueous solutions and liable to be accidentally swallowed during use as a gargle.

The *British Pharmaceutical Codex* contains a formula for compound glycerine and thymol for use as an antiseptic and anticatarrhal wash, to be applied, diluted with two to five parts of water, as a spray to the throat and nose, or used as a nasal wash in a glass irrigator. It contains in addition to a number of other ingredients 4½ grains thymol in 20 fluid ounces.

LETTERS, NOTES, ETC.

PETROL DUTY REBATE.

WE are informed that the Petrol Control Committee refuses to accept the contention advanced in the note published in the JOURNAL of April 21st, p. 532, to the effect that the rebate on petrol duty to which medical men are entitled is 4½d. The contention of the Petrol Control Committee is that the licence duty of 3d. per gallon payable to it is an additional duty on which no rebate can be claimed, and has no connexion with the price charged by retailers. It is held that the total amount that can be claimed is 3d. a gallon off the duty payable to retailers.

SURVIVAL IN SPINA BIFIDA.

MR. JOHN GAY, medical officer to the Royal Hospital for Incurables, Putney Heath, S.W., informs us that there has just died in that institution a woman, aged 53, the subject of spina bifida. The tumour was very large and entirely covered with skin; she had incontinence, and the legs being paralysed and curiously contracted, she had lain for a good many years on the abdomen and chest. Survival to this age must, Mr. Gay thinks, be very uncommon.

SHOCK FOLLOWING INTRAVENOUS INJECTIONS OF CHEMIO-THERAPEUTIC PRODUCTS.

DR. G. ARBOUR STEPHENS (Swansea) writes: An experiment described in my article on colloids in physiology and pathology in the *Practitioner* for September, 1910, may have some bearing on the statements in Mr. McDonagh's letter on shock. It is as follows: When pure H_2O_2 is added to clean mercury bubbles of oxygen are given off with pulse-like regularity, the mercury remaining unchanged. When, however, the mercury is shaken up with a solution of calcium chloride and drained, previous to the addition of the H_2O_2, the reaction is altogether different; a violent disturbance takes place, the test tube gets quite hot, and the mercury is churned up into a dull grey mass, whilst some of it becomes colloidal.

PROMOTION OF TEMPORARY R.A.M.C. OFFICERS.

IN reply to the suggestion of "Temporary Captain R.A.M.C." printed in our issue of February 17th, p. 248, that temporary officers of his standing should be promoted to the rank of major upon completion of two years' service, we have received several communications. We select the following as they represent three different points of view:

CAPTAIN R.A.M.C. SPECIAL RESERVE writes from his experience of seven years' service to point out to his brother officers with temporary captaincies that if they were in the Special Reserve the normal period before attaining the rank of major would be eleven years.

MAJOR draws our previous correspondent's attention to the fact that there are in the R.A.M.C. Territorial Force a number of majors, with the highest medical qualifications and over twenty years' continuous service, who have qualified by examination for the rank of lieutenant-colonel, but who are unable to obtain promotion.

Another correspondent, a temporary captain in the R.A.M.C., writing in support of the proposal if feasible, expresses the feeling that the arduous work of medical officers who have served in base hospitals and clearing stations for two years or more has met with little individual acknowledgement. He makes the point that relatively to the size of the corps the R.A.M.C. shows at present a small number of officers of field rank, compared with, say, the R.F.C. or the A.S.C. He feels sure from his own experience of the treatment of temporary officers by the authorities that the suggestion would be considered in a sympathetic spirit.

It is probable that the War Office would strongly oppose on various grounds the automatic promotion to field rank of temporary officers at the conclusion of two years' service. But a strong case might be made out for the promotion of those temporary officers of more than two years' standing who hold such responsible posts as officer in charge of division, registrar or surgical specialist, to the acting rank of major; and we believe this has already been advised by commanding officers of medical units and other military authorities who recognize the desirability of such a course on the score of efficiency as well as of justice to individuals.

PROFESSIONAL STATUS AND MILITARY RANK.

M.R.C.P. writes to suggest that army rank should be given to medical men "according to their seniority in the profession in conjunction with the degrees and diplomas they hold." Unfortunately no one has yet been able to devise a workable scheme for grading degrees and diplomas, or even seniority in the sense implied by our correspondent. M.R.C.P. maintains further that the army custom whereby officers sign their names to the findings of a medical board in order of rank, and civilian practitioners sign after commissioned officers, "subordinates" the civilian when he is of higher professional standing than his colleagues on the medical board. We scarcely agree that this is the effect, and we do not share our correspondent's objection to making the most senior regular officer, with his administrative experience, president of a medical board, since the highest technical authority does not always make the best chairman.

It is generally admitted that the present method of giving military rank to civilian surgeons is far from ideal. There are many hardships and annoyances, but so far as we know nearly all temporary officers, and partly employed civilian practitioners, take the sensible and patriotic view, and recognize the impossibility of any satisfactory gradation of military rank in accordance with age, professional status, appointments, qualifications, and so on. In particular, we deprecate this correspondent's suggestion that the self-styled consultant or specialist, no matter how many his degrees and diplomas, is necessarily of higher professional standing than the general practitioner, and therefore to be given superior army rank as a matter of course.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

INFANTRY OF THE LINE
CHAMPAGNE-MARNE

THE RESTRICTED SUPPLY OF FOOD: ITS RELATION TO HEALTH AND EFFICIENCY.*

BY

M. S. PEMBREY, M.A., M.D.,

LECTURER ON PHYSIOLOGY, GUY'S HOSPITAL.

THE relation of an inadequate supply of food to health and efficiency is not a new problem, for in the past it has constantly claimed the attention of the medical profession and social reformers. In this country the conditions have been supplied by the poverty of a limited class and the inefficiency of many mothers of all classes in the most important function of motherhood. Our slums and hospitals supply ample material for observation, and numerous small graves in every churchyard throughout the country are at the same time eloquent evidence of the results of inadequate food and woman's failure in her first duty to the race.

The question is now more urgent because the public generally is involved and its attention is arrested, whether it will or not, by varying and often conflicting orders and advice. In the complex conditions of modern life we have been taught to neglect and distrust the dictates of instinct, and need guidance upon the fundamental principles of nutrition.

Food in the strict sense relates to any substance which is taken into the digestive system and serves for the growth, maintenance, and repair of the body. The best types of perfect foods are represented by milk and eggs, for an infant flourishes and doubles its living substance if fed entirely on its mother's milk for six or seven months; an egg serves for the development and growth of the chick during the twenty-one days of incubation, and even for the subsequent day or two. A study of the composition of these foods shows that the essentials are proteins, carbohydrates, fats, salts, water, and substances of unknown composition known as "vitamines." Proteins contain nitrogen, and are represented by meat, the casein of milk and cheese, and the gluten of corn; the carbohydrates in common use are starch and sugar; the so-called "vitamines" are found in most fresh and natural foods, such as milk, eggs, corn, and vegetables.

The food required by an individual varies according to many factors that it is impossible to give any dogmatic statement. Even in the case of a simple steam engine rough estimates only can be given of the probable amounts of fuel necessary for its efficient working at different speeds; trials and experience of its personal equation must be obtained. In the living body the problem is far more complex, and the important factors, age, sex, occupation, and environment will need consideration.

In a discussion upon this subject it is convenient to start from some definite point, for instance, the condition of an adult man doing no work and taking either no food or just sufficient to maintain his life. A man can fast for thirty to forty days without any fatal or very serious results, as the observations upon the professional fasting men have proved. Water they must have, and food they will obtain by living upon their own living substance. The material consumed by a fasting man corresponds to foodstuffs which would yield 1,500 to 2,000 calories per day. Combustion, therefore, is a characteristic of life and in man only ceases with life itself. A man at rest in bed requires food with a fuel value of about 1,800 calories per day to make good the daily loss, which is due to the "physiological work" of living. Even during the deepest sleep the body is always at work, the heart must continue to pump the blood, the muscles of the chest and abdomen contract in the process of breathing, and the glands elaborate their products.

The voluntary ration, 4 lb. bread, ¾ lb. sugar, and 2½ lb. meat a head a week, yields about 1,200 calories a day, and when allowance is made for women and children is calculated to supply 2,000 calories per man. It may therefore be considered a maintenance diet, and with the addition of other food will form an adequate diet for a man doing light work.

It is now possible to consider briefly the quality and quantity of food required in relation to age, sex, occupation, and environment.

*Lecture given to the Royal Sanitary Institute on April 25th, 1917.

Age.

The infant is a physiological unit and has its own special requirements; it would be a fatal error to estimate its needs at one-tenth of that of a man because its body weight is only one-tenth. It thrives best when it is treated like any other young animal, and receives as much of its mother's milk as it cares to take. The value of this food expressed in calories per day is about 400 for a young baby at the breast; in infants of 1 to 2 years of age it is about 1,050 calories. The young child needs in proportion to its weight a far larger amount of food than does the adult, for it is rapidly growing, and owing to the large surface of its body in relation to its mass it must produce more heat in order to maintain the temperature of its body. As the healthy child grows older he becomes relatively more active than an adult, and makes a further demand for food. The boy of 10 to 16 years of age often requires as much food as his father.

Sex.

Women require less food than men, for they perform less muscular work; but during pregnancy and suckling the development of the offspring makes an extra demand upon the supply of food. The employment of women in hard manual labour cannot fail to increase their consumption of food as long as they are efficient.

Occupation.

The laws of nutrition hold good for all classes, from the highest to the lowest; the various occupations, however, owing to the different outputs of energy involved, make very different demands upon the food. The dietary which would be generous for a man or a horse doing no work would be slow starvation if he were forced to work hard each day. A system of rations, therefore, which pays no attention to occupation is absurd. In the following table of standards, due to Atwater, it will be seen that a man doing very hard work requires twice as much food as the man who does none.

Condition as regards muscular work.	Calories required per day.
None	2,700
Light	3,000
Moderate	3,500
Hard	4,500
Very hard	5,500

Environment.

In cold weather more food is required for the maintenance of the heat of the body and the greater muscular activity which is a response to the stimulating action of cold. Animals and men inadequately fed quickly perish when they are exposed to severe cold.

Individual Differences.

Apart from the foregoing factors attention must be given to the personal equation of the individual. Some men work economically, others extravagantly; one man's food is another man's poison. Free choice of food makes for efficiency.

Standard Diets.

Reference has been made already to Atwater's standards for the food required by men, and it will be interesting to see what are the daily rations allowed for the navy, army, and institutions for the young and old in this and other countries. (See Table I.)

These figures, collected from various sources, supply data which will serve as a basis for discussion; it is true that allowance cannot be made in all cases for waste, but against this must be set the increase due to the food which is bought. The figures for Japan and China show how erroneous is the popular idea that the inhabitants of those countries can live upon a handful of rice. There is no physiological reason for believing that different races have any fundamental differences in nutrition when every allowance is made for external factors.

A system of rations may be necessary under certain conditions, but it is an uneconomical one, and on physiological grounds is unsound. It allows little or no free choice of food, and is not readily adjusted to the various factors which determine the need of different qualities or quantities of food. Likes and dislikes are expressions of physiological needs. Healthy men are animals, and when

TABLE I.—*Standard Diets.*

	Protein.	Fat.	Carbo-hydrate.	Total Calories.
	Grams.	Grams.	Grams.	Grams.
*Food supplied, free, seamen, Royal Navy	91	48	406	2585
*Food supplied, free, boys, Royal Navy	107	69	406	2745
†Food consumed by seamen, Royal Navy	176			4080
Food supplied free to four British regiments	133	115	424	3369
British army (South Africa minimum)	138	105	528	3903
Russian army (Manchuria) ...	187	27	775	4891
Japanese army (Manchuria) ...	158	27	840	4343
United States of America army (peace ration)	157	140	603	4179
Ordinary prisoners, Scotland, light work, mostly sedentary	135	35	536	3115‡
Convicts, Scotland, "hard labour" so called = moderate work	173	57	602	3707‡
Convicts, England, "hard labour"	177			4161‡
United States of America, members of two college football teams	225	334	633	6812§
United States of America, labourers at hard muscular work	177			6485
United States of America, very poor working people	69			2275
Japan, labourers	118			4415¶
China, labourers	91			3400¶
Egypt, labourers	112			2825¶
Duke of York's Royal Military School (young men)	157	206	472	4514
Boys 9–14 years of age at English public school	123	97	430	3400
Children over 8 years of age in London County Council school	88	66	377	2515

* Allowed also 4d. a day to buy extra food.
† Alcohol not included; no allowance for waste.
‡ Food supplied.
§ Food eaten.
¶ Energy utilized.

they work steadily and well do not overfeed, even if they have free choice of abundant food. This is well shown by the fact that the average weight of the body remains very constant over long periods—it may be years—in the healthy and active adult; and likewise, as would be expected, the average consumption of food and the output of work.

The limitation of the system of rations is shown by the presence of dry canteens in the services; the numerous eating-houses in garrison towns and ports; the parcels from home, and the "tuck" shops for school children. Rigid rations, if they are adequate for a large number of men, must lead to waste, for in no other way can allowance be made for various physiological needs.

Restricted Supply of Food.

The supply of food may be inadequate in quality, quantity, or in both. The foodstuffs which at the present time must be considered are wheat, meat, milk, sugar, and potatoes. A deficiency in one form of food may be covered by another article which is available. Substitution can by physiological processes be carried further than is possible by the chemist. In the living body sugar and fat can be formed from starch in the food, and the reverse processes are also possible. As a general law it may be stated that as sources of energy the foodstuffs can replace each other according to their values as producers of heat. Thus the following are isodynamic quantities: 100 grams fat, 232 starch, 234 cane sugar, and 243 dried meat.

Unconsciously this has long been recognized, and experimentally it has been proved by the farmer and physiologist. When the cost of fat and meat is high the working man with a small wage must buy more starchy foods; given an increase in wages but no extra work he will buy more meat and fat. One thing he must have is protein; he can substitute vegetable for animal protein, but he cannot form proteins from starch and fat, for they contain no nitrogen.

Nutrition.

For a condition of health and efficiency the food should be more than enough to cover the outgoings in the form of heat and work; a balance upon the right side is useful for times of extra or special demand. This is especially the case in the young, for, if this balance is not available, healthy growth is impossible. Unsuitable food, inadequate in quality or quantity, or both, is recognized as one of the chief causes of the terrible mortality of children. During the years 1911–14 the deaths of children under 5 years of age in England and Wales were 575,078. Not only may death be caused directly by digestive troubles, but the resistance to infectious diseases is lowered by defective nutrition. The difference in the prospects of life in infants fed at the mother's breast and of those given artificial food is notorious. It is the duty of healthy mothers at all times to suckle their offspring, but never was the duty more imperative than now, when there is a danger of a shortage of the best substitute, cow's milk, at a time when the infant mortality is high and the birth-rate exceedingly low. The mother can form the ideal food for the infant, not only without detriment, but with positive advantage to herself; moreover, she can form the milk from food which contains no milk, but she must be fed well. For children after weaning a supply of cow's milk is necessary, for no longer is it the custom to suckle children of one or even two years of age, as was done in times past. How far the supply of milk is safeguarded will be considered later.

For school children and young adults there is no doubt whatever that safety lies in a generous diet. Underfeeding in animals and man is a greater danger than overfeeding. The vaunted benefits of a sparse diet are apparent only, not real. Most of the cases of obesity are due to insufficient muscular work, an inactive life; the man is no longer a free healthy animal, but resembles the stall-fed ox, which fattens more readily because he does no work and is emasculated. Muscular work will strengthen the heart, lungs, and the whole system, and will prevent the deposition of fat; a sparse diet will lessen the burden of fat, it is true, and will diminish the work of the heart, but it does not raise the efficiency above the average.

The effects of a restricted supply of food are increased directly an imperative demand is made for a great output of muscular work. There are points of resemblance and also of difference between man and a machine. No one expects to obtain work from a steam or petrol engine without a proportionate supply of fuel; the more work, the more fuel. There is always waste, and in respect of efficiency the engine is far behind the living body. The points of difference are enormous. The body is not only a transformer of energy, but effects its own repairs, becomes stronger with use, and even reproduces itself. The widely spread ignorance upon the question of the consumption of food appears to be due to the fact that many of the men and women who write or talk to the public are dwellers in cities, who have never done continuous and hard muscular work. They do not recognize that the law of the conservation of energy applies to man. For national efficiency the man who does essential muscular work must have a greater amount of food than the sedentary worker, and it matters not what may be their respective wage. It is true that for a time man can work without an adequate supply of food, but it is inefficient work at the expense of his living substance; the result is always the same—discontent, less strength, less work, less resistance to disease, and ill health. All records of the effects of forced labour upon men and horses have proved this conclusively.

Regulation for the Supply of Food.

The ideal is a liberal supply of food with free choice. This may be impossible, and the question arises, How is the supply to be regulated in the interests of the nation? The Government have wisely avoided thus far a compulsory ration, but have made attempts at control by fixed prices and other methods. The laws of nutrition will still be in force whatever this or any other Government may do, and wisdom would lie in the recognition of the supreme power of natural law. If one foodstuff is deficient a substitute can be found in others, owing to the powers of adaptation of the body and its capacity of converting some forms of food into others. Moreover, the body as an engine can use different kinds of fuel. If coal fails, steam may be generated in the engines of a ship by oil, wood, or in emergencies even by burning parts of the ship itself. From this point of view the scarcity of wheat must be considered. Other corn can take the place of wheat and

LIBRARY U. OF I. URBANA-CHAMPAIGN

hould be used for this purpose. There is barley and malt sed for the production of alcohol, an inefficient form of ood at the best and a deadly poison in excess. According o the Food Controller there are one million quarters of rewer's malt in this country at the present time; it is not o be used for food, but for the production of beer. The onvictions for drunkenness in the Metropolitan Police District and the City for the first quarter of this year were ,176. The Food Controller says that the food value of eer is not disputed, and the Government does not con- der that it is necessary to save the millions of quarters f barley, malt, and other foodstuffs which are to be used n the manufacture of alcohol. There may be reasons of olicy for allowing alcohol to men in the services or em- loyed in some essential occupations, but there is none for s widespread consumption.

Oats can be used as a substitute for wheat, but there is fficulty in obtaining a ready and cheap supply; the oats e being kept for the horses. A horse may consume) to 80 lb. of oats per week, and hunters and racehorses ceive the best. Hunting and racing have been and are lowed; only now is the Government taking steps to con- der whether savings in this respect should be effected in e interests of the food supply of the people. There are ousands of hunters, racehorses, riding horses, and car- age-horses, used only for pleasure in this country; the nsumption of oats, maize, beans, hay, straw, and carrots these animals must be enormous. With the exception the hay and straw, which would be useful for cows, all ese tons of food could be used by man himself; the jection that the horses are needed as a reserve for breed- g and for the army has no force, for all these animals uld be kept at grass, and under these conditions would erate many men for essential work.

TABLE II.—*Percentage Composition of Certain Cereals.*

	Protein.	Fat.	Carbo-hydrate.	Fuel Value per lb.
				Calories.
Wheat, flour	8.3	1.0	73.5	1615
Barley, pearled ...	6.6	1.0	76.1	1630
Maize, flour	5.8	1.2	76.3	1625
Oat, meal	13.4	6.6	65 2	1795

All of these substances have been used even in times of ce as substitutes for wheat. In some respects oats are etter food than wheat and the fuel value of 1 lb. is ater than the total for one day of the voluntary ration gested by the Food Controller. A horse eating daily lb. of oats consumes an amount of cereal food which uld be sufficient for ten to twenty men.

Sugar and potatoes are foods which were introduced this country in times relatively recent, and it is ious that they are not so essential as some people gine. The children should have the first claim on ar, and they could also obtain milk sugar in milk and t sugar in malt, besides those essential substances wn as "vitamines."

The supply of milk is another difficulty, and it has ived the attention of the Government. A maximum e has been fixed for the retailer and the producer; the ners have been selling their cows and giving up the duction of milk, notwithstanding the fact that it was ery lucrative business according to many writers to the y press. For young children, invalids, and our sick and nded soldiers milk is a food for which no efficient stitute can be found. In the case of infants the ctice of wet nurses should be revived if the mother not or will not suckle her child.

During the spring and summer months there may be erious shortage, for those are the best months; when cows are at grass the supply is large and feeding is p. There is a shortage at the present time, and the mn and winter will show the effects of the reduction he milking herds. Action, however, must be taken . Heifers cannot be made into milch cows under ten ths. The Government have revised their "milk rs"; the farmers ask for the recall of these orders. ny case a reserve of cows could be provided by the end next winter if the Government purchased at once erous heifers and turned them out to graze with young bulls on land owned or taken over by the Government. Even if money were an object, the transaction would be probably a very profitable one. A supply of milk should be safeguarded, and its cost should be low for the sake of the children, even if it be necessary for the State to give a subsidy.

If the scarcity of food is general, the true remedy lies in an extension of the supply. Action has been taken at last, pasture has been ploughed up, but the highly fertile ground of the hop gardens will apparently in many cases still grow hops for beer, instead of corn or potatoes for bread. The hop growers should have compensation, if necessary, but food they should grow, for it is food which is needed.

Another source of food which is undeveloped is the salt-water and the fresh-water fish, but this, owing to the supply of cattle, is not so urgent as the question of cereals.

If the cost of food continues to rise, difficulties of a serious kind must occur, for a strong man is liable to become dangerous when he is hungry. A corresponding rise in wages does not meet every difficulty. The wage is not adjusted to the size of the breadwinner's family. A great relief and a true safeguard for the present and the future would be the free supply of dinner and tea to school-children; the necessary machinery is simple, if the expense is a general one borne by the State. The health of the future generation could be secured, a great burden would be taken from many hard-working and deserving parents. Foodstuffs which the labouring classes cannot obtain readily or cook properly could be used in these free meals and bread would be saved. There would be no danger that the children would be overfed, for even with active and growing children the law of averages as regards food would hold good. Many children, as well as men and women, are doing more work than they ever did before; this means an increase in the consumption of food, especially cheap food, such as the cereals.

Petty orders, such as the prohibition of Sunday-school treats and cakes, show no appreciation of the laws of nutrition, and cause an amount of irritation out of all proportion to the result obtained. The owner of poultry is not allowed corn for his fowl; the hen does not return in eggs and flesh the food value of the grain consumed; no animal ever did or ever will, for it must have some for its life. When allowance, however, is made for the consumption of refuse the hen is economical. The owner of racehorses, hunters, and other horses used for pleasure, is allowed in unlimited quantities the very best oats, maize, and beans that he can buy. He takes the food from the mouths of the poor by outbidding them in the purchase of some of the best articles of food which are scarce at the present time.

ON THE THREE COMMON INTESTINAL ENTAMOEBAE OF MAN, AND THEIR DIFFERENTIAL DIAGNOSIS.

BY

CLIFFORD DOBELL, M.A.,

IMPERIAL COLLEGE OF SCIENCE,

AND

MARGARET W. JEPPS,

BATHURST STUDENT, NEWNHAM COLLEGE, CAMBRIDGE.

(*Report to the Medical Research Committee.*)

AT the present day the belief is widely held that there are only two amoebic parasites of the human intestine—the harmless *Entamoeba coli*, and the dysentery amoeba, *E. histolytica*. Although it is certain that nearly all the amoebae hitherto described from human faeces actually belong to one or other of these species, whatever names may have been bestowed upon them, nevertheless it is now possible to say with equal certainty, we believe, that there are not two, but in reality three different *Entamoebae* commonly inhabiting the human bowel. Our own observations have convinced us personally of this fact, and in conjunction with those of others recently published have, we believe, placed the matter beyond all doubt. As many people are now engaged in the diagnosis of amoebic infections, and as they are still in many cases—as we have good reason to believe—confining their attention to certain forms of the two well-known species only, we think no excuse is needed

for offering the following summary of our present knowledge of this matter. It is clearly of considerable importance that the facts should be widely known, as there are still many convalescent dysenteric patients in the military hospitals and dépôts in this country who are being examined and treated for infection with *Entamoeba histolytica*. A correct diagnosis of such infections is not possible unless the three species of *Entamoeba* commonly occurring in such patients are clearly differentiated from one another, and from other organisms.

We may begin by briefly recording our own experiences, indicating later how they agree with, or differ from, those of others.

Not so very long ago it was generally supposed that the cysts of *Entamoeba histolytica* could be readily distinguished from those of other *Entamoebae* by their size. It was—and still is—stated that the cysts of this organism have an average diameter of about 12 μ, individual cysts varying from this mean by only one or two microns as a rule. We have long known that this is not correct, and that there is a far greater range of size observable in cysts passed in the faeces of different persons. A case observed by one of us at the beginning of 1916 regularly passed cysts of *E. histolytica* having an average diameter of only 7 to 8 μ. Since then we have observed many similar cases. In examining the stools of patients for these small cysts we frequently encountered other small cysts containing one, two, or four nuclei, but differing in structure from those of *E. histolytica*, which at times gave us considerable trouble in diagnosis. These cysts had been figured by Wenyon (1915), and attributed by him to *Chilomastix* (= "*Tetramitus*") *mesnili*. That they did not belong to this organism we soon convinced ourselves, as we have long been familiar with its very characteristic, and always uninucleate, cysts. But to what organism they really belonged we were long unable to decide. Meanwhile we discovered on many occasions small dead or degenerate organisms, associated at times with the cysts in question, and other "cysts" or "bodies" characterized by the presence within them of a large mass of glycogen. We further discovered a small amoeba which in some ways resembled the small free-living amoebae of the *Amoeba limax* type, but which, however, appeared to be a true intestinal parasite, and not a coprozoic form, as it invariably died very quickly after leaving the body of its host. We have now been able to prove that all these cysts and organisms are stages in the life-history of the same form—a small parasitic amoeba which is by no means uncommon in the class of cases examined by us.

In the meantime, descriptions of this organism have been published by Swellengrebel and Winoto (February, 1917) and by Wenyon and O'Connor (March, 1917). To the descriptions and figures of the latter authors we can add but little. They have called the new organism *Entamoeba nana*, and have noted that it is a comparatively common parasite in Egypt. Its frequent occurrence in dysenteric and other patients in this country has not, we believe, been hitherto noted.

We propose now to describe very briefly our observations on *E. nana* and its cysts; to describe then the chief points of difference between these and those of *E. histolytica*—with especial reference to small cysts of the latter; to discuss very briefly certain relevant details concerning *E. coli;* and to add a few notes on the methods which we have found most useful in identifying these species, and distinguishing them from other organisms, in the routine examination of human faeces for the detection of protozoal infections.

Entamoeba nana (Wenyon and O'Connor).

E. nana is a very small amoeba measuring, when rounded, about 6 to 12 μ in diameter, the majority of individuals being about 8 μ. In general structure it somewhat resembles many amoebae of the so-called *limax* group. The protoplasm is generally much vacuolated, the vacuoles containing bacteria upon which the animal feeds. There is no contractile vacuole. The pseudopodia are few, blunt, and hyaline. The very characteristic nucleus is rather small, and not always easily observable in the living organisms. Its karyosome is smaller than that in the nucleus of a typical *A. limax*, and usually occupies an apparently excentric or peripheral position. It is usually irregular in shape and often segmented into several pieces of unequal size united by slender threads. (See Fig. 2.)

The amoeba moves very sluggishly on a cold stage, and very soon becomes rounded up and dies. Attempts at cultivation on amoeba agar have always failed.

The cysts are oval or spherical structures, usually measuring 8 to 10 μ in length or 7 to 8 μ in diameter. The nuclei are 1, 2, or 4 in number in the vast majority of cysts, closely resembling in structure those of the unencysted amoebae, except for their smaller size in late stages of development. (See Figs. 7, 8, 9.) In the quadrinucleate cyst the nuclei usually lie near to one another, and frequently in close contact. Very rarely cysts have been observed containing as many as eight nuclei.

In addition to the nuclei the cysts contain a variable number of highly refringent granules which give some of the reactions of volutin; and sometimes—especially in the binucleate stage—a large dull inclusion is also visible in the living cyst. This is composed of a substance insoluble in alcohol, soluble in water, coloured dark brown by iodine and bright red with Best's carmine, from which we conclude that it is a mass of glycogen.

The cysts of *E. nana* appear to be very resistant. Although they cannot withstand drying, they remain apparently unchanged in moist faeces for more than three weeks. We have stained specimens made after an interval of twenty-four days which are as good as those made from the fresh stool.

From the fact that persons infected with *E. nana* sometimes pass diarrhoeic stools which contain only cysts, it seems to us not improbable that the habitat of this amoeba is the small intestine. (A similar phenomenon is seen in the case of *Lamblia*, which inhabits the small intestine, but is very unusual with the protozoal parasites of the colon.)

We have no evidence to show that *E. nana* is pathogenic. The majority of infections studied by us were in convalescent dysenteric cases; but we have no reason to correlate the infection with the dysentery, and have found the amoebae in persons with no dysenteric history. As the organism resembles *E. coli* in its food habits, it seems likely that it is equally harmless. Many of our cases have been treated for *E. histolytica* infection with emetin bismuthous iodide, but in no case have we observed that the treatment removed the *E. nana*. In this respect also, therefore, this organism resembles the harmless *E. coli* and differs from *E. histolytica*.

E. nana is in our experience a very common parasite. It is only recently that we have kept a careful record of infected cases, and we have not always determined small infections and those in which we found only dead and degenerate organisms. Moreover, most of our recent cases have been examined only twice each, which we know is insufficient to detect all infections. Nevertheless we have recorded over 15 per cent. of the last four or five hundred cases examined as infected with *E. nana* (73 infections in 478 cases).

It seems clear that the organism just described is identical with that described by Wenyon and O'Connor, although they do not mention the occurrence of glycogen in the cysts—a feature which we find very constant and characteristic. Such cysts have, however, been described by Swellengrebel and Winoto for their so-called "*Amoeba limax*," which, as already noted, we also believe to be identical with the amoeba studied by us. Wenyon and O'Connor state (1917) that the organisms previously described by Wenyon (1916) as *Amoeba limax* were in reality *E. nana;* but a still earlier reference to this organism appears to us to be contained in a paper by James (1915). The description and figures of his "free-living amoebae from the human intestinal tract" seem to us to refer almost certainly to *E. nana*, although he notes the occurrence of uninucleate cysts only. James himself identified his organisms with those previously described by Wenyon (1913) and Chatton and Lalung-Bonnaire (1912). Wenyon's amoebae may possibly have been *E. nana*,* but those described by the French authors are certainly not, as they are undoubtedly typical amoebae of the *limax* group.

E. nana appears to have a wide geographical distribution. The infections we have studied were in soldiers invalided to England from Egypt, Gallipoli, Salonica

* Colonel Wenyon's return to England since these lines were written has enabled us to determine this point. He has very kindly allowed us to examine preparations of the amoebae, which he first described in 1912 (*Journ. London School of Trop. Med.*, vol. ii, p. 31). He agrees with us that the amoebae are *E. nana;* and this appears, therefore, to be the first case of infection with this organism on record.

LIBRARY U. OF I. URBANA-CHAMPAIGN



DESCRIPTION OF FIGURES.

All figures, except 13 and 14, depict fixed specimens stained with iron haematoxylin.

FIG. 1.—*E. histolytica*, amoeba of "*minuta*" form belonging to race forming small cysts.

FIG. 2.—*E. nana*, two free amoebae; showing nuclei and numerous vacuoles containing ingested bacteria.

FIG. 3.—Amoeba of the *A. limax* group from human faeces some days old. Note the contractile vacuole, nucleus, and food vacuoles.

FIGS. 4, 5, 6.—Uninucleate, binucleate, and quadrinucleate cysts respectively of *E. histolytica*, race producing small cysts. The black masses in the cysts are the deeply-stained chromatoid bodies; the clear spaces in Figs. 4 and 5 the vacuoles, from which the glycogen has been extracted in making the preparations.

FIGS. 7, 8, 9.—Uninucleate, binucleate, and quadrinucleate cysts respectively of *E. nana*. Compare Figs. 4, 5, 6.

FIG. 10.—Cyst of typical *Amoeba limax*, showing nucleus, chromatoid masses, and thick corrugated cyst wall.

FIGS. 11 and 12.—Cysts of *Chilomastix mesnili*, oval and typical lemon-shaped forms respectively; showing nucleus, remains of buccal structures, and volutin grains.

FIG. 13.—Binucleate cyst of *E. nana* in iodine solution. The black mass represents the deeply-stained glycogen vacuole.

FIG. 14.—Cyst of *Ch. mesnili* containing large mass of glycogen, as it appears in iodine solution.

esopotamia, France, and South Africa. The cases ıdied by Wenyon and O'Connor were in Egypt, James's ses were in Panama, and the three cases of Swellengrebel d Winoto were a European in Sumatra, a Javanese in olland, and a European from the Dutch Indies. It is t, however, possible to state that all the infections were ıtracted in the places mentioned.

We have followed Wenyon and O'Connor in placing the ıoeba just described in the genus *Entamoeba*. It differs, wever, so considerably from other members of the genus especially in its nuclear structure—that we have done with some hesitation. We do not yet think it possible define the limits of the genus *Entamoeba* with precision, ing to our ignorance of the complete life-history of st parasitic amoebae.

Entamoeba histolytica (Schaudinn emend.).

This organism is now so well known that it is unnecesy to redescribe it. We propose here merely to enter into ne detail concerning the dimensions of its cysts. For onsiderable time we have kept records of the size of the ts in all infections which we have studied, and have s collected particulars of 200 cases. We will now ımmarize these as briefly as possible.

n 75 of the infections cysts below 10 μ in diameter urred; and in 62 of these no cysts larger than 10 μ e ever found. In the remainder (13 infections) the of the cysts ranged both above and below this meter. A few cases showed a variation in size from 7 to 15 μ. In all these infections cysts measuring 7 to 9 μ were by far the commonest.

In 127 infections, on the other hand, only cysts above 10 μ in diameter were seen. The diameter of the cysts in 123 of these varied from 10 μ to not more than 15 μ, the majority of cysts ranging round 12 μ. In the four remaining infections cysts as large as 16 μ, 16.5 μ, and 17.6 μ were recorded. (In other cases we have also observed cysts—undoubtedly of *E. histolytica*—which attained a diameter as great as 20 μ. These diameters in all cases refer to spherical—not oval—cysts measured in saline or iodine solution.)

It will be noted that we have referred to 200 cases and 202 infections. This is because two of the cases appeared each to have two separate infections; each passing cysts measuring either 7 to 8 μ or 12 to 14 μ, with none of intermediate size.

We see no reason to doubt that all these cysts belong to *E. histolytica*, and represent simply those formed by different strains or races of a single species. The occurrence of numerous strains, differing from one another in size alone, has been observed within almost all species of protozoa hitherto subjected to systematic study. Moreover, we have no reason to believe that these strains of *E. histolytica* differ from one another in pathogenicity or any other character save size. We may also note that all strains behave in a precisely similar manner towards treatment with emetine, given either hypodermically or as the double (bismuthous) iodide *per os*.

Although we suppose that those cases which pass cysts of two different sizes, with no intermediates, represent instances of simultaneous infection with two different strains, we are of course unable to determine whether cases passing cysts of all sizes from 7 μ to 15 μ represent multiple infections, or infections with strains of amoebae which form cysts of varying size; since it is clear that either interpretation is equally possible.

We have detected carriers of small cysts of *E. histolytica* among men coming from France, Egypt, Gallipoli, Salonica, Mesopotamia, and India, so that the strains producing small cysts do not seem to be confined to any particular locality.

The pre-cystic amoebae ("*minuta*" forms) sometimes found associated with the small cysts differ only in their smaller size from those commonly met with in the larger strains. When rounded they rarely exceed 10 μ in diameter. But whether the tissue-invading ("*histolytica*") forms are likewise smaller we are unable to say, since we have not been able to study the acute condition in any of our carriers of small cysts.

We may perhaps observe that the name "*Entamoeba minuta*" is not properly applied to the strains of *E. histolytica* forming small cysts. There can no longer be any doubt that the organism described as *E. minuta* by Elmassian (1909) was the ordinary strain of *E. histolytica* forming cysts of the larger size. The small amoebae which he found associated with these cysts were merely the small pre-cystic forms characteristic of subacute infections. Woodcock and Penfold (1916), and others, are therefore in error when they apply the name *E. minuta* to the strain producing small cysts.

Small cysts of *E. histolytica* appear to have been first noted by James (1915) in Panama. Since then they have been found by Woodcock and Penfold (1916). They have recently been carefully studied by Wenyon and O'Connor (1917) in Egypt, with whose conclusions regarding them we are in complete agreement. Mathis and Mercier (1917), in discussing the size of the cysts of *E. histolytica*, have recently stated that the usual dimensions are 12.5 μ or 14 μ. They cite no instances of cysts measuring less than 8.5 μ or more than 15 μ. We ourselves have seen cysts of all sizes from 5 μ to 20 μ, in fresh preparations. And we believe that the French observers, if they would study the cysts from a large number of cases rather than a large number of cysts from a few cases, would reach conclusions identical with those of Wenyon and O'Connor and ourselves. We think it probable that Kuenen and Swellengrebel (1913) and numerous other authors who have found the majority of cysts of *E. histolytica* to measure 11 to 14 μ in diameter have overlooked all infections with the races producing only small cysts (10 μ or less). Others have recorded these infections as rarities—for example, Woodcock and Penfold (1916), and Smith and Matthews (1917). Nevertheless, since in no less than 62—that is, over 30 per cent.—of the last 202 *E. histolytica* infections which we have studied no cysts larger than 10 μ were ever found, it appears that such infections are far from uncommon. The importance of this from a practical point of view need not be further emphasized.

It should be added that the 200 cases of *E. histolytica* infection referred to above were made up as follows: 155 carriers detected at a dysentery dépôt; 21 carriers described in a former paper by one of us (C. D., 1916), from a general military hospital; and 24 carriers studied at another military hospital by the other (M. W. J.), and about to be described in a forthcoming article. Fourteen of the cases in the last two categories have no history of dysentery.

We give figures of the small pre-cystic amoeba (Fig. 1) and of the small cysts (Figs. 4, 5, and 6) of *E. histolytica* for comparison with the corresponding forms of *E. nana* (Figs. 2 and 7–9).

Entamoeba coli (Lösch) Schaudinn.

Concerning this familiar organism we here propose to make only a few observations, chiefly on the size of the cysts and the number of their nuclei.

It is usually supposed that cysts of *E. coli* can be distinguished from those of *E. histolytica* by their larger size. Most authors have regarded 15 μ as the minimum diameter of *E. coli* cysts. Kuenen and Swellengrebel (1913) have recorded cysts measuring as little as 13 μ, however, and other authors have given even smaller measurements. Quite recently Wenyon and O'Connor (1917) state that they have seen no cysts less than "thirteen or fourteen microns" which they could attribute with certainty to this organism. Mathis and Mercier (1917) place their lower limit of size between 12 μ and 13 μ. We ourselves have, however, on several occasions measured undoubted *E. coli* cysts as small as 11 μ. As we have already seen, the cysts of *E. histolytica* are frequently of this size and sometimes very much larger. It is therefore clearly impossible to use the size of the cyst as a crucial character for the differentiation of these two species. We consider the only certain means of distinguishing the cysts of the two amoebae from one another is the study of the structure and number of the nuclei. Although we have studied a very large number of cysts of both species we have never found those of *E. histolytica* containing more than four nuclei; and consequently we regard the occurrence of cysts containing more than four nuclei of the *coli-histolytica* type as the most certain criterion of an *E. coli* infection. In this we agree entirely with Mathis and Mercier, and differ from Swellengrebel and Schiess (1917).

From time to time we have, like other observers, encountered *E. coli* cysts of very large size. These contain as a rule more than the eight nuclei of the typical fully developed cyst. We have counted various numbers of nuclei up to sixteen, and in one cyst at least eighteen and probably more, were present. The largest spherical cyst that we have found measured 33.5 μ in diameter though the long diameter of oval cysts has sometimes slightly exceeded this value.

These figures approximate closely to those given by Wenyon and O'Connor (1917), whose maximum measurements are 32 μ and 38 $\mu \times 34$ μ.

Mathis and Mercier (1917) regard the large cysts of *E. coli* containing sixteen nuclei as normal stages in the life-history. For our part, however, we think it most probable that they merely represent double cysts formed from an originally binucleate amoeba. Such amoebae which presumably have been arrested in division, are sometimes found in stools. We would remark that if similar double cysts are ever formed by *E. histolytica*, to distinguish them from the 8-nucleate cysts of *E. coli* would probably be extremely difficult, if not impossible.

Diagnosis.

So much has already been written about the differential diagnosis of *E. coli* and *E. histolytica* that we shall confine ourselves, after a few general remarks, to a consideration of certain less discussed difficulties which have arisen since the discovery of *E. nana* and of the small cysts of *E. histolytica*.

Concerning the unencysted forms of *E. coli* and *E. histolytica* we shall say but little. These have been discussed so exhaustively by Wenyon and O'Connor (1917), and our experience is in all points of importance so entirely in agreement with theirs, that we have nothing to add to their conclusions. We will merely emphasize once more the fact that, in the absence of encysted forms, the specific diagnosis of an entamoebic infection is frequently very difficult, and not seldom impossible. From the encysted forms, however, a correct diagnosis can usually be made with certainty by a practised observer.

The main differences between typical *E. coli* cysts and the larger-sized cysts of *E. histolytica* are now sufficiently well known for a detailed description to be unnecessary here. As already noted, the size of the cysts is a character on which too much reliance should not be placed. Another character sometimes regarded as distinctive of *E. histolytica* is the presence of the so-called "chromidial" or "crystalloid" bodies in the cysts. These bodies, which we shall call chromatoid bodies (since in our opinion they have nothing to do with the chromidium of other rhizopods and are not crystalloid), are, it is true, very generally—though by no means invariably—present in *E. histolytica* cysts; but on the other hand we find they are by no means uncommon in the cysts of *E. coli*, as several authors have already noted. We do not understand why Mathis and Mercier (1917) deny their occurrence in *E. coli* cysts. A much more distinctive character is the vacuole, which however, is not usually present in fully mature cysts of either species. It is formed in the early stages of encyst-

LIBRARY U. OF I. URBANA-CHAMPAIGN

ion and persists as a rule in *E. histolytica* until the -nucleate stage is reached. In *E. coli* it is seen up to the -nucleate stage, but is very uncommon in cysts containing nuclei. It attains its maximum size in *E. coli* during he binucleate stage, when it frequently occupies the reater part of the cyst. Such cysts we—contrary to Wenyon and O'Connor—regard as normal stages in de-elopment. Unlike those of *E. coli*, *E. histolytica* cysts ften possess more than one vacuole. The vacuoles are est studied in cysts mounted in iodine solution. As those f *E. coli* contain abundant glycogen, they stain dark rown; whereas *E. histolytica* vacuoles, which contain ut little of this substance, are far less deeply coloured. n iodine solution the edge of the vacuole is ill-defined in *. histolytica*, but usually clear cut in *E. coli*. These haracters are not absolutely constant; we have, for nstance, seen cysts of *E. histolytica* with vacuoles quite s darkly stained and sharply outlined as those of *E. coli*.

That the substance in these vacuoles is really glycogen here can hardly be any doubt. In addition to the iodine eaction above noted, we find that it gives characteristic eactions with Best's specific carmine stain for glycogen, nd displays the usual solubilities of this substance.

As already noted, we regard the number and structure f the nuclei as the most reliable characters for dis-nguishing cysts of *E. coli* from those of *E. histolytica*. ome observers attach considerable importance to the ickness of the cyst wall—for example, Kuenen and wellengrebel (1913), Woodcock and Penfold (1916)—a naracter which we, with Mathis and Mercier (1917), gard as quite unreliable. The assertion that the cyst all of *E. histolytica* has but "a single contour," while nat of *E. coli* is double, appears to us to rest upon alobservation or an error in microscopy.

When we come to consider *E. histolytica* cysts of 10 μ or ss in diameter we can rule out *E. coli* as a possible source confusion, but we encounter several new difficulties. It ould be borne in mind that the small cysts (10 μ or less) *E. histolytica* differ from the larger in no respect save ze, so that anybody familiar with the latter should have tle trouble in identifying the former. The chief addi-onal difficulty arises from the circumstance that the naller the cysts are the more troublesome they are to nd, especially when present in the faeces in small mbers and accompanied by other cysts and organisms comparable size and similar appearance. The chief sts likely to lead to confusion are those of *E. nana* and *Chilomastix*. The former are readily distinguished from ose of *E. histolytica* by the structure of their nuclei, the sence of chromatoid bodies, and the character of the ycogen vacuoles. Moreover, although great variation is servable in the shape of the cysts of both species, those *E. nana* are generally oval, while those of *E. histolytica* e typically spherical. The nuclei of small *E. histolytica* sts are seldom distinctly visible when the cysts are amined in saline solution; while those of *E. nana* cysts e, for all practical purposes, completely invisible in this edium. In iodine solution the nuclei of *E. histolytica* sts can generally be clearly made out, while this is dom the case with cysts of *E. nana* on account of the merous minute granules (? volutin) which are generally esent. As a rule the chromatoid bodies of *E. histolytica* sts are readily seen in saline or iodine (especially in the mer), and when present serve at once to distinguish em. The glycogen vacuoles, as already noted, ould be studied in iodine solution, in which the all, faintly stained, and ill-defined vacuole of *histolytica* is easily distinguished from the rela-ely large, deeply stained, and sharply defined cogen mass of *E. nana* (see Fig. 13). When the deter-nation of the species still remains in doubt the only safe ocedure is to fix and stain wet cover-glass preparations, d examine them systematically with the oil immersion. e cysts are easily fixed and stained by any good cyto-ical method; but by far the most useful and rapid thod for routine purposes is, in our experience, fixation h Schaudinn's fluid, followed by staining in haemalum. ner rapid methods of staining which have given us good ults are Weigert's iron-haematoxylin, carmalum, and acarmine. Though the best preparations are obtained h Heidenhain's iron-haematoxylin stain, it is quite necessary to use this laborious and lengthy method for re diagnosis.

As noted above, the cysts of *E. histolytica* may also be confused with those of *Chilomastix* (= *Tetramitus*), which are frequently present in human faeces. As published accounts of these are remarkably divergent, and in some cases incorrect, a redescription here may not be superfluous. Wenyon's original account (1910) of this organism ("*Macrostoma*" *mesnili*) describes and figures its cysts as oval structures. Although oval and even spherical cysts undoubtedly occur, by far the commonest form is that which possesses a protuberance at one end, so that in shape it closely resembles a lemon (see Figs. 12 and 14). Such cysts were first figured by Alexeieff (1912) for *Chilomastix caulleryi*—a parasite of amphibia. Prowazek and Werner (1914) figure a similar cyst as a "possible early stage in encystation" of the human parasite. Wenyon (1915) further figures an oval 4-nucleate cyst as belonging to this species; but this, as we have seen, is really the cyst of *E. nana*—an error which Wenyon and O'Connor (1917) have since corrected. Nevertheless, Swellengrebel and Winoto (1917) claim to be able to distinguish these cysts from one another. Finally, Lynch (1916) has boldly described the cysts of *Chilomastix mesnili* as those of *Trichomonas intestinalis*. The only complete description which we have seen is that just published by Wenyon and O'Connor in the work quoted above.

The cysts of *Chilomastix mesnili*, whether of the typical lemon shape (Fig. 12), round, or oval (Fig. 11), measure about 7 to 10 μ in greatest diameter. They never contain more than one nucleus, which is of large size and very characteristic structure (Figs. 11 and 12). As its chromatin is usually concentrated at one pole, it is typically in the form of a signet ring. Smaller masses of chromatin are sometimes visible at other points on the nuclear membrane, but rarely in the centre. For this reason the nuclei of encysted *Chilomastix* often resemble those of the uninucleate cysts of *E. nana* (cf. Figs. 11 and 7). This resemblance is most striking in stained preparations; for in cysts examined in saline the nuclei of both are usually invisible, whilst in iodine, although the *Chilomastix* nucleus can usually be made out as a definite signet ring (Fig. 14), only the karyosome of the nucleus of *E. nana* can be distinguished with ease. The most distinctive feature, however, of the *Chilomastix* cyst is a complex structure which represents the persistent part of the mouth of the free flagellate. This structure resembles a sling, its outline representing the fibre forming the lip of the mouth. The mouth flagellum, which in the flagellate borders an undulating membrane, can sometimes be seen lying within the sling (see Figs. 11 and 12). The relation of these parts to the nucleus and blepharoplasts is similar to that seen in the free flagellate; but in the encysted forms the connexion between these structures is often severed. The outline of the mouth, though usually invisible in cysts examined in saline, can as a rule be clearly seen in iodine preparations. Another feature characteristic of the *Chilomastix* cyst is the presence of a few small and brightly refractile granules. These, so far as we have been able to investigate their reactions, appear to be composed of volutin. The similar granules in the cysts of *E. nana* are usually smaller, less refractile, and more numerous. Another character, which does not appear to have been previously noted, is the occasional presence in the *Chilomastix* cyst of a mass of glycogen. This mass, which stains very deeply in iodine solution, is sometimes of very large size (see Fig. 14), and is present, we believe, in newly-formed cysts only. The oval cysts of *Chilomastix* containing glycogen may be mistaken for similar cysts of *E. nana* (Fig. 13); and both must be distinguished from the usually much larger cyst-like bodies described as "I-cysts" by Wenyon (1916) and Wenyon and O'Connor (1917), which are not uncommon in human faeces.

Wenyon and O'Connor (1917) have just described a new intestinal flagellate which they call *Tricercomonas intestinalis*. We have never found this flagellate ourselves, and from the published account we are unable to state how its cysts can be distinguished with certainty from those of *E. nana*. We have seen cysts of this organism which very closely resemble their figures of the cysts of *Tricercomonas*.

From the foregoing descriptions it will be evident that, when the cysts are examined in saline and iodine solutions, the most outstanding characters differentiating

those of *E. histolytica*, *E. nana*, and *Chilomastix* from one another are: the chromatoid bodies of the first, the apparently uniformly granular contents of the second, and the mouth of the third. It must always be remembered, of course, that the cysts here described form only a part of the numerous small "bodies" commonly present in human faeces. Some of these are probably vegetable organisms resembling yeasts, others possibly cysts of protozoa as yet unidentified. Although we are familiar with several different kinds of these, we are not yet able to determine and describe them satisfactorily.

Although we are usually able to arrive at a certain diagnosis from a study of the cysts, it is sometimes impossible to reach definite conclusions when unencysted forms only are found, since these are all too often dead and degenerate. As already noted, *E. nana* dies very quickly after leaving the host. This is also the case with the small "*minuta*" forms of *E. histolytica*, and often also with flagellate *Chilomastix* and *Trichomonas*. The flagellates, when they have degenerated to such an extent that they are merely small rounded masses of protoplasm, devoid of flagella, are not distinguishable with certainty from similarly dead and degenerate amoebae.

An unencysted *E. nana* can easily be distinguished, when alive, from the small "*minuta*" forms of *E. histolytica* by its pseudopodia, which are never so hyaline and blade-like, and by the numerous food vacuoles (containing bacteria) which are not seen in *E. histolytica*. In both forms the nuclei are very difficult to observe in the living organism, though they serve to differentiate them with certainty in good stained preparations (Figs. 1 and 2). Degenerate *Chilomastix* flagellates can usually be distinguished from degenerate small *E. histolytica* amoebae of the "*minuta*" type by their ingested bacteria and the persistent outline of the mouth. It is often impossible to determine whether a rounded-up and degenerate organism, in which nothing but vacuoles containing bacteria can be clearly distinguished, was originally a *Chilomastix* or an *E. nana*. Such forms are almost certainly not "*minuta*" amoebae, but, in the absence of cysts, a further diagnosis cannot be made with certainty. The degenerate forms of *Trichomonas* can usually be distinguished by the peculiar undulating "amoeboid" movement which they often continue to display for a long time.

Although *E. nana* could hardly be mistaken for the much larger *E. coli*, with its similar inclusions but characteristic nucleus, it might be confused with one of the small so-called "*limax*" amoebae sometimes found in stale stools. If the stool is more than a day old and the amoebae are actively motile on a cold stage, it is certain that they belong, not to any species of *Entamoeba*, but to some free-living form. Although it is usual in medical works to include all these small free-living amoebae under the term "*Amoeba limax*," there are probably many different species belonging to quite different groups which may occur in human faeces. A common form is shown in Fig. 3 for comparison with *E. histolytica* (Fig. 1) and *E. nana* (Fig. 2). The most distinctive characters of this and related forms are the nucleus, with its large central karyosome, and the presence of a contractile vacuole. Some free-living amoebae possess more than one contractile vacuole, but such structures are never found in any species of *Entamoeba*. All the common "*limax*" amoebae form uninucleate cysts, which, in typical forms, cannot be mistaken for those of any *Entamoeba*. The cyst wall is always thick and frequently—but not always—very irregular in outline and brown in colour (see Fig. 10). The single large nucleus usually lies near the centre, surrounded by numerous deeply-staining masses, probably homologous with the chromatoid bodies of some entamoebic cysts. Most of these small free-living amoebae can be readily cultivated on agar.

The figures accompanying this paper have been selected in order to illustrate the more important points considered above. We have thought it superfluous to give new figures of the more familiar forms. Accordingly, of the three common intestinal amoebae with which this paper chiefly deals we have figured only certain forms of *E. histolytica*, and *E. nana*, whilst *E. coli* is unrepresented and two other organisms are added.

The observations here recorded have been made in the course of work undertaken with the aid of grants from the Medical Research Committee. They have been made, for the most part, whilst enjoying the hospitality of the Wellcome Bureau of Scientific Research, to which we here gladly acknowledge our indebtedness.

BIBLIOGRAPHY.

Alexeieff (1912): *Zool. Anz.*, vol. xxxix, p. 674.
Chatton and Lalung-Bonnaire (1912): *Bull. Soc. Pathol. Exot.*, vol. v, p. 135.
Dobell (1916): BRITISH MEDICAL JOURNAL, November 4th, p. 612.
Elmassian (1909): *Centralbl. Bakt.*, I Abt. (Orig.), vol. lii, p. 335.
James (1915): *Ann. Trop. Med. Parasitol.*, vol. viii, p. 133.
Kuenen and Swellengrebel (1913): *Centralbl. Bakt.*, I Abt. (Orig.), vol. lxxi, p. 378.
Lynch (1916): *Journ. Parasitol.*, vol. iii, p. 28.
Mathis and Mercier (1917): *Bull. Soc. Pathol. Exot.*, vol. x, p. 165.
Prowazek and Werner (1914): *Arch. Schiffs- u. Tropenhyg.*, Beih. V, vol. xviii, p. 155.
Smith and Matthews (1917): *Ann. Trop. Med. Parasitol.*, vol. x, p. 361.
Swellengrebel and Schiess (1917): *Bull. Soc. Pathol. Exot.*, vol. x, p. 13.
Swellengrebel and Winoto (1917): *Parasitol.*, vol. ix, p. 266.
Wenyon (1910): Ibid., vol. iii, p. 210. (1913): BRITISH MEDICAL JOURNAL, November 15th, p. 1287. (1915): *Journ. R. A. M.C.*, vol. xxv, p. 600 (also *Lancet*, November 27th). (1916): Ibid., vol. xxvi, p. 445.
Wenyon and O'Connor (1917): Ibid., vol. xxviii, pp. 1, 151, 346.
Woodcock and Penfold (1916): BRITISH MEDICAL JOURNAL, March 18th, p. 407.

POST-OPERATIVE TYMPANITES:

ITS NATURE AND SOME POINTS IN ITS TREATMENT.*

BY

JOHN D. MALCOLM, M.B., C.M.EDIN.,

SURGEON TO THE SAMARITAN FREE HOSPITAL.

IN the Cavendish lecture of 1915[1] Professor Arthur Keith described a neuro-muscular tissue specialized from Auerbach's plexus of nerves and situated where delays in the passage of the bowel contents normally take place. He regarded the myenteric plexus of the intestine as similar in nature and functions to the nodal and conducting system of the heart, each specialized nervous area in the alimentary canal being the regulator of peristaltic activity in the part of the intestine immediately beyond it. According to this view, a want of co-ordination between the muscular activity of the various parts may give rise to effects comparable to those of heart-block, and it was concluded that the condition of intestinal stasis is brought about by such a want of co-ordination of function.

Keith's teaching supports certain views which I have long held. At the meeting of this section in October, 1914,[2] I attributed the tympanites following some abdominal operations to an enfeebled peristaltic action, and especially to delay in the large bowel. I suggested then that the condition might be described as one of acute intestinal stasis. Five cases were published in which an otherwise irremovable tympanites following an operation upon the abdomen was treated by making an intestinal fistula, and four of the patients recovered. The fifth died, and it seemed to me that in this case the second operation was too long delayed, and that it could not have been undertaken too early. I argued that if a persistent tympanites can be cured by making a fistula its onset should be preventable by the same means, and that treatment by prevention in suitable circumstances would be more certain of success than any method of cure. This view was put into practice, and two cases were recorded[3] in which a caecal fistula was made when intestinal difficulties seemed likely to arise. Recovery was uncomplicated by any bowel symptoms, and I have since treated eleven cases in this way with two failures, and assisted at one successful operation for the relief of a fully developed tympanites. In the ten successful cases the fistula was closed after a short time.

To save space only four cases are here briefly recorded.

CASE I.

On the second day of acute symptoms a diffuse peritonitis was found affecting the pouch of Douglas, the Fallopian tubes and the intestine and mesentery in the lower portion of the abdomen. Much lymph floated in free fluid or adhered in thick layers to the parts named, except the Fallopian tubes. These were of a deep blue colour, and greatly enlarged by oedema. They contained no pus and were not removed. All the intestines in the middle and upper abdomen were red and moderately distended. The vermiform appendix showed signs of old inflammation and was removed, but it lay outside the

* Abstract of a paper read at a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine.

LIBRARY U. OF I. URBANA-CHAMPAIGN

area of acute infection. Drainage of the peritoneal cavity and of the caecum was arranged, and an uninterrupted recovery followed. The cause of the inflammation was obscure.

CASE VI.

Dr. Hubert Roberts kindly allows me to publish this note. Tympanites threatened death six days after he removed an extrauterine fetation. On reopening the abdomen, about half a pint of serous fluid was found in the peritoneal cavity, whilst a partial volvulus and distension to about two inches in diameter affected several coils of intestine in the upper abdomen. The dilated portion of the gut was emptied by an incision, which was carefully closed and many adhesions were separated. A Paul's tube was placed in the caecum, and a rubber tube in the peritoneal cavity; an uninterrupted recovery followed.

CASE VII.

On the eighth day of appendicitis in a girl, 8 years old, the appendix was removed, and as the intestines were greatly distended a Paul's tube was fixed in the caecum, but the child died about three hours later.

CASE IX.

In an exceedingly anaemic and unhealthy woman a mass of breaking down tissue forming an enlargement of the left Fallopian tube and ovary was continuous with the mucous membrane of the sigmoid flexure through a gap in its wall, which easily admitted my finger. After removal of the diseased part the edges of the opening in the colon were freshened and brought together by sutures which necessarily passed through unhealthy tissues. A Paul's tube was placed in the caecum and recovery was uncomplicated.

In the cases which recovered an unusual freedom from intestinal trouble was obtained, but I would urge strongly that treatment by making a fistula should be employed as seldom as possible and only when there appear to be good reasons for adopting it. The seven cases published in 1914 and the first five recorded now are all those* in which I endeavoured to prevent or cure post-operative tympanites by making a fistula in one thousand consecutive operations involving the peritoneal cavity.† In that series I considered myself fortunate in obtaining a death-rate of 3.8 per cent. The four cases in which life was saved by making a fistula after tympanites was fully developed, cases resembling No. VI above, would have raised the mortality to 4.2 per cent. if no second operation had been performed. It is impossible to prove that any case in which a fistula was made to prevent an onset of tympanites would have developed that condition if the fistula had not been made, but in my opinion, formed whilst operating, these cases would have suffered from intestinal difficulties and some would have been added to the death-rate. Even if this view was mistaken, a difference of 0.4 per cent. in the mortality is well worth considering.

During the most satisfactory recoveries from operations upon the abdomen patients frequently complain of slight, it may be very slight, discomfort, nausea, or crampy pains until gases pass freely from the anus. If gases do not escape downwards post-operative tympanites develops, which may be removable after more or less difficulty in clearing the bowels, or may persist and be followed by death. Every variation between almost imperceptible discomfort and fatal retention of the intestinal contents may be observed. It would appear, therefore, that in some cases the most serious symptoms are due to an exaggeration of conditions existing after every abdominal operation.

When a case of persistent tympanites is cured by making a fistula, the distension rapidly diminishes with the escape of gases and faeces through the artificial opening, and the bowels act naturally after a few days, although an evacuation could not be brought about by any means before the fistula was made. There is in such cases no obstruction and no paralysis of any part of the intestine. All that is necessary to effect a cure is a free escape for the contents of the upper bowel and a short rest for the colon.

When death follows a post-operative distension of the intestine, signs of a spreading peritonitis are always found at an autopsy if the patient dies slowly. But if the patient dies quickly there may be no spreading peritonitis. Moreover, operations for the relief of a post-operative intestinal distension, in aseptic cases which have been carefully treated, rarely reveal any sign of spreading peritonitis before the patient is moribund.

*Cases of fistula formation for acute intestinal obstruction, of anastomosis for any cause, and of colotomy for cancer are excluded.

†Of these operations 554 were for the treatment of disease in the female generative organs, the death-rate of these being 2.52 per cent.

Dr. Mary A. D. Scharlieb recorded such a case in the discussion on my paper above mentioned. At an operation for the relief of a post-operative tympanites nothing was found to account for the distension except an enormously loaded colon and no spreading peritonitis was discovered afterwards. Cases resembling this were not very uncommon when a prolonged administration of opium was the routine treatment after abdominal operations. The diffuse peritonitis found at an autopsy in an aseptic case is therefore sometimes secondary to the intestinal distension and cannot be its cause.

Thus there may be no paralysis of the intestine, no obstruction and no diffuse peritonitis preceding the onset of a post-operative tympanites. In such circumstances the only explanation of the complete retention of the contents of the bowel is a want of co-ordination between the activity of its upper and lower parts. A post-operative distension of the stomach which occasionally arises may be explained in the same way.

Any opposition to the flow of the intestinal contents, such as a formation of adhesions, an overloaded bowel, or habitual constipation, must favour a development of tympanites. An administration of opium has the same effect, and a very remarkable diminution in the number of cases of trouble and of death from post-operative tympanites took place when the injudicious use of this drug was discontinued.

Septic organisms left in the peritoneal cavity are often rendered harmless by the bactericidal action of the peritoneum. But an intestinal distension may so lower the vitality of the tissues that the pathogenic bacteria are not destroyed, and so a peritonitis may arise much earlier than in an aseptic case and signs of it may be found at a second operation.

If this inflammation is not too far advanced it may be safely ignored when the tympanites is relieved by making a fistula, but if signs of severe spreading peritonitis are found drainage of the peritoneal cavity also is necessary. In operating for gangrene of the vermiform appendix the same condition of peritonitis which may be safely ignored in its early stages is often found. These cases of gangrene of the appendix are in every way comparable with those of a post-operative tympanites, in an aseptic case, as regards their relationship to a diffuse inflammation of the peritoneum which is curable. In appendix cases removal of the diseased part or drainage of the affected area of the peritoneum is essential to a cure. When post-operative tympanites exists its removal is essential for the cure of a spreading peritonitis, and nothing else is essential in the milder cases. Therefore in these milder cases the gangrene and the distension are respectively the causes of the peritonitis. In appendix conditions the more serious changes are certainly a development of the milder, and this may be true in cases of intestinal distension also. On the other hand, a diffuse peritonitis is a cause of tympanites, and it may be exceedingly difficult to decide which causes the other.

Peritonitis is a vague expression. Like the word dermatitis it conveys little information unless the nature, position, and extent of the inflammation are stated. Lister taught[1] that "a certain amount of inflammation, as caused by direct irritation, is essential to primary union." Such an inflammation of the peritoneum is aseptic and of no clinical importance, except that it may be a cause of a formation of adhesions. These also are in themselves harmless, but they may cause symptoms by hindering or arresting the flow of the bowel contents.

A spreading peritonitis is always septic. There are many degrees of septicity, but a well-defined septic inflammation of the peritoneum is altogether different from the inflammation which necessarily accompanies any sufficient injury of that membrane. A spreading inflammation always arises from some focus of infection and rarely affects the whole peritoneum. The treatment is by removal of the cause, by drainage of the affected peritoneum, or by both of these methods. When drainage is necessary it cannot be employed too early. If the inflammation continues to spread and is sufficiently severe the intestine becomes paralysed and tympanitic, and this condition when thus produced is hopeless.

A complete retention of the intestinal contents must be relieved after an abdominal operation if the patient's life is to be saved, but when the intestine is paralysed only a few coils can be emptied by incising it. Moreover, if the whole

intestine could be emptied this would not arrest the spread of a peritonitis which caused the intestinal distension.

Tympanites and septic peritonitis may each be an indirect cause of the other, but each may be brought about also directly in another way—tympanites by intestinal obstruction (mechanical or physiological), and septic peritonitis by bacterial infection. In one set of cases an intestinal obstruction causes tympanites, and peritonitis follows. In another set of cases septic infection causes a spreading peritonitis, and tympanites follows.

Neither of these sequences can be understood without recognizing the other; and if both are not considered, confusion must arise between the peritonitis which causes distension of the bowel and the peritonitis which is caused by distension of the bowel.

The two causes of trouble — intestinal obstruction, whether mechanical or functional, and septic infection—may arise together, and it may be wise sometimes to try to prevent their development by draining both the intestine and the peritoneal cavity. The indications for these measures are difficult to formulate, because they involve a prognosis several days in advance.

Drainage of the peritoneal cavity is required when it is believed that an onset of septic inflammation is likely to occur. Drainage of the caecum is required when it seems necessary to facilitate the emptying of the upper bowel or to rest the lower bowel. For example, in a case of multiple perforations of the small intestine, if a continuous alimentary canal can be made and the patient's condition is otherwise satisfactory, it may still be wise to drain the depending parts of the peritoneal cavity, and in some cases of this kind I would consider that provision for an immediate escape of the contents of the small intestine through a caecal fistula would offer a better chance of recovery than leaving the faeces to escape after a day or two, by passing through the colon. Damage to any part of the large bowel would be an additional reason for anxiety lest it should not carry off its contents in time to prevent the development of a strain upon sutures or weak places in the wall of the small gut.

Conclusion.

I submit that by draining the alimentary canal in suitable circumstances the mortality from abdominal operations may be reduced by a case here and there, and that patients whose lives may be saved in this way are generally suffering from an intestinal obstruction brought about by a disturbance of co-ordination between the muscular activity of the different parts of the alimentary canal, aggravated perhaps by mechanical, physiological or therapeutic hindrances to the flow of the intestinal contents, the colon being the part in which difficulty most frequently arises.

References.

[1] *West London Medical Journal*, vol. xx. [2] *Proc. Roy. Soc. Med.*, vol. viii, Obstetrical and Gynaecological Section, pp. 16–24. [3] Loc. cit. [4] *Phil. Trans.*, vol. clxviii, p. 700.

TWO CASES OF PREGNANCY COMPLICATED BY MYOMA UTERI.

By JOHN BENJAMIN HELLIER, M.D.Lond.,

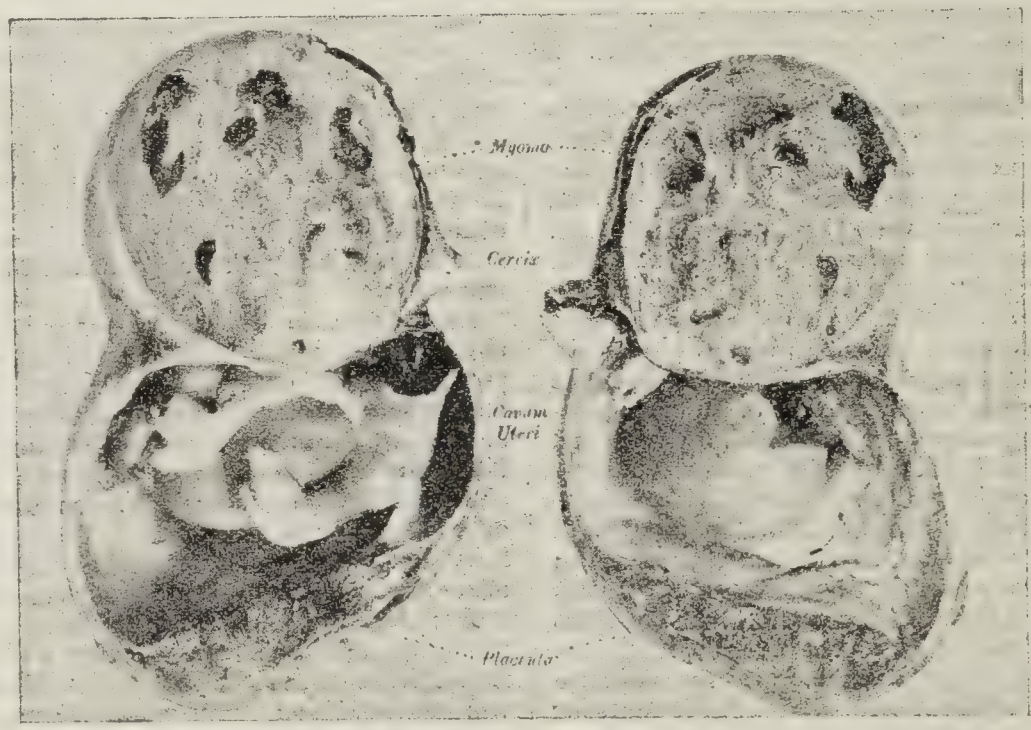
PROFESSOR OF OBSTETRICS IN THE UNIVERSITY OF LEEDS; HONORARY OBSTETRIC PHYSICIAN TO THE LEEDS GENERAL INFIRMARY; EXAMINER IN MIDWIFERY AND DISEASES OF WOMEN TO THE CONJOINT BOARD IN ENGLAND.

Every case of pregnancy complicated by myoma must be dealt with according to its individual features. Some cases may be left to take their natural course throughout pregnancy, labour, and the puerperal period; some may be allowed to go to full term and then be treated by abdominal section; some require to be treated by operation during pregnancy in either a conservative or radical manner according to the conditions present. I published two illustrative cases in the British Medical Journal for June 29th, 1909, where Caesarean hysterectomy was performed at term. Two further examples are here detailed.

Case I. — *Pregnancy Complicated by Myoma and Retention of Urine treated by Abdominal Hysterectomy in the Sixth Month.*

Mrs. A., aged 29, primigravida, was admitted to the Leeds Infirmary on September 10th, 1916, for retention of urine. She was married in March, 1916, and ceased to menstruate in April. Her health previous to marriage had been good, and her menstruation regular without marked excess; the retention of urine was quite recent.

She was a well-developed healthy woman with normal signs of pregnancy. A uterine tumour rose out of the pelvis to the navel, corresponding in size to the uterus at the end of the sixth month of pregnancy, but the upper part of the tumour presented a hard, rounded, and not very mobile swelling caused by the myoma, which is shown in the photograph here reproduced. The pelvis was filled by a tense, cystic, elastic tumour which, as will be seen, was formed by the cavum uteri containing the fetus, membranes, and placenta. The cervix was drawn up almost out of reach on digital examination, and the urethra was correspondingly stretched. A loud uterine souffle was to be heard on the left side of the abdominal tumour, but the fetal heart sounds were not made out. The case thus strongly resembled an ordinary one of retroversion of the gravid uterus, but the hard abdominal tumour was a distinguishing feature in the conditions present.



Case 1.—Pregnancy complicated by myoma. The left half shows trunk and funis; the right half shows fetal head.

On September 12th the patient was anaesthetized, and an attempt was made to push the uterus up out of the pelvis and to draw down the cervix to its normal position, but reduction could not be achieved. The fingers passed into the vagina could indeed be made to touch the sacral promontory by compressing the elastic swelling, but on withdrawing the pressure the uterus filled the pelvis again. A large rubber ring was inserted to see whether elastic pressure would succeed, but this was unsuccessful. After ten days it was found that the patient was no better in spite of regular catheterization, the vesical distress had increased, and there was some haematuria. The temperature had begun to rise.

On September 22nd abdominal section was performed with the purpose of thoroughly exploring the conditions present and of dealing with them as might seem best. On opening the abdomen the bladder was found lying very high up and bulging into the wound. It was seen that the tumour was entirely uterine, but that the abdominal part consisted almost wholly of a large myoma and that the uterine cavity was squeezed down into the pelvis. With little difficulty the whole tumour was lifted up to the abdominal wound. The cervix then formed a well marked elastic pedicle. It seemed best not to attempt myomectomy, but to remove the whole by supravaginal hysterectomy. This was quickly and easily accomplished in the usual way, leaving the left ovary. The patient made a quick and uncomplicated recovery, except that the bladder needed irrigation for a few days. The retention of urine disappeared at once.

Description of Parts Removed.

The specimen, after being fixed with formalin, was divided by a sagittal section, and was photographed by Mr. Wagstaffe of the electrical department of this hospital. The whole tumour measures about 8½ in. in vertical diameter, and there was certainly some shrinking during fixing. The upper portion

LIBRARY U. OF I. URBANA-CHAMPAIGN

shows a large, solitary, interstitial myoma measuring about 4½ in. from above down. The lower part shows the uterine cavity containing a fetus and placenta. The placenta lies in the lowest part of the specimen. The cervix is seen projecting from the anterior wall of the tumour, somewhat above the middle. In the original relations the cervix pointed downwards towards the vagina. The uterine cavity has assumed a globular shape since removal, but in the original position the sacral promontory made a deep dent into the posterior uterine wall. The fetus is of the male sex, and in the sixth month of development.

Pathological Report.

For the following pathological report on this tumour I am indebted to Captain M. J. Stewart, M.B., pathologist to the Leeds Infirmary:

The tumour is situated in the anterior wall of the uterus, immediately above the cervix. It presents the typical whorled appearance and firm consistency of a uterine fibromyoma, but it shows, in addition, a number of large irregular cavities with irregular shaggy walls and apparently possessing a lining of softer, whiter tissue. Seven such cavities are cut across in a sagittal section of the growth. Parts of the tumour are the seat of great vascular engorgement; elsewhere there are very pale, non-vascular areas. The tumour is well encapsuled by a thinned-out layer of myometrium, as well on the endometrial as on the peritoneal aspect.

One or two tiny fibroids are present elsewhere in the uterine wall.

Histologically the tumour presents the usual appearances of a uterine fibromyoma, with considerable excess of fibrous tissue. There are many areas of necrobiosis, and the large cavities seen with the naked eye are found to be degenerative pseudocysts, each lined by a broad layer of completely necrotic tissue. Certain parts of the growth show numerous thin-walled, dilated blood vessels, mostly filled with blood, but free from thrombosis. Occasional small foci of polymorphonuclear accumulation are seen.

CASE II.—*Myoma Uteri threatening to Obstruct Labour: Caesarean Section with Myomectomy.*

Mrs. B., aged 36, was sent to me by Dr. W. Bell of Skelmanthorpe in May, 1916. She had been married thirteen years, but was now pregnant for the first time. Dr. Bell had diagnosed pregnancy, with a tumour in the pouch of Douglas, and he sent her for an opinion as to the best method of treatment. I found a normal uterine pregnancy of about seven months, and there was in the pouch of Douglas a swelling, due to a myoma, which seemed likely to cause serious obstruction to normal delivery at term. There were no bladder symptoms. I advised that she should be allowed to go to term and then be treated by abdominal section. Two months later she entered a Leeds nursing home, and I operated when labour was nearly due (July 5th).

There was a tumour behind the uterus, fixed by adhesions. I first opened the uterus and removed a living male child, which weighed 7lb. The placenta came away without any trouble, and the uterus was sutured with iodized catgut in the usual way. Then I found it easy to break through the adhesions which bound the tumour to the pelvic floor. The tumour was compressed, and had the size and shape of a Bath bun. It was attached to the posterior uterine wall by a well-defined pedicle. This was divided, and the attachment was stitched over with catgut. The tumour was in a state of degeneration. The patient made an excellent recovery, and suckled her baby, which throve well. A pathological report by Dr. Stewart is appended. By this operation it was possible to save the child, conserve the uterus, and obviate all danger of puerperal sepsis from a degenerating, bruised, or infected myoma.

Pathological Report.

Microscopically this is a fibromyoma, which has undergone complete necrosis except for a very narrow zone at the periphery.

THE TECHNIQUE OF CAESAREAN SECTION.

BY

ERNEST F. NEVE, M.D., F.R.C.S.EDIN.,

SURGEON TO THE KASHMIR MISSION HOSPITAL.

OSTEOMALACIA is extremely common in Kashmir. It occurs in multiparous women, and the symptoms show themselves soon after childbirth. The deformity is characteristic, and well shown by *x* rays. The pelvis simply yields to weight and pressure. The subpubic angle becomes very acute, or the rami may be almost parallel. Sometimes the hand cannot pass; the sacral promontory projects downwards and forwards. There is considerable variety in the external pelvimetry. In three cases the measurements were as follows: Iliac crests, 26, 25½, 24 cm.; great trochanters, 28, 29, 24½ cm.; anterior superior spines, 24, 22, 25 cm.; external conjugate, 21, 15, 18 cm.

In cases for which relief is sought before labour sets in Caesarean section presents no special difficulty or danger, and the results are as satisfactory as those of an uncomplicated ovariotomy; the great peril is sepsis. Even in cases admitted a few weeks before parturition a vaginal examination may reveal the presence of a foul tampon, containing perhaps quince seeds. Such plugs are handed on by native midwives from case to case, and are always intensely septic.

The cases which give rise to most anxiety are those which are admitted after from one to four or more days' labour, and in which perhaps successive midwives have tried weird septic local applications, or even used unskilled and lacerating force. In such cases we used to think craniotomy the less objectionable method of delivery, but they always stood a chance of dying, in any case, of initial puerperal septicaemia. If the child is also sacrificed the result is indeed deplorable; so it seemed better, by improving the method of operation, to try to save both lives. The cause of failure in these cases was usually peritonitis, either from extension from the uterus or from contamination occurring during the operation, when septic fluid from the interior of the uterus is apt to infect its environment.

The following method appears to have given a higher standard of success than that which we obtained formerly.

After preliminary douching with potassium permanganate solution, cleansing of the abdominal wall with 1 in 500 solution of mercury iodide in spirit, painting with tincture of iodine, and isolation with sterile towels, an incision is made about eight inches in length. The peritoneum is opened at one point, and the rest of the wound cut with scissors. A large swab is now placed behind the uterus, which is displaced forward from the abdominal cavity. The upper angle of the abdominal wound is then clamped firmly together, embracing the lower segment of the uterus. A swab is now placed in the peritoneal cavity on either side of the cervix. A moist warm sterile towel is drawn tightly round the uterus where it emerges from the abdominal cavity. The uterus is now opened, the incision being clean but not extending over the fundus. The placenta, if anterior, must be extracted at once. If posterior, the child is extracted, and a pause is made till the uterus contracts. The placenta is then removed, together with the whole of the membranes. Haemorrhage from uterine sinuses is controlled by finger pressure, and about twelve interrupted catgut sutures are inserted into the muscular wall, avoiding decidual surface and peritoneum. As these are tied the muscular surfaces are brought into accurate apposition by an assistant. A second row of catgut sutures is now carried continuously from end to end, including superficial muscle and a two-millimetre edge of peritoneum. A continuous line of fine Lembert suture is used to cover the wound securely with peritoneum. The uterus is next carefully cleansed, an inch and a half removed from each Fallopian tube, and the proximal end folded. The intra-abdominal swab is removed, and the omentum brought over the front of the uterus and stitched lightly so as to retain it in contact with the uterine wound. Soiled towels are then removed, and with cleansed hands and instruments the operation is completed. If, however, the case has been attended by city midwives before admission it is regarded as septic, and suprapubic drainage is provided.

From 1914 to 1916 we performed twenty-two Caesarean sections. Of these patients, nineteen recovered, two died, and one left the hospital in a feeble condition, with chronic septic peritonitis. Probably she succumbed.

Of the fatal cases, one was a very severe puerperal eclampsia, with profound coma, and a temperature of 106.8°, in whom the operation failed to give relief, and she died the same evening.

Three typical cases may be appended.

CASE I.

B., aged 22. In labour three days. Great contraction of pelvis. Uterus very prominent. A curious transverse depression over Bandl's line. Ergotin citrate and pituitary extract hypodermically. Caesarean section. Subperitoneal rupture of front of uterus above Bandl's ring. Pus in uterus. Head firmly impacted in brim. Operation completed as described above, with suprapubic drainage. Fowler's position. Frequently repeated large saline enemata. Infant died thirty-six hours later with cerebral symptoms. Mother's temperature ranged for a month between 100° and 102°, and on the thirteenth day reached 103.2°. There was much discharge from drainage tube, and about the fifteenth day eusol was found to pass through from the drainage tube to the vagina. The patient was convalescent by the thirty-sixth day.

CASE II.

B. D., aged 25. Contraction of pelvis. General dropsy. Mitral incompetence, with failure of compensation. Lips cyanosed; face pale. Urine, 18 ounces in twenty-four hours. Treated with digitalis and iron. Urine increased to over 50 ounces. Caesarean section seventeen days after admission. No drainage. Before operation the pulse-rate was between 100 and 112. Afterwards

the average was 120 to 140 till the end of the first week. On the third day the patient developed an attack of bronchitis, and the sputum was found to contain pneumococci. This subsided after a week, and the patient made a rapid recovery.

The first case is representative of the badly infected class; the second was a complicated case, but not infected. The third case is typical of an uncomplicated Caesarean section for osteomalacia.

CASE III.

A., aged 24. Symptoms of osteomalacia. Marked contraction of pelvis. Admitted May 3rd, 1916. Operation May 23rd. Evening temperature 99.4°. This was maintained next day. On the third day the temperature was normal. On the fourth day it rose to 100.4° in the evening, with a pulse of 144; this subsided after a soap-and-water enema.

In this case, after admission, a dirty tampon was found in the vagina, so antiseptic douches were given daily before operation.

If the eclampsia case is excluded, it will be seen that the mortality in 21 cases was approximately 9½ per cent.

The general conclusion is that careful technique gives such good results, even in complicated cases of Caesarean section, that this operation may be regarded as definitely superior to that introduced by Porro. Craniotomy should be reserved for those cases in which the child is dead.

GONORRHOEA TREATED BY ELECTROLYSIS: A NEW ELECTROLYTE.

SOME NOTES UPON CAUSES OF FAILURE WITH THE METHOD.

BY

CHARLES RUSS, M.B.Lond., M.R.C.S.,

THE ELECTRICAL DEPARTMENT, MALE LOCK HOSPITAL, LONDON.

In June, 1915, I published in the British Medical Journal a description of a new method of treating acute gonorrhoea, and subsequently other articles dealing with other states of the disease.

At present I wish to describe a new solution which I have used with improved results, and to give the reasons for its composition. Having tested it by experiments in the laboratory it has been on clinical trial since September, 1916, and I now use it instead of the sodium iodide and iodine mixture previously described.

During electrolysis of a sodium salt—for example, sodium iodide—the iodine is liberated at the positive and sodium at the negative electrode, and in urethral treatment this latter is the mucous membrane. Further, the amount of this alkali formed increases with the strength and time of the current's flow. This alkali formation is an undesirable feature, since the normal reaction of the urethra is never alkaline. Hitherto the free iodine in the mixture was used to neutralize this alkalinity, although one could not use it strong enough to fully neutralize the sodium set free. I have therefore tested a mixture of sodium chloride and monochloracetic acid and found only a transient and slight alkalinity during electrolysis of a mixture of these substances with a current not exceeding 3 milliampères. Monochloracetic acid being a substance of high electrical resistance, it remains as a free acid available to neutralize the sodium of the saline as it appears at the negative electrode.

The strength I use is sodium chloride 1 per cent. and monochloracetic acid half per cent. It will be noticed that such a fluid is substantially a slightly acid physiological salt solution. This fluid was tested by emusifying cultures of staphylococci with it, and passing a current through half of the suspension, the other half being unelectrolyzed. Cultivations on agar were then made from each half, and showed a decidedly lethal effect in the electrolyzed, but scarcely any germicidal effect in the control (staphylococci in the mixture at room temperature for half an hour). I have found in both acute and chronic gonorrhoea that this fluid is well tolerated in stronger concentrations than the above, but the results were not quite so good, possibly because they do not so nearly approximate to the tonic strength of normal saline. With this fluid I find that acute cases seldom need more than twelve electric treatments, of which not more than six are given consecutively; during the second week I give three more, and two or three more during the third week. The technique is almost the same as already described: the stylet within the catheter is made the positive and the pad the negative electrode, and the current flows at a strength of two or three milliampères for half an hour. With this fluid, however, I make no reversal of the current, as the composition of the fluid is designed to avoid the necessity for reversal. Although short of perfection as yet, in the rapidity of curing acute gonorrhoea the results obtained in the last six months have been more uniformly successful than before in this method of treatment.

Causes of Failure.

Besides describing the above, however, I feel compelled to deal with some of the causes of failure which have come to my notice in the last year, there being no reason why others should obtain results inferior to mine if—and it is a very important proviso—they will strictly follow out the method, doing neither more nor less than directed.

I can best illustrate these causes of failure by detailing the main faults which dominated the so-called trial of the method at a London venereal hospital. It must be clearly understood that I only go into this matter that others may profit by realizing the mistakes and confusion to which these cases were submitted.

Although the work done was considerable and conscientious, the results were diappointing to the operator and staff, and probably to the patients.

It was not until several months after this so-called trial was made that the operator requested me to account for the differences between his results and those I describe and usually obtain. Accordingly I devoted about an hour and a half to a survey of about twenty charts and case records which had been carefully compiled, and, instead of any mystery, the causes of failure were as clear as the daylight. The worst mistakes were as follows:

1. All but about one-quarter of the cases had received from twelve to twenty-two consecutive treatments instead of the six or seven specifically directed.

2. About four-fifths of the cases had been submitted to irrigations or injections besides electrolysis.

3. In only four or five cases had electrolysis been the only treatment, and even in these various compounds of mercury and silver solutions had been used instead of the fluid I described.

4. In defiance of the instruction, this operator did not lubricate the catheter, and passed it after some manœuvre of previously filling the urethra with water. The treatment was found painful—nor, I think, need one be surprised.

So these things had been done to about twenty patients with acute gonorrhoea, and treatment by electrolysis had been judged accordingly and a commentary made in the medical press. The only interesting item I noticed in the series was the operator's selection of four or five of his best results, and in each of these electrolysis had been the only local treatment, though even in these a variety of metallic compounds had been substituted for the solution directed to be used.

It is, of course, easy for other workers to avoid the mistakes recorded above, but in justice to the method and its value in gonorrhoea I think such misuse of any serious work should not occur.

Principles of the Electrolytic Method.

As there is still some misapprehension as to the principles of the method, I hope a brief repetition of its essential aims may be excused.

There are two remedial agencies which Nature brings into action in each case of gonorrhoea.

The first is the production of gonococcal antibodies which are essential for the phagocytosis or arrest of the organisms by the leucocytes. As, however, in the acute stage of the disease we can do little to increase these by vaccines or the like, we can only take care to prevent their waste by any unnecessary lavage or other dilution by excessive fluid intake through which the supply of these valuable substances to the affected parts may be hindered.

The second natural agency, however, is that of phagocytosis or the arrest of the gonococci by the leucocytes, both of which are voided from the body in the form of the discharge, and it is here that we can certainly assist Nature. If we can facilitate the voidance of the gonococci

LIBRARY U. OF I. URBANA-CHAMPAIGN

—whether dead or alive—we are giving important assistance to the patient, provided it can be done without irritation of the delicate and inflamed membrane, and also without conveying the infection into deeper and uninvaded parts. The most important gonococci are those multiplying in and inflaming the mucous glands and follicles and their ducts, and these can only be voided after they have become conveyed into the main urethral channel, whence they flow out in the discharge or are swept out in the escaping urine. I believe that gonococci while in the gland recesses are not accessible by any fluid led into the urethra.

If, however, we can provide an agency which actuates the secretory flow from within these spaces towards and into the main channel, we shall produce an evacuation of these gonococcal dépôts, and in a series of such operations we shall subdue the disease. Such, of course, is the sequence of events effected in the method of electrolysis. The numbers of pus plugs, so to speak, visibly projecting from the catheter perforations at the end of half an hour of electrolysis may amount to 1 drachm in volume after settling in a measure glass. Microscopically, their composition can be seen to be of gonococci in large numbers with as many leucocytes involved in a matrix of mucus. It is significant, also, that this quantity of morbid material has been obtained after a urinary voidance (a natural lavage of the urethra), and it was not obtainable by that agency. It is also noteworthy that as the spontaneous discharge diminishes from day to day the material obtained in this way is correspondingly reduced. Naturally, the final event constituting recovery in any case is the phagocytosis of the last gonococcus, and this occurrence can be recognized by no human eye. Before this, however, all spontaneous discharge will have ceased and the microscope is now invaluable for scrutiny of the threads in the urine. These threads—which soon become mere wisps of mucus—are made into Gram-stained films and searched for gonococci; and if more than one test of the all-night urine shows their absence, there will almost certainly be no relapse. Apart from care in the conduct of the method, some experience is required to know when to stop the local treatment; but judgement improves with practice in this particular. Everyone likes to find his prognosis verified, but the proof of the cure is only obtainable by the evidence of no relapse nor conveyance of the disease for months or years afterwards.

I believe that in electrolysis we have the most elaborate and the most rapid, but the least painful, of any local treatment for this disease. It is also remarkable that in nearly two hundred cases I have only met one case of arthritis arising during electrolysis. The special interest in that case was the incision of an abscess before I began the treatment. This immunity from arthritis is a matter I cannot explain at present, but it is, I believe, important. Stricture of course does not occur, as there is no ulceration induced in the urethra. If cases are treated early it is rare for the infection to reach the deep urethra, and the process gives us a decisive control over the disease which is maintained up to recovery.

BIBLIOGRAPHY.

Electrical Reactions of Bacteria, *Proc. Roy. Soc.*, 1909. Acute Gonorrhoea treated by Electrolysis, BRITISH MEDICAL JOURNAL, 1915. Chronic Gonorrhoea treated by Electrolysis, *Lancet*, 1916 One Hundred Cases treated by Electrolysis, *Practitioner*, 1916. Russ: *The New Treatment for Gonorrhoea* (Lewis and Co.).

THE THERAPEUTIC EFFECTS OF COLLOIDAL PREPARATIONS.

BY

SIR MALCOLM MORRIS, K.C.V.O.

(*Preliminary Note.*)

THE invitation from the Editor of the BRITISH MEDICAL JOURNAL to relate my experience of the therapeutic effects of drugs in the colloidal state is one to which I willingly respond.[1] For more than a year I have been employing the collosol preparations of the Crookes Laboratories, and have had results which leave me in no doubt as to their superiority—I must say, with every desire to avoid the appearance of exaggeration, their great superiority—to the same drugs in the non-colloidal form. They are results which make it an obvious duty to suggest that trial on a large scale ought to be given to a form of medication which promises to effect a pharmacological revolution.

In cutaneous affections, as every dermatologist knows, the drawbacks to the use of argentum are the pain which it causes and the discoloration which it leaves behind. With collosol silver these effects are entirely absent; instead of producing irritation, indeed, it has a distinctly soothing effect. It rapidly subdues inflammation and promotes the healing of lesions. I have had remarkable results in enlarged prostate with irritation of the bladder, in pruritus ani and perineal eczema, and in haemorrhoids. It can be used in the form of suppositories while a solution is applied to the irritated skin. In bromidrosis in the axillae and feet it quickly gives relief. It also causes a rapid disappearance of warts. Being non toxic, it can be given internally in urticaria and other forms of dermatitis which are suggestive of toxaemia. In such cases it is quickly beneficial, as it is also in diarrhoea.

Of collosol iodine, which, like collosol silver, is non-irritating and produces no stain, I have proved the efficacy in certain forms of eczema, and in some of those cases of bad chilblains which have been so numerous this winter. In a severe case of chilblains in the first stage, that of a woman of 37 whose fingers were so swollen that they looked like sausages, under the application of collosol iodine oil rubbed in four or five times a day every trace of the condition disappeared in four days. Equally valuable is this collosol in severe cases of trench feet with ulceration, in which it is also an excellent prophylactic. It is most useful, too, in the many cases of Charcot's bedsores which are so troublesome a complication of spinal injuries in military hospitals. In the earlier inflammatory stages of lupus erythematosus, before atrophy has supervened, it is far more suitable than the ordinary form of the drug because of the absence of irritation. Similarly, it is to be preferred for internal administration in the later stage of syphilis, because the practitioner may dismiss from his mind all fear of evoking symptoms of iodism. Parasitic affections, again, show a striking amenability to this remedy. In a case of dhobie's itch, in which the disease had spread from the groins and invaded the trunk, legs, and arms, under the quite painless application of collosol iodine oil the extensive lesions all cleared up in three weeks; with ordinary remedies the case would undoubtedly have been more protracted, and the treatment would inevitably have put the patient to a good deal of pain.

Among the affections in which collosol sulphur is beneficial are various forms of acne, including acne rosacea, and seborrhoea. For the relief of generalized dermatitis, in acute psoriasis, and in painful fibrositis, whether of connective tissue, of muscle, or of joints, baths medicated with this collosol are, in my experience, at once soothing and quickly curative. In the case of an officer from the front who was crippled with fibrositis and had severe eczema, a daily collosol sulphur bath relieved him of all his symptoms in a week.

These are not the only collosols with which I have had gratifying results, but on this occasion I need not go further into detail. I have said enough, I hope, to show that these preparations, to put the case at its lowest, mark a very considerable advance in therapeutics. They act with singular rapidity, they are free of disadvantages inseparable from the same drugs in the ordinary state, and their extensive use would effect an enormous economy in drug consumption—a not unimportant consideration at a time when there is not enough of many medicinal substances to go round.

REFERENCE.

[1] BRITISH MEDICAL JOURNAL, May 5th, 1917, p. 585.

MESSRS. GRAHAM AND LATHAM, LTD., military engineers, 104, Victoria Street, London, S.W., have sent us a sample of the "Swarren crutch seat." It is made of webbing three inches wide, with plated steel clips at each end for fixing to the hand-pieces of standard crutches. When not in use the crutch seat can be folded up and carried in the pocket. It is strongly and simply made, and provides a ready means of rest for wounded soldiers and others who have to walk with crutches. We are informed that the catalogue price of 7s. 6d. is subject to substantial discount to Red Cross and allied organizations.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RECURRENCE OR REDEPOSIT OF CANCER.

SIR WILLIAM OSLER'S memorandum in your issue of April 7th, p. 455, puts the question of recurrence or redeposit of cancer beside others of its singular manifestations, from which the whole nature of that disease is to be inferred. It sent me back also to his article in the BRITISH MEDICAL JOURNAL of 1906 (vol. i) on the medical aspects of carcinoma of the breast, dealing *inter alia* with the disappearance of secondary growths, of which the case I append is an example.

A number of years ago a patient presented herself with a small nodule in the right breast, which I proposed to excise immediately for examination. Four months pregnant, and willing to put off a serious view, she took other advice. I did not see her until much later, the character of the tumour having meanwhile shown itself unmistakably during lactation, which had been interrupted that she might undergo the usual operation for extirpation of the growth and of axillary glands. There was now a nodular recurrence in the cicatrix, and nodules of the size of large peas subcutaneously, both above and below the clavicles. It was in such small growths as the latter that the interest of the case centred. They came, and it was also clear that they went. At one time a crop could be counted on the scalp, not to be found a little later. The arm became swollen, growths being felt in the axilla and visible under the skin of the arm and over the olecranon. This oedema disappeared, and these metastases also. Embarrassed breathing and physical signs next pointed to latent growths in the left lung. Both, however, were liable to change in intensity and extent, and one could not help concluding that deposition and resolution were following each other in the pulmonary tissues, as they had visibly in the superficies.

The hope that the patient would emerge "cured" was falsified; she died painlessly of asthenia, having, however, for upwards of a year demonstrated that to the progress of carcinoma there is a measure of resistance as yet unascertained.

Bristol. DAVID A. ALEXANDER

PROLONGED FEEDING THROUGH NASAL TUBE.

MICHAEL McA. (No. 1933) was admitted to the Donegal District Asylum, Letterkenny, on January 27th, 1885, and died there on April 2nd, 1917, at the age of 81 years. For several years after his admission he had to be spoon-fed, but for the last twenty-one years and seven months he was fed three times daily through the nasal tube. He enjoyed excellent health until the last three months, when it began to fail. I never heard of his taking a drink of water for all these years, but during the last two days of his life he took warm milk from a fellow patient but not from an attendant. The following was his daily diet scale:

Breakfast: One quart of milk, two eggs, and 1½ oz. of sugar. I
Dinner: One quart of beef-tea or beef fluid made with Bovri or Oxo, and one or two potatoes mashed fine enough to go through the nasal tube.
Supper: One quart of milk, one egg, and 1½ oz. of sugar.

Is this case a "record" in respect of the length of time for which nasal feeding was continuously practised?

E. E. MOORE, M.D.,
Medical Superintendent.

THE *Deutsche medizinische Wochenschrift* warns its subscribers that, owing to the reduction of its printing staff, publication of contributions and of reprints must inevitably be delayed, and that the censorship of proofs is liable to interfere with the regular delivery of the journal.

VACCINATION is not held in much honour in Spain, mainly owing to the ignorance of the people, but also, it is admitted, to the inefficiency with which it is carried out. Madrid has lately been visited by an epidemic of small-pox which has led the Government to vote £120,000 for the establishment of a hospital for infectious diseases.

Reports of Societies.

THE TOXIC ACTION OF T.N.T.

AT a meeting of the Section of State Medicine of the Roya Academy of Medicine in Ireland, on April 13th, the Presi dent, Dr. W. A. WINTER, in the chair, Dr. WALTER SMITH read a paper on high explosives, including the toxic actio of T.N.T. in munition workers, and its detection in th urine. He said that attention was first drawn to the poisonous gases and volatile substances used in the British army during the present war. After a short historica sketch of explosives, the chief properties of picric aci and picrates were demonstrated. Picrate of lead detonate suddenly and loudly when heated. The composition an properties of "smokeless powder" and of "cordite were described, and shown experimentally. The tw chief sources of high explosives are: (*a*) Members o the fatty (aliphatic) group — namely, cellulose an glycerine. (*b*) The hydrocarbons of the aromatic (ben zene) group. The organic products employed ar either (1) true nitrates, or (2) nitro-compounds, and th essential differences between these two groups were ex plained. Pyroxylin (*B.P.*) is di-nitro-cellulose, gun-cotto is tri-nitro-cellulose. Practically, most violent propellant contain nitro-cellulose, wholly or partly gelatinized. Th term nitro glycerine is a chemical misnomer, for it is a tru organic nitrate or ester. Among the aromatic group th three important parents of explosives are: Benzen (benzol), toluene (toluol), and phenol (carbolic acid). Dr Walter Smith described the results of two observation made upon himself by swallowing 6 grains of picric aci in 2-grain doses at intervals of some hours. No harm followed. After some hours the urine became orange coloured, like that of a mild case of jaundice. It was fre from albumin or bile pigment. Picric acid as an explosiv has been replaced by tri-nitro-toluene (T.N.T.), which i more stable, and does not attack metals. Many cases o illness have followed in the wake of its manufacture amon munition workers. Locally, it causes dermatitis. Whe absorbed, mainly through the skin, it leads to serio digestive trouble. Furthermore, it induces haemolysis an cyanosis. The brunt of the mischief falls on the live and the lesion appears to lie somewhere between a sub acute yellow atrophy and multilobular cirrhosis. Jaundic appears, and ascites sometimes supervenes, and haemo rhages occur in various situations. The urine is dark, an may contain albumin as well as bile. Death usually take place about three weeks after the first appearance jaundice. The following are tests for T.N.T.: In the fre state a weak (ethereal) solution strikes a deep red wit KOH, preferably in alcoholic solution; in the urine, T.N. does not exist in the free state; it can be detected b Webster's test, by acidifying the urine with dilute H_2S and extracting with ether; the ethereal solution wi respond to the potash test. Dr. Smith on two occasion took 3 grains of T.N.T. in 1 grain doses, at interval After some hours the urine became orange-coloured, an in reaction free from albumin and bile pigment. Th ethereal extract from the acidified urine gave a bright re with potash, which had little, if any, effect upon the urin prior to acidification.

Dr. W. M. CROFTON described the symptoms presente by several patients who had been accidentally poisone by cordite fumes. He inquired whether any satisfacto treatment had been found for persons suffering fro poisoning from the fumes of high explosives.

Dr. SMITH, in reply, stated that he had no person experience of the treatment of persons suffering fro T.N.T. poisoning.

VAGINAL PLUGGING FOR HAEMORRHAGE.

AT a meeting of the Section of Obstetrics of the Roy Academy of Medicine in Ireland, held on April 20th, D HASTINGS TWEEDY read a paper on the ability of the vagin plug to cause a direct pressure on the uterine vessels and o the side walls of the pregnant uterus. He said that th plug had a different significance in Dublin from that whic it enjoyed elsewhere. It was impossible to cause compre sion of the uterine vessels if rolls of cotton-wool (each tie round with a string) were passed into the vagina with th aid of a speculum and plugging forceps. If, on the contrar

LIBRARY U. OF I. URBANA-CHAMPAIGN

e left hand was entirely inserted into the vagina and nall pledgets of moist cotton-wool were inserted by eans of the other hand, it was comparatively easy to ess from thirty to forty separate pieces into the canal id to force up the lateral fornices until a hard tumour uld be felt rising high above Poupart's ligament. In 98 he brought forward evidence that a plug so inserted as able to stop the circulation of the uterine vessels. He d clearly stated his reasons for this belief, and he was ill at a loss to understand why his views were not nerally accepted. Recently, in a series of Caesarean ctions, he had been able to demonstrate beyond a doubt at the plug acts in the manner explained in his former per.

Sir WILLIAM SMYLY said that he considered Dr. Tweedy's per of very great practical importance, and not the less because the views expressed in it were not in harmony ith those generally held by obstetric writers. When he ir W. Smyly) became Master of the Rotunda Hospital rsion and extraction was generally accepted as the only tional treatment in cases of severe accidental haemorrage, but the results were so bad that he abandoned it. upture of the membranes no doubt succeeded in the ajority of cases but altogether failed in some of the worst. e then resorted to plugging the vagina, and that treatent had been adhered to by all succeeding Masters, and e reports of the hospital were sufficient proof of its ccess. In his paper Dr. Tweedy had very confidently firmed that the plug controlled the haemorrhage, and at it did so by compressing the uterine arteries, hich at term were very closely related with the lateral rnices of the vagina. In both these statements Sir . Smyly agreed with him, and could confirm his observaons as to the control of the circulation in those vessels by essure from the vagina during Caesarean section. He did ot, however, see that that disproved the older explanation; oth might be, and probably were, true. In many cases which no symptoms of haemorrhage had been noted idences were to be found in the placenta after birth former limited haemorrhages. What was the exanation of the limitation and control of such haemorages if it were not that the capacity of the spaces to which it occurred was limited, and when the nsion became equal to the blood pressure in the sinuses e haemorrhage was checked? When he met, in works obstetrics, with statements as to the futility of plugging always sought the author's directions, and generally und that gauze or dry cotton was recommended. Such ugs would, no doubt, be useless, and would soon be und quite loose in the vagina. The method described Dr. Tweedy, and which he had learnt from him, was ficient. Concealed internal haemorrhages were altoether different from the cases of external haemorrhage; ey were generally, if not always, associated with lampsia or other toxaemias, and the effusion would found as often in the peritoneal cavity as in the uterus; in both. Abdominal section was the treatment in such ses.

Dr. SHEILL suggested that the fist-in-the-vagina method ould be of great service during Caesarean section as a emostatic during placental removal and uterine suture.

Dr. BETHEL SOLOMONS said that he had found the treatent of external accidental haemorrhage by vaginal ugging infallible. He had been called to cases where e plug had failed to stop the haemorrhage, but he ways found that bad technique was the cause. While approved of endeavouring to find how the plug stopped e haemorrhage, he hoped that vaginal manipulation in ses of Caesarean section would not be persisted in, as ese manipulations converted a comparatively safe operaon into a dangerous one. Concealed haemorrhage must treated by laparotomy.

Dr. BARRY said he discarded gloves when plugging the gina, as he had found it difficult to plug satisfactorily if wore them.

THE annual meeting of the American Pediatric Society ill be held this year at White Sulphur Springs, Western rginia. It will be opened on May 28th by an address om the president, Dr. F. S. Churchill of Chicago, and uring the rest of that day a series of papers concerned ore or less directly with blood will be read. The meeting ill be continued on the following day and will conclude May 30th.

Reviews.

ARTIFICIAL LEGS AND ARMS.

BEFORE the war, as Dr. HENDRIX tells us in his report on artificial legs,[1] all the makers of false limbs in Belgium were Germans, as were their workmen. Little more than a year after the invasion of Belgium the Belgian Government had established a factory for the manufacture of artificial legs at Rouen, where all the workmen are disabled Belgian soldiers. The advantages of this proceeding are many, the chief among them being the saving of money, freedom to modify and improve types, and the creation of a new Belgian industry which will doubtless continue to flourish in peace to the exclusion of the alien manufacturer and workman.

In a preface to this report Professor Tuffier, of Paris, dwells on the merits of the types of artificial leg in vogue in America, and credits their makers with the discovery of the principle that bony prominences should be made the principal points of support, the soft parts being only used secondarily. This is a sound principle, but it did not originate in America, for the Anglesey leg and other English patterns have been made upon it for upwards of a century. The chief difference between the American and English types lies in the so-called propulsive mechanism. In the former the knee is extended actively by means of cords and braces over the shoulders, while in the latter elastic bands are used to extend the knee, and the ankle is extended simultaneously by means of artificial tendons. Distinct from one another as these two methods are, it is remarkable in practice how little there is to choose between them. Some patients prefer the one and some the other, but all may walk equally well. In fact, with practice, walking becomes a matter of balance and swing, in which neither extensor nor flexor mechanism plays any great part. Before adopting the types of limbs made by one well-known American firm the Belgians made trials and experiments, and proceeded cautiously and by stages to the manufacture of what has now become the Belgian model. The material used for buckets is, as usual, willow wood, or sometimes lime wood. The types are ten in number, suitable for amputations of the lower limb at various sites. The directions and the illustrations in this report should be enough to enable any one with the necessary materials, tools, and skill to produce satisfactory appliances.

The Belgian soldier who has lost a limb is supplied, as soon as the wound has healed, with a temporary peg-leg, such as is made at La Panne under the direction of Dr. Depage. It is many months before he is given an artificial foot. Thus time is given for the stump to shrink under the pressure and use of the temporary bucket, and the need for new wooden buckets to the permanent limb is reduced to a minimum. At the same time as he is given his artificial leg and foot each man receives a bucket and peg-leg, of special pattern, known as the "Pilon Mascau," named after its inventor. Dr. Hendrix considers that the peg-leg is "the ideal walking apparatus for the great majority of the amputated," and that which "is exclusively suitable, so to speak, to dwellers in the country and to all working men." There is much truth in this, but in Belgium, as in Britain, appearances must be consulted, and the desire of the mutilated man to appear as like as possible to his sound brethren has to be respected.

It must be kept in mind that the most important part of a wooden leg—the bucket, or receptacle for the stump—is the same in the peg-leg as in the artificial limb, and requires as much care and skill in its design and manufacture if it is to be worn with comfort. This is true as regards the Belgian peg-leg for amputations above the knee: for those below the knee, however, a kneeling leg is supplied, which is meant for use in case of soreness or other stump trouble, or when repairs to the artificial limb are needed.

---

[1] *Les principes fondamentaux de la prothèse orthopédique du membre inférieur.* D'après l'étude des membres artificiels-types, confectionnés dans les ateliers de prothèse du Service de Santé de l'Armée Belge à Rouen. Par Georges Hendrix, Médecin de Bataillon, chargé du Service de Prothèse dans l'Armée Belge, Chef du Service d'Orthopédie à la "Policlinique de Bruxelles." Rapport presenté à M. le Docteur L. Melis, Inspecteur Général du Service de Santé Belge, le 1er Avril, 1916. Paris: A. Maloine et Fils, editeurs. 1917. (Roy. 8vo, pp. 99+xiii; 69 figures in text and a frontispiece.)

As its title shows, the report does not touch upon the question of amputations of the upper extremity, which form about one-third of the whole number, according to German and British statistics. The fashioning of artificial arms presents a problem more difficult of solution than that concerning legs, for there is far less consensus of opinion as to standard types, and changes and improvements are continually being made. This is not surprising, considering how much more varied and complicated are the functions of the human hand than those of the foot. It seems probable that if and when standardization comes it will be in two types—a working arm and an ornamental one.

Sir ANDERSON STUART has printed in an illustrated pamphlet a popular lecture he gave last September to the New South Wales Branch of the Red Cross Society on *Artificial Limbs*.[2] It is evidently intended to arouse interest and to familiarize the Australian public with the question of the supply of artificial limbs. That this was necessary in this country also is evident from the fact that most people supposed that artificial legs were made of cork. How this fallacy arose is a mystery, unless it be due to the former popularity of a ballad about Meinherr van Dam and his wonderful leg of cork. But probably the legend is of more remote origin. Be this as it may, the public of Australia will have now no excuse for ignorance on the main facts about artificial limbs. Sir Anderson Stuart is an enthusiastic admirer of the Carnes arm. It is beyond doubt that this most ingenious appliance offers a most life-like substitute for the lost member and that nothing surpasses it from an aesthetic point of view, but it suffers from the drawbacks that no appliances can be substituted for the hand, that it is costly, and that the hand, owing to its mechanism, is very heavy, so that although the arm as a whole is fairly light, a great part of its weight is borne at the end of a long lever. For the man who has had the misfortune to lose both hands a Carnes arm is almost indispensable, but the man with one uninjured hand and arm will not use an artificial one for any purpose that can be served by the sound member, and the artificial appliance becomes merely an assistant—if often a very useful one.

A CASUALTY CLEARING STATION.

THE dozen chapters of *The Tale of a Casualty Clearing Station*[3] collected out of *Blackwood* go perhaps even better when read consecutively than when spaced out as a serial. They make a continuous story of absorbing interest. The unit, then called a clearing hospital (200 beds), went to France on August 16th, 1914, and the tale ends after Festubert, in preparation for which it arranged to accommodate 1,000 in a chateau, its outhouses, and two schoolhouses in the dependent village.

The author is a writer of no mean skill. He never sinks into the mere diarist, and in the first three chapters conveys the state of mind which members of units behind the actual fighting shared with us at home during the second fortnight of that August. The unit got as far as railhead beyond St. Quentin, but very speedily had to bark back to Rouen, narrowly escaping capture on its devious journey. The unit really got to work first in the city of Le Mans, and thereafter the tale as told is almost breathless. The unit was shelled out of Bethune, and was constantly on the move, until it came to rest in the chateau and village already mentioned. We are not allowed to linger over the intervals when patients were few and the staff after recovering from the strain of the last rush had time to be bored. This feeling is never conveyed to the reader, and though he learns of the development of the clearing hospital into a casualty clearing station, of the appearance of motor convoys and motor laboratories, it is by description of incidents. Thus we read how, in early days at St. Omer, a motor caravan "pushed its way into the compound. Out of it stepped an officer who in London, in an extraordinarily short time, had rigged up the caravan into a mobile laboratory. The inside was equipped with everything that the heart of a bacteriologist could require. Nothing of the kind had ever been seen before in warfare, or anywhere else. The wizard of the cave having announced his intention of assisting us in any manner he could, we started him upon the good work at once. . . . The work of research lay at our visitor's feet in an alarming quantity. He needed no urging"; some will think, with sorrow, that they recognize the "lengthy person" who "dodged into the caravan and occasionally produced far-reaching results." Another innovation, viewed at first with some doubt, proved also successful. The "nursing sisters did splendid work. They were not given to talk," and when the casualty clearing station was busy "they never rested except when driven."

The book gives a picture, neither gruesome nor flippant, of one kind of army medical work, and the author's assurance was not necessary to convince the reader that the incidents were all drawn from life.

[2] *Artificial Limbs.* A lecture by Sir Thomas Anderson Stuart, M.D., LL.D., D.Sc., Dean of the Faculty of Medicine, University of Sydney. 1917. Sydney: W. A. Gullick, Government Printer.

[3] *The Tale of a Casualty Clearing Station.* By a Royal Field Leech. London and Edinburgh: William Blackwood and Sons. 1917. (Cr. 8vo, pp. 306. 5s. net.)

NOTES ON BOOKS.

A SHORT and well written account of dysentery, cholera, and typhus fever has been contributed by Drs. VINCENT and MURATET to the French *Collection Horizon*,[4] which consists of textbooks of the special medicine and surgery of war. The volume contains a great deal of useful clinical information, particularly so far as treatment is concerned; there are also admirable chapters devoted to the epidemiology and prophylaxis of these infectious disorders. In the chapters on cholera it is noted that up to the present time no case of cholera has occurred in the English or French armies (presumably those on the Western front are intended); but in the last few months of the year 1914 there were 3,468 cases of cholera in Austria with 898 deaths, over 3,000 cases in Galicia with 1,164 deaths, over 3,600 cases in Hungary, 277 cases in Silesia with 35 deaths, and other epidemics of the disease in Turkey, Bulgaria, and Greece.

The National Council for Combating Venereal Diseases, Bank Buildings, Kingsway, W.C.2, has published a pamphlet (price 2d.) by Dr. MARY SCHARLIEB and Dr. MORNA RAWLINS, entitled *An Outline of the Medical Treatment of Venereal Diseases in Women*, which will be useful to medical practitioners who have not had special experience of venereal work. It is not intended for the lay public.

The drawings by Mr. MUIRHEAD BONE in the fifth part of the *Western Front*[5] are concerned wholly with the navy. Many of the subjects suit his peculiar genius well; in particular, perhaps, a sketch of the boiler-room of an oil-driven battleship, and a drawing of the inside of a turret with the breech of a big gun open. But there are also some breezy impressions of the fleet at sea, and a very striking sketch of a line of destroyers in harbour.

The volume, *Letters from a French Hospital*,[6] consists of a selection of those sent by a niece working in a hospital somewhere in France to her uncle in London between July, 1915, and August, 1916. The reader will find set out in most natural wise the thousand-and-one apparently trifling details of a hospital nurse's life that go to build up that most important unit, a well-managed surgical ward. The writer is touched constantly with the *lacrimae rerum*—the more so, perhaps, because of chronic overwork. An excellent picture of the simple nature and gratitude of the French soldier in distress is given. We recommend this soberly attractive little volume to the attention of our readers.

Sinhalese Self-taught[7] is a book that has been written for those who have not time to wrestle with the grammar of the tongue, yet wish to be able to speak it for business or other purposes. It begins with an account of the eighteen vowels and thirty-six consonants used in Ceylon, with the 612 syllabic characters formed therefrom. Then follow fifty pages of vocabularies; an outline of the grammar is given in twenty pages, and conversational phrases and sentences fill the rest of the book.

[4] *Les dysenteries: Le choléra Asiatique, le typhus exanthématique.* Par H. Vincent et L. Muratet. Collection Horizon: Précis de Médecine et de Chirurgie de Guerre. Paris: Masson et Cie. 1917. (Cr. 8vo, pp. 184. Fr. 4.)

[5] *The Western Front.* Part V. Drawings by Muirhead Bone. Published for the Government by *Country Life*, Ltd. (2s. net monthly.)

[6] *Letters from a French Hospital.* London: Constable and Co., Ltd. 1917. (Post 8vo, pp. 96. 2s. net.)

[7] *Sinhalese Self-taught.* By Don M. de Z. Wickremasinghe, Hon. M[illegible]on. Marlborough's Self-taught Series. London: E. Marlborough and Co. 1916. (Cr. 8vo, pp. 119. 2s. net; cloth, 2s. 6d. net.)

LIBRARY U. OF I. URBANA-CHAMPAIGN

British Medical Journal.

SATURDAY, MAY 12TH, 1917.

ARMY AND CIVIL MEDICAL ECONOMIES.

THE NEED FOR CO-OPERATION.

APART from the assistance which may be given by our American allies, there are three ways in which the adjustment of civil needs to military requirements in the matter of doctors may be met: by economy in medical services rendered to the civil population; by economy in the use of medical officers in the R.A.M.C.; by co-operation between the medical military authorities on the one hand, and the civil practitioners and the community as represented by the professional committees and by the Government departments which employ medical men on the other. In the first direction much has already been done, and there is no doubt that the population is rationing itself in medical treatment at least as effectively as in food. The professional committees are still urging the need for greater economy if possible, and in deference to Lord Derby's wishes the Central Medical War Committee has just issued to local Medical War Committees inquiries with regard to the possibility of methods of voluntary substitution.

Criticism of the Army Medical Department for alleged wasteful use of medical officers both at home and abroad has been frequent since a very early period of the war. Much of this criticism has been due to ignorance; much of it has arisen from contemplation of some point of detail without reference to the larger scheme of things involved in the conduct of a great war. Still, it is possible that, for various reasons, full use of criticism has not been made by the Army Medical Department. Though many reforms have been brought about, some as the result of suggestion from outside, it must be remembered that the work of the Army Medical Service is a highly specialized form of activity; that the organization was built up during a prolonged period of comparative peace; and that as the officers responsible for its administration are experts in that matter it is not unnatural that some feeling of opposition should arise when the untrained civilian ventures to express an opinion on matters about which he is not intimately informed. On behalf of the critic we would urge that the magnitude of the present war has involved the civilian in a way never contemplated in peace; that the best civilian brains have become an integral part of the military machine; that the duration of the war has forced the civilian to learn much about military affairs; and that knowledge has spread more widely owing to the proximity of the fighting and the fact that hardly a family exists which is not lending its men to the military service of the country. Moreover, military and civil concerns are now so intimately intertwined that neither side is really competent to deal with its own affairs without the closest reference to the affairs of the other side.

In last week's JOURNAL we suggested that the multiplicity of small V.A.D. and private hospitals tends to cause overlapping, waste of effort, and uneconomical use of personnel. We raised the matter in relation to the appeal of the Secretary of State for War for nurses; to meet the situation caused by the torpedoing of hospital ships he asked individuals to volunteer and managers of medical institutions to do everything in their power to set trained nurses free. We pointed out that a readjustment of the present arrangements might lead not only to an economy in medical and nursing personnel, but also be of direct benefit to the men themselves. This, no doubt, is criticism of army administration, but not unfriendly criticism. It is a matter of urgent importance, because at the very moment when large demands were being made on the medical profession for more medical officers for the fronts the War Office was inviting county associations to make new hospitals.

If the criticism be justified, how should it be met? A very large number of these smaller hospitals for the wounded, sick, or convalescent obtain their medical personnel from the ranks of civil practitioners. The time and man power absorbed in the work of these hospitals is time and man power taken from that available for the civil population. If many of the medical men over 45 in an area still retaining men under 41 are engaged in this military work, by so much the more difficult does it become to spare for the army the men under 41. This has been recognized by the Director-General A.M.S., so that the Central Medical War Committee has been able to issue to the local Medical War Committees a statement that local military work is not to be allowed to stand in the way of sparing the younger men for commissions. But is this sufficient, especially in view of the recent invitation to establish new small hospitals? When a new hospital for forty wounded men is formed an attempt must be made to obtain a medical staff, generally through the voluntary services of neighbouring practitioners. If later on the Central Medical War Committee is compelled to point out that the existence of the hospital jeopardizes the obtaining of a proper quota of young medical officers for the R.A.M.C. from the area in which the hospital is situated, what should be done? The Director-General may close a hospital which has been opened only a month or two previously by some patriotic citizen as the result of the War Office appeal; or he may send an officer in the R.A.M.C. to take charge; or he may leave the hospital to get on as best it can with such civilian assistance as can be scraped together, but this would be to the detriment of medical treatment both on the military and on the civil side. Of the two last courses neither would appear to be in the best interests of the country.

The multiplication of small hospitals must be wasteful. It is wasteful in the personnel of the medical, nursing, and house staff. It is wasteful in equipment, it is wasteful in food, in fuel, and in every other accessory. Probably in a large proportion of these hospitals it is considered necessary to have an operating theatre and money is spent in equipping it for aseptic surgery. Yet the majority of patients in these hospitals are convalescents, and the field for surgery may be very limited. It would be interesting to compare a hospital with 500 beds and ten of these small hospitals with fifty beds each, as regards each of the factors mentioned. From the public point of view at the present moment a comparison of the cost for maintenance, including food, in the two cases would be helpful and illuminating.

There is one more question in connexion with small V.A.D. hospitals which affects all the factors, but may be confined for our present purpose to the matter of medical personnel. What is the relation of these hospitals to means of transit? Are they near railway stations or public vehicles; and are they within easy

reach of the medical men belonging to the staff? The Central Medical War Committee is already engaged in considering the question of distribution of patients in certain areas. Much time is wasted by medical men travelling long distances beyond their own immediate district. It is no easy matter to alter this condition of things with regard to private patients; but if in addition to this a doctor travels daily to attend a V.A.D. hospital situated some miles away, the loss of time must be considerable.

If it is justifiable to criticize the multiplicity of small hospitals, and if the criticism so far made is fair, it may still happen that the War Office has a good answer. Thus it may be said that the local sentiment which seeks to find expression in local work for the wounded should be encouraged, or that it would not be possible to find sufficient room to extend fewer hospitals to a larger size, or that difficulties might be experienced in getting the Treasury to grant the money necessary if voluntary effort were checked. All these objections can probably be met, but neither the criticism nor the replies can be adequately dealt with except through the fullest and freest discussion and co-operation between those with knowledge of the difficulties on both sides. There exist in the three professional committees bodies which now have an intimate knowledge of civilian difficulties. The Army Medical Department is the body acquainted with the provision needed for wounded and sick soldiers. The treatment of these soldiers in this country is a matter involving the use of civil practitioners. Has any discussion yet taken place between the professional committees and the War Office on a question which so closely concerns the needs both of the army and of the civil community? If not, we venture to urge on both parties the importance of this method of adjustment—namely, co-operation between the medical military authorities and representatives of the community and the civil profession. In this matter of co-operation the success and safety of the country are involved, and the failure on either side to co-operate to the fullest possible extent cannot but be detrimental to the interests of all.

THE BUDGET.

IF there was any surprise in the Budget this year at all, it must have been in the absence of the unexpected. For this, of course, there are many reasons; some of them were dealt with by the Chancellor in his speech, and others could no doubt be adduced. For instance, the pressure of war work on Mr. Bonar Law's own time may have prevented that full study of domestic finance which would seem desirable before any further ramifications of the system of taxation are put in operation. But, whatever be the cause, few will quarrel with the result. In such times as these, when the immediate pressure of financial necessity is the dominant factor, taxation is apt to raise too readily the Irish cry of, "Wherever you see a head, hit it." Mr. Bonar Law has avoided the temptation to adopt so universal a method of attack, but certain heads which at present rise rather markedly above the general crowd have to sustain a further application of the bludgeon. Notably is this the case with the payers of excess profits duty. That tax, with which the munitions levy payable by controlled firms is now to be amalgamated, apparently to the satisfaction of everybody concerned, has advanced from its original 50 per cent. of the excess over the pre-war standard to 60 per cent., and now reaches the 80 per cent. mark as from January 1st of this year. This duty, be it remembered, is in addition to the ordinary income tax on the profits retained by the owner of the business. No one will contest the proposition that this constitutes an extremely heavy impost, and, having in view the comparatively small margin of extra profit left, throws a heavy strain on the patriotism of employers, who find themselves deprived to a large extent of selfish incentives to economy of management and personal industry. But patriotism has long ceased to be the sole prerogative of the battlefield, and there can be no doubt but that the vast majority of our "captains of industry" will respond to the call.

The other increases in taxation, in the entertainments tax, the tobacco tax, and the dog tax—this last was not mentioned in the Budget speech, but an intimation was given on the following day that special steps would be taken to place further taxation on dogs—were no heavier than had been generally expected, and the attitude of most of the prospective payers of these increased taxes was accordingly one of chastened resignation.

The main feature of the Budget, however, was the hoped for, but scarcely anticipated; escape of the income tax payer from a further call on his resources. It is true that the burden he already carries grows no lighter with the steady rise in general prices, and that any further increase in the rates of tax might have serious effects on the maintenance and increase of the national fund of capital, but nevertheless, so great is the daily outflow from the Exchequer that it had been thought quite possible that the Chancellor might feel compelled to call for a further increase in the yield of the income tax. The additional payments expected from the increase in the excess profits duty, not only through the rise in the rate of duty, but also through the anticipated increase in the amount of profits on which the duty will be paid during the financial year, are, with the assistance of the other increases referred to, sufficient to enable the income tax payer to escape further attention this year. In would be interesting to know how far the entrance of the United States into the arena has contributed to that escape. The Chancellor was, of course, unable to give any precise forecast of the financial assistance which the Allies may expect to receive from this source, but it would seem that the United States are fully prepared not only to assist in maintaining reasonable rates of exchange by establishing credits there against Government purchases, but also to help still further those members of the alliance for whom the long financial strain is becoming the most serious. Such action will very perceptibly lighten Britain's future financial tasks, and will be welcomed, not merely in the selfish spirit which rejoices in any sharing out of the sacrifices entailed by war, but with a recognition that America's financial generosity will assist the solution of the great post-war problems that are now discernible but not yet capable even of clear statement, and will lead to a wider appreciation of the links which bind the English-speaking races together.

Seeing what sacrifices medical men are now being called upon to make in order to render personal service, it is satisfactory to realize that the present proposals of the Chancellor do not add substantially to their financial burdens. In these days we can hardly hope for more.

There is one point, however, to which we wish to draw attention. While recognizing fully the paramount necessity of maintaining a large national revenue, and the consequent absence of any hope, or perhaps even

LIBRARY U. OF I. URBANA-CHAMPAIGN

desire, for any additional form of relief from existing taxation, we venture to think that there is good ground for asking that those forms of relief which have already been given statutory authority should be made more accessible. This probably applies with special force to the medical profession. In practice it is generally found that the best means of redress in income tax matters is a personal discussion with the local official of the statement of receipts and expenses which forms the necessary evidence in support of any appeal, but in a very large number of cases the practitioner is serving abroad—in fact this is one of the grounds on which the relief from the three years' average is based—and such a discussion is impossible except during short periods of leave, even if it be granted that an officer on leave can fairly be expected to spend a not inconsiderable amount of his time preparing the necessary statements for the settlement of his income tax. We do not propose to labour the point further; it was discussed in our issue of February 17th last, and is no doubt only too obvious to those it touches, particularly if the tax on the ordinary—that is, average—basis is being paid by the absentee's partners, leaving him to claim his redress by repayment when he can. In the circumstances we offer no apology for quoting from the article already referred to, the following suggested alterations in the Income Tax Statutes, emphasizing at the same time that what is desired is not any relief not already granted, but a change of procedure that shall make it more likely that the relief will in fact reach the persons it was intended to assist. The suggestions are three in number, namely, "(1) that, as before 1907, assessments be made on individual members of firms, and not (unless by request of the members) in the name of the firm as such; (2) that assessments on persons serving abroad be postponed for twelve months and made only after they have had an opportunity of declaring their profits for the year; and (3) that any person serving abroad may lodge an appeal against the quantum of an assessment or for an adjustment of an assessment by reference to his profit for one year at any time within three years from the last day of that year."

AMERICAN MEDICAL AID FOR THE ALLIES.

THE exact nature and extent of the military aid which the United States of America will give to the Allies on the Western front is not yet known, and is probably not yet determined, but in any case no large American force is likely to be available before next spring. Meanwhile, however, it is understood that arrangements have been made for giving help to the British Army Medical Service. At present the extent of this assistance cannot be stated, and the number of 1,000 medical men mentioned in the cables from Washington is probably a rough estimate. We have no information as to when the American medical men, whatever their number, will reach this country or France, but we believe it to be probable that some will come over at once in small parties, and that among them will be a certain number of orthopaedic surgeons whose services will be most valuable in this country. So far as we understand, the intention of the United States authorities is eventually to send complete units, with their equipment, whose services will be utilized with the armies in France. The extent of the medical assistance which America will give to French armies also is not yet determined, but apparently some of the total conjecturally mentioned will be placed at the disposal of the French. America has given medical assistance both to France and Britain from an early stage of the war. The Rockefeller Institute liberated Dr. Carrel, and the Herter Laboratory Dr. Dakin, F.R.S., and between them they established the laboratory and clinical hospital at Compiègne. Several American universities sent over individuals and units, amongst others Harvard, and the experiences of some of its alumni in base hospitals, ambulances, and other field medical units, during the first two years of the war, as related in a small volume called *The Harvard Volunteers in Europe*, show how the good work was begun in the autumn of 1914 by the American Ambulance Hospital in Paris. Other medical units soon followed, but meanwhile many Americans were joining the French foreign legion, and the flying corps of the French army. But it was, of course, mainly in a medical capacity that the United States first lent their aid to the cause of the allied armies, and at the end of last year, when this book was published, 400 Harvard men were known to be actively occupied behind the French, British, and Belgian lines. They engaged in a great variety of work for the wounded and sick whilst their country was still officially a spectator of the conflict, and they brought much zeal to its accomplishment. It forms a notable chapter in the history of the senior university of the United States. The section which interests us most just now from a practical point of view is the one entitled "The Military Hospital Units." This tells the story of the Harvard surgical unit, which worked as a general hospital at a British base in France in the early days of the war. The good spirit which prevailed between this unit and our own authorities, and the sympathetic tone in which the work is described, are a happy augury for the future.

ADULTERATION OF FOOD IN GERMANY.

IN the journal which he edits, Professor J. Schwalbe[1] has given a gloomy account of the extent to which the shortage of food has been exploited in Germany by the food adulterator. At first complaints made against adulterated food failed to secure convictions for lack of evidence, or the adulterator got off because he pleaded good intentions. In other cases the fines inflicted were absurdly small. Then the authorities warned the public against the most notorious swindles, but with little effect. Inquiries addressed by Schwalbe to fifty food regulation authorities revealed an *erschreckendes* (dreadful) state of affairs. According to one of these authorities food substitutes were innumerable. The analyses Schwalbe gives of substitutes for chops and sausages are a convincing refutation of the common belief that the Teutonic mind is merely imitative, not inventive. In September, 1915, steps were taken to prevent the manufacture and sale of foodstuffs by "undesirables," but the expected effect was not obtained, and in May, 1916, regulations had to be issued, making compulsory the publication, on the wrapper or case, of the manufacturer's name, the date of manufacture, the composition, quantity and price. Supplementary regulations had to be issued in June and August, as the shortage of fats had created irresistible temptations. The penalties for infringing these regulations included imprisonment up to six months and fines up to 1,500 marks. But again the genius of the substitute maker surmounted these obstacles. As a relatively mild example, Schwalbe gives the case of a manufacturer who put pictures of a bull's and a pig's head on the wrapper of his meat substitute, and claimed that each packet, weighing about 60 grams, was sufficient to make "cutlets," "beefsteak," or minced meat Königsberg dumpling for two to three persons. This preparation, which, it was stated, tasted and looked like meat and was highly nutritious, was found on analysis to consist principally of leguminous flour, peeled barley flour, and small quantities of powdered mushroom and spices; yet the

[1] *Deut. med. Woch.*, January 4th, 1917.

vendor was in the first instance acquitted. The municipalities of Frankfurt-am-Main and Munich have adopted a system of licences which aims at preventing the sale of undesirable substitutes; without a licence the manufacturer cannot dispose of his goods. In Frankfurt 10 to 15 per cent. of the applications for licences were refused, and no doubt there were other manufacturers who failed to apply for licences, anticipating a refusal. Schwalbe hopes that this system will be adopted throughout Germany.

HERB-GROWING IN THE BRITISH EMPIRE.

AT the meeting of the Royal Society of Arts on May 2nd Mr. J. C. Shenstone, F.L.S., read a paper on herb-growing in the British empire. At the present time, he said, herbal remedies occupied a more important place in the medical and domestic practice in most European countries than they did with us. When the war broke out the discovery was made that we had become dependent upon the Central Empires not only for synthetic chemicals, but for the supply of herbal medicines formerly grown by us. Some of these plants, such as belladonna, henbane, foxglove, colchicum, and perhaps valerian and male fern, were indispensable, but although they had belonged to our native flora, or at least had been cultivated in this country from very early times, their cultivation had fallen into neglect. The same was true of less valuable plants such as the dandelion, poppy capsules, and camomile flowers. As to belladonna and henbane, it was pretty certain that their alkaloidal value could be raised considerably without increasing the cost of production, but for this purpose the co-operation of the chemist would be required. It had also been stated that the wild foxglove of this country could supply the market for digitalis. A medical friend who collected his own digitalis and prepared his own tincture had told him that he found that foxglove growing on a hot sandy bank protected by a wood gave him the best results. Experiments in producing the most active dandelion juice would be worth consideration. Liquorice, most of which came from Spain and Italy, could be cultivated in Essex and Surrey, and was already grown in Yorkshire. Many valuable drugs imported from the American continent were not unsuited to our climate; *Podophyllum peltatum*, Linn., imported from America, had figured in our garden catalogues as a decorative plant. He begged medical men to give some attention, in conjunction with pharmacists and botanists, to investigating likely plants, for there could be no doubt that the varied and numerous flora of the British empire would yield medicines of even greater value than those imported from foreign countries. Sir Robert Armstrong-Jones, who occupied the chair, said that there were eighty or one hundred medicinal herbs and plants of medicinal value; Mr. Shenstone had referred to about forty of them, but the remainder could also be grown practically within our empire. There were many reasons for the decay in the use of the medicinal herbs, but the chief was the insinuating tablet. If herb-growing were taken in hand, it should be done at once, for belladonna only paid in the second year and aconite in the third. He understood that the shortage of digitalis had now been just overcome. Sir George Savage referred to the great amount of interest he found in the old herbals in his possession, although some of them were difficult to follow. He had spent four years in a very wide country practice in Cumberland, and he recalled his indebtedness to a man who made a great many of the simpler remedies from dandelions and other plants, and saved a great deal of trouble. British bedstraw was a useful herb; in the BRITISH MEDICAL JOURNAL of forty years ago he found a note on its efficacy in certain cases. He concluded by quoting a remark of Rousseau to the effect that the field of botany had not been studied by scientists, but had been exploited by medical men who wished the public to have faith in their simples.

THE ADMINISTRATION OF MALE FERN.

AT a meeting of the West Bromwich Pharmaceutical Association Mr. Kimsey Bourne, in an address on the administration of male fern, said that the failure of the drug to produce the desired effect was often due to the manner in which it was prescribed. It was not sufficient to direct the patient simply to take the draught on an empty stomach, but it should be made quite certain that the stomach contents had first been removed; a saline aperient, such as Epsom salts or sodium sulphate, should be administered, and it was an essential point that the aperient should be taken with a good bulk of water (8 or 10 ounces). The male fern should be given two or three hours after the aperient had acted. It was not uncommon to find that the draught was vomited, and however the extract was emulsified it was necessary to combine with it a suitable carminative. A simple petroleum emulsion formed a good vehicle, but perhaps the best mode of administration was to give ext. fil. liq. 40 m, in an ounce of milk flavoured with two drops of oil of peppermint. As the extract is now standardized to contain 20 per cent. of filicin, a question arose as to its keeping properties, but he had found by experience that if kept in a stoppered bottle and stored in a dark, cool cupboard it remained active for years. It should be shaken slightly before dispensing and could be thinned with a little ether. As it only killed the worm but did not expel it, a purgative afterwards was necessary, and for that castor oil was the best. It might also be advisable to administer a tonic for a few days, the action of which would be assisted by an effervescent saline each morning. The *British Pharmacopoeia* directs that the rhizome should not be kept more than a year, and in the discussion which followed Mr. Bourne's paper Mr. Barnes insisted on this point. If the rhizome were kept for over a year the filicic acid, he said, altered to its anhydride filicin, which was inert; the filicin obtained in the *B.P.* process of standardization was the anhydride of the active principle.

GERMAN CRITICISM OF THE BRITISH CAMPAIGN AGAINST VENEREAL DISEASE.

PROFESSOR BLASCHKO,[1] of Berlin, who, before the war, had familiarized himself with certain aspects of venereal disease in England, has discussed the findings of the Royal Commission and the measures proposed or adopted for combating venereal disease in this country. His criticism is candid, not to say acrid in places. But it is all the more stimulating being the opinion of an expert who feels under no obligation to prophesy comfortable things. Discussing the state of affairs the Royal Commission had to investigate, he states that the provision for treating venereal disease in England was infinitely inferior to that secured by Germany and Denmark—the two countries in which he considers persons suffering from venereal disease were best treated. The English hospitals, supported by private subscriptions, regarded these patients, with insular prudishness, unfavourably. Even with the introduction of the Insurance Act the insured patient was still far worse off than his fellow sufferer in Germany, owing largely to the attitude of the insurance societies towards these diseases. This view, at one time held by the German insurance societies, was the chief obstacle to every campaign against venereal disease; and it was the first act of the German Association for Combating Venereal Diseases to get the "misconduct" regulations abolished. With their removal in 1903, the treatment of these patients by their insurance societies had proceeded smoothly and satisfactorily. Professor Blaschko has a tilt at the panel doctor, who, he says, is, as a rule, not an efficient—*vollwertig*—physician, and adds that there are no specialists on the panel, whereas almost everywhere in Germany the insurance societies employ the services of

[1] *Deut. med. Woch.*, January 11th, 1917.

LIBRARY U. OF I. URBANA-CHAMPAIGN

medical men of repute and defray the cost of salvarsan treatment and the Wassermann test. He endorses the Royal Commission's attitude towards general notification. Though the agitation for this measure was vigorous also in Germany, it was conducted only in quarters where knowledge of what notification would imply was lacking, but the author adds in a footnote that since writing his paper he has learnt of the recommendation of the Munich Medical Society in favour of notification.

TOXIC JAUNDICE.

WE had the opportunity last February of publishing a condensed report of a discussion opened at the Royal Society of Medicine by Dr. T. M. Legge, H.M. Inspector of Factories, on toxic jaundice in munition workers, arising from trinitrotoluene and tetrachlorethane. A full report has now been published, with excellent illustrations, as a separate issue of the *Proceedings*[1] of the society for March, 1917. The etiology, symptoms, pathology, and preventive measures are treated by those who have had the widest experience of this new industrial disease, which throws a flood of light on much that has hitherto been obscure in disease of the liver and blood. Dr. H. M. Turnbull, Pathologist of the London Hospital, states it as his opinion that "the study of the lesions caused by trinitrotoluene in the liver should be of great assistance in the elucidation of the causes of examples of similar atrophy of unknown etiology which are found from time to time in the *post-mortem* room; they are certainly of assistance in elucidating the early changes in ordinary cases of portal fibrosis, and should throw light upon the etiology of such cases. The study of the effect of trinitrotoluene upon the blood and the blood-forming organs should go far to clear up the cause of various forms of so-called idiopathic anaemia, and should indicate the relations of the different forms to one another." Those changes in the liver are illustrated by three coloured plates and several photomicrographs of specimens prepared by Captain Matthew J. Stewart, R.A.M.C., Pathologist to the Royal Infirmary, Leeds. Both he and Dr. P. N. Panton describe the polymorphonuclear leucopenia, often of extreme degree, found in several cases. Dr. Benjamin Moore, F.R.S., lays stress on absorption directly through the skin as the *causa causans*, and as a corollary of this insists on the importance of clean working. Surgeon-General Rolleston, who was in the chair, contributes a summary of the discussion.

"RECALLED TO LIFE."

THE first number of a periodical with the title *Recalled to Life* will be issued shortly. It will be devoted to the discussion of matters affecting the welfare of disabled men, and will be addressed particularly to the public who, in local pensions committees and county associations, are showing interest in the re-education of the disabled soldier and sailor. The title—a reminiscence of Dickens—is intended to signify the recall of men maimed, or otherwise disabled, to working life. Among the contributors to the first number will be Sir Alfred Keogh, G.C.B., D.G.A.M.S., whose report on the treatment of the disabled prepared for the Anglo-Belgian Committee at the conference on re-education now taking place in Paris will be published; Colonel Robert Jones, C.B., Inspector of Military Orthopaedics, who writes on orthopaedic surgery in its relation to this war; and Captain Basil Williams, who has compiled a valuable essay on the origin of pensions legislation and treatment training schemes. In addition, there will be a number of unsigned articles on various subjects; in subsequent numbers probably some papers on more technical subjects will be published. The editor is Lord Charnwood, and the periodical will appear every two or three months. The price will be 1s., and the publishers John Bale, Sons, and Danielsson. We welcome the foundation of this new periodical, for there can be no doubt that the public is not yet sufficiently acquainted either with the need for orthopaedic treatment and training in curative workshops, nor at all fully aware of the great deal that has already been done. In order that the best may be done it is essential to enlist the interest not only of the benevolent, but also of persons engaged in the work of local administrative bodies, and more especially perhaps of employers and trade unions.

[1] Longmans, Green, and Co. (7s. 6d.)

Medical Notes in Parliament.

The Budget.

MR. BONAR LAW'S first Budget speech elicited general admiration not only for its terseness and its business-like presentment of figures, but also for the success which attended his departure from the custom of using elaborate notes. Such statements were apparently available for use if necessary, but a small sheet for occasional reference served his purposes completely. Stated as briefly as possible, the essential summary of the country's finances for the past year is as follows:

Expenditure.—£2,198,113,000, being an increase over the estimate of £372,733,000, the latter figure including £100,000,000 over the original estimate for advances to our Allies and the Colonies.

Revenue.—£573,428,000, being an increase over the estimate of £71,153,000, in spite of an obviously natural falling off of £9,059,000 in receipts from Customs and Excise. The Chancellor expressed his acceptance of a standard given by his predecessor that "at the end of each financial year we should be able to show a surplus of revenue, not including the duties which will come to an end when the war closes, which will provide us with the amount necessary to carry on the service of the country, including a reasonable provision for the paying off of the debt which has been incurred." Analysing the figures, he showed that that standard had been satisfied for the past year, and would be reached if his proposals were adopted for the coming year. He pointed out that up to the present time we had provided for 26 per cent. of our total national expenditure during the war out of revenue. His analysis of the total consumption of tobacco into 70 per cent. cigarettes, 5 per cent. cigars, and the balance in pipe tobacco, was interesting, and his remark, "Tobacco is, I suppose, a luxury; personally there are few necessities I would not rather do without," will meet with the general approval of all disciples of "My Lady Nicotine." The excess profits duty he admitted was imperfect in its incidence and was not conducive to the increase of industrial capital, but claimed that "there is no other form of taxation which, on the whole, would be fairer or less detrimental to national interests." This duty he proposed to increase to 80 per cent., subject to certain mitigation in matters of detail.

For 1917–18 he estimated the total expenditure at £2,290,381,000 and the total revenue at £638,600,000. An interesting point in this connexion was referred to as arising through the entrance into the conflict of the United States, namely, that though the increasing financial stringency of our Colonies and our Allies gives rise to a growing demand for our advances, the Chancellor had put the figure of £400,000,000 into the estimate, "which is £150,000,000 less than the amount expended last year."

We do not propose to follow in detail the ensuing discussion, inasmuch as the greater part of it had little or no reference to the medical profession, being naturally devoted more particularly to the excess profits duty from which the chief increase in revenue is anticipated. But in passing it should be mentioned that one member (Sir J. Walton) pressed for the inclusion of professional men and farmers within the scope of that tax. "Doctors," he said, "in some cases, because other medical men are at the front, have had their practices doubled." There would seem to be little prospect of that suggestion being adopted, and small likelihood of excess profits duty being obtainable from the medical profession if it were.

The question of officers' income tax was mentioned, and reference was made to the fact that the special army rate of income tax was only applied after all allowances for abatement, life assurance, etc., had been deducted from the

pay. Mr. S. Roberts suggested that to a large extent this was in effect taking away with one hand that which was given with the other, and few members of His Majesty's forces will quarrel with that dictum. But this grievance, like many others, was mentioned rather as forecasting criticism that may be expected to find more active expression during later stages of the Budget discussion rather than with much hope of its ventilation leading to immediate and uncontested redress. After all, the interest of "Budget night" lies almost exclusively in the Chancellor's statement; constructive criticism is generally possible only after close consideration of the proposals, and, in spite of the custom of an immediate debate, rarely becomes vocal until the Finance Bill embodying the proposals is introduced into the House.

The Venereal Diseases Bill.

As briefly stated in last week's issue, the Grand Committee on the Venereal Diseases Bill, at its final sitting on May 3rd, made some drafting rearrangement and other alterations affecting the final clauses of the measure.

In accordance with a promise which he had previously made, Mr. Hayes Fisher, on behalf of the Government, proposed an addition to the clause which defines the operating power of the Act. The new provision lays down that "No order shall be made in respect of any area until a scheme for the gratuitous treatment of persons in that area suffering from venereal disease has been approved by the Local Government Board, or, in Scotland and Ireland, the Local Government Board for Scotland and Ireland respectively."

The clause in the bill prohibiting the offer or sale of drugs or other preparations as remedies for venereal disease, except on the written prescription of a duly qualified medical practitioner, was struck out, Mr. Hayes Fisher accepting in substitution a clause proposed by Mr. Glyn-Jones. This is a compendious prohibition against any recommendation to the public, by public notice or printed paper, or by label, of medicine or medicament for the prevention, cure, or relief of any venereal disease. There is a provision that the section shall not apply to announcements, etc., published with the approval of the Local Government Board, nor to any publication sent only to duly qualified medical practitioners or to wholesale or retail chemists for the purpose of their business. Mr. Hayes Fisher said the clause in its original form might have given an opening for vexatious proceedings against chemists, and the Committee were satisfied that the new one would serve the purposes intended.

The bill has now to be taken on report and third reading in the Commons, and then it will go back to the Lords, where it was introduced by Lord Rhondda.

The Shortage of Doctors.—In the Commons, on May 8th, Major Chapple asked what number of medical officers were doing administrative work in military hospitals; and whether two-thirds, if not all, of these could be replaced by non-medical officers to release men for professional duties. Mr. Macpherson replied that the number of medical officers solely occupied with non-professional work in hospitals was negligible. The administrative duties were so bound up with professional knowledge and experience that no saving in medical officers would result from increasing the number of non-medical officers now employed.

The Calling Up of Medical Men.—Sir J. D. Rees asked the Under Secretary for War whether, in calling up members of the medical profession, those whose research work was by common consent of public value would be included amongst those to remain in the United Kingdom. Mr. Macpherson replied that the decision as to individuals to be called up had been delegated to the professional tribunal set up under the Military Service Act, and the point mentioned would be for their consideration.

New Warrant for Disabled Officers.—Mr. Barnes (the Pensions Minister) hopes to be able to make during the coming week a statement as to the new warrant for pensions for disabled officers. His opportunity must, however, depend upon the Government arrangements as to business, so many other matters being also regarded as urgent. The announcement will in the ordinary course be followed by a debate, which will occupy a sitting. It is said that in so far as there are differences in the scale as affecting R.A.M.C. officers they will not have reason to complain, the differences being favourable to them.

Bonesetters.—In the House of Commons on February 27th, as reported in our Parliamentary Intelligence (March 3rd, p. 306), a group of members raised the question of manipulative treatment for disabled soldiers. In one of his replies Mr. Macpherson stated that apart from other reasons the Army Council was precluded by the terms of the Medical Act from utilizing the services of unregistered bonesetters. This interpretation of the law was challenged at the time. The same matter came up again on May 2nd, before the Injured Soldiers' Parliamentary Committee. The honorary secretaries reported that as they were unable to obtain the co-operation of the leaders of the medical profession in an inquiry into the methods and results of manipulative treatment, they came to the conclusion that the inquiry had best be confined to the legal issue. Accordingly Sir John Simon, Mr. Pollock, and Mr. Butcher were asked to give an opinion to the Committee on that point alone. In their written opinion these King's Counsels maintained that the law would not be broken, or disregarded, if the War Office or Admiralty arranged for disabled soldiers to be treated by an unregistered practitioner such as Mr. Barker, provided that he held no appointment of the kind prohibited by Section 36 of the Medical Act, 1858. In their opinion there is nothing in the statute to prohibit treatment by an unqualified practitioner when those holding appointments prescribed, or authorized, it, and they expressed the personal view that recourse in proper cases to the help of those who have shown themselves specially skilful in certain classes of cases ought not in itself to be regarded as bringing the holder of a naval or military appointment, who authorizes it, under the disciplinary jurisdiction of the General Medical Council. The opinion closes with the statement that this would be made the more clear if such recourse, either generally, or to named individuals, were provided for as part of the scheme of treatment countenanced under proper safeguards by the military and naval authorities. A deputation of the Committee was received on May 8th by the Secretary of State for War, with whom were Mr. Macpherson, Surgeon-General Sir Alfred Keogh, Colonel Robert Jones, and Sir Samuel Scott. Members of the deputation urged that some means should be found for providing manipulative treatment for injured soldiers. Lord Derby, in reply, said that the suggestions put before him were not such as he could immediately give any decision upon, but he would consult the law officers of the Crown as to the powers and responsibility of the War Office under the Medical Act.

Artificial Limbs for Disabled Soldiers.—Major Chapple asked whether the minimum price paid for an artificial limb at Roehampton was £15; whether such a limb could be made for less than £5; and suggested that the Minister of Pensions should endeavour to have these limbs made under the direction of a branch of the Ministry of Munitions. Mr. Barnes, enlarging the answers which he had previously given, said that the reply to the first part of the question was in the negative. To give satisfaction to the patient, and give lasting qualities, an artificial limb must be of the best material and workmanship, and very carefully fitted to the person for whom it was made. He was advised that in these circumstances satisfactory limbs could not be produced at so low a cost, and he did not think that any advantage could be arrived by bringing another Department into the procedure of their supply. Major Chapple inquired whether in the case of a disabled officer a sum of £25 was given to him with which to buy an artificial limb; whether in some cases at least such an officer had had to pay £40; whether these limbs could be made for something over £5; and whether, in the interest of our wounded soldiers as well as in the interest of economy, the Ministry intended to take any steps in the matter. Mr. Barnes responded that it was not the case that an officer who had lost a limb was given a lump sum irrespective of the nature of the limb required. In Army Council Instruction No. 786 of 1916 a scale of prices was fixed for the various types of limb, varying from £10 10s. for a Syme's amputation to £29 8s. for an ordinary leg with pelvic band and £40 for an arm of complex type for use in special cases, and the officer was given the price required by the scale for the type of limb required. No change was at present contemplated in this arrangement except such as might be occasioned by improvement of the type and by reduction in prices due to competition. Mr. Barnes added, in answer to Mr. Tyson Wilson, that English firms of repute were now actually engaged making these limbs in competition with Americans.

Deaths from Disease at Salonica.—Mr. Macpherson, in reply to Mr. Outhwaite, said he thought it undesirable to publish the number of deaths from disease which had occurred amongst the British forces of the Salonica expedition, but offered to let any member know privately.

LIBRARY U. OF I. URBANA-CHAMPAIGN

THE WAR.

THE FRENCH ARMY MEDICAL SERVICE:

RECRUITMENT, ORGANIZATION, AND WORK.

THE organization of the French Army Medical Service has naturally become a matter of considerable interest to medical men in Great Britain, owing to the great demands of the army upon the medical profession in this country.

It should be said at the outset that in certain respects the French Army Medical Service has not reached the stage of development attained by our own. The status of the French Army Medical Service (Service de Santé) has, indeed, exercised the minds of responsible politicians and publicists in France for the last two years or more, and it is now being urged that certain proposed reforms in central army administration afford an opportunity to remedy defects which, though their existence had been pointed out during peace, have become more obvious during the war. The main criticism is that the regulations do not permit sufficient authority to army medical officers, and that they are handicapped before an offensive by not being made fully acquainted with the proposals of the General Staff. It is said that all the information administrative medical officers receive is that they are to establish a certain number of beds in a certain place and evacuate their wounded by a certain route. Military operations are full of uncertainties, and it has happened that the information supplied proved insufficient to enable the administrative medical officer concerned to form a correct judgement; consequently his units have not always been available at the places where it turned out they were most wanted. The reformers urge that the chief administrative medical officer should be in direct relation with the general officer commanding, and that each general officer should have a medical officer upon his staff. Summing up the matter in a recent article in *Le Journal*, M. Lucien Chassaigne says that the wounded man should be under the sole control of the military medical service. "His collection, his transport, his evacuation, his hospitalization ought to be carried out by a single responsible service possessing the necessary powers." Incidentally it is mentioned that over 500 military medical officers have died in the field, and that the proportion of losses in the personnel of the Service de Santé is smaller only than that of the infantry.

With these preliminary observations, we may proceed to give some account of the French military medical service and of the manner in which it is recruited and works.

Medical students and medical men were, before the war, liable, like all other men of every class and calling, to military service, and the whole position was, in fact, at the beginning dominated by this fact.

The liability of a Frenchman to serve as a soldier commences on his 19th birthday and lasts for twenty-eight years. Of these years, three are spent in the regular army, eleven in the reserve of the regular army, seven in the territorial army, and seven in the reserve of the territorial army.

All classes of soldiers back to those whose liability to service commenced in 1887 have been called up; so with the exception of men declared unfit for any form of service, or exempted because they pursue certain trades or occupations, practically all Frenchmen under the age of about 50 are serving either with the army or in the auxiliary service. The auxiliary service consists of men regarded as permanently unfit for active service but capable of doing work for the army (in army workshops and various occupations of a civilian type).

Medicine is not one of the reserved occupations, so neither medical men nor medical students as such enjoyed any initial advantages. When the general mobilization took place at the outbreak of the war, all medical men up to the age of 49 not specially exempted were called up, and there was, of course, at once a shortage of doctors on the civil side.

Organization before the War.

The French army medical service (Corps de Santé) consists of medical officers and pharmacists.* Here attention will be confined to the medical officers. The four senior ranks—médecin inspecteur-général, médecin inspecteur, médecin principal de première classe, médecin principal de deuxième classe, the latter holding the relative rank of lieutenant-colonel—numbered on a peace footing 120. The next grade was that of médecin major de première classe, with the relative rank of battalion commander—they numbered 340—and médecin major de deuxième classe, having the relative rank of captain, and numbering 510. Then followed médecin aide-major de première classe, with the rank of lieutenant, numbering 406, and médecin aide-major de deuxième classe, with the rank of second lieutenant, numbering 100. In addition there were the médecins auxiliaires, medical students of a certain standing, who acted as assistants to médecins aide-majors, and held a kind of warrant officer rank. In addition there was a body of quartermasters, who discharged duties appertaining to that rank, and, under the senior medical officers, commanded the rank and file of the infirmiers militaires. The infirmiers detachments were composed of men and N.C.O.'s in the proportion of one sergeant to every ten men, and two corporals to every sixteen men of the section. The infirmiers are recruited either directly or by transference from other branches of the service, and receive special instruction in hospital administration and in the individual care of the sick and wounded. Fighting units also have hospital orderlies and stretcher-bearers; in addition there are ambulance stretcher-bearers.

As has been said, all Frenchmen are liable to military service. In the case of medical students, after serving one year in the ranks, a man who wished to join the regular army medical service might become an army medical cadet; to do this he must have been successful at a competitive examination for admission to the medical cadet school. After four years at the school, during which the regular curriculum of a medical faculty was followed, with the examination for Doctor of Medicine at the end, a cadet was commissioned as médecin aide-major deuxième classe, and was given a special course of instruction in military medicine, after which he was appointed to a regiment. A medical student who did not wish to join the regular army medical service, or failed to obtain a place at the cadet examination, might become a médecin auxiliaire. The curriculum of a medical student in France is punctuated by "inscription" at certain stages; there are sixteen such inscriptions, and with his fifth inscription—that is to say, in his second year—a student is expected to begin hospital attendance. Formerly a medical student could not become a médecin auxiliaire until he had twelve inscriptions, but this was subsequently reduced to eight.

Changes during the War.

Since about May, 1915, the position of medical men and medical students has been somewhat altered, so far as those who have not been allotted (on account of their physical condition) to the auxiliary service are concerned.

Under present regulations a medical student with four inscriptions for the doctorate standing to his credit has a right to ask to be attached to the infirmier division of the army medical service. If he has eight inscriptions he is eligible for employment as a médecin auxiliaire. A médecin auxiliaire can be promoted to the rank of sub-lieutenant—that is, médecin aide-major deuxième classe—provided (*a*) that he is a student with not less than twelve inscriptions for the doctorate standing to his credit; (*b*) that he has already served for not less than six months at the front; (*c*) that he has been wounded or mentioned in dispatches, but if wounded remains fit for active service at the front; (*d*) that he is recommended medically as being possessed of the knowledge necessary for the work of an officer of this rank.

Other medical students eligible for the rank of sub-lieutenant are (*a*) students of the military and naval medical schools who have sixteen inscriptions to their credit; (*b*) ordinary medical students who, besides having sixteen inscriptions to their credit, have been successful at a competition for the position of interne, and have served as such for a year; (*c*) those who have only twelve inscriptions, but have been successful at an internat, and have served as internes for more than a year; (*d*) students with sixteen inscriptions to their credit who have served for six months at the front and have been mentioned in

* See Surgeon-General Macpherson's *Handbook of the Medical Services of Foreign Armies: France* (1908).

dispatches; (*e*) students with sixteen inscriptions to their credit who have completed their five years, but still have to pass the final examination for the doctorate.

It is reported that the supply of medical students of sufficient seniority to serve as médecins auxiliaire is getting very very short, although the medical schools are still nominally open.

Fully qualified French and foreign medical men, without respect to previous service, are also eligible for temporary rank as sub-lieutenants. At the beginning of the war a good many medical men of military age were called up for service as soldiers, but they have since all been weeded out and appointed to the army medical service. The medical men in question were those who during their three years in the regular army had not been connected with the army medical service.

Promotion in the army medical service is subject to the same rules as in the general service, and depends partly on seniority, partly on selection. Before the war a sub-lieutenant was eligible for promotion to lieutenant (aide-major 1re classe) in four years. The time is now reduced to two years in the case of men who are professors and assistant professors in medical faculties, and of those who possess certain university distinctions.

There is also a class of man who is known as an *officier de complément*. This is a large and apparently rather vague class consisting of all men who have ever served in the rank of officer in the army, but who have been allowed for one reason or another to retire. They do not, however, cease to be mobilizable, but on mobilization are entitled to be employed in their original rank. If they are fit men they serve at the front, if unfit, at the bases. All officers of this class were called up on the outbreak of war, and those who were medical men but were not fit for service at the front were supposed to be sent to serve at hospitals and formations at a distance from the towns in which they had previously practised.

There is a system by which there is a regular interchange between officers serving at the front with regiments and ambulances and other advance formations and those serving with formations lying outside the zone of the armies. In a general way a medical officer is not supposed to serve at the real front for more than six months at a time unless he says that he does not wish to be moved.

With the exception of the infantry, the Service de Santé is believed to have suffered more casualties than any other branch of the French army, and the regulations have been altered accordingly. Under present regulations it is possible for a senior medical student to become a temporary second lieutenant or aide-major 2me classe.

The Service in the Field.

A French regiment consists of three battalions, each nominally a thousand strong. The principal medical officer of a regiment is a médecin major (première or deuxième classe). He has to assist him one aide-major (première or deuxième classe) for each battalion, and each of these officers has a médecin auxiliaire.

We may now attempt to follow the course of a wounded French soldier, with the assistance of an illustrated handbook* recently published containing a series of lectures delivered last year to médecins aide-majors. The lectures referred to trench warfare; under those conditions a man was picked up by the battalion stretcher-bearers under the direction of the médecin auxiliaire, and carried through the trenches to the *poste de secours de bataillon*. In many cases the stretchers were improvised; when this was not the case preference seems to have been felt at this stage of the wounded man's transport for a stretcher with short shafts, in which the wounded man half sits up. The carry here might mean from 250 to 350 yards. The post itself, usually a dug-out, was in charge of an aide-major, whose place, however, was often taken by a médecin auxiliaire. First aid was applied here, and temporary immobilization of a fractured limb devised. The man was then immediately carried, usually again through the trenches, to the *poste de secours principal du régiment*. The arrangements at this post varied according to the opportunities the locality afforded—it might be a dug-out, it might be established under the protection of a low cliff, or it might be a shelter of branches hidden in a forest; or, again, it might be in the cellars of a destroyed house. In charge of it was the médecin du régiment, who was provided with a box of instruments and haemostatic forceps and antiseptic solutions. His duty was to attempt to clean the wound and treat it with antiseptics, to arrest haemorrhage, and to immobilize a fracture. But his main anxiety was to evacuate his patients as rapidly as possible, turning them over for the purpose to the divisional stretcher-bearers, who had horsed ambulances at the beginning of the campaign, but now have motor ambulances.

The ambulances might be able to get up as far as the regimental post, but if this was not possible the man must be again man-handled to the motor ambulance, which took him to some forward hospital unit, either a kind of field ambulance, from which he was evacuated direct to a stationary hospital on the lines of communication, or to a *poste de chirurgie d'urgence*, a unit which is pushed forward as far as possible. One such place further forward than the average is established under a steep bank; it is provided with a sterilizing room, an operating room of the rigorously aseptic type, and an electric installation for lighting and radiography. It is possible for a man to reach this post in one or two hours; it has two surgeons, who possess all the essential conditions for operating upon the severest cases, including those of abdominal injury, which have yielded a recovery rate of 40 per cent. in cases of penetrating wound with intestinal lesions.

The accommodation of such a place is limited, and it is used only for severe cases. Other cases go in the motor ambulance to the divisional ambulance, where any requisite operation is done. It is usually established in several houses in a village, or it may be set up in a chateau, or large farm, and in either case its accommodation may be enlarged by the use of marquees or huts. A divisional ambulance is described as a completely equipped hospital with an administrative and medical staff. Each hospital has an aseptic operation room, a room for dressings, and a room for septic operations, and many of them have also a plaster room. The patient is first taken into a sorting room, where he is seen by the orderly officer, who looks after his immediate needs in the matter of warmth, or hypodermic injection, and gives him a dose of antitetanic serum. Whether he shall go to the operation room direct, or be submitted to radiography, or whether his condition justifies his waiting his turn, is there determined. The surgeon who does the operation settles whether the patient should be retained in the divisional ambulance or evacuated. Wounds of the head, of the chest, and severe injuries of the limbs are kept as long as the surgeon thinks proper, and when there is no rush men who do not fall into any one of these categories may be retained if the surgeon thinks well.

To meet the case where it might not be possible to find buildings or a site suitable for a surgical operating room, its place is taken by an automobile surgical ambulance, which can be sent to any point desired, bringing its apparatus for sterilization and a reinforcement of four surgeons. It has an outfit for an operating room, which can be quickly set up in three sections: one section provides an aseptic operating room with three tables, another a sterilizing room, and a third a room for dressings and septic operations. It brings with it its own boiler for sterilization of water, instruments, appliances, and dressings, and for heating the huts or tents; and its own electric installation for lighting and for radiography, which is carried out in a separate portable tent. From the divisional ambulance, when fit to travel, a man goes to the hôpital d'évacuation or hôpital de triage (sorting) and thence to a large regional hospital.

* *La pratique chirurgicale dans la zone de l'avant*. By Mignon, Billet and Martin. Paris: Baillière et Fils. 1917. (10 francs.)

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

LIEUT.-COLONEL F. A. SYMONS, C.M.G., D.S.O., R.A.M.C.

Lieutenant-Colonel (acting Colonel) Frank Albert Symons, R.A.M.C., was killed in action on April 30th, while acting as an assistant director of medical services. He was born on April 28th, 1869, and educated at Edinburgh University, where he graduated M.B. and C.M. in 1891. Entering the army as surgeon-lieutenant on January 30th, 1893, he

LIBRARY U. OF I. URBANA-CHAMPAIGN

became surgeon-captain on January 30th, 1896, major on October 30th, 1904, lieutenant-colonel on March 1st, 1915, and acting colonel in November, 1915. He served in the South African war, when he was present at the battle of Colenso, and received the Queen's medal with three clasps. He had served in the present war since the beginning, was mentioned in Lord French's dispatch of October, 1914, and received the D.S.O. on February 18th, 1915, and the C.M.G. on January 1st, 1917.

Captain R. Horne, R.A.M.C.

CAPTAIN P. E. LONES, R.A.M.C.

Captain Percy East Lones, R.A.M.C., was killed in action on April 28th, while in command of bearers at a regimental post, aged 30. He was born in October, 1886, and was the only surviving son of Dr. T. E. Lones, of King's Langley, and of His Majesty's Patent Office. He took a temporary commission as lieutenant in the R.A.M.C. on February 22nd, 1915, and was promoted to captain on completion of a year's service. In March, 1916, he was sent to India, where he served for nearly a year with the Durham Light Infantry; he returned home last February, and went to the front on March 3rd. He was educated at University College Hospital, and took the diplomas of M.R.C.S. and L.R.C.P. in 1915. He leaves a widow and one child.

LIEUTENANT P. B. WOOD, L.D.S.

Lieutenant Paul Bernard Wood, L.D.S., Royal Fusiliers, was killed in action on April 23rd, aged 31. He was the only surviving son of the Rev. C. F. W. Wood, of Streatham Hill, and took the L.D.S. of the Royal College of Surgeons, England, in 1913. He also had the degrees of M.A. and LL.B. His commission was dated February 20th, 1915.

SECOND LIEUTENANT H. N. HENNEY.

Second Lieutenant Herbert Norman Henney, Royal Field Artillery, was killed in action on April 25th. He was the younger son of William Henney, of Edinburgh, and was educated in the school of the Royal College of Surgeons, Edinburgh, and took the diploma of L.D.S., R.C.S.Edin. in 1914. Before he joined the army he was in practice in Great King Street, Edinburgh.

Died of Wounds.

SURGEON-MAJOR A. H. PALMER, R.A.M.C.(T.F.).

Surgeon-Major Ambrose Henry Palmer, R.A.M.C.(T.F.), died at Cairo on May 2nd of wounds received on April 17th, aged 47. He was the eldest son of Dr. Palmer, of Barton-under-Needwood, Burton-on-Trent, and was educated at the Birmingham Medical School and at Guy's Hospital. After taking the diplomas of M.R.C.S., L.R.C.P.Lond., and L.S.A. in 1895 he went into practice at Barton-under-Needwood, where he was medical officer and public vaccinator of Barton district, surgeon to the Barton Cottage Hospital, and surgeon to the post office. He joined the Staffordshire Yeomanry on December 24th, 1904, became surgeon-captain on June 24th, 1908, and was promoted to surgeon-major last year.

LIEUTENANT J. EWING, R.A.M.C.

Lieutenant James Ewing, R.A.M.C., died of wounds received on April 12th, aged 24. He was the youngest son of Mr. Duncan Ewing, of Laggan, Crieff, and was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1916. He had only recently taken a temporary commission in the R.A.M.C.

Died on Service.

CAPTAIN J. B. TACKABERRY, I.M.S.

Captain John Bailey Tackaberry, I.M.S., died on service in a stationary hospital on March 25th, aged 34. He was the youngest son of the late Thomas Tackaberry, of Dungannon, County Tyrone, was educated at Middlesex Hospital, and took the degrees of M.B. and B.S.Lond., and also the diploma of L.M.S.S.A., in 1909. After filling the posts of casualty medical officer and of house-physician at Middlesex Hospital, and of assistant demonstrator of anatomy in the hospital medical school, he entered the I.M.S. as lieutenant on July 30th, 1910, becoming captain on July 30th, 1913. When the war began he was serving as medical officer of the 31st Punjabis.

Lost at Sea.

The transport *Arcadian*, 8,939 tons, formerly a Royal Mail and Orient liner, was torpedoed by a German submarine on April 15th in the Eastern Mediterranean, and sank in five minutes, with the loss of 279 lives, including nineteen officers. Among them were nine officers of the R.A.M.C.—namely, Lieutenant-Colonel A. C. Fox, D.S.O., and temporary Lieutenants I. R. R. Brogden, M. W. Danzig, W. Grier, W. T. Harris, J. Marshall, J. Rae, J. G. B. Smith, and W. Stewart.

LIEUTENANT-COLONEL A. C. FOX, D.S.O., I.M.S.

Lieutenant-Colonel Arthur Claude Fox was born on April 23rd, 1868, the son of the late Lieutenant-Colonel W. S. Fox, I.M.S. He was educated at the London Hospital, took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1891, and entered the R.A.M.C. as lieutenant on January 29th, 1894, becoming captain on January 29th, 1897, major on October 29th, 1905, and lieutenant-colonel on March 1st, 1915. He received the D.S.O. on February 18th, 1915.

LIEUTENANT M. W. DANZIG, M.B., B.CH., R.A.M.C.

Lieutenant Morris William Danzig was a South African, resident at Oudtshoorn, Cape Colony. He was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1915. His commission was dated March 1st, 1917.

LIEUTENANT W. GRIER, M.B., CH.B., R.A.M.C.

Lieutenant William Grier was educated at Glasgow University, where he graduated M.B. and Ch.B. with commendation in 1905, also taking the D.P.H.Glasg. in 1910. After acting as clinical assistant and as house-surgeon in the Glasgow Eye Infirmary, house-physician in the Western Infirmary, Glasgow, and senior house-surgeon in the Maternity Hospital, Glasgow, he went into practice at Barrhead, Renfrewshire. He received his commission on February 12th, 1917.

LIEUTENANT W. T. HARRIS.

Lieutenant William Trengweath Harris was educated at St. Thomas's Hospital, and took the diplomas of M.R.C.S., L.R.C.P.Lond., and L.S.A. in 1903. After filling the post of fourth assistant medical officer at the West Riding Asylum, Wakefield, he went into practice at Chiswick. He took a temporary commission in the R.A.M.C. on February 14th, 1917.

LIEUTENANT J. MARSHALL, M.B., R.A.M.C.

Lieutenant John Marshall, M.B., R.A.M.C., of Lancaster, was a native of Berwick-on-Tweed. He received his medical education at the University of Edinburgh, and graduated M.B., Ch.B. with first class honours in 1908. After serving as house-surgeon at the Darlington Hospital he became associated in practice with Dr. Mannix at Lancaster. He had served on the staff of the Beaufort Military Hospital, Bristol, and took a commission in the R.A.M.C. on March 1st, 1917.

LIEUTENANT J. RAE, M.B., CH.B., R.A.M.C.

Lieutenant James Rae was the second son of Mr. William Rae, advocate, of Aberdeen, and was educated at Aberdeen Grammar School, at University College, London, and at Aberdeen University, where he graduated M.A. in 1904, M.B. and Ch.B. in 1909, and M.D. with commendation in 1911. After filling the posts of assistant medical officer of the Western Fever Hospital of the Metropolitan Asylums Board, of senior resident medical officer of the Cheltenham General Hospital, and of senior assistant medical officer of the Birmingham Union, he went into practice in Birmingham. He took a temporary commission as lieutenant in the R.A.M.C. in 1915, resigned on completion of a year's service, and rejoined last March. As a student he edited the university magazine, *Alma Mater*, and as his thesis for the degree of M.D. compiled "A history of the deaths of the kings of England, from William I to William IV," which was afterwards republished in book form. He was also the author of numerous contributions to medical journals. He leaves a widow, but no family.

LIEUTENANT J. G. B. SMITH.

Lieutenant John Godfrey Bradley Smith was educated at St. Bartholomew's Hospital, and took the diplomas M.R.C.S. and L.R.C.P.Lond. in 1915.

A note announcing the death of Lieutenant I. R. R. Brogden, R.A.M.C., was published in our issue of last week, page 596, when it was incorrectly assumed that he was on board the hospital ship *Lanfranc*. Lieutenant Brogden was lost in the sinking of the *Arcadian*.

Wounded.

Captain M. Brennan, R.A.M.C.(temporary).
Captain W. T. Collier, R.A.M.C.(temporary).
Captain H. E. Cresswell, R.A.M.C.(S.R.).
Captain G. H. Kearney, R.A.M.C.(temporary).
Captain G. B. Lowe, Australian A.M.C.
Captain A. H. Wallace, Canadian A.M.C.
Captain H. C. Wallace, Canadian A.M.C.
Captain W. B. Wamsley, R.A.M.C.(temporary).
Captain F. E. S. Willis, R.A.M.C., temporary.

DEATHS AMONG SONS OF MEDICAL MEN.

Brooke, Cecil Rupert, Second Lieutenant Gordon Highlanders, son of Captain Frederick Brooke, R.A.M.C., killed April 24th. His commission was dated April 3rd, 1915.

Coleman, Fred Creighton, Second Lieutenant Norfolk Regiment, only child of Dr. Percy Coleman, of Clacton-on-Sea, killed April 23rd. He was born in 1898, educated at Belvedere, Brighton, and at Haileybury College, and got his commission from Sandhurst in April, 1916. He went to the front on March 7th last.

Fawcett, Bertram James Acton, Captain East Lancashire Regiment, younger son of Lieutenant-Colonel E. Fawcett, I.M.S.(ret.), died April 24th of wounds received the previous day, aged 24. He was educated at Cheltenham College, where he was in the eleven in 1909 and 1910, scoring 89 runs against Haileybury at Lords in 1910. In October, 1910, he went to Ceylon as a tea planter, but afterwards went into business in Colombo. There he played for Ceylon against the Australians in 1912. He came home in October, 1914, got a commission the following month, was promoted to lieutenant on February 1st, 1915, and went to the front in July, 1915, being subsequently promoted to captain.

Fowlie, James Lawrence, Lieutenant Highland Light Infantry, elder son of Dr. Fowlie, of Singapore, and of Forres, N.B., killed April 24th, aged 21. He was born in Singapore in 1896, educated at Clifton Bank School, St. Andrews, at St. Andrews University, and at Pembroke College, Cambridge; got his commission from Sandhurst on May 12th, 1915; went to the front in March, 1916, and was promoted to lieutenant in August, 1916. Since last October he had been intelligence officer of a Brigade Head Quarters Staff.

Hallwright, W. W., D.S.O., Lieutenant Commander, R.N., youngest son of Dr. Matthew Hallwright, of Edgbaston, killed in action April 21st, aged 33. He passed out of H.M.S. *Britannia* as midshipman in 1899, and was appointed to H.M.S. *Terrible*, in which he served under Sir Percy Scott during the South African and the China wars, receiving both medals. He was promoted lieutenant in 1905, and lieutenant commander in 1913. He had been mentioned in dispatches recently and awarded the D.S.O. The body of the deceased officer was taken to Birmingham and interred at Witton Cemetery after a memorial service at St. Augustine's Church, Edgbaston. (A brief announcement of Lieutenant Commander Hallwright's death appeared in our last issue.)

Lewis, Denis Mervyn, Second Lieutenant Worcestershire Regiment, youngest son of Dr. J. H. Lewis, of Thornton Lodge, Lewisham, killed April 24th.

Mackenzie, Keith Ingleby, Second Lieutenant Argyll and Sutherland Highlanders, attached Royal Flying Corps, youngest son of Dr. Ingleby Mackenzie, of Ryde, Isle of Wight, killed in an aerial fight on April 8th, aged 18.

Mawdsley, John Edmund, Second Lieutenant King's Own, Royal Lancaster Regiment, son of Dr. Mawdsley, of Oldham, killed April 24th, aged 21. He was educated at St. Bede's College, Manchester, and at Victoria University, Manchester, where he entered as a medical student in October, 1914. He took a commission on April 10th, 1915.

Melland, Frederick Bernard, Lieutenant Royal Naval Volunteer Reserve, Royal Naval Division, son of Dr. Melland of Altrincham, killed April 24th. He and his elder brother, Sub-Lieutenant Bryan Trevor Melland, R.N.D., enlisted in the Public Schools Battalion of the Royal Fusiliers early in September, 1914, and on September 29th, 1914, received commissions in the R.N.D. Both took part in the landing at Gallipoli in 1915, where the older brother was killed, and the younger wounded. He was promoted to lieutenant in July, 1915. He was a nephew of Mr. Asquith, whose first wife was a sister of Dr. Melland.

Monteith, James Cue, Private, Royal Scots, eldest son of Dr. Monteith, of Oldham, died of wounds on April 25th.

Morris, John Wallace, Sergeant, Australian Forces, only son of the late Dr. Morris, of Kennoway, Fife, died of wounds received on April 4th.

Myles, Maurice Trevor, Private, Canadian Infantry, of Salt Springs Island, British Columbia, youngest son of Major E. H. Myles, R.A.M.C., died on April 20th, of wounds received on April 17th.

Rhys, Watkin Leoline Tom, Second Lieutenant Rifle Brigade, elder son of Dr. W. L. Rhys, of Penbryn, Aberdare, died on April 24th of wounds received the previous day.

Sloan, Thomas Ian Thomson, Second Lieutenant Argyll and Sutherland Highlanders, youngest son of Allen Thomson Sloan, M.D., of Edinburgh, killed on April 23rd.

Tempest, Basil, Second Lieutenant Manchester Regiment, elder son of Dr. Tempest, of Whalley Range, Manchester, died of wounds on April 25th. Before the war he was a student apprentice at Messrs. Mather and Platt's for four years, and gained a Manchester University scholarship in 1914. He joined the O.T.C. at the beginning of the war, got a commission in November, 1915, and had served in France and in Macedonia.

Will, John George, Lieutenant Royal Flying Corps, second son of Dr. Will, of Cambridge Road, London, N.E., first reported missing, now reported killed March 25th. He was educated at Merchant Taylors School, and at Downing College, Cambridge, where he got his Rugby blue in 1911, 1912, and 1913; also playing three-quarter back for Scotland in 1912 and 1914. He got a commission on February 11th, 1915, and was previously in the Leinster Regiment.

Wreford, William Heyman, Captain Devonshire Regiment, elder son of Dr. Heyman Wreford, of Exeter, killed on April 23rd, aged 22.

[*We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.*]

England and Wales.

INFANT WELFARE AND A MINISTRY OF HEALTH.

A DEPUTATION organized by the National Association for the Prevention of Infant Mortality, and including representatives of the Association for Infant Welfare and Maternity Centres, the National Society of Day Nurseries, and the Council of Health and Housing, was received on May 7th by Lord Rhondda, president of the Local Government Board. Dr. G. F. Still, in introducing the deputation, spoke in favour of the formation of a Ministry of Health, and said that the question of infant welfare must stand in the foreground of the work of such a central authority if the best results were to be obtained; he emphasized the importance of preserving the health of children of pre-school age. Alderman Broadbent, of Huddersfield, maintained that all matters pertaining to motherhood and infancy should be correlated by means of unification between the departments of State dealing with public health. Dr. John Robertson, medical officer of health for Birmingham, referred to the importance of research into matters connected with pre-natal as well as post-natal infant mortality, for which purpose local authorities needed help and guidance from a central department. Dr. Eric Pritchard and Miss Amy Hughes also spoke. Lord Rhondda, in reply, gave little information as to the progress of the scheme for a Ministry of Health, repeating that it was under serious consideration by the Government. He said that he himself was not in favour of a new ministry, but hoped that it would be based largely and mainly upon the Local Government Board, as a Ministry of Health and Housing. His reason for pressing the matter strongly upon the Cabinet was the need for taking in hand the care of the children; and even if the Ministry of Health were not established in the near future, a bill would be introduced to provide for the feeding of nursing and expectant mothers, and for the supply of milk to children. In this matter public opinion was ahead of the Government, and he hoped to see co-operation and co-ordination of the work of the voluntary agencies which had already done such good service.

"ECONOMY IN WASTE."

In a circular dated May 3rd, 1917, addressed to local authorities, the Local Government Board announces that after consultation with the Director-General of National Service and with the Reserved Occupations Committee, it has been decided that, unless classed A or B 1, men engaged in the collection and disposal of house refuse will be included in the next list of certified occupations. Local authorities, however, are urged to do all they can to economize labour in connexion with scavenging and other sanitary work; it is thought that by proper classification of labour they may be able to make use of men of a lower physical standard and also of women. They are also

LIBRARY U. OF I. URBANA-CHAMPAIGN

asked to encourage householders to reduce the quantities of waste to be collected. In this matter Birmingham has set an example to other towns by instituting an active publicity campaign against waste. A refuse disposal department of the city corporation has been formed, and posters have been spread about under the paradoxical heading "Economy in Waste." These posters first tell the public what the Birmingham Corporation is doing to promote economy by the utilization of refuse; then the part which the public can play is set out. Householders are urged to reduce the quantity of matter to be collected in dustbins by burying or burning garden refuse, sifting and reburning cinders until only the ash remains, keeping slops and liquid refuse out of the dustbins, and making the fullest use of potato peel, fruit parings, and other vegetable remnants. The last suggestion is especially timely, for the economical French housewife makes nourishing and agreeable vegetable soup from what her British sister throws away; and what cannot be used for vegetable stock, or *potage bonne femme*, should serve as food for pigs or poultry. It is calculated that if every Birmingham household reduces the amount of refuse thrown into its dustbins by 1 lb. a day, the reduction throughout the city would be more than 30,000 tons a year, representing an economy of £13,000 a year. One point ought to be added, we think: if the householder takes the trouble to help in this way in the general economy campaign, the local authorities must do all in their power to make things easy for him by regular and frequent collections of refuse.

Tuberculosis Treatment in London.

At the London County Council, on May 1st, it was stated that 129 adults and 330 children were undergoing residential treatment for tuberculosis under the Council's scheme. The Public Health Committee is considering the establishment, in association with tuberculosis dispensaries, of day sanatoriums for children who, by reason of the disease, are only suitable for education of a limited kind. Communications are being made with a view to temporary arrangements with voluntary committees in five metropolitan boroughs. The London County Council, as a result of the growth of tuberculosis work, has had to reorganize the staff devoted to children's care, and a new post for an "organizer of tuberculosis work" has been created in the public health department.

The London Insurance Committee, in view of the fact that certain metropolitan borough councils have not yet entered into agreements for dispensary treatment of insured persons suffering from tuberculosis, has decided to approach the Local Government Board. Inasmuch as a national emergency exists, the committee will ask the Board to exercise the powers it possesses and direct these borough councils to enter into agreements immediately. Agreements for providing dispensary treatment for tuberculosis have been sealed with twenty of the London borough councils.

The Military Orthopaedic Centre, Bristol.

The military orthopaedic centre at the Beaufort War Hospital, Bristol, was inspected last Saturday by Lieutenant-General Sir Henry Sclater, G.C.B., G.O.C., and Surgeon-General Birrell, D.D.M.S. Southern Command, representing the military authorities, and by King Manuel, representing the joint war committees of the British Red Cross Society and the Order of St. John. Among others present were Colonel Sir Walter Lawrence, K.C.B., representing the Pensions Committee, Colonel Robert Jones, C.B., Lieutenant-Colonel Mayo Robson, Consulting Surgeon Southern Command, Major Patterson, Deputy Inspector of Military Orthopaedics, and Lieutenant-Colonel Prowse, O.C. 2nd Southern General Hospital. The centre now provides 500 beds and a set of curative workshops, in which the ceremony took place. After a few words of welcome from the Lord Mayor, Colonel Robert Jones said that the real meaning of military orthopaedics was the restoration to use and function of arms and legs injured by gunshot wounds involving nerves, bones, and joints. Probably, he said, at least 50 per cent. of all serious war injuries were of an orthopaedic nature, and of these the greater number could be restored to the army or to civil employment by proper treatment. King Manuel spoke of the importance of curative workshops; the workshops started at the London Military Orthopaedic Hospital, Shepherd's Bush, last October had already treated 1,350 cases. Of these, 1,000 had been returned to the army in classes A, B, or C, and only 350 had been finally discharged. The essential feature of the curative workshop was that it supplied natural instead of artificial stimulus to the restoration of the injured limb to function. Sir Walter Lawrence endorsed what King Manuel had said as to the importance of these centres, and added that the Government were prepared to place the resources of all technical schools at the service of discharged soldiers. Athletic sports for wounded men were afterwards held in the grounds, and King Manuel presented the prizes to the winners.

Ireland.

Dublin Hospital Staff for France.

His Excellency the Lord Lieutenant entertained the following members of the staff of the Dublin War Hospital to luncheon prior to their departure for France: Lieutenant-Colonel W. Taylor, R.A.M.C.; Lieutenant-Colonel E. H. Taylor, F.R.C.S.I.; Lieutenant-Colonel A. Parsons, M.D.; Major R. C. B. Maunsell, F.R.C.S.I.; Major W. A. Winter, M.D.; Captain E. J. Watson, M.D.; Captain F. C. Crawley, F.R.C.S.I.; Captain C. E. Boyce, L.R.C.P. and S.I. The staff was received by the King at Windsor on May 4th. In connexion with the staffing of the Dublin Hospital, Lieutenant-Colonel William Taylor, who is President of the Royal College of Surgeons, Ireland, and Vice-Chairman of the Irish Medical War Committee, has taken a very active part. In order to secure the services of more medical men the War Office is now prepared, it appears, to allow doctors to give their services, as members of hospital staffs, for periods of three or six months in France. Commissions will be granted for those periods, and rank, without pay, will be retained for three months after returning, in order to save regazetting should the officer go to France again in a short time. The restriction that all officers are to be over 40 years of age, and only to exceed 50 by a small margin has in the latter case caused much disappointment, as it prevented the inclusion in the hospital staff of several well-known Dublin surgeons and physicians who had volunteered their services. All the clinical hospitals in Dublin will be represented by those who are going out, and every group of nine, who will usually serve for three months at a time, will consist of two physicians, three surgeons, an oculist, a pathologist, a radiographer, and an anaesthetist. The chief physician and the chief surgeon in each group will be given the rank of lieutenant-colonel, the other physicians and surgeons that of major, and the specialists that of captain. The response for the staffing of the hospital has been most ready, and the full number of doctors for the year has been already provided. The next staff will be almost entirely supplied by the Mater, St. Vincent's, and Jervis Street Hospitals.

Correspondence.

THE PREVENTION OF INFECTIOUS DISEASES.

SIR,—The demand for more complete isolation of tuberculous patients on the ground of the supposed success of such methods in other infectious diseases, commented on in a recent number of the JOURNAL, prompts me to ask what is the real value to the State of hospital isolation and treatment of patients suffering from infectious disease.

No one doubts its value to individuals and their families, but the State gains comparatively little unless the disease can be prevented from becoming epidemic. This kind of control has been gained over many infectious diseases, such as small-pox, yellow fever, enteric, cholera, malarial fever, etc., but always by indirect methods, such as pure water supply, increasing resistance-power, or dealing with insect carriers of the disease; never does isolation play a predominant part. Where isolation is the only weapon available, as in scarlet fever, measles, etc., epidemics are as common as ever.

Tuberculosis is no doubt a pre-eminently infectious disease. *Post-mortem* examinations of children seem to indicate that in crowded districts few, if any, escape

infection early in life. Yet in the majority the disease is arrested if not cured, thanks to resistance-power derived from natural selection and aided by tolerable sanitary conditions. For about half a century during the steady improvement of these conditions the number of deaths per million of the population of England and Wales from these diseases steadily decreased. In the first decade of the present century an attempt was made to hasten this process by other methods, the tendency of which would be to increase the proportion in our population of families with less resisting power to the disease. The Registrar-General's last report tells us that our phthisis mortality reached its lowest level in 1913, and that both 1914 and 1915 have shown increases. In the latter year they were 1,515 per million, a figure in excess of that of any year since 1909, although the conditions of life in the great masses of our population were better and not worse than in previous years.

Are we on the right track? Is it not probable that such things as open-air schools, which have been so successful in Yorkshire and other places, would have done more towards diminishing tuberculosis than dispensaries and sanatoriums? But I must not trespass further on your space nor attempt to show how, if treatment with some isolation has failed in tuberculosis, treatment with practically no isolation is still more likely to fail in venereal diseases, in which diseases, if in any, prevention is better than cure.—I am, etc.,

London, W., May 5th. M. T. SADLER.

THE DANGER OF SMALL-POX.

SIR,—In his last letter Professor McWeeney advocates compulsory vaccination of infants, "to be repeated after the lapse of five or seven years." It is not clear whether he proposes that it should be repeated every five or seven years, but certainly a single revaccination at the age of 5 will not protect for life or anything like it.

But surely it is hardly worth while seriously discussing the advisability of compulsory revaccination in this year of grace. Every one knows it is not "practical politics." We have done without it hitherto, and certainly there was never less need for it than to-day. We have succeeded without it in controlling small-pox more effectually than almost any other zymotic, and no Government is at all likely to entertain for a moment a proposal for introducing it now.

Professor McWeeney concludes by stating: "The main fact is that in vaccination we possess an admittedly certain means of defence." I definitely challenge this statement. I deny that vaccination (for remember we are discussing vaccination as a State institution) is a certain means of defence. Infant vaccination—and it is that which I am out against—has been over and over again proved to be a "broken reed"; and, even if Professor McWeeney shelters himself behind compulsory revaccination, we have the experience of Germany. No country is likely to do more in the way of compulsory revaccination than Germany, yet they have not completely abolished small-pox even there. Result: "Several serious outbreaks" during the present war.

Dr. Archibald Kidd, in his letter in your issue of April 21st, quotes statistics of the Metropolitan Asylums Board, which undoubtedly prove—as has been so often proved before—that infant vaccination protects the individual, especially during childhood. But they do not prove that infant vaccination is of value in preventing the spread of small-pox, which is the only way in which we can protect the community. Small-pox inoculation would doubtless have the effect of producing similar, or even more striking, statistics; and would prove that inoculation protected the individual. But they would be no proof that inoculation protected the community. We know that inoculation was a failure in that respect.

As for Dr. Kidd's statistics of persons vaccinated after exposure to infection, such vaccination is, of course, only satisfactory provided it is done within three or four days of first exposure to infection. For this reason prompt diagnosis of the first case is of vital importance, and if all medical students were properly instructed in small-pox diagnosis and had only unvaccinated cases to deal with, this should almost always be possible. Those occasional cases referred to by Dr. Kidd, where unvaccinated persons suffer from very mild small-pox, practically only occur when you are dealing with an abnormally mild strain of small-pox. This almost always breeds true, and therefore, even if such cases should escape diagnosis, as I admit may easily happen, very little damage is done. Such an epidemic, indeed, is little worse than an outbreak of chicken-pox; for example, the epidemic in Australia in 1913.

Regard for your space prevents me from replying more fully.—I am, etc.,

Leicester, May 8th. C. KILLICK MILLARD.

TETANY AND THE FUNCTIONS OF THE PARATHYROIDS.

SIR,—In their paper on tetany and the parathyroids (an abstract of which appears in the issue of the BRITISH MEDICAL JOURNAL of May 5th, p. 575), Professor Noel Paton and Dr. Leonard Findlay state that their investigations are based on the assumption which they felt justified in making "that the nervous symptoms [of tetany] are due to the removal of the parathyroids." May I be allowed space to express the fear that, so far as this assumption is involved, their laborious work has been erected on a very insecure foundation?

The evidence that the parathyroids possess this importance, far from being "perfectly clear" as these authors contend, is surely highly conflicting. A large number of experiments seem to support their position and might be almost convincing were it not that an even greater number point in the opposite direction. A critical examination of both series shows that very many of the experiments in each category contain fallacies so obvious and often so serious that their testimony is worth little or nothing either way. Of the remainder, the weight of evidence seems to me to be altogether inadequate to support the belief that these glands subserve any distinctive function.

The whole question at present reduces itself to a judicial balancing of the facts for and against, and it could be wished that the competence of Professor Paton and Dr. Findlay to sum up evidence might appear to better advantage than in the only historical statement of theirs which I have had occasion to verify. They dismiss a critical study by myself of the results of parathyroidectomy on the ground that I "entirely ignore the existence of parathyroid tissue in the thymus." Looking up my paper (*Quarterly Journal of Medicine*, 1908, vol. i, p. 150) I find that I wrote, "The association of parathyroid with lymphatic or thymic tissue appears to have escaped observation, yet these combinations are not rare in either man or animals." Again, on the same page (157) I urge the need, before any inferences are drawn from the effects of parathyroidectomies, of microscopically examining the thymus for hidden masses of parathyroid tissue; while in plate xxiv of the same paper I illustrate the anatomical association of parathyroid and thymic tissues.—I am, etc.,

London, W., May 6th. DAVID FORSYTH.

CHILD MORTALITY.

SIR,—The country has been worked up to a madness of enthusiasm upon the subject of infant mortality, similar to that which a few years ago proposed to put tuberculosis out of being. Only the administrative methods in connexion with this new project, which entail the application of public money in grant to any little uncontrolled society, as well as to established charities, such as lying-in and midwifery institutions, for retrospective as well as prospective work, show less regard for economy.

It is the fact that the infant death-rate has been steadily diminishing, owing to suspected and unknown causes, for some years, and this may go a little further, and may be aided in some degree by the inspection of homes and infants, and the advertised fuss of the movement. But, as Dr. Oliver and the BRITISH MEDICAL JOURNAL have pointed out, it is highly improbable that the infant death-rate will be reduced 50 cent., especially if there be no further fall in the birth-rate, as the decrease in the infant death-rate has followed, and seemingly has been in some way connected with, the fall in the birth-rate.

This infant mortality movement can be viewed in two ways: First, as a part of the general and natural desire to save human life, which has always been deemed a moral obligation. It takes no note of the relative values of the newborn and the older unit, much less of the close-

LIBRARY U. OF I. URBANA-CHAMPAIGN

relationship of the newborn with the potential power of begetting children. Secondly, the matter may be viewed unsentimentally in its effect upon national numbers. Now it has been brought home to us how closely national safety depends upon national numbers, but the proposition to the effect that our national numbers can be maintained in any considerable degree by a lessening of the infant death-rate is surely most misleading. We will deal with numbers only, though there be a very important related question which deals with quality, since the lessening of the infant death-rate must be chiefly operative amongst the poorest, least capable, and most negligent part of the community.

It should be clearly manifest that the national numbers can only be maintained by maintaining and increasing the birth-rate. When the birth-rate is so high as to ensure a large annual increase the infant death-rate may be fairly high and yet be of only slight importance, as the births are likely to exceed the deaths of infants under one year old by at least 6 or 7 to 1. The proposed saving of 50 per cent. of the infant deaths by the maternity and child welfare schemes of the Local Government Board is really only about equivalent to a fall of one point in the birth-rate when that is reckoned at per 1,000 of the population. For example, let the birth-rate be 22 per 1,000 of the population and the infant death-rate be 91 per 1,000 infants born, which are about the actual figures for England and Wales last year. Then the whole infant death-rate equals 1 in 11 of those born, or 2 points of the birth-rate of 22; 50 per cent. of the infant death-rate equals 1 in 22, or exactly 1 point of the birth-rate. So that, even supposing that the number that is promised to be saved be not exaggerated, it would be nearly compensated by a rise of 1 point in the birth-rate. During the last twenty years the birth-rate has, however, fallen 10 points.

Dr. Oliver is of opinion that it is not feasible for the State to cause an increase in infant life. I am not sure about that. Is it such a great step between State care for the newborn and State care for the to-be born?

To return to the enthusiasm being displayed for saving infant life with which I began, I think one may be satisfied if this enthusiasm be simply looked upon as a means for obtaining a general reform in public health methods of administration. Let us be content to look at it in this light whilst waiting for Lord Rhondda's bill, and be prepared to say something more if that be not the result.—I am, etc.,

May 7th. M.O.H.

SIR,—In his letter (p. 601) Dr. James Oliver speaks of our "regretfully declining birth-rate, a declension which has been in evidence for nearly a quarter of a century." It would be interesting to hear why he regrets it in view of the following facts: Wherever the birth-rate has not declined the child mortality remains high. And as to the general death-rate, it did not fall in those countries which had no declining birth-rate; in England up to 1913 it had fallen by nearly as much as the birth-rate; in several countries it fell faster than the birth-rate, that is, the population increased more rapidly as the birth-rate declined.—I am, etc.,

London, S.W., May 7th. BINNIE DUNLOP, M.B., Ch.B.

THE USES AND ABUSES OF SANATORIUM TREATMENT.

SIR,—In a leading article in your issue of April 14th, p. 487, you suggest that the efficiency of sanatorium treatment has been impaired by the over-running of such institutions with advanced cases to the exclusion of those suffering from so-called "early" phthisis. The question has also been adumbrated in numerous medical journals of late, and it may not be unprofitable to mention a few sources of confusion of thought in this problem.

In the first place it must be remembered that the Midhurst results, dealing with patients taken from, at least, comfortable circumstances of life, are by no means applicable to industrial or even rural populations, where, case for case, the improvement of "bacillary" subjects is much more lasting. Even if, for the sake of argument, the Midhurst results be taken as a fair average of the improvement in bacillary cases, it is important to inquire whether the non-bacillary results are not inflated by the inclusion of so-called early cases which need never have gone to a sanatorium at all. Recent serum work on this subject, including much valuable research by Radcliffe, himself on the Midhurst staff, goes to show that probably half of these early non-bacillary cases need never have been treated in a sanatorium. Would not, then, the exclusion of such patients, together with those obviously suffering from chronic disease of a progressive type, leave ample room for *all* the favourable cases, whether seemingly early or seemingly advanced?

It is interesting to note that in Birmingham, where the tuberculosis scheme is probably a model, including a central dispensary with numerous sanatoriums and hospitals for patients in varying stages of disease, not only is every early case immediately admitted for treatment to a sanatorium, but practically all the chronic cases are able to have at least one period of sanatorium treatment, and frequently two and three separate periods. The Birmingham results, too, as far as bacillary cases go, are much more striking than those quoted for Midhurst.

Two other important points are frequently overlooked in such a discussion—first, the educative value of sanatorium treatment, particularly for advanced bacillary cases, and, next, the enormous return to the State in the shape of greatly increased working capacity over a number of years of just those advanced cases which it is suggested should be excluded from treatment.

Finally, on the question of segregation of bacillary subjects, it is of interest to note that numerous investigators of the Hamburger school favour the mild infection of children (tuberculization) as one of the best means of preventing the tertiary form of tuberculosis known as pulmonary phthisis.

If your correspondent Dr. Stapley wishes to know why the Tasmanian aborigine was exterminated by phthisis, he should consult the detailed researches of Hirsch, Marrable, Cummins, Calmette, Metchnikoff, Brewer, Parrott, Fishberg, and others too numerous to mention, who have resolved this question to one point—namely, the presence or absence of previous racial infection—that is, the presence or absence of immunization.—I am, etc.,

EDWARD G. GLOVER, M.D.,
Medical Superintendent, Salterley Grange Sanatorium, Cheltenham.

April 14th.

The Services.

GRANTS TO OFFICERS BY CIVIL LIABILITIES COMMITTEE.

ARMY ORDER 108 (March 14th, 1917) directs the attention of junior officers of the army to the conditions under which grants from public funds may be made to meet certain financial obligations. Copies and forms of application may be obtained from the army agents, or from the Military Service (Civil Liabilities) Committee, Imperial House, Kingsway, London, W.C. "Grants will be made for a limited time, and officers will be required, if serving at home, to furnish periodical declarations as to means on a form which will be provided for the purpose. In the case of officers serving abroad the declaration may be made by the dependant or other person authorized to act on the officer's behalf." The general conditions governing these grants are given as follows:

1. Grants may be made to officers, whether married or unmarried, who—
   - (*a*) At the date of their application rank for pay as Captain, Lieutenant, or 2nd Lieutenant, and
   - (*b*) Were ordinarily resident in the United Kingdom before joining the Forces, and
   - (*c*) Are unable by reason of their military service to meet their financial obligations, as hereafter described, and are thereby exposed to serious hardship.

2. The obligations in respect of which grants may be made are those arising in the United Kingdom in respect of—
   - (*a*) Rent.
   - (*b*) Interest and instalments payable in respect of loans, including mortgages.
   - (*c*) Instalments payable under agreements for the purchase of business premises, a dwelling house, furniture and the like.
   - (*d*) Taxes.
   - (*e*) Rates.
   - (*f*) Insurance premiums.
   - (*g*) School fees.
   - (*h*) Maintenance of children.

3. Assistance will not be granted for the discharge of ordinary debts.

4. Every original application for a grant must be made on a form obtainable as stated in the Army Order. If the officer is serving in

the United Kingdom, the application must be made by the officer himself. If not so serving, the application may be made by any person who is authorized by the officer to act on his behalf. The application form when completed will be forwarded in accordance with the directions on the form to the District Commissioner concerned, representing the Military Service (Civil Liabilities) Committee.

5. Any applicant may be required by the Commissioner—

(*a*) To appear before him and to give to him any further information regarding the application, or to produce receipts or other documents in support of the statements made in the application.

(*b*) To supply in writing such further information as the Commissioner may require in regard to the application, or to send for the inspection of the Commissioner receipts or other documents in support of the statements made in the application.

(*c*) To furnish a sworn declaration in support of any statement made in, or in connexion with, the application.

6. The Commissioner, after considering the application, will report to the Military Service (Civil Liabilities) Committee, by whom the award will be made.

7. Any grant awarded by the Committee may be made payable to such persons in such manner and upon such dates as the Committee may determine.

8. Grants will be incapable of assignment, and any attempt to assign, charge, or dispose of any grant will render it liable to forfeiture.

9. Grants will not be made in respect to any period after the grantee has ceased to belong to His Majesty's Forces—provided that, in the event of his being notified as dead or missing, the grant may be continued for such period as the Committee may think fit, and any payment so made may be recovered from any gratuity or pension granted from public funds to the widow or other dependants.

EXCHANGES.

M.O., attached field ambulance in France, desires exchange with officer in C.C.S. or at base in France.—Address No. 1550, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

M.O., attached to an infantry battalion in France, desires to exchange with a M.O. in an ambulance train, Red Cross barge, motor ambulance convoy, or fever hospital.—Address, No. 1509, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS.

THE annual elections for members of Council will be held on July 5th to fill three vacancies. Mr. W. Harrison Cripps retires in rotation as he was re-elected in 1909, eight years ago. Mr. Vincent Low retires, as he was elected last year to fill up the term for which Mr. Stanley Boyd was himself a substitute member, elected as such in 1914 to fill the place of the late Mr. Clement Lucas, re-elected in 1909. The third vacancy is due to the death of Sir Frederic Eve, a substitute being required to fill his seat until 1920, as he was re-elected in 1912. Sir Watson Cheyne, being President, does not retire though re-elected in 1909.

The following list shows the present composition of the Council:

President.—Sir William Watson Cheyne, Bt., K.C.M.G., C.B., F.R.S., C. (1) 1897 (substitute), (2) 1901, (3) 1909).

Vice-Presidents.—Mr. W. Harrison Cripps, C. (1) 1905 (substitute till 1908), (2) 1909; Mr. Charters J. Symonds, C.B., C. (1) 1907, (2) 1915.

Other Members of Council.—Sir George H. Makins, K.C.M.G., C.B., C. (1) 1903, (2) 1911; Sir Anthony A. Bowlby, K.C.M.G., K.C.V.O., C. (1) 1904, (2) 1912; Mr. William F. Haslam, C. (1) 1908, (2) 1916; Mr. Bilton Pollard, C. 1910; Mr. C. A. Ballance, C.B., M.V.O., C. (1) 1910 (substitute), (2) 1914; Sir John Bland-Sutton, C. 1910; Mr. D'Arcy Power, C. 1912; Sir Berkeley G. A. Moynihan, C. 1912 (substitute for Sir Henry Butlin till 1919); Mr. James Ernest Lane, C. 1913; Mr. L. A Dunn, C. 1913 (substitute for Mr. Clinton Dent till 1919); Mr. H. J. Waring, C. 1913; Mr. W. Thorburn, C.B., C. 1914; Mr. W. McAdam Eccles, C. 1914; Mr. C. Ryall, C. (1) 1914 (substitute), (2) 1915; Mr. Walter G. Spencer, C. 1915 (substitute for Mr. Lockwood till 1918); Mr. F. F. Burghard, C.B., C. 1915; Mr. H. F. Waterhouse, C. 1915; Mr. T. H. Openshaw, C.M.G., C. (1915); Mr. Raymond Johnson, C. 1916; Mr. Vincent Warren Low, C. 1916 (substitute for Mr. Stanley Boyd till 1917).

The medical schools are represented as follows:

London:	
St. Bartholomew's	5
Charing Cross	1
Guy's	2
King's College	2
London	2*
Middlesex	1
St. Mary's	2
St. Thomas's	2
University College	2
Westminster	1
Special London hospitals	1
Total London	21
Provincial:	
Birmingham	1
Leeds	1
Manchester	1
Total Provincial	3
Total Council	24

* One (Sir Frederic Eve) deceased.

CONJOINT BOARD IN IRELAND.

THE following were successful candidates at the Spring Final Examinations, 1917:

G. G. C. Adams, J. P. Brennan, M. Briscoe, E. M. T. Crymble, I. B. Culhane, F. Daly, J. J. Delany, M. Dockrell, J. P. Doyle, H. Graham, J. K. Holland, H. N. K. Kevin, M. P. Lee, M. P. Leonard, E. H. Lloyd-Dodd, J. A. MacSweeney, C. Murray, G. W. Pope, Mabel M. Prior, G. C. F. Roe, A. R. Soady, H. R. Wright.

Obituary.

THE death occurred on May 2nd, at the age of 61, of Dr. J. E. SQUIRE, whose professional life was largely devoted to the study and treatment of tuberculosis. He was the son of the late Dr. William Squire, a physician well known in London in his day, and was educated at University College Hospital, where, in 1881, he held the post of house-physician. He graduated M.B.Lond. in 1881 and M.D. in 1882, and became F.R.C.P. in 1909. During the Sudan campaign of 1885 he acted as senior medical officer to the Red Cross Society's organization, receiving the Egyptian medal and clasp, and the Khedive's bronze star. For a time he held the appointment of physician to the St. Marylebone General Dispensary and to the West End Hospital for Nervous Diseases; and he was associated with the Mount Vernon Hospital whilst it existed as a voluntary hospital for pulmonary tuberculosis and diseases of the chest. During the life of the London Policlinic he took an active part in post-graduate teaching. From 1898 to 1904 Dr. Squire commanded London companies of the R.A.M.C. Volunteer Force. He was Knight of Grace of the Order of St. John of Jerusalem; held the Jubilee, and both Coronation medals, and the Volunteer Decoration; while in 1904 he received the C.B. (civil). At the time of his death Dr. Squire was consulting physician to various tuberculosis sanatoriums, including the National Sanatorium for Workers, Benenden, Kent. He was a member of Council of the National Association for Prevention of Consumption, and medical adviser for sanatorium benefit to the London Insurance Committee. He published a book on the hygienic prevention of consumption in 1893, and a volume of *Essays on Consumption* in 1900.

WE have to record the death of JAMES HENTHORN TODD CONNOR, M.R.C.S., L.S.A., of Chelsea, which took place on April 16th, at the age of 75. He was fourth son of Mr. William Connor, M.B., F.R.C.S.I., whom he succeeded in practice at New Wandsworth. His grandfather on his mother's side was Charles Hawkes Todd, professor of anatomy and surgery at the Royal College of Surgeons, Dublin, and he was a nephew of Professor Robert Bentley Todd, F.R.S., of King's College Hospital, whose statue originally stood in the entrance hall of the old building in Clare Market, and is now in front of the new building on Denmark Hill. Mr. Connor was educated at King's College and King's College Hospital, where he was dresser to Sir William Ferguson. He was a member of the British Medical Association, and held various public appointments. He succeeded his father as surgeon to the Wandsworth and Clapham Union, and also as medical officer to the Battersea Training College, which office he retained until declining health compelled his retirement from practice. He married the daughter of Mr. W. Compton Smith, of Lincoln's Inn, by whom he had four children. His eldest son, Mr. Bentley Connor, is an artist.

LIEUTENANT-COLONEL JAMES ALEXANDER NELIS, Bengal Medical Service (retired), died in Dublin on January 2nd, aged 62. He was born on May 23rd, 1854, educated at Trinity College, Dublin, where he graduated M.B. and also took the licence in surgery in 1876. He entered the I.M.S. as surgeon on March 31st, 1877, becoming surgeon-major on March 31st, 1889, and surgeon-lieutenant-colonel on March 31st, 1897, and retiring on July 4th, 1902. He spent his whole service in military employ, chiefly on the North-West frontier, where he was for many years medical officer of the 5th Gurkhas. He had a long list of war service—Afghanistan, 1878–80, advance on Ghazni; battle of Ahmed Khel; action of Urzu; march from Kabul to Kandahar to the relief of Kandahar, under Lord Roberts, and battle of Kandahar; Aitchakzai expedition, and operations against the Maris (medal with two clasps and bronze star);

LIBRARY U. OF I. URBANA-CHAMPAIGN

North-West frontier of India, Mahsud Waziri campaign of 1881; Hazara campaign, 1888 (medal with clasp); second Miranzai campaign, 1891 (clasp); Isazai expedition, 1892; Tirah, 1897–98; operations against the Khani Khel Chamkanis; operations in the Bazar Valley, December 25th to 30th, 1897 (medal with two clasps). He was part author of a *Guide to Kashmir*, in which country he had spent many periods of leave in big game shooting.

DR. KENNETH MAYOH GIBBINS, of Parkstone, who died recently on his 44th birthday, received his medical education at St. Mary's Hospital, London. He took the diplomas of M.R.C.S., L.R.C.P. in 1904, and graduated M.B., B.S.Lond. in 1907. He had held the posts of house-surgeon to the East Sussex Hospital and house-physician to the General Hospital, Birmingham. Some ten years ago he succeeded Dr. Leader in practice at Parkstone. He was assistant physician to the Cornelia Hospital, Poole, and during the last eighteen months was medical officer in charge of the military wards. Dr. Gibbins, who was a member of the Bournemouth Division of the British Medical Association, leaves a widow and two children to mourn his loss.

THE death is reported of Mr. THOMAS BROOKS BUMPSTED, M.R.C.S., L.S.A., of Trumpington, near Cambridge, at the advanced age of 94. Mr. Bumpsted studied medicine at St. George's Hospital, and became M.R.C.S. in 1844. In his youth he was a noted oarsman, and won the Diamond Sculls at Henley in 1844, the first year in which that race was held. His time over the course was 10 min. 32 sec. In the same year he also won the Wingfield Sculls. For many years Mr. Bumpsted held the post of surgeon to the Cambridge County Gaol.

Medical News.

SURGEON-GENERAL W. H. NORMAN, C.B., will, it is stated, shortly succeed Sir Arthur W. May as Director-General of the Medical Department of the Royal Navy.

WE are glad to learn that Dr. Rattray of Frome is making good progress. His medical attendants hope that he may be able shortly to leave his bed.

ON May 9th the Queen visited the Royal Naval Hospital, Haslar, where she was received by Sir A. W. May, Director-General, and Surgeon-General George Welch, Officer-Commander of the Hospital. The object of the visit was to inspect the new residential quarters which the women of Canada have erected for the sick berth staff of the hospital, and a finely equipped electro-therapeutic room presented by children of the Johannesburg and Rand schools as a war gift to the navy.

VOLUMES I and II of a Report on the Physical Welfare of Mothers and Children, prepared for the Carnegie United Kingdom Trustees by Dr. E. W. Hope and Dr. Janet M. Campbell, are now published. These two volumes deal with the subject in England and Wales, and it is hoped to issue shortly similar volumes dealing with Scotland and Ireland, compiled respectively by Dr. W. Leslie Mackenzie and Dr. E. Coey Bigger. The object of the reports is to assist in the solution of the problem of infantile mortality by setting out the facts in relation to one another, and by placing on record the views of accepted medical authorities on the subject. We hope to refer to these in some detail in a future number.

THE Government decided last year to establish a separate Department of Scientific and Industrial Research for Great Britain and Ireland under the Lord President of the Council, with the President of the Board of Education as Vice-President, and to place a large sum of money at the disposal of the new Department to be used as a fund for the conduct of research for the benefit of the national industries on a co-operative basis. In order to enable the Department to hold the new fund and any other money or property for research purposes, a Royal Charter has been granted to the official members of the Committee of the Privy Council for Scientific and Industrial Research under the title of the "Imperial Trust for the Encouragement of Scientific and Industrial Research." Mr. H. Frank Heath, C.B., is Permanent Secretary of the Department (Great George Street, Westminster, S.W.)

THE English Urgency Cases Hospital, raised at the suggestion of Miss Eden, honorary secretary of the British Union of Trained Nurses, for service with the French, was organized by a committee of which Mr. Stephen Paget is chairman, Sir Arbuthnot Lane being president, and Mr. Mayo Robson consulting surgeon. It went out in March, 1915, and was first established at Bar-le-Duc; while there it received many wounded from the Argonne. After six months' work there it was given a chateau with the curious name of Faux Miroir. It opened there on September 8th, and has treated 3,351 patients, many of them from Verdun, upon whom 2,182 operations have been performed, while only 152 have died. Its médecin-chef is Mr. J. A. Cairns Forsyth, F.R.C.S., formerly of Leeds but more recently of London, and it is from a short article contributed by him to an illustrated report of the work of the hospital down to the end of 1916 that the above particulars are taken.

AN Army Council instruction, issued on May 5th, deals with the calling up of men employed in agriculture in England and Wales. It lays down that only men certified by county war agriculture committees as engaged on whole-time farm work come within the terms of exemption. The number of men to be taken from agriculture for the army is not at present to exceed the 30,000 already ordered to be called up. While exemption remains in force no exempted man is to be taken; and men below category "A" are only to be removed from agriculture by agreement with the county war agricultural committees. Equal distribution of labour throughout the counties is to be secured by co-operation between the war agriculture committees, acting through their executive committees.

DR. T. F. PEDLEY, formerly health officer of Rangoon, has sent us a pamphlet in which he makes the suggestion that the British public, which is now preoccupied with the shortage of wheat and other foodstuffs, might be educated to appreciate the food value and palatability of unpolished rice, the staple diet of the Burmese, among other Eastern races. He points out truly that the sophisticated, highly polished, and rather expensive white rice is not popular with the poorer classes at home, who look upon it as a luxury rather than a regular article of diet, while the well-to-do use it only as an occasional dish. Dr. Pedley's contention is that if a demand for the unpolished nutritious grain could be stirred up among the people of Great Britain, the Burmese rice merchants could, and would, supply it. So far as nutritive value is concerned, there can be no question as to the advantage of unpolished rice containing the pericarp with its proteins, salts, and vitamines.

AN inquest was held at Enfield, on May 7th, on the body of a clergyman, aged 48, who died after taking rhubarb leaves cooked as a vegetable. Dr. Gardner stated that he found the patient in bed suffering from gastro-enteritis, which came on a few hours after a substantial meal of rhubarb leaves. The patient became worse, and was removed to the cottage hospital, where he died of collapse. Other members of the family who had also eaten the leaves complained of ill effects. The coroner, in adjourning the case for three weeks, said he would endeavour to have some rhubarb from the same source analysed. A Brighton correspondent informs us that a number of cases of illness after eating boiled rhubarb leaves have occurred in Brighton and Hove. The symptoms in all these cases strongly suggest oxalic acid poisoning. As is well known, potassium oxalate is present in quantity in rhubarb stems, and presumably it is also present in the leaves. Certain persons with an intolerance for salts of oxalic acid show symptoms of irritant poisoning after quantities of rhubarb stem which are quite harmless to most people. It is possible that the recent cases of poisoning occurred in subjects of this idiosyncrasy; on the other hand, the method of cooking might explain the toxic effects—thus a hard water containing much lime salt would precipitate the oxalate, while a soft water might leave it largely in the form of soluble oxalate. Pending the result of chemical analysis in the Enfield case, the public would be well advised to refrain from indulging in rhubarb leaves as a substitute for spinach or cabbage.

A BRIEF record of the splendid response to their country's call made by the universities of the United Kingdom has just been published (*British Universities and the War: A Record and its Meaning*. London: *Field* and *Queen* (Horace Cox) Limited). The President of the Board of Education has written the preface, and a short account of the share taken by each seat of learning is contributed by a university official. Oxford and Cambridge are dealt with respectively by the President of Magdalen and the Master of Magdalene; three other sections are written by members of the medical profession—Sir Alfred Pearce Gould as acting Vice-Chancellor of the University of

London, Sir Donald MacAlister as Vice-Chancellor of the University of Glasgow, and Sir Isambard Owen as Vice-Chancellor of the University of Bristol. For the reason that this work is mainly written in order to show our friends in the United States what the universities of this country have done in the war, Sir Theodore Cook introduces a pleasant article on American and English universities, contrasting the social and athletic life of the universities on each side of the Atlantic. Among the illustrations is a charming portrait of Rupert Brooke, the soldier poet.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

IGNORAMUS asks for advice as to treatment for an *x* ray burn in a patient who underwent a course of *x*-ray treatment for uterine fibroid. She now has an ulcer 2 in. by 1 in. in the right iliac region, covered by a very tough adherent wash-leather slough, which resists all efforts to clean or heal it.

INCOME TAX.

M.O. receives a salary paid in West Africa and makes his wife an allowance of £300 per annum. She resides in England, and when M.O. returns from West Africa he "pays her a reasonable sum weekly for board and lodging." He asks whether his income tax liability extends beyond the £300 given to his wife.

*** There is a mass of case law on the subject of the income tax liability of foreign residents showing that the matter is one very difficult to deal with unless there is full information as to the exact circumstances. The nearest parallel we can find is in a case quoted as Pickles *v.* Foster ([1913] 1 K.B., 174), in which an employee of the African Association, Ltd., was held *not* liable on the full amount of his salary and commission as local manager of a West African factory. But it would seem from certain dicta in the judgement that the decision might have been different if the appellant had been in the service of an English Government "Department" instead of an English public company.

ANSWERS.

JACOBUS, who desires to put a son aged 14 into the mercantile marine, asks for advice as to how he should proceed.

VISCEROPTOSIS AND NEURASTHENIA.

MR. J. L. MEYNELL (Colchester) writes, in reply to the question by "M.R.C.S.," published on April 14th, 1917: In the absence of information as to the time which elapsed between operation and the appearance of symptoms, it is just conceivable that the neurasthenia is a post-operative condition; if so, further recourse to surgical procedure might be disastrous. Otherwise, having excluded all sources of chronic intoxication and mechanical causes of nerve strain, visceroptosis seems the probable cause of the neurasthenia in this case. Unless the displacement causes kinking of the duodenum, ureter, or bile ducts, operative replacement and anchorage of the kidney should not be attempted, and even then operation would be justified only after mechanical support had failed. "M.R.C.S." might try the application of a strapping belt, such as a simple spica of adhesive plaster, enclosing the lower abdomen up to the umbilicus. If this gives relief, a mechanical support such as that designed by Sir Arbuthnot Lane, and made by Messrs. Walton and Curtis, should be ordered.

PETROL DUTY.

THIS matter has become distinctly more complicated since the establishment of a special duty of 6d. a gallon under the Finance Act of 1916, and an answer in our issue of April 21st to a correspondent ("Perplexed") needs amplification. There are, in fact, three statutory provisions under which duty is payable. Under the first two a total duty (of Excise and Customs) is payable of 6d. per gallon, namely 3d. a gallon under Section 84 of the Finance (1909–10) Act, 1910, and a further 3d. a gallon under Section 10 of the Finance (No. 2) Act, 1910. The rebate of one half of the duties paid is in this case recoverable through the Board of Customs and Excise. The Finance Act, 1916, Section 15, imposed an additional duty of 6d. a gallon by way of *licence;* the rebate applies to this also, but it is dealt with by the Petrol Control Committee, acting apparently under powers conferred on the Board of Trade. The difficulty in understanding the operation of the present system—and "Perplexed" is probably not the only practitioner who experiences some perplexity in the matter—is probably due to the division of the authority as to rebates between the Board of Customs and Excise and the Petrol Control Committee, and will be avoided if it be remembered that the former deals with the old customs duty, now 6d. per gallon, and the latter with the new "licence" duty of 6d. per gallon.

LETTERS, NOTES, ETC.

SUGGESTED USE OF EUSOL IN INFECTIOUS FEVERS.

FLEET SURGEON H. E. TOMLINSON, R.N., writes: Taking into consideration the fact that several cases of puerperal fever and other septicaemic conditions have recently been apparently cured by intravenous injections of eusol, and bearing in mind the fact that, by analogy, such diseases as typhus fever, small-pox, measles, etc., whose cause is at present unknown, but which are possibly due to ultra-microscopic and filter-passing organisms, are at present treated in an expectant manner, I would venture to suggest that a great advance in treatment might accrue and no harm to individuals could arise from regarding these cases as of a septicaemic nature and treating them in a systematic manner by intravenous injections of eusol with a view to destroying such organisms as are present in the blood.

FLAVINE IN CEREBRO-SPINAL FEVER.

CAPTAIN A. CHARLES E. GRAY, R.A.M.C., Medical Officer in Charge Cerebro-spinal Fever Wards, Fulham Military Hospital, writes: In a paper by Dr. Carnegie Dickson published by you on April 7th he mentions flavine in the treatment of cerebro-spinal fever. In case any one should be thinking of trying it I think it well to write at once and say that my experience of the use of flavine by intraspinal injection in these cases has been distinctly unfavourable.

HORSE SERUM IN THE TREATMENT OF BURNS.

DR. EDWARD PERCY ROBINSON of New York has been induced by the publication in the JOURNAL of September 2nd, 1916, of Staff Surgeon R. J. Willan's paper on the treatment of burns to send us a note on a method he employed in one case. A woman, aged 45, was severely scalded, the injured surfaces being on the upper and middle third of the right leg (from 10 to 12 inches long by 4 to 8 inches wide), the calves of both legs, the ankle of the left foot, both buttocks and the left hip (deep), and the right cheek (superficial). It was estimated that the area of skin devitalized exceeded one-third of the entire surface. The burns were of the first and second degree. A temporary dressing of carron oil was applied, and afterwards an antiseptic ointment. Acute nephritis developed within twenty-four hours, but then subsided. Dr. Sinnott, under whose care the patient was in hospital, realized the difficulty of applying grafts to surfaces so large, and agreed with Dr. Robinson to make use of horse serum, in order to supply the cells surviving on the wound's edge with nourishment calculated to accelerate their proliferation. Normal horse serum containing a small percentage of tricresol was sprayed on the marginal cells, several large burns of the second degree being selected. The parts were then covered with rubber tissue. This was done on the tenth day. Treatment was repeated several times a day for ten days, with the result that the patient completely recovered, and was able to leave the hospital twenty-one days after admission. The serum was obtained from the Lederle laboratory, and Dr. Robinson thinks that if tubes containing only enough serum for a single application were obtained, the tricresol introduced as a preservative might safely be omitted, and thus a certain amount of smarting during the spraying obviated. In concluding his notes he expresses the opinion that it is an error to puncture blisters; the unpunctured blister provides a sterile serum, which is the best of all dressings.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

LIBRARY U. OF I. URBANA-CHAMPAIGN

PUNCTIFORM HAEMORRHAGES OF THE BRAIN IN GAS POISONING.*

BY

F. W. MOTT, M.D., LL.D., F.R.S., MAJOR R.A.M.C.(T.).

(From the Pathological Laboratory of the London County Council, Maudsley Hospital.)

THE subject of punctiform haemorrhages in the brain in gas poisoning has awakened new interest on account of its existence in fatal cases of shell shock with burial, and in cases of death from inhalation of poisonous gases, either as a result of their liberation by explosives in confined spaces, such as mines, trenches, and dug-outs, or as a result of an offensive gas attack by the enemy. I shall endeavour in this communication to explain the cause of these punctiform haemorrhages.

In 1907 I published in the *Archives of Neurology and Psychiatry* (vol. iii) a paper on "Carbon monoxide and nickel carbonyl poisoning." I came to the conclusion that the nickel carbonyl poisoning was really due to the inhalation of CO employed in the manufacture of nickel. Two such cases occurred of which I had the opportunity of examining the central nervous system, and I found multiple punctate haemorrhages throughout the white matter of the brain, as shown in photomicrographs.

In this paper I compared the naked-eye and microscopic appearance of the central nervous system in these cases of nickel carbonyl poisoning, with those observed in a case of suicide by illuminating gas, and I considered them to be identical in nature. I also reviewed in this paper the clinical symptoms and pathology of CO poisoning, in respect to the findings in the central nervous system, and especially the causes which occasioned the haemorrhages. All three cases died in from four to eight days with the complication of pneumonia. Thrombotic occlusion of cerebral arterioles or venules was considered to be the cause of the haemorrhages; in one case from the nickel carbonyl works an organizing thrombus was found in a vessel of the medulla.

In the case of suicide by illuminating gas, admitted under my care at Charing Cross Hospital, signs of cerebral haemorrhage occurred within twenty hours of commencement of the inhalation of the gas, for the limbs became rigid, and a plantar extensor reflex was obtained. At first the temperature on admission was 99°, but when the rigidity of the limbs and the plantar extensor response was discovered, six hours later, the temperature had risen to 105° and the pulse and respiration had become very rapid.

The nervous symptoms pointed to the occurrence of the punctiform haemorrhages found *post mortem* in the internal capsules, and it may be assumed that the rise of temperature might have been due to the toxaemia coincident with the onset of pneumonia; for when the patient died, on the fourth day, pneumonic consolidation was found. Full notes of the clinical symptoms and *post-mortem* findings were reported. Microscopic investigation showed fatty degeneration of the heart and of the epithelium of the convoluted tubules of the kidney.

Punctiform haemorrhages, attributed to hyaline thrombosis of small vessels of the white matter, have been described by Bignami and Nazari[1] in various diseases; for example, aestivo-autumnal malaria, apoplexy, diplococcal meningitis following pneumonia and measles. It is possible, therefore, that pneumococcic toxaemia was productive of, or associated with, the causation of the haemorrhages in these cases of CO poisoning.

But I am inclined to think that the CO poisoning alone would be capable of causing the punctiform haemorrhages, for the following reasons: In both cases from the nickel works there was evidence of old haemorrhages in the form of minute round or oval punctiform patches of softening, indicative of gas poisoning on some occasion previous to the man being obliged to give up work. And it was legitimate to attribute these symptoms they suffered with —namely, giddiness, vomiting, and headache (migrainous attacks)—to the gas poisoning, causing congestive stasis and haemorrhages. It is well to note that these migrainous attacks are frequently met with in men and officers who have been exposed to those conditions in which CO or other forms of gas poisoning might have occurred without fatal results.

From the facts observed in these three cases of CO poisoning, combined with certain anatomical conditions of the blood vessels supplying the white matter of the brain, to which I shall now direct your attention, an explanation can be offered why these miliary haemorrhages are found in the white matter of the cerebrum and basal ganglia, and not elsewhere in the brain. It must be recognized that a combination of factors may arise in CO poisoning, namely:

1. The heart, owing to the anoxaemia, has to beat faster and to do more work with less oxygen; consequently it may undergo fatty degeneration.

2. There is microscopic evidence of an irritative and degenerative endothelial change in the cerebral capillaries, as shown by mitosis of the nuclei, and a fatty degeneration, made apparent by osmic acid staining. These changes may be due. as Lancereaux suggested, to CO in the serum, but aggravated by the pneumococcal toxin, which is also responsible for a tendency to increased fibrin formation of the blood, and to thrombosis in those vessels in which the anatomical conditions favour the lodgement of emboli, or clotting of the blood from congestive or inflammatory stasis.

The microscopic appearances of these punctiform haemorrhages in known cases of CO poisoning, terminating in death by pneumonia, are similar to those shown in Fig 1, which is a section of the corpus callosum, showing punctiform haemorrhages, from a case of shell shock with probable CO poisoning.

Miliary Haemorrhages in Cases of Shell Concussion and Gas Poisoning.

I may now mention that the microscopic appearances found in these cases of CO poisoning, dying with pneumonia respectively after four days, eight days, and seven days, were in all respects similar to the appearances presented by sections of brains received from France, notified as dying of shell shock with burial and from gas poisoning—with one exception, and that only differed in the fact that a large part of the haemoglobin had been converted into chocolate-coloured pigment granules, which blocked the small vessels in the haemorrhages.

Before proceeding to the description of these cases I will call attention to the anatomical relations of the vessels of the white matter of the cerebrum, where these haemorrhages are found.

Anatomical Relations of the Vessels Favouring Capillary Stasis.

The pia mater covering the cortex sends delicate walled arteries and veins through the cortex to reach the subjacent white matter; the arteries consist of short and long vessels which, after giving off fine branches to the interlacing capillary network of the grey matter, terminate in a brush of fine arterioles; the short vessels end in this brush just below the cortex; the long penetrate deeper, to end in the corpus callosum and the centrum ovale. Each little artery breaks up into a tree, and forms a separate system of delicate arterioles. Each arteriole ends in a circumscribed area of capillaries, with an emerging vein. These veins do not anastomose. Thrombosis of arterioles or venules would therefore cause capillary stasis and haemorrhage into the brain substance in a circumscribed area, also escape of blood into the perivascular sheaths of arterioles or venules—a condition generally found to occur where there are punctiform haemorrhages. Owing to the thin character of the walls of the arteries, it is difficult to decide whether a vessel in section is an artery or a vein. Punctiform haemorrhages are also found in great abundance in the brain structures supplied by the perforating arteries, especially those in which the opto-striate and lenticulo-striate branches terminate. These vessels give off relatively few branches until they reach their destination in the basal ganglia and internal and external capsules; they then terminate in a brush of delicate walled arterioles. Each vessel supplies, as in the case of the cortical vessels, circumscribed areas of capillaries, and the result of embolism or thrombosis is the causation of similar small limited areas of haemorrhage and softening, which, when numerous, may become confluent. Stasis is favoured also by the narrow lumen of the capillaries of the brain.

* Read before the Pathological Section of the Royal Society of Medicine, February 13th, 1917.

Shell Shock and CO Poisoning.

The brain of a man said to have died from shell shock was handed to me by Professor Keith for examination. The following notes accompanied this brain :

Fatal case of shell shock with burial, from Captain Armstrong, R.A.M.C., No. 7 Mobile Laboratory, B.E.F. Sent on from No. 1 Mobile Laboratory. No. 8 on Captain Armstrong's list.

Brain of man, admitted unconscious, with history of having been buried by shell blowing in parapet. Remained stertorous for two days and died.

Post-mortem Examination.—There is no wound of any kind on his body or head, and no visceral lesion. His ankle on one side was badly "sprained," but there were no fractures. The skull was unfractured, and no fracture of the base could be found. Brain shows multiple punctiform haemorrhages and some slight subpial extravasation. No other particulars.

[Photomicrographs illustrating the appearances presented by the brain in this case have been already published to illustrate my Lettsomian lectures to the Medical Society (1916).]

Having regard to the fact that these punctiform haemorrhages and hyaline thrombosis of vessels were identical in their microscopic appearances to those I had observed in CO poisoning, it occurred to me that the man may have been concussed and afterwards gassed while lying unconscious and buried. (Vide Fig. 1.)

It may be argued that these punctiform haemorrhages were due solely to venous stasis and congestion, but I doubt this, for I have neither observed this condition in the number of cases of death from asphyxia occurring in status epilepticus nor after prolonged seizures of paralytic dementia, although I have examined the brains, macroscopically and microscopically, in a great number of instances.

A letter to me from the Trench War Committee confirmed the possibility of CO poisoning occurring when a large shell burst in a confined space, such as a dug-out or a trench, if incomplete detonation of the explosive occurred. Moreover, it must be remembered that CO is odourless, and may be present in trenches or dug-outs without its existence being known. When a mine is exploded considerable quantities of this gas may be formed, and it may travel through the ground considerable distances.



FIG. 1.—Section of corpus callosum from a case of shell shock, showing punctate haemorrhages. In several of the haemorrhages there is in the centre a small white area of brain tissue with a vessel in the middle of it. Under a high power the small vessel is seen to contain a hyaline thrombus stained pink by Van Gieson method. Magnification, 25 diameters.

In the memorandum on *Gas Poisoning in Warfare* issued by the Director-General, Medical Services, British Armies in France, it is stated in respect to CO poisoning :

The lungs show no abnormal changes in cases of rapid death. Small punctate haemorrhages may be found in the white matter of the brain, and sometimes ecchymosis in the meninges, if the case has been exposed to a concentration of CO sufficient to cause prolonged unconsciousness.

The fact that CO is not found in the blood when the patient is examined, does not prove that death was not due to CO poisoning, for after some hours of exposure to air it cannot be detected, and there is little opportunity to make the test for some hours or even days.

Captain Dunn read a very interesting paper at the Medical Society on epidemic nephritis, in which he showed hyaline thrombosis of the vessels of the alveoli of the lungs and of the glomerular capillaries of the kidney. In these cases he has observed multiple punctiform haemorrhages of the brain, which he attributed to embolism by hyaline thrombi. These haemorrhages present exactly the same appearances as in CO poisoning or gas poisoning. In a letter he has written to me, he states that he has now observed these haemorrhages in four more cases of nephritis, so that their occurrence in the first case was not fortuitous. "They are of quite similar appearance to those I have observed in phosgene poisoning." He asks whether haemorrhages of that type are seen in uraemia.

Major Elliot has been kind enough to send me a copy of a memorandum on five autopsies on cases of poisoning by drift gas (Cl_2 + $COCl_2$) in which death took place within seventy-two hours, by Captain H. W. Kaye. In this paper he describes evidence of blood destruction in the spleen. Major Elliot also informs me that Captain H. Henry was the first to describe thrombi in the renal vessels and disagreed with Dunn and McNee when they wished to describe what they saw as renal emboli from the lung.

Examination of the Brain in Gas Poisoning.

I have recently had the opportunity of examining the brains of two cases of gas poisoning, in which gas was employed in an offensive by the enemy; and one is of special interest.

The whole of the white matter is peppered over with small dark spots about the size of a pin's head. These are due to haemorrhages, but microscopic examination shows conditions which I have not found in CO poisoning nor in other forms of gas poisoning; in fact, I have never seen any condition like this. The red blood corpuscles have been in large measure broken up and the haemoglobin converted into dark chocolate coloured pigment granules which fill the capillaries, arterioles and venules of the white matter of the brain. This is very possibly methaemoglobin, for it is known that exposure to nitrous fumes in concentration will oxidize the haemoglobin, and convert it into methaemoglobin. Phosgene, $COCl_2$, has been used by the Germans; it liberates HCl when it comes in contact with a moist surface; it is very irritating and would cause bronchiolitis, and I am informed by my friend Professor Halliburton that it is possible the free hydrochloric acid would convert the haemoglobin into acid haematin.

Similar appearances were found to those described in CO poisoning—namely, multiple punctiform haemorrhages in the white matter (Fig. 1)—but the blood corpuscles were intermixed with chocolate-coloured pigment granules (Fig. 2). The accompanying drawings illustrate the appearances presented. You may observe a vessel with a hyaline thrombus, stained pink by the fuchsin of the Van Gieson stain, but with a brownish tinge due to the change in the blood pigment.

Possibly, as in capillary fat embolism, we may have embolism by these pigment granules, but, generally speaking, there is definite evidence of thrombus formation, with pigment granules in the thrombus.

Examination with a high-power magnification shows that the smallest vessels are filled with the pigment, which can be seen in the vessels and in the circumscribed areas of haemorrhage as discrete granules packed together. (Fig. 3.)

The specimens show hyaline thrombus formation in the vessel contained in the centre of the haemorrhage or passing to the centre of the haemorrhage; the walls of these vessels are generally so thin as to support the view that they are veins. Some of the small vessels show aneurysmal dilatation. In one section I observed a sheaf of small arterioles pressed together by the haemorrhage at the side; on one there was an aneurysm

LIBRARY U. OF I. URBANA-CHAMPAIGN

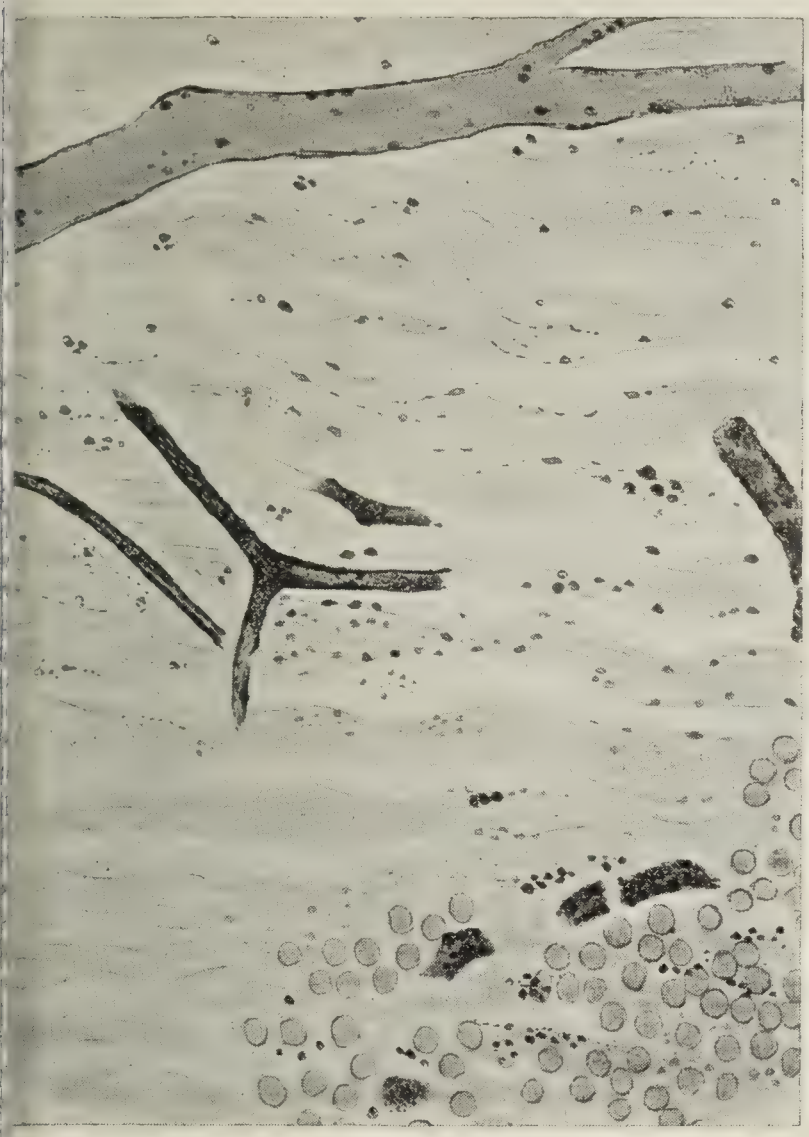


FIG. 2.—Small vessel blocked with pigment, haemorrhage and pigment granules. Above it is a vessel, probably a vein, filled with lightly brown-stained hyaline thrombus. Magnification 250.



FIG. 3.—Section of optic thalamus showing a vessel bifurcating, packed with pigment granules so closely that the hyaline thrombus can only be seen in one limb. A punctiform haemorrhage with corpuscles and pigment granules is seen above, and on one side there are three small vessels filled with pigment compressed together. Magnification 350.

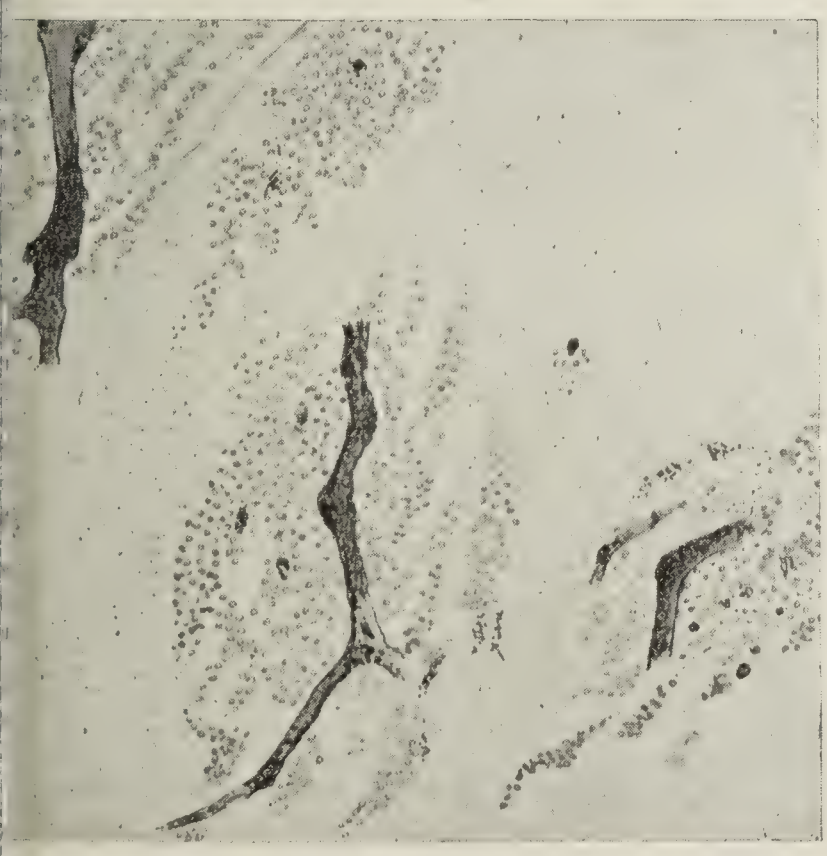


FIG. 4.—Three small vessels filled with pigment granules and hyaline thrombus, in the midst of three punctiform haemorrhages found in the optic thalamus. One of these vessels shows under a higher magnification an aneurysmal dilatation. Magnification 80.



FIG. 5.—Section of subcortical white matter from a case of shell shock and burial, possibly accompanied by gas poisoning. A punctiform haemorrhage is seen with vessel and portions of smaller branches filled with hyaline thrombus. Magnification 150.

LIBRARY U. OF I. URBANA-CHAMPAIGN

filled with pink-stained thrombus. Amidst the corpuscles are numbers of pigment granules. Three such haemorrhages with occluded vessels proceeding to them can be seen (vide Fig. 4). Nearly all the punctiform haemorrhages show a central vessel, surrounded by an area of necrosed brain tissue, infiltrated usually with leucocytes. The whole of this area is stained pink by Van Gieson stain, and it is more or less difficult to make out the wall of the central vessel. Sometimes a capillary filled with a thrombus can be seen running to the central vessel. It may be filled with chocolate-coloured pigment granules probably embedded in a coagulum as in Fig. 2, or the coagulum may be of a pinkish-brown colour, due to the coagulum being stained by the pigment dissolved in the serum. In this, as in all other cases, there is evidence of an inflammatory stasis and excess of leucocytes in the vessels, and often into the perivascular sheath and tissues around.

Clinical and Anatomical Notes accompanying this Case.

Brain.—Surface veins, large and small, distended with dark blue clotted blood (veins of base of skull were in same condition). Section shows thickly scattered blue-black dots throughout the brain, especially in the white matter; this applies also to the cerebellum, and to much less extent to pons and medulla.

No haemorrhage seen.

Patient was admitted ten hours after being gassed, and died sixty hours after admission from bronchiolitis and failure of right heart.

It is unfortunate that the clinical and *post-mortem* notes of this case are so scanty, for it is one of great pathological interest. The right heart failure and bronchiolitis, from which the patient died seventy hours after inhalation of the gas, would undoubtedly account for the venous congestion and stasis noted *post mortem*, and for the thrombosis of the small vessels in the white matter of the brain. The blocking of the capillaries, small arteries, and veins by the chocolate-coloured granules of pigment, especially of the capillaries, would, however, suffice to account for the haemorrhages. In some respects the capillary blockage by pigment resembles the condition found in pernicious malaria, in which disease Bignami and Nazari have described punctate haemorrhage of the white matter of the brain; but I am inclined to believe the principal cause of the haemorrhages is inflammatory stasis and hyaline thrombosis of arterioles, capillaries, and venules, the pigment granules being incorporated in the coagulum.

I received the brain of another case in which the bruises on the body, the haematomata in the right lung, and the other conditions described, all suggest that he had been blown up by a shell and buried, and that the injuries of the brain were due to concussion. The fact that there was no CO detected in the blood does not conclusively prove that he was not exposed, while buried, to CO gas.

Clinical Notes of this Case.

Admitted with diagnosis of shell shock. Purple bruises on arm and leg of right side. Stertorous, unconscious, and during the night before death, constant fits. Lived thirty hours in hospital.

Post mortem: There were two haematomata in the right lung, but no other visceral injury. No haemorrhage of the scalp, and no fractures of the skull. Some slight subpial haemorrhage of the right hemisphere. Fornix destroyed and full of haemorrhages; haemorrhages also seen in corpus callosum. Haemorrhage in both optic thalami; cerebro-spinal fluid tinged with blood. Men admitted with him said he had been buried by a shell. There was no CO in his blood, and the bruising was purple.

Microscopic Examination.—Multiple punctate haemorrhages are seen; hyaline thrombosis of capillaries, arteries, and venules; perivascular sheaths contain blood. (Fig. 5.) Marked evidence of inflammatory stasis. Some of the small veins are filled with blood corpuscles, one-half of which are polymorphonuclear leucocytes, and in the perivascular sheath and tissues around are large numbers of polymorph leucocytes.

Another case, of which full notes were furnished, was due to poisoning from a gas shell barrage. Unfortunately there were no notes of the condition of the reflexes nor the state of tonus of the muscle of the limbs. The clinical notes do not indicate that this patient suffered with pneumonia, nor of any obstruction to the entrance of air to the lungs; there is no statement regarding the cause of the extremely rapid respiration, but the fact that he was given oxygen and diffusible stimulant for the first twelve hours suggests that there was great respiratory embarrassment due to deoxygenation of blood. Later there is a definite statement: there is no evidence of cyanosis and no respiratory obstruction; the oxygen was stopped. But the respiration still continued very rapid—50 to 60.

After some days his condition greatly improved, and the respiration fell even to 28. Then on the last day in the morning he suddenly developed grave symptoms, and in the evening it is noted that he developed marked nystagmus, internal strabismus, and the right pupil was distinctly sluggish and slightly larger than the left. The conclusions and findings are not inconsistent with CO poisoning, but it may have been some other gas or mixture of poisonous gases.

I was unable to confirm the statement of haemorrhage into the pons and medulla. The vessels were congested, but no haemorrhage was found. The cerebral hemispheres were badly preserved, and I was only able to examine the cerebral cortex of the frontal lobes.

Microscopic Examination.

Portions of the frontal cortex and subjacent white matter showing to the naked eye miliary punctiform haemorrhages were taken, and, as in all the other cases, blocked in paraffin, and sections cut and stained by Van Gieson and haematoxylin-eosin methods, also with polychrome. The punctiform haemorrhages appeared in some of the sections to form a circle of circumscribed, discrete, oval or round areas of extravasated blood, with often a section of a vessel in the centre or proceeding to the haemorrhagic area (Fig. 5). In sections stained by the Van Gieson stain the lumen and the thin-walled vessels so seen appear a pale pink, and this presumably is due to the contained hyaline thrombus.

In some vessels red blood corpuscles are seen with abundant fibrin formation—a similiar appearance to that seen in the alveoli in red hepatization; other vessels appear filled with polymorphonuclears and fibrin. Around the central thrombosed vessels of the haemorrhage are seen deeply stained pink areas of necrosed brain tissue infiltrated with polymorphonuclear leucocytes; very often a vessel can be seen filled with blood and extravasated into the sheath, and occasionally the rupture of a thin-walled vessel causing haemorrhage into the perivascular sheath can be seen. This condition of central thrombosis with necrosis of brain tissue around and infiltration of leucocytes is similar to that observed in the CO poisoning from the nickel works, when the patient lived eight days, and is in accordance with what might be expected, seeing that the man lived six days after possible inhalation of the gas.

SUMMARY.

The reason why these punctiform haemorrhages occur in the white matter of the brain in gas poisoning is primarily due to the anatomical condition of the vessels in the white matter of the cerebrum, where the arteries are terminal; each small artery having a separate capillary system, likewise the emerging veins. A tendency to stasis may be brought about in these separate vascular systems by the failure of the heart as a force pump and suction pump, also by those respiratory conditions which lead to right heart dilatation, and interference with the return of blood from the skull. In most cases the two factors are combined. It seems probable, however, that either factor may act independently in causing inflammatory stasis and thrombosis, resulting in multiple punctiform haemorrhages. In the gas case, in which the haemoglobin has been converted into pigment granules, it seems probable that the haemorrhage may be accounted for by embolic occlusion of the capillaries and arteries. It is unfortunate that, with the exception of the case of CO poisoning by illuminating gas, I have not had the opportunity of examining the organs of the body.

It is quite probable that, as in that case, fatty degeneration of the heart, the kidneys, liver, and vessels of the brain would be found to exist.

In conclusion, I desire to acknowledge my indebtedness to my assistant, Mr. Charles Geary; also to Miss Munro and Miss Watson for the assistance they have afforded me, and to the Board of Control for a grant to enable me to give them an honorarium for their services.

Observations
ON
THE PATHOLOGY OF CARDIAC DROPSY.

BEING THE OLIVER-SHARPEY LECTURES DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON, MAY, 1917.

BY

CHARLES BOLTON, M.D., D.SC.LOND., F.R.C.P.LOND.,
PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL; LATE DIRECTOR OF PATHOLOGICAL STUDIES AND RESEARCH, UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

(Abridged.)

LECTURE I.

[AFTER expressing his sense of the honour conferred upon him by the College, Dr. Bolton referred to the work of Lower, Cohnheim, and Starling, explained that the object of his researches was to produce experimentally uncompensated heart disease in order to study the resulting pathological processes, and proceeded as follows:]

Interference with the Filling of the Heart.

Experiment had shown that the heart, with its muscle in all respects intact, can so perfectly accommodate itself to increased work, that it will overcome an increasing resistance opposed to it up to a certain point, and thus maintain the arterial and venous pressures at their normal heights; beyond this point, however, when the heart cannot completely overcome the resistance, it suddenly fails and the circulation comes to an end. One cannot, therefore, experimentally interfere with the heart in its capacity as a force-pump so as to produce a gradual heart failure.

The alternative method of preventing the free diastolic filling of the heart proved successful. The means which I adopted to interfere with this function consists in constricting the pericardium by means of a row of sutures placed in the right side of that structure. This proceeding exercises a certain amount of pressure on the right auricle and roots of the great veins, and interferes with the free expansion of the ventricles. The animals, which in all the experiments to be described were cats, were anaesthetized with ether, and artificial respiration was maintained through an intubation tube during the operation, which was performed under strict antiseptic precautions. On the following day the animal has become dropsical, and this condition gradually increases in degree. The maximum amount of venous engorgement is found towards the centre of the body, the superior and inferior venae cavae and the liver, whilst the periphery appears practically unaffected. The distribution of the dropsy corresponds with that of the venous engorgement; there is ascites and double hydrothorax with marked oedema of the mediastinum, and to a less extent of the retroperitoneal tissue. This oedema may spread along the great veins, more particularly the superior vena cava, so that it extends out of the chest, giving rise to subcutaneous oedema of the front of the neck and chest, and even of the axillae. This distribution of the subcutaneous oedema is evidently influenced by gravity.

The immediate effects upon the circulation of the blood, as measured by arterial and venous manometers, I found to be the same as in Cohnheim's experiment. The arterial pressure at once fell to varying degrees in proportion to the tightness of constriction, and the venous pressure in all parts of the body, head, feet, and portal vein, at once rose also to varying degrees. On observing the experiment for an hour or more I was, however, surprised to find that the venous pressure in all parts of the body gradually fell until it returned to the normal level, whilst the arterial pressure still remained at the low level to which it had fallen. On the following day, when dropsy was present, I was again surprised to find that the venous pressures were still normal or a little raised, and that the arterial pressure had now usually regained its normal height.

When I made these observations we had no idea what the arterial pressure was in cardiac dropsy, but three years later H. J. Starling published a series of clinical observations in which he showed that in uncompensated heart disease with dropsy the arterial pressure was normal, except in cases associated with arterial or renal disease when it was raised. The distribution of the subcutaneous oedema in the dependent parts of the body in cardiac dropsy is due to the upright position of the patient, so that the venous engorgement of the liver and veins of the central parts of the trunk is relieved by gravity at the expense of the legs. When it is necessary to tap the subcutaneous tissues, it is a common practice to let the patient sit up in a chair so as to drain the fluid into the legs. The changes are essentially the same as in these animal experiments, and the differences are entirely due to differences of position.

I concluded that the venous pressure fell owing to dilatation of the large veins of the trunk and of the liver, so that blood accumulated in the central parts, whilst it was abstracted from the periphery. In support of this supposition was the visible distension of these veins and the liver, and also the fact that, when the venous pressure had fallen to the normal level after its initial rise, relaxation of the pericardium brought about a further fall below the normal. The dilatation was due to the raised venous pressure and to a nutritional loss of tone in the vessels of the congested area. The dropsy was produced in this central area of the body whilst the capillary pressure was about the normal, and therefore I concluded that the oedema was primarily due to some alteration in the capillary wall.

From these observations it was quite evident that certain adaptive changes had occurred which were worthy of closer study, but the method of pericardial constriction was not a satisfactory one to employ for a large series of experiments, because so many animals died from the operation, as it was quite impossible to gauge the amount of constriction.

Obstruction of Both Venae Cavae.

I therefore employed another method for producing the same result. This consisted of simultaneous obstruction of the superior and inferior venae cavae. The constrictions were applied immediately above and below the right auricle, the azygos vein being ligatured. The average diameters of the veins were obtained by washing out the blood and distending them with gelatine at the normal venous pressure. After the gelatine had set the vessels were cut out and measured. The veins were constricted to varying degrees by tying round them short pieces of split rubber catheter of known diameters. I found that constriction of both veins led to a condition of dropsy precisely similar in its distribution to that produced by pericardial constriction, and that the effects upon the venous and arterial pressures were also the same.

Obstruction of Inferior Cava Alone.

An incomplete obstruction of the inferior vena cava alone produces no effect whatever unless the vein is narrowed down to three-fifths of its normal diameter; the animal survives, and develops dropsy. Obstructions greater than this produce similar results, but narrowing down below two-fifths of the diameter of the vein kills the animal as in complete ligature. One is thus able to guarantee the survival of any animal by using a rubber tube of 2.5 to 3 mm. in diameter, and also that the animal will develop dropsy. The ascites is rapidly produced, measurable amounts being present after two hours, and large amounts during the first few days; it then slowly increases up to the third or fifth week, as a rule, but sometimes for a longer period; it then slowly subsides with the establishment of anastomoses, and has disappeared in from two to six months. Now and then it may persist longer than six months. In addition to ascites there is commonly a little oedema round the inferior vena cava behind the peritoneum, and exceptionally it may extend from this locality down the iliac veins to the groin; here it forms a bag of fluid, which further extends along the anterior abdominal subcutaneous tissue, and down the thigh to the knee. This extension is due to gravity, the position assumed by the animal favouring this distribution of the subcutaneous fluid.

The appearance of oedema at a certain point in the subcutaneous tissue does not necessarily imply that it is formed in this position, because fluid is able to diffuse itself in the areolar tissues much in the same way as subcutaneous emphysema; in this form of diffusion gravity plays an important part.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Consequent Pressure Changes.

We have now to consider the pressure changes in the various parts of the circulatory system as a result of this obstruction of the inferior vena cava.

Immediate Changes.

A gradually increasing constriction produces no effect whatever on the pressures until the vein has been narrowed to three-fifths of its diameter, when the pressure at the lower end of the inferior cava rises by about 30 or 40 mm. $MgSO_4$ solution. The normal pressure in this situation is about 90 to 100 mm. $MgSO_4$, so that the rise is about one-third of the normal. The solution was made of a specific gravity of 1046, so that it is one-thirteenth the weight of mercury. A rise of 30 to 40 mm. therefore represents about 2 to 3 mm. Hg. At exactly the same point the arterial pressure falls by 20 mm. Hg or more owing to deficient filling of the heart. Constrictions greater than 3 mm. produce somewhat greater depressions in the arterial pressure curve and greater rises in the venous, and complete ligature of the vein causes the arterial pressure to sink to about 30 mm. Hg above zero, whilst the venous pressure behind the obstruction runs up rapidly to over 200 mm. $MgSO_4$. To cause a high degree of venous pressure, therefore, the vein must be completely occluded. The rise of venous pressure is not limited to any portion of the venous area drained by the inferior vena cava, but extends back to the venous radicles at all points. Thus a cannula placed in a vein of the foot shows precisely the same increase of pressure in the manometer, and the rise of pressure is also propagated through the liver into the splenic vein to the same degree. On the other hand, the pressure in the superior vena cava and its tributaries falls, the fall amounting to about 10 or 15 mm. $MgSO_4$ solution.

We see, thus, that there is a redistribution of the amounts of blood in the different parts of the body; by its accumulation in the inferior vena cava and its tributaries it has been abstracted from the rest of the venous system and the arteries. The capillary pressure in all the parts drained by the inferior vena cava rises, whilst the velocity of the blood is diminished. This rise we have seen to be on the average about 2 to 3 mm. Hg, so that, if the normal capillary pressure were 30 mm. Hg, after obstruction of the vein the pressure would stand at 32 to 33 mm. Hg. This is a comparatively insignificant rise. We must, however, remember that the height of the capillary pressure depends not only upon the rate at which blood is leaving the capillaries, but also upon the rate at which it is being supplied to them. If the arterial pressure remained normal and these vessels contained the normal amount of blood, the capillary pressure after obstruction would stand at the height indicated above, but blood is abstracted from the arteries and the pressure in them falls; less blood than normal is therefore supplied to the capillaries, so that for this reason the pressure within the latter is not raised to the level indicated by the height of the venous pressure. Exactly what lessening of effect is produced by the fall of arterial pressure it is impossible to say; we can only conclude that the capillary pressure is raised, but to a smaller extent than one would expect from the height of the venous pressure, and in any case the rise is trifling. The fall of venous pressure in the superior vena cava and its tributaries, together with the fall of general arterial blood pressure, naturally results in a fall of capillary pressure in these parts.

These are the immediate effects of narrowing of the inferior cava, and they do not last for very long, because the venous pressures in all the parts of the body behind the obstruction commence to fall gradually, and, if the animal be kept under observation for an hour or more, it will be found that the venous pressures in the inferior vena cava itself, in the portal vein, and in the foot eventually reach the normal level or a point very near it. The venous pressure in the head, however, at the end of this time still remains at the low level it had immediately assumed on obstruction of the vein. The arterial pressure in all cases remains at the level to which it had fallen on the occurrence of obstruction, or it may be lower still. The higher the pressure in the inferior cava the quicker it falls to the normal level.

This fall of venous pressure is due to precisely the same cause as we have seen to be operative in constriction of the pericardium—namely, dilatation of the veins and capillaries of the liver more especially, but also of the portal system, and of the inferior vena cava and its immediate tributaries.

This distensibility of the abdominal vessels is responsible for a further depletion of the fore part of the body, and the hind limbs and peripheral portions of the abdomen now share in this depletion. Owing to the increased capacity of a part of the circulatory system, the pressures in all parts of the system naturally fall, the blood volume remaining normal. The venous pressures in all parts behind the obstruction being normal or thereabouts, and the arterial pressure low, it naturally follows that the capillary pressure is subnormal in these parts, except in the liver, where it is about normal. The capillary pressure in the fore part of the body falls lower than it was before.

This is the condition of the circulation when dropsy commences; an increased output of lymph occurs in the plethoric areas giving rise to ascites and some degree of retroperitoneal oedema. The ascitic fluid comes from the viscera, especially the liver, and the oedema from the capillaries of the short lumbar veins directly opening into the inferior cava. The veins of the abdominal wall and the hind limbs actually contain less blood than normal. Increased absorption of fluid occurs in these regions and also in the fore part of the body owing to the deficient filling of the vessels and the resulting low capillary pressure.

The output of lymph in the plethoric areas is thus balanced by the absorption of fluid in these depleted areas, the blood volume remaining normal. It is well known that such an absorption always occurs, because Lazarus-Barlow has shown that, when a part is rendered plethoric and oedematous, the specific gravity of the tissues in the anaemic areas of the body rises, showing that fluid has been absorbed from the tissues into the blood.

The capillary pressure being normal or thereabouts, the increased output of lymph is entirely conditioned by the state of the vessel wall. Exactly what this state is one can merely surmise, but it can hardly be doubted that the normal nutritional exchanges of a part in which there is such a high degree of stasis of blood are seriously interfered with. So far as we can see at present the fault is primarily a nutritional change in the capillary wall, and what part is played by filtration at the normal capillary pressure, or by osmosis resulting from altered tissue metabolism, must at the present moment be left an open question.

All the changes which I have hitherto described occur during the first few hours after the vein is obstructed, and we have now to consider what later alterations in the pressures take place. For this purpose a series of dropsical animals was examined at various intervals after the operation until the dropsy had disappeared.

Later Changes.

The later alterations occur in two stages, and they are due to two distinct causes:

1. The first stage is characterized by a rise of venous pressure, approximately to the height from which it had fallen, and a rise of arterial pressure to about the normal level.

2. During the second stage the venous pressure rises to a high degree, the pressures which I have recorded being comparable to those following complete ligature of the vein. The arterial pressure still remains at the normal level.

First Stage: Restoration of Venous and Arterial Pressure.

The alterations in the circulation at the first stage are usually completed in a few hours, nearly always within twenty-four. In one case on the fifth day, however, I have found a normal venous and subnormal arterial pressure, although the animal had 100 c.cm. of fluid in its abdomen. At this stage the venous pressures in the portal vein and inferior vena cava gradually rise until they attain the heights at which they stood immediately after the operation. The pressure, however, in the veins of the legs always remains relatively lower than that in the central part of the trunk. This pressure does not rise above the normal, and unless the pressure in the trunk is very definitely raised it is subnormal. There is, therefore, a relative alteration in these two pressures; the venous pressure in the trunk is always relatively raised, and that in the legs relatively lowered. The arterial pressure rises to the normal, varying somewhat with the venous pressures

in the trunk. The venous pressure in the territory of the superior vena cava still remains at the low level it immediately assumed when the operation was performed. This again shows, as we saw before, a relative plethora of the central parts of the trunk, and depletion of the peripheral parts of the circulation.

The Cause of this Alteration in the Venous and Arterial Pressures.

In the normal animal the arterial pressure is kept at a constant level in order that the capillaries may be supplied with an adequate flow of blood. This especially applies to the brain, so that the medulla may receive its normal supply of oxygen. Whenever the arterial pressure falls, so that the vasomotor centre does not receive its proper supply of blood, it is excited to action and the blood pressure rises. One would expect, therefore, that the low arterial pressure in the dropsical animals would excite the vasomotor centre to action so as to produce a general arterial constriction, with its resulting rise of arterial pressure and a greater flow of blood to the brain. It might, however, be argued that in these cases absorption of fluid had overbalanced output and brought about hydraemic plethora, and that this increase in the total blood volume was the cause of the raised vascular pressures. I have, however, shown that at this stage of the disease there is no increase in the blood volume. It must therefore be by vasomotor constriction, which automatically occurs by excitation of the vasomotor centre as the result of anaemia of the medulla, that the arterial pressure becomes raised to the normal. Naturally, this result varies in different animals, according to their power of recovery after a severe operation. In some cases it rapidly occurs, so that the arterial pressure rises to its originally normal level in three or four hours, whilst in others the pressure still remains low on the following day or even later. It was shown by Bayliss and Starling that stimulation of the splanchnic nerves not only raises arterial blood pressure, but also the pressure in the inferior vena cava by 20 to 30 mm. $MgSO_4$ solution.

Vascular constriction, therefore, fully accounts for the rise of arterial and venous pressures. It is an adaptive mechanism enabling the animal to compensate as far as possible for its changed circulatory conditions. The rise of arterial pressure ensures a normal supply of blood to the brain, and the raised venous pressure increases the velocity of blood through the constriction, so that the maximum amount possible may reach the heart and be distributed to the tissues.

These alterations in venous and arterial pressures in their turn affect the capillary pressure. The rise of venous pressure results in a rise of capillary pressure in the central parts of the trunk, but this rise is minimized by the arterial constriction which cuts down the supply of blood to the capillaries, so that it is doubtful whether the capillary pressure rises above its normal level except in the liver, where it must go up, because both portal and inferior cava pressures are raised. The capillary pressure in the legs, abdominal wall, and fore part of the body is subnormal, and increased absorption continues in these regions as before. The alteration in pressures does not obviously affect the output of lymph, because there is no distinct relation between the height of the venous pressure in the trunk and the amount of ascites present.

Second Stage: Rise of Venous Pressures to a Great Height.

In these animals the venous pressures are very high after the first week and occasionally during this period, but it is not until the end of the second week that they attain their maximum heights. The maximum pressures occurred from the second to about the eighth week. The pressure in the portal vein followed that of the inferior cava, and was raised to about the same proportionate extent. The venous pressure in the hind limbs was always raised above the normal after the second week, but to a less relative extent than that of the inferior cava. Although all the venous pressures have gone up, there is still the same alteration in the pressure levels as described before, the venous pressure in the trunk being relatively more raised than that in the hind limbs. This occurrence is, therefore, a constant feature at all stages of the disease. Another constant feature refers to the pressure in the superior vena cava, which in all cases was still below its normal level, as immediately after the vein was constricted. The same disproportion in the distribution of the blood as we saw to occur in the early stages is, therefore, still present. There is a relative plethora of the central portion of the trunk, and relative anaemia in the peripheral parts. The arterial pressure was normal, although in four cases it was a trifle higher than usual. The capillary pressures are raised in all parts behind the obstruction, but to a less relative extent in the hind limbs than in the trunk; those of the fore part of the body are below normal.

With regard to the influence of this high venous pressure upon the production of dropsy, it may be definitely stated that there is no constant relation between the height of the venous pressure and the amount of ascitic fluid present, and that, moreover, during the subsidence of the ascites and after it has disappeared the venous pressure still remains high. These observations upon the venous pressures in the later stages of the disease, therefore, agree with those made in the earlier stages in showing that a high capillary pressure is not the primary cause of the dropsy and is not necessary for its production. Neither is the presence of a high pressure capable of preventing the subsidence of the dropsy. It is true that the period of highest pressure corresponds with some increase in the ascitic fluid, although an examination of individual cases does not bring out this point, because the ascites begins to subside at different times in different animals whilst the pressure is still high. So that when once oedema is being produced a high capillary pressure will increase it, although the two conditions may be dependent upon some other factor.

It seems quite clear that some new factor must have been introduced to cause this additional rise of venous pressure, which in half the cases becomes more than double its original height. Such a factor can only be an increase in the total quantity of the blood, and this leads us to inquire whether absorption in the anaemic parts of the body may not have eventually overbalanced output in the plethoric parts and led to a condition of general plethora; and, further, if the total blood quantum is increased, what is the nature of the increase, and what is its effect upon the production of lymph?

Establishment of Plethora.

That plethora occurred in certain forms of dropsy had been suggested by clinicians for many years before Cohnheim definitely opposed the idea. He considered it as proved that a lasting pathological increase in the blood quantum could not occur, because it had been shown that, when the blood volume of the dog was increased by transfusion of large amounts of blood, the excess was disposed of in a relatively short space of time.

I am aware of one case only in which the blood volume of a patient with uncompensated heart disease was actually estimated. This was an observation of Lorrain Smith, in which he found an increase in the blood volume. I have estimated the blood volume of twenty-five dropsical cats at all stages of the disease. The volume of the blood was obtained by the washing out method. The blood volume of a cat weighing 2,500 grams is about 100 c.cm. Ten estimations were made on cats during the first week. In five cases the blood volume was normal, in three it was diminished by 6, 9, and 16 c.cm., in two it was increased by 4 and 7 c.cm., so that during the first week the blood volume is normal or decreased; an increase may occur at this early date, but it is very slight and unable to affect the venous pressure. This period, it will be remembered, is that during which the venous pressure is raised by vasoconstriction alone. Four estimations were made during the second week. The blood volume of the animal on the eighth day was diminished by 10 c.cm. and the other three increased by 6, 15, and 28 c.cm. Towards the end of the second week, it will be remembered, the venous pressures tend to rise and afterwards remain uniformly high. Between the second and eighteenth week eleven estimations were made, and all showed an increase. The increases at this period were on the whole much greater than those of the second week. The lowest figures were from 7 to 18 and the highest from 23 to 47 c.cm. Considerable increases in the blood volume thus occurred during the period when the venous pressures were uniformly very high. It seems justifiable to conclude that about the second week absorption of fluid overbalances

LIBRARY U. OF I. URBANA-CHAMPAIGN

output and leads to an increase in the total blood volume. This causes a rise of venous pressure in the parts of the body behind the obstruction, but the quantity of blood in the previously anaemic area is not made up to the normal, and the pressure in this region is subnormal. Absorption, therefore, continues and keeps the blood volume above the normal. This implies a fairly rapid circulation of fluid into and out of the blood, and that this actually happens we shall see later in speaking of the extravascular circulation of the lymph.

This rapid and constant intake of fluid, therefore, seems to be the actual cause of the plethora, otherwise, as in Cohnheim's experiment, the excess of blood would be rapidly disposed of and the blood volume return to the normal. The condition of plethora in these experiments is not analogous to the artificial production of plethora by injection of fluid, because its maintenance depends upon a constant intake of fluid. Fluid is also rapidly leaving the vessels as ascites, but, as I shall show later, absorption of the ascites is constantly occurring into the blood so that by this rapid and constant circulation of fluid the volume of blood is permanently increased. During the first two weeks the blood volume bears no relation to the amount of ascitic fluid. The formation of ascites is very active from the first day and the fluid accumulates in large quantities during the first week. During this period the volume of blood is usually normal or even diminished, and as a fact the amount of ascites is commonly large when the blood volume is small. The increase in blood volume can in no way, therefore, be said to be the cause of the dropsy, because the essential cause or causes are at work before the blood increases in volume. The increase in blood volume must, therefore, be looked upon as a secondary phenomenon and due to an effort of the animal to make up its normal quantity of blood in the anaemic areas, and to replace the fluid lost as dropsy. At the same time it may be a contributing factor and assist in increasing an already existing dropsy. This appears to be the case, for the dropsy tends to increase about the time the volume of the blood increases, and after the second week is passed the amount of ascitic fluid varies more or less directly with the blood volume. However this may be, after the fifth week, when the dropsy is subsiding, the blood volume still keeps high. So that an increase in the blood quantum is unable to prevent the disappearance of the dropsy.

A further effect of this increase in the volume of the blood and the resulting high venous pressure is seen in the liver. In the early stages we have seen that the pressure in it is very little above the normal, and the capillaries are dilated moderately; in the stage of plethora, however, the pressure in this organ is considerably raised, the capillaries are dilated into sinuses, and the liver tissue atrophies.

It is obvious that if the total amount of fluid in the body is increased water must have been retained. The sources from which the blood derives fluid in order to increase its volume are the alimentary canal and the extravascular tissues. The daily volume of urine is diminished to about one half during the first week, after which it becomes normal, with a tendency towards an increase in the later stages. Less fluid is, however, consumed during the first few days, and, as a fact, the amount of fluid taken in and that excreted run parallel throughout the disease. Taking into account all sources of error involved in the method employed, it appears that there is retention of fluid in the body during the early period of oedema formation and increase of the blood volume, and a slight loss of fluid during the subsidence of the dropsy. That the excretory capacity of the kidneys in these animals is not materially interfered with is proved by the readiness with which they respond to an increase in the available amount of fluid presented to them to excrete. The retention of water appears, therefore, to depend primarily upon the circulatory processes at work, which are causing the dropsy.

The fluid which is absorbed directly into the capillaries from the extravascular spaces, so far as is known at present, consists of water and salts only. There are no direct observations to prove that protein is absorbed by the capillary wall.

Changes in Haemoglobin Content.

During the past twenty years or more the condition of the blood in uncompensated heart disease as regards its content of water has been investigated from time to time. The methods employed have been either that of ascertaining the total solids of the blood, of measuring its specific gravity, or of ascertaining the percentages of haemoglobin and red corpuscles which it contained. Many of these clinical observations agree that in cardiac dropsy hydraemia is present, but others differ from them in finding the haemoglobin content of the blood normal or even increased.

I have made 182 haemoglobin observations on 52 dropsical cats, and have estimated the total solids of the blood, serum, lymph, and ascitic fluid of 11 cats at various stages of the disease. These observations have shown that on some day during the first week the percentage of haemoglobin in the blood begins to decrease. This never occurs on the first day after the operation, every case examined at the end of twenty-four hours showing a normal or slightly increased percentage. It may commence on the second day, but only in about one out of six cases. Two-thirds of the cases show a commencing fall of the haemoglobin percentage on the third day, and the remainder on the fourth, fifth, and sixth days. One case showed a normal percentage on the eighth day. With this last exception every case out of seventy-six estimations, conducted from the seventh day to the end of the fifth week, showed a decrease in the haemoglobin percentage. After this period, although the blood volume remains increased, the haemoglobin percentage rises, becoming normal or slightly above this level in most of the cases during the next few weeks.

On comparing the haemoglobin percentage with the blood volume it appears that the period of continuous increase in the blood volume corresponds with the period of continuous decrease in the haemoglobin percentage, and that after this, although the blood volume remains higher than normal, the haemoglobin percentage commences to rise. It is therefore evident that the decrease in the haemoglobin content of the blood is due to a dilution of the blood, and not to a decrease in the total amount of haemoglobin. The rise in haemoglobin percentage whilst the blood is increased in volume represents an effort on the part of the animal to restore this percentage to the normal. This it succeeds in doing sometimes whilst the ascites is present, and sometimes after it has disappeared.

Here is to be found the explanation of the discrepancies which have occurred in clinical observations on the haemoglobin content of the blood. The alterations in the haemoglobin percentage and the corpuscular content of the blood pass through very definite stages, so that a normal, an increased, or a diminished percentage in either of these is found at different times in the same individual. The formation of new blood corpuscles is probably due to the diminished oxygen tension of the blood. This is brought about in uncompensated heart disease by the diminished velocity of the blood and the cyanosis.

Changes in Blood Plasma.

We have now to discuss the changes which occur in the blood plasma. The total solids in the ascitic fluid amount to about 5 or 6 per cent., and occasionally 7, being slightly less than those of the lymph in any given animal. A considerable amount of protein is thus rapidly lost by the blood, the diminution in volume of the latter being made up by the absorption of water. There results, therefore, in the earliest stages a simple hydraemia, in which the total volume of the blood is normal, but the percentage of water in the plasma is increased. The total solids of the blood and serum are diminished, but the haemoglobin percentage is normal, showing that the total blood volume is normal.

We know very little about the formation of the blood proteins beyond the fact that they are formed fairly rapidly. My observations on the total solids of the blood and the serum fully bear out this point, because I have found that after the first day, whilst the total solids of the blood are uniformly and considerably diminished, together with the percentage of haemoglobin, the solids of the serum are only a little less than normal. This means that the animal rapidly makes up the proteins of its plasma, so that the preliminary hydraemia tends to diminish. After the fifth week has passed, and the excessive lymph production is falling off, the total solids of the serum become absolutely normal.

We must therefore distinguish several phases through which the blood passes: A simple hydraemia, the total

volume of the blood being normal or even diminished; a plethora in which the plasma is to some extent hydraemic and the percentage of corpuscles diminished; a true plethora in which the plasma is normal in composition and the percentage of corpuscles has also reached the normal. The proteins of the blood are thus made up much more rapidly than the corpuscles, so that one cannot say that hydraemic plethora exists merely because the corpuscles are diminished in percentage. Were it not for the constant absorption of water and output of protein, tending to keep the blood hydraemic, the proteins of the blood would, no doubt, be found normal in quantity from an early date. We have already seen how the organism attempts to compensate for the anaemic condition of certain portions of its vascular system by vaso-constriction, whereby it ensures that the maximum amount of blood possible reaches the tissues. It has only a certain quantity of available blood at its disposal, and with this it is unable to supply the tissues with their normal amount. A further series of events is therefore initiated whereby the blood is first increased in quantity, and then becomes normal in quality.

SUMMARY.

1.

The increased output of lymph giving rise to cardiac dropsy is one of a very definite series of events following the occurrence of failure of the heart in its capacity as a pump. These events may be grouped into the following stages:

Stage I.—Accumulation of blood in the veins, with a moderate rise of venous and capillary pressure in all parts. Abstraction of blood from the arterial system with a fall of arterial blood pressure.

Stage II.—Dilatation of the veins and capillaries of the central parts of the body, with a fall of venous and capillary pressure to normal or thereabouts. This leads to increased congestion of the central parts and anaemia of the peripheral parts of the body, in which the venous and capillary pressures fall below normal. Increased output of lymph in the congested area giving rise to dropsy. Increased absorption of water in the anaemic areas, which balances the loss of fluid by the blood. Simple hydraemia results.

Stage III.—Vasomotor constriction resulting from anaemia of the medulla causing:

1. A rise of arterial pressure to the normal.
2. A moderate rise of venous and capillary pressure in the central parts of the trunk.

The venous and capillary pressures of the peripheral parts remain subnormal, or may become normal.

Stage IV.—Hydraemic plethora is established and raises the venous and capillary pressures in the central portions of the body to a great height. There is still a relative anaemia of the peripheral portions, although to an increasingly limited extent, as the congested area spreads peripherally.

Stage V.—The ascites and hydrothorax increase in degree and the oedema spreads in the areolar tissues peripherally, as the congested area encroaches upon the anaemic regions. True plethora is established.

2.

The abnormal output of lymph leading to dropsy is primarily conditioned by the nutritive state of the capillary wall, and is increased by the general plethora and consequent high capillary pressure.

3.

In uncompensated heart disease in man the central portions of the trunk are relieved by gravity at the expense of the legs, which become included in the congested area. The dropsical area spreads up the legs to the abdominal wall, thus encroaching upon the anaemic area from below upwards.

BIBLIOGRAPHY.

Bayliss and Starling: *Journ. Physiol.*, 1894, vol. xvi, p. 171.

Bolton: *Journ. Path. and Bact.*, 1903, vol. ix, p. 67. *Proc. Roy. Soc.*, London, 1907, B, vol. lxxix, p. 267. *Journ. Path. and Bact.*, 1909, vol. xiv, p. 49. Ibid., 1916, vol. xx, p. 290.

Cohnheim: *Lect. Gen. Path.*, New Syd. Soc. Trans., London, 1889, vol. i, pp. 21, 513, 423.

Hammerschlag: *Zeit. f. klin. Med.*, Berlin, 1892, Bd. xxi, S. 475.

Lazarus-Barlow: *Phil. Trans.*, B, 1894, vol. clxxxv, p. 779.

Lorrain Smith: *Trans. Path. Soc.*, London, 1902, vol. liii, p. 136.

Lower: *Tract. de Corde*, etc. Edit. sex., London, 1728, p. 127.

Starling, E.: Arris and Gale Lectures, *Lancet*, 1896, vol. i, pp. 1267, 1407. Ibid., 1897, vol. i, pp. 569, 723.

Starling, H. J.: *Lancet*, 1906, vol. ii, p. 846.

APPARATUS FOR TREATMENT OF FRACTURES OF THE FEMUR AND OF THE LEG.

BY

DR. V. SOUBBOTITCH,

SURGEON-COLONEL, SERBIAN ARMY.

THE apparatus which I am now describing permits the treatment of fractures of the femur and of the leg in a position of extension as well as of flexion of the hip and knee joint. In the flexed position the action of certain muscles often becomes less disturbing, while the relaxation of these muscles decreases the force required for successful traction. Especially for certain cases of high and low fractures of the femur, the treatment by flexion offers real advantages. I have therefore devised an apparatus for the treatment

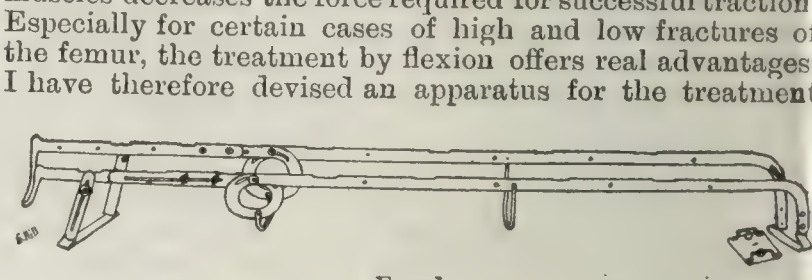


FIG. 1.

of fractures of the femur in extension or in flexion, which permits a change of position when required, without the necessity of first removing or displacing the apparatus, which, moreover, allows the simultaneous treatment of fractures of the femur and of the leg. It is made of metal, and consists of two lateral splints, united above by a posterior arc, which has, in its internal part, a special



FIG. 2.

curve similar to that in M. Delbet's apparatus. This special curve provides a good leaning on the ischium, a point well adapted to sustain a certain amount of pressure. At the further end the two splints are united by a transverse bar, in the middle of which is applied a dynamometer, which regulates the strength of the traction exercised by means of diachylon, network, plasters

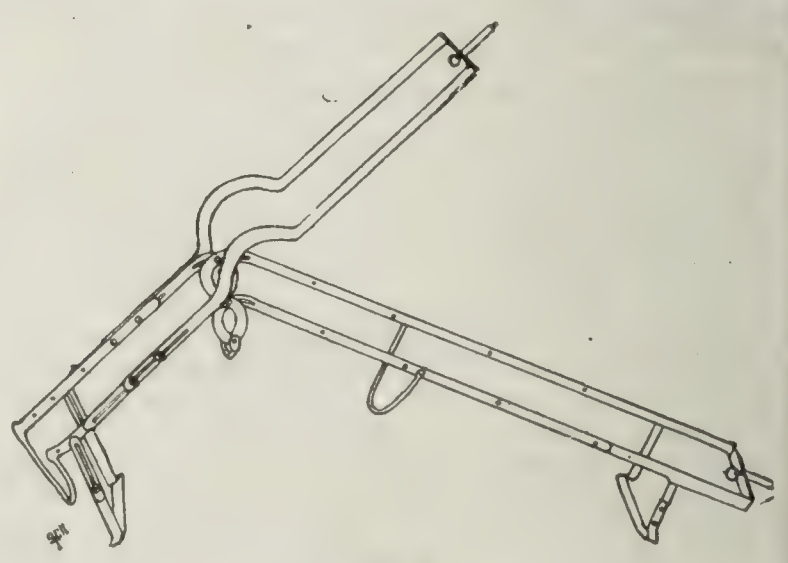


FIG 3.

Finochietto's stirrup, etc. The dynamometer can be replaced by elastic tubes or other springs, etc. The apparatus consists of two parts, articulating in a special manner corresponding to the knee-joint; the upper part supporting the femur, and the lower part the leg. In order to give the appliance more rigidity, two transverse arcs unite the two splints, and a large support at each end gives additional stability to the apparatus, which should be placed upon a firm base. Linen or metal straps form the hammock which carries the limb.

A number of holes in the splints facilitates the suspension of the apparatus, the femoral part of which can be

LIBRARY U. OF I. URBANA-CHAMPAIGN

ongated as required. With the apparatus in rectilinear osition (Fig. 1), it is possible to put the limb in extension, nd to exercise upon it graduated traction with counter-ressure upon the ischium—as may also be obtained, of ourse, with other apparatus. For flexion, the appliance as an articulation corresponding to the knee-joint in such manner that it may be easily transformed into a double-nclined plane (Fig. 2). The distance from the tuberosity f the ischium to the popliteal hollow becomes appreciably nger as the leg passes from the position of extension to nat of flexion. In the medical literature of such appliances nis fact has, so far as I am aware, not yet been noted, hen it is necessary to accommodate the length of the ppliance to the varying distance of the tuberosity of the chium from the popliteal hollow.

The lateral splints supporting the femur and the leg, nder the knee, are each semi-elliptically curved back elow, and at the point of their lower junction is placed ne axis around which the bending movement in adaptation to the knee-joint is produced. By means of this rrangement an elongation of the femoral part of the pparatus follows automatically the process of flexion.

When, as a consequence of flexion, the upper posterior rc, on being lowered, loses contact with its point of ressure upon the ischium, it is necessary, in order to naintain this contact, that the upper support of the pparatus should be capable of being either lengthened or hortened, at will, according to the degree of flexion. Of ourse, in case of fractures necessitating the abduction of ne limb the apparatus must be placed in this position. y transverse tractors attached to the splints, it is ossible to modify, when required, the position of the agments.

If when the limb is in flexion traction is to be exercised pon the femur, another arc may be added to the apparatus, ecurely fixed in axial prolongation on the two femoral plints (Fig. 3). In applying elastic traction (dynamometer), which in the flexed position of the limb can be oderated, the counter-pressure is always upon the berosity of the ischium. Different tractions can also e simultaneously applied on the leg. With this apparatus it is possible to treat fractures in suspension and in ifferent positions of the limb. Free access to wounds nd adjacent regions is given; movement of the knee and assage of soft parts are also possible, the fracture emaining fixed. Removal of the patient also is rendered asier. For longer journeys a better immobilization can e obtained by applying a long splint from the armpit to ne foot, and by securing the splint to the apparatus and the thorax.

The application of this apparatus is not possible when here are lesions in the region of the ischium.

GLYCERINE AND ANTISEPTICS.

BY

HELEN PIXELL GOODRICH, D.Sc.,

RADCLIFFE INFIRMARY, OXFORD.

N interesting note in the BRITISH MEDICAL JOURNAL of lay 5th, pointing out the possibility of using substitutes or glycerine for some purposes, in view of the great carcity of this drug, makes it desirable to publish some f my recent experimental results, which show that its resence more or less completely destroys the antiseptic ower of such useful substances as thymol, phenol, boracic cid, mercuric chloride, etc., in aqueous solution.

It is a well-known fact that many antiseptics, inorganic s well as organic, are much more soluble in glycerine han in water.

Approximate Solubility at Ordinary Temperatures.

Thymol: 0.06̇ per cent. in water; 0.526 per cent. in glycerine.
Phenol: 7.7 per cent. in water; 350 per cent. in glycerine.
Mercuric chloride: 5.26 per cent. in water; 61.5 per cent. in glycerine.
Boracic acid: 4 per cent. in water; 25 per cent. in glycerine.

There is therefore no doubt that in a mixture of water nd glycerine more of the above substances will dissolve han in pure water; for example, in a mixture of equal olumes of water and glycerine about five times as much hymol will dissolve as in pure water. However, the resulting solution has no better antiseptic power than the aqueous solution containing only a fraction of the amount of thymol, as already recorded in my recent paper on mouth-washes. The same is the case with boracic acid: a saturated solution in water will kill all the organisms in a thin film of *Staphylococcus pyogenes aureus* in just over one hour, whereas a saturated solution in water and glycerine containing more than four times as much boracic acid requires about six hours.

Hitherto it appears to have been assumed by pharmacologists that solutions in glycerine were necessarily more antiseptic than the more dilute aqueous solution, and further, statements such as the following, are liable to be misleading: "Glycerine is largely used in pharmaceutical preparations as a solvent, and, being an antiseptic, it also acts as a preservative." (Squire, 1916, p. 658.) It was Sternberg who included glycerine, up to 1 in 4 dilutions, among feeble antiseptics, but, as shown below, even water compares well in disinfecting power with 50 per cent. glycerine. Pure glycerine easily kills protozoa and other animals, but here it acts by osmosis, for it is well known to extract water from tissues. Many bacteria are much less susceptible to fatal effects from drying, and may consequently remain alive in glycerine for hours. Dilute solutions are not even preservative; in fact, up to 8 per cent., glycerine is so beneficial to certain bacteria as to be added to media for growing them.

The experiments mentioned below were carried out in the same way as those described in my recent paper in this JOURNAL (April 14th), but with a standard culture of *S. pyogenes aureus*. The glycerine used was in the liquid form (specific gravity 1.26), pure and perfectly sterile.

To destroy all the organisms on a cover-slip film pure glycerine required approximately eight hours; mixed with water in equal volume it required more than twenty-four hours, after these hours giving considerably more growth than the control which had been in tap-water for the same time. For the following experiments a stock solution of the antiseptic was made in water, and this was diluted as required with an equal volume of water or glycerine:

Times required to Destroy all the Individuals from a Standard Culture of S. pyogenes aureus Contained on a Thin Film on a Coverglass.

Phenol:
3.3 per cent. solution in water required less than ¼ minute.
3.3 per cent. solution in water and glycerine required more than 1 minute (between 1 and 5).

Mercuric Chloride:
0.005 per cent. solution in water required approximately ¼ minute.
0.005 per cent. solution in water and glycerine required more than ½ minute.

Boracic Acid:
A saturated solution (4 per cent.) in water required approximately 65 minutes.
A half-saturated solution (2 per cent.) in water required approximately 285 minutes.
A 2 per cent. solution in water and glycerine required more than 480 minutes.

Thymol:
A saturated solution (0.06̇ per cent.) in water required ¼ minute.
A half-saturated solution (0.03̇ per cent.) in water required 12½ minutes.
A 0.03̇ per cent. solution in water and glycerine required more than 300 minutes.

In the case of thymol and *S. pyogenes aureus* the value of the constant in the logarithmic relation existing between the time required for disinfection and concentration, as given by H. E. Watson, is 5.6. This is almost exactly the same as that for phenol and *S. pyogenes aureus*, calculated from H. Chick's results, obtained in an entirely different way. However, the discussion of methods, etc., must be deferred and published with the graphs representing the variations in times required for disinfection with concentrations of these antiseptics; especially interesting are those showing the interference of glycerine and other solvents.

The theory underlying the action of glycerine is most interesting; possibly the glycerine merely acts as oil is supposed to act in the case of carbolic acid—that is, being a better solvent for the antiseptic, the latter does not diffuse so easily from the solution into the watery protoplasm. However, in some ways this explanation is unsatisfactory, and the fact that glycerine diminishes the

action of aqueous mercury perchloride solutions suggests that, like alcohol, it does so by diminishing dissociation. There seems to be some difference of opinion about the dielectric constant of glycerine, but probably it is less than that of alcohol (25), so that it would as a solvent have even less dissociating power. As far as I know, it is not generally considered, in the case of such substances as phenol with small dissociation constants, that the antiseptic properties of the solutions rest in the ions; but that such is the case is the most likely explanation which I can at present bring forward to account for the above results.

Whatever the theoretical explanation, however, it is quite clear that in practice it is more than useless to waste glycerine by using it as a solvent for antiseptics, and surely such preparations as glycerine of phenol and glycerine of boric acid should be omitted from the *British Pharmacopoeia*. Probably, in any cases where thymol solutions have been found to be unsatisfactory as mouth-washes, the failure is due to the presence of glycerine in them, as in many proprietary mouth-washes in common use.

COLLOIDS IN SYPHILIS.

BY

J. E. R. McDONAGH, F.R.C.S.

BEFORE a drug can exert its full therapeutic action it is necessary for it to become converted into the colloidal state. What this means precisely can be explained best in the following way: When a disease such as syphilis attacks the human body it always meets with a certain amount of resistance on the part of the host, whose main protective substance—or antibody as it is called—is the protein in the serum. The protein in the serum is in a colloidal state—that is to say, it appears in the form of particles, which possess Brownian movement and resemble bacteria when examined under the ultramicroscope. These colloidal protein particles kill the parasites by a surface action in which oxidation and reduction play a part. When a drug is prescribed it does not exist in the serum in the state in which it was injected; it first becomes converted into the colloidal state, in which form only can it be taken up by the colloidal protein particles. When adsorbed the drug stimulates and accelerates the destructive action of the protein particles. It can readily be understood that if a drug is administered in the colloidal form no energy is wasted in converting it into the colloidal state; that relatively and actually very much larger quantities can be adsorbed, whereby the therapeutic action is enormously enhanced; and that the chances of storage in the system are minimized, with the result that toxic action is practically done away with.

It has been shown that in syphilis the protein particles in the serum are more numerous and bigger than in other diseases; consequently, when a colloid is injected more of it is taken up, and this is why colloids have so great a therapeutic action in syphilis. The first effect of injecting a colloid is to break up the large protein particles into several small ones, an action which increases their activity, since the area exposed by several small particles is very much greater than the area exposed by one large particle. In syphilis there are many large particles to be broken up; hence the reason why any colloid is of therapeutic value in this disease. The injection of a colloid does more than merely break up the large protein particles; if it is a metallic colloid, it increases oxidation; if it is a non-metallic colloid, it increases reduction. As the oxidation process *in corpore* is regulated by iron, attempts have been made to prepare a colloidal iron compound to replace arsenic, which, being a metal not a normal constituent of the body cells, is apt to be toxic. The best colloidal iron compound so far prepared is ferric tri-para-amino sulphonate, ferric sulphanilate, or ferrivine. Although ferrivine is not so powerful as arseno-benzene, it has a greater effect on some lesions, and better results are obtainable when injections of different and not of the same oxidizing agent are used. Mercury, being a metal, behaves in the same way as iron and arsenic, but, like the latter, not being a normal constituent of the body cells, it is liable to be toxic. Comparing mercury and arsenic still further, we find that the toxic action of the former is less than that of the latter, because mercury does not show such a great affinity f nerve tissue as does arsenic. As arseno-benzene is a ministered, namely, as a salt, it is not in the best colloid form possible; consequently the occurrence of toxic sy ptoms following the injection of the organic preparatio of arsenic now in use can never be entirely eliminate Mercury can be prepared in a perfect colloidal state, in whi form it can be injected intravenously and intramuscular with impunity and with extraordinarily good results.

Colloidal mercury, ferrivine, and arseno-benzene give three oxidizing agents, and thus help us to diminish t amount of arsenic. As oxidation and reduction go ha in hand, it is necessary to combine drugs which have oxidizing action with those which have a reducing actio as the continued use of one kind is detrimental to t patient; finally the deleterious action of an oxidizi agent can be overcome by the employment of a reduci agent. The two reducing agents I employ in syphilis a iodine and sulphur. In view of the importance of t colloidal state iodine can now be prescribed as a simp colloid intravenously and by the mouth. Collosol iodi is not only more powerful than any salt or organic co pound, but it is practically never followed by iodis Sulphur is now obtainable as a simple colloid and as complex colloid, the activity of the latter being very mu greater than that of the former. The complex sulph colloid I use is di-ortho-amino-thio-benzene or intramin it can be injected intravenously, intramuscularly, taken internally; it has a very powerful therapeut action in syphilis and in other chronic diseases; it is al a specific for mercurialism and arsenical poisoning, and i reducing action is much stronger than that of iodine.

Colloids are best injected intravenously, because mea have not yet been found for entirely eliminating the pa which accompanies intramuscular injections. Injecti for injection, the therapeutic action is greater when t intramuscular route is chosen, presumably because t drug can be converted *in loco* into the most suitable for to be adsorbed by the protein particles of the seru without the latter having to be disturbed.

[We have received a report of observations by Professo W. J. Simpson and R. T. Hewlett in continuance of tho published in the JOURNAL of May 5th, p. 585. Expe ments were made with a fresh sterilized sample of collos cocaine prepared in the Crookes Laboratories. The fir experiment for toxicity was made upon a rabbit weighi 2,050 grams; the amount of the solution, 1 per ce injected intravenously, was 19.5 c.cm. No toxic effe was produced. Two tests for anaesthesia were made. the first 0.5 c.cm. was injected subcutaneously in a rabb at 2.36 p.m. Two minutes later the area of injection w slightly insensitive; at 2.39 it was quite insensitive, a so continued until 2.55; sensation was returning at 3 p.m and was completely restored by 3.30. In the second te 0.25 c.cm. was dropped in two equal parts into the eye a rabbit at intervals of three minutes—at 2.37 and 2.40 p.m From 2.44 to 2.55 the eye was quite insensitive. At 3 p.m sensation was returning, and at 3.15 it was practicall restored.

Mr. Lewis Stroud, the Secretary of the Crooke Laboratories (50, Elgin Crescent, W.11) informs us tha since the publication of our note upon it, the preparatio of colloid quinine has been improved by increasing it stability and decreasing its toxicity. A combined colloida antimony and quinine has also been prepared, and Pro fessors Simpson and Hewlett have reported that th intravenous injection of 9 c.cm. into a rabbit produced n effect.]

AT a recent meeting of the New York State Committee o American Physicians for Medical Preparedness resolution were adopted that the committee should protect in every possible way the public posts and private practices of doctor who volunteer or are called up for military service durin the present war.

AT a meeting of the Society of Public Analysts on May 2nd a short paper on two cases of opium poisoning wa read by Mr. John Webster, F.I.C. One was a case in whic a single dose had been taken; the other was that of a con firmed drug-taker. Chemical analysis of the viscera fro the first case gave strong reactions indicating the presence of morphine in fair quantity. In the second case th reactions were slight, or even doubtful.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INFECTIVE JAUNDICE IN FRANCE.

I WAS much interested in Dr. Arthur F. Hurst's letter,[1] in which he stated that in his opinion cases of infective jaundice from Gallipoli were often secondary to a catarrhal condition of an infective nature affecting the duodenum, with subsequent upward extension of the inflammatory process along the bile ducts, causing blocking of these and jaundice. The fact that the initial symptoms are practically always dyspeptic in character, consisting of anorexia, nausea, vomiting, and epigastric tenderness, certainly supports the view that the primary condition is one of duodenitis, while the frequent tenderness over the gall bladder may be readily explained as a secondary cholangitis and cholecystitis.

The following two cases are of great interest, inasmuch as in both instances we had symptoms of duodenitis and catarrhal jaundice followed some eighteen days later by attacks of typhoid fever and paratyphoid fever respectively.

The first case was that of a Canadian, aged 44, who on September 13th, 1916, "reported sick" in France with headache, shivering, sickness, nausea, and epigastric pain, and two or three days later became markedly jaundiced. After a week at the base hospital he was discharged to one of the home military hospitals, and on October 1st (that is, seventeen days after the onset of the dyspeptic symptoms, and fifteen days after the onset of the jaundice) he developed, while under my care, an attack of mild typhoid fever with fifteen days' pyrexia, with evening rises and morning remissions, and crops of roseolae; colonies of typhoid bacilli were isolated from the faeces. The mildness of the fever was no doubt the result of antityphoid inoculation in August, 1915 (thirteen months before the onset of the infective jaundice).

The second case was that of a young Scotsman, aged 19, who "reported sick" in France on March 2nd, 1917, with headache, anorexia, rigor, slight rise of temperature, and general aches and pains. Two or three days later he developed jaundice, and at the casualty clearing station, five days after the onset, was deeply jaundiced with a thickly furred tongue, while the urine contained bile in quantity and also a distinct trace of albumin. The agglutination reactions were negative to all the members of the typhoid group at this date, and a blood culture remained sterile after three days' incubation. On March 20th, that is, eighteen days after the onset of dyspeptic symptoms and about sixteen days after the onset of the jaundice, he developed, while under my care, an attack of paratyphoid fever. There was pyrexia for eleven days, rising gradually and typically by evening elevations and morning remissions to 104.4° F. on the sixth day and thereafter gradually falling by slow gradations until April 1st, when the temperature once more became normal. There were several crops of roseolae and the characteristic pea-soup motions. On March 29th *B. paratyphosus* A agglutinated the blood in a dilution of 1 in 50.

In both of these cases the attacks of typhoid and paratyphoid fever respectively were apparently direct sequelae of infective jaundice occurring fifteen to sixteen days previously.

It is well known that the bile ducts and gall bladder are favourite habitats of the typhoid bacillus, which may even flourish there for years after an attack of typhoid fever, as in the case of "typhoid carriers." In such cases there has presumably occurred an invasion of the bile passages, either directly from the duodenum or possibly indirectly from systemic infection, but I have not yet seen recorded cases similar to the two just described, where a typhoid or paratyphoid infection of the bile ducts was followed within three weeks by typhoid or paratyphoid infection of the intestinal tract.

London, W. R. MURRAY LESLIE.

PRIMARY CARCINOMA OF STOMACH IN A BOY.

THE patient, A. H., was a prisoner of war aged 18 and ten months. He was admitted to camp on June 23rd, 1915. The medical examination on admission discovered nothing abnormal.

He first reported sick on February 7th, 1916, and was seen by the assistant medical officer, who found him to be suffering from "dyspepsia and vomiting." Five days later, when I examined him, he was in a condition of profound collapse, with frequent vomiting and general abdominal pain; temperature (at night) 99.4°. A smooth rounded tumour occupied the space between the right costal margin and umbilicus. There was some tenderness and slight general abdominal distension. Examination of the rectum proved negative; the urine contained albumin.

I opened the abdomen, on February 15th, the liver was seen to be generally enlarged and studded all over with nodules; a small growth was discovered near the pyloric end of the stomach. There was no further operative interference. The patient died on March 11th, 1916.

Pathological and Histological Report.

Stomach.—The gastric wall is the seat of a new growth having the histological structure of carcinoma of the scirrhous type which has undergone almost complete necrosis, fibrosis, and calcareous infiltration. In the piece sent for examination the whole wall is converted into a dense fibrous mass with numerous deposits of lime salts, and here and there some small patches of cancer cells.

Liver.—The two portions of liver were freely infiltrated by deposits of new growth showing a great tendency to break down in the centre. Microscopically the structure is that of a carcinoma; the cancer cells are of a small spheroidal type, and arranged in compact solid masses. The outermost layer of cells of these masses is of a cuboidal type and suggests an origin from a columnar epithelium. No doubt the stomach is the primary seat, but the growth there is even more degenerate than the secondary nodules in the liver.

Lung.—I find no evidence of new growth in the pieces of lung sent for examination.

C. FLETCHER.

The extreme rarity of this disease at such an early age, the negative family history, and the short period in which the patient had reported himself ill, is sufficient justification for recording the case.

W. B. COSENS, Captain R.A.M.C.,
Medical Officer i/c Prisoners of War Camp, Dorchester.

HYPERTROPHY OF THE NIPPLE:

A HITHERTO UNDESCRIBED SIGN OF LEPROSY IN THE MALE.

THE entire credit of making these observations is due to Dr. A. J. Kohiyar, who first drew my attention to this sign.

Dr. Kohiyar has now made observations on 81 lepers. He found:

Both nipples very large in	62
Both nipples moderately large in	8
Large on one side only in	2
Both nipples normal in	9

I have made notes on 221 cases. My procedure was to ask an independent observer, usually a layman, if he noticed any peculiarity about the nipple. If he said it was enlarged, and I also had noted the nipple as enlarged, I recorded it as "large." If either of us did not characterize it as "large," I recorded it as "not enlarged." There were very few cases in which our verdicts differed. We found:

Both nipples enlarged in	167 cases
One nipple enlarged in	7 ,,
"Not enlarged" in	47 ,,

Taking Dr. Kohiyar's cases and mine together:

Both nipples enlarged	237 cases	= 79 per cent.
One nipple enlarged	9 ,,	= 3 ,,
Neither nipple enlarged ...	56 ,,	= 18 ,,
Total cases	302 ,,	= 100 ,,

The size of the nipple in the female depends on so many factors that it is of no aid in diagnosis.

As a control, 200 consecutive non-leprous males were observed. In only 2—that is, 1 per cent.—was any hypertrophy comparable to that of a leper observed.

ARTHUR POWELL, B.A., M.B., M.S.,
Professor of Medical Jurisprudence; Inspector of Lepers, Bombay.

A DECREE has recently been issued in Germany requiring provincial authorities to ascertain from the cattle dealers the number of animals required for provisioning each district. The provincial authority is then to notify to each commune the number of animals it is to supply. The officials are strictly enjoined to accept no excuses.

THE German authorities have arranged for the systematic testing, at the Robert Koch Institute, of blood taken from patients suspected of typhus fever. The Weil-Felix reaction is employed, and whenever the reaction is negative but the clinical symptoms remain suspicious, a second sample is examined.

[1] BRITISH MEDICAL JOURNAL, April 21st, p. 527.

Reviews.

TREATMENT OF FRACTURES.

PROFESSOR LERICHE has written for the *Collection Horizon*—other volumes of which we have had occasion to praise—a treatise on the treatment of fractures.[1] The first part deals with the treatment of fractures about the joints. It gives a sound and practical account of his method of treatment in these cases, and is well illustrated; it deals largely with injuries of war. The author says that he has ceased to make use of antiseptics, and aims at a purely aseptic surgery in his operative procedures; he relies largely upon the production of asepsis by early operation, exposure to the air, and adequate drainage. He speaks very highly of the value of heliotherapy—exposure to the rays of the sun—in lesions involving the joints, and his book may be recommended to the attention of surgeons anxious to learn about a method of treatment that has given excellent results in the hands of a Parisian colleague. The second part deals with fractures of the long bones. Here again Professor Leriche lays stress upon the importance of early surgical interference with the object of disinfecting fractures that have become infected. Subperiosteal removal of all fragments of the broken bones, as advised by Ollier as long ago as 1858, should, he thinks, be the rule. This subperiosteal resection should be executed delicately with small sharp instruments (*rugines*). After operation the limb must be immobilized in good position; the author details the splints and apparatus he is accustomed to employ in each variety of fracture. The two parts of his essay are issued in separate volumes and both are illustrated with reproductions of finely stippled drawings made by M. Rudaux from skiagrams; these reproductions appear to be singularly clear and intelligible interpretations of the originals from which they have been derived. They are very similar to the illustrations used by Professor Broca to which attention was drawn in the BRITISH MEDICAL JOURNAL of December 9th last, p. 804.

MESOPOTAMIA.

THE author of *In Mesopotamia*[2] says that in that country, with its entire lack of scenery, the artistic instinct can find little to inspire it beyond the moon, but goes far to belie himself in the excellent water-colour sketches with which his book is adorned; they prove at least that the river, its banks and its boats, lend themselves very well to impressionist methods, and there is at least one sketch, of a donkey caravan, which conveys a vivid impression of the glare and heat and dust of noon on shore. The author has as poor an opinion of the climate of Mesopotamia as all others who have written their experiences of a hot season there. The unit on the medical staff of which he served started by putting up a hospital of 400 beds just outside Basra, where, in addition to typhoid fever and malaria (differential diagnosis often difficult), many cases of heat-stroke were admitted. They came generally about 5 p.m., when, with the temperature falling and the humidity of the air rising, there was a time of intense discomfort owing apparently to diminished evaporation of sweat. A heat-stroke station, with two baths and ice chest, was put up at the water's edge; the patients were put into the chilled water and slapped and punched and laved until they began to turn blue and the temperature fell. Then, if any signs of collapse appeared, they were wrapped in a blanket; otherwise they were left naked on a bed in the open. But many died the next afternoon in the stifling ward. "What was possible with wet sheets and small pieces of ice was done, but it was a wretched business, and those who were in Basra at that time and saw these spectacles will never forget them; nor will they forget the silent, impotent rage that filled the mind at the thought of the giant-bodied small-headed Colossus of War which makes a useless sacrifice of men in ways such as these every day." The author does not venture on much direct criticism, except as to the absence of dentists, but the story he has to tell, short as it is, fully confirms the general opinion that the early failures, which caused so much suffering and loss of life, were due almost solely to want of reasonable foresight, and in particular to absence of any provision for transport at all commensurate with the increase in the forces landed. The hospital later on moved to Amara, and there nurses were added to the staff. To their work and to their influence on the moral of staff and men the author gives the highest praise. Of the rapid decay of teeth in Mesopotamia, of the mosquitos and sandflies and the fever the latter cause, of the enervating effect of the moist heat, and of many discomforts suffered, the inquirer may read at large in the book, and will be relieved to be assured that this hot weather improved transport will make things more tolerable.

[1] *Traitement des fractures.* Par Professeur R. Leriche. I, *Fractures articulaires;* II, *Fractures diaphysaires.* Collection Horizon: Précis de médecine et de chirurgie de guerre. Paris: Masson et Cie. 1917. (Cr. 8vo; Vol. i, pp. 189, 97 figures; Vol. ii, pp. 272, 156 figures. Fr. 4 each vol.)

[2] *In Mesopotamia.* By Martin Swayne. London: Hodder and Stoughton. 1917. (Demy 8vo, pp. vii + 166; 10 illustrations. 5s. net.)

NOTES ON BOOKS.

A NEW and revised edition of Dr. GEORGE REID'S *Practical Sanitation*[3] has now appeared. The fact that this popular work has reached its eighteenth edition within twenty-five years is sufficient proof of its value as a practical textbook for students of hygiene and sanitary inspectors. The new edition includes again the useful appendix of sanitary law and has been revised and brought up to date in matters of detail.

The volume of the *Minutes of the General Medical Council*, its branches and various committees for the year 1916 (volume liii) has been published. It includes fifteen appendices; among them the report of the Education Committee on Latin as an optional subject. The *General Index*[4] to the Minutes of the Council, its Executive and Dental Committees, and its Branch Councils, for the years 1903–16 (volumes xl to liii) has also been issued and will very greatly facilitate reference to the work of the Council during the years it covers.

The British Dominions Year Book, 1917,[5] edited by Mr. E. SALMON and Mr. J. WORSFOLD, contains an excellent series of authoritative essays and records dealing with matters that are of interest to all of us, although much information of importance has been withheld from the reader out of deference to the Censor. The editors have been able to secure the services of many able contributors, including the late Earl of Cromer, who writes on "The Aftermath of the War," Mr. Arthur Pollen, Sir M. M. Bhownaggree, and several others. Numerous special maps are included, and there are other coloured plates of orders of knighthood, decorations of honour, house-flags and funnels of the world's chief steamship companies, and the like. Naturally, the greater part of the volume is devoted to various aspects of the war.

Mr. E. V. LUCAS has written a short account of a visit he paid with Lord Monson, the British Red Cross Commissioner, during November and December, 1916, to the British units working at or near the Italian front. It began at the Villa Trento, near Udine, where Mr. G. M. Trevelyan, the leader of the mission of the British Committee in Aid of the Italian Wounded, has his head quarters; here there is a hospital of 150 beds, organized by Dr. G. S. Brock of Rome, but the pamphlet is appropriately entitled, *Outposts of Mercy*,[6] for some of the little clearing hospitals and ambulance stations are in remote Alpine valleys. Among the units at work is a mobile *x*-ray installation, organized and administered by Countess Helena Gleichen and Mrs. Hollings. Mr. Lucas visited also the desolate region of the Carso and penetrated into Gorizia, where a unit under Mr. Geoffrey Young was doing good work, and getting the wounded back over the dangerous Isonzo bridge. The whole story is pleasantly told, and there are some good photographs.

The eighth edition of Dr. NALL'S *Aids to Obstetrics*,[7] a book designed to help students preparing for examination, has been brought up to date and somewhat enlarged, as compared with the seventh edition, by Dr. LONGRIDGE. It is short and clearly written, and may be recommended to those who find the passing of examinations facilitated by books of this special class.

[3] *Practical Sanitation: A Handbook for Sanitary Inspectors and Others Interested in Sanitation.* By G. Reid, M.D., D.P.H. Griffin's Scientific Textbooks. Eighteenth edition, revised. London: C. Griffin and Co., Ltd. 1916. (Cr. 8vo, pp. 379; 108 figures. 6s. net.)

[4] London: Constable and Co. *Minutes*, 12s.; *Index*, 2s. 6d.

[5] *The British Dominions Year Book, 1917.* Edited by E. Salmon, F.R.C.I., and J. Worsfold, F.C.I.S. London: The British Dominions General Insurance Co., Ltd. 1917. (Demy 8vo, pp. 384; illustrated.)

[6] *Outposts of Mercy.* By E. V. Lucas. London: Methuen and Co., Ltd. 1917. (Fcap. 8vo, pp. 60. 1s. net.)

[7] *Aids to Obstetrics.* By S. Nall, B.A., M.B.Cantab., M.R.C.P.Lond. Revised by C. J. Nepean Longridge, M.D.Vict., F.R.C.S.Eng., M.R.C.P.Lond. Eighth edition. Students' Aid Series. London: Baillière, Tindall and Cox. 1916. (Fcap. 8vo, pp. 224. Cloth, 2s. 6d.; paper, 2s. net.)

LIBRARY U. OF I. URBANA-CHAMPAIGN

THE EFFECT OF LIQUOR CONTROL ON ALCOHOLISM.

LORD D'ABERNON, Chairman of the Board of (Liquor) Control, delivered a lecture before the Royal Institute of Public Health, on May 16th, on "Public health and the control of the liquor traffic."

The Problem of Alcoholism.

He maintained at the outset that throughout the whole course of public health legislation in this country the significance of the liquor traffic as affecting the health and physical well-being of the community had been neglected, a fact which was the more surprising because it could not be attributed to any lack of knowledge of the results of a widespread prevalence of alcoholism. Even the most superficial student of social problems was aware of the direct and indirect influence of alcoholic excess upon the incidence of disease and death. Nevertheless, Lord D'Abernon maintained that hitherto these effects were not generally regarded in their natural relation to public health, but had been viewed rather as elements in a special and distinct social problem belonging more to the sphere of morals than to that of medicine. In any case, little effort seemed to have been made until quite recently to deal with these evils of alcoholism in the sort of spirit in which a problem of preventive medicine would be approached, and to this circumstance Lord D'Abernon mainly attributed the fact that the evils had continued unchecked. Very little, he said, could be done towards the practical solution of this question so long as the only policies in the field were those put forward by the more extreme sections of the liquor trade, and by the advocates of total prohibition. The arguments on both sides of the controversy had this in common, that they were both based upon *a priori* conceptions and not upon evidence, and both led in practice to the same result—inaction.

There still, however, remained open a third and radically different policy—a policy of moderate and reasoned restriction, with which, of course, the Board of Liquor Control had largely concerned itself. By reasoned restriction the lecturer meant restriction directed specially to limiting the conditions which could be shown by observation to lead to drunkenness, to alcoholic excess, and to chronic alcoholism. In framing restrictions for this purpose two points received chief consideration—the strength of the alcoholic beverages, and the times during which their use was permitted. Thus concurrently the hours of drinking have been limited, and the use of liquors of very high concentration have been prohibited. A policy of restriction along these lines has been tried in this country during the last two years, and Lord D'Abernon based his argument upon the considerable amount of data already obtained regarding the effect of this policy upon the health of the population.

Alcoholic Mortality in War Time.

The first set of figures which he showed gave the mortality attributed to alcoholic excess in the years 1913–16; and, allowing for the fact that many deaths which should be attributed either directly or indirectly to alcoholism were not so certified, they yet served as an index of the movement of alcoholism during that period. As a check upon these figures the deaths from cirrhosis of the liver were set out side by side with them.

In 1914 the deaths from alcoholism—both the deaths attributed directly to this cause and the deaths to which it was a contributory factor—showed a slight upward movement. This was followed in 1915 by a movement in the opposite direction, moderate in the case of women, more pronounced in the case of men. The policy of restriction brought about by means of orders issued by the Board of Control came into force in the second half of 1915. Making allowance for the fact of enlistment, which withdrew a large number of adult males, and for other qualifying considerations, Lord D'Abernon attributed much of the decrease in alcoholic mortality in 1915 to the influence of restriction. The figures for 1916 strengthened his argument; restriction was in force during the whole of that year, and throughout the greater part of the country. Concurrently the decline in deaths from alcoholism was enormous, amounting to over 40 per cent. in the case of men, and to nearly 50 per cent. in the case of women, as compared with the pre-war standard of 1913. The extent of this movement, and the fact that it affected women even more than men, indicated beyond all doubt the operation of a new and potent influence acting on the general population, and Lord D'Abernon maintained that that influence could only be the restriction of drinking. Cirrhosis of the liver being an essentially chronic affection, it was to be expected that any effect of restrictive measures on the number of deaths from that disease would be less marked; and so it was.

Whilst admitting that it would be of great assistance in the study of this question if we had a statistical index of alcoholism of more unequivocal value and giving us a larger numerical basis, Lord D'Abernon defended the inference which he drew from these statistics thus: "Though standards may be very different in different areas, they appear, if we judge from the figures, to be thoroughly stable in the same area from one year to another, showing only moderate fluctuations over a series of years in which no unusual influences are operative." Limited statistics of delirium tremens, however, were available, notably from the Poor Law infirmaries of Liverpool. A return of the number of cases of delirium tremens treated in these infirmaries during the two twelvemonth periods preceding, and one such period following, the date when the policy of restriction came into force, gave striking corroborative evidence of the effect of restrictive measures in reducing alcoholism.

Parallelism of Drunkenness Statistics.

This inference was further reinforced by the numbers of convictions for drunkenness in the same area during the same periods. The statistical fluctuations of public drunkenness, of delirium tremens, and of deaths from alcoholic excess show a close correspondence, from which the inference is drawn that the phenomena are, in fact, closely correlated.

In further support of this conclusion, Lord d'Abernon produced a table showing the convictions for drunkenness in England and Wales in each of the four years 1913–16. Comparing these figures with the statistics previously given of alcoholic mortality, he showed that the same characteristics were to be noted—in 1914 a slight decrease among men and an increase among women; in 1915 (during the latter months of which restrictions were in force) a decrease in the figures for both sexes, but much more pronounced among males; and in 1916 (the period of full restriction) a very large fall, nearly 60 per cent. in the case of men, over 40 per cent. in women, as compared with the pre-war year 1913. From this striking parallelism he argued that statistics of drunkenness were a much more reliable index of alcoholic excess than was usually believed.

The special value of statistics of delirium tremens was the index they furnished of the less overt forms of intemperance, thus serving to check both the accuracy and the significance of the official returns of drunkenness. It was often alleged that with the decrease in public drunkenness there had been an increase of home or secret drinking since the war; against this view Lord D'Abernon set the available figures for delirium tremens.

The Advantages of Control.

From the evidence which he had obtained, and which he made the more telling by means of diagrams, the lecturer concluded that much had already been done to limit alcoholic excess by a policy of moderate restrictions on drinking; notwithstanding that these measures had been imposed on the liquor trade by an outside authority, and that public-houses, especially in industrial centres, were much in excess of the reasonable needs of the population, and were often of a structural character making proper supervision almost impossible. Two facts of great importance he regarded as being definitely established by the experience of the last two years—that an enormous amount of preventable injury had been done to the community by the absence of fitting regulation of the drink traffic, and that, contrary to current belief, intemperance could be diminished to a considerable degree by legislative and administrative action.

LIBRARY U. OF I. URBANA-CHAMPAIGN

British Medical Journal.

SATURDAY, MAY 19TH, 1917.

ARMY AND CIVIL CO-OPERATION FOR MEDICAL ECONOMY.

THE manner in which the War Office recently, through its recruiting department, sought, without consulting those best able to advise on the present position with regard to the needs of the civil population in different areas, to call up all medical men under 41—an order subsequently suspended—has demonstrated perhaps more strikingly than anything that has yet occurred the need for co-operation between the military and civil authorities before any decision affecting the distribution of medical men to the army and to the civil population is reached. We are encouraged to recur to this subject by the remarkable speech delivered by the Chief of the Imperial General Staff on May 12th. It was a considered and moderate statement, and produced a very great impression upon all who heard it. Sir William Robertson spoke of the enormous numbers actually engaged in operations in the field, but went on to say that this war was not, like its predecessors, a war between armies but a war between nations, for there was no man or woman in the British empire who was not that evening doing something to help either to win or lose the war. He quoted an estimate given to him by a man of distinction, who put the weight of the military factor in the war at about 25 per cent., the remaining 75 per cent. not being of a pure military nature, but made up of many things, such as agriculture, shipping, and food, and in another place he made special reference to munitions. Now if Sir William Robertson is right—and those who heard him were convinced of the deep conviction with which he spoke—it is clear that the War Office must have continual regard to the welfare of the 75 per cent. He appealed to the press to keep its eye on that 75 per cent.; we are only concerned immediately with the medical profession, and we estimate that probably one-third of the active practitioners are already serving in the army. The civilian population has so far accommodated itself to the depletion, but further drafts upon the civilian profession can only be met without injury to Sir William Robertson's 75 per cent. if they are made after the most careful investigation of all the circumstances. It has to be borne in mind that the civil profession, already depleted of one-third of its more active members, is not being recruited by younger men. In the first place, almost all male medical students who qualify enter the army; and, in the second place, the number of male medical students coming forward for early qualification is decreasing. The statistics for January last issued recently by the General Medical Council show that 1,088 men then studying might qualify during 1917, but that the number qualifying in 1918 might be expected to be only 851, and in 1919 only 572. Of those medical men who remain in civil practice a considerable proportion are no longer young, so that at both ends the effective personnel of the profession is being diminished.

We are bound to say that at present the War Office has not given evidence that it recognizes fully the position which this depletion must produce in th near future, nor that it is preparing for the inevitab day when the supply of more medical officers to th army from the civil community will be dried up. W fear that if care be not taken to forecast the future position will be brought about which must inevitabl attract the attention of Parliament and lead to th demand for a commission of inquiry. No one ca regard the prospect of such an inquiry wit equanimity, and the means by which so undesirab a result can be obviated are well deserving of co sideration at the present time. The situation which arising—in fact, has in large measure already arise —can, we believe, be met by economy on the civ side and by economy on the military side, and b co-operation between both.

Regarded from the point of view of the militar arrangements in this country, the problem to b solved is how medical provision for troops or potenti troops in this country can best be made. Troop in this country vary in character. A rough class fication would be into new divisions in process formation and training destined ultimately to g abroad; garrison troops and provisional battalions troops in dépôts to serve as drafts for battalions other units already at the front; and, finally, the sic and wounded. Potential troops may be defined consisting of the men who present themselves befo recruiting medical boards for examination as to the fitness to serve. Here at once we find a matter upo which, we believe, co-operation between the militar and civil authorities would be productive of much goo There are, we understand, commands in which this c operation exists, and the plan appears to have worke well. By its adoption in other commands it migh be possible to avoid certain incidents which hav scandalized the public and greatly distressed membe of the medical profession.

With regard to troops under arms or in training i this country, it is possible that no very great economie can be effected on the military side; at the same tim the complaints which reach us of lack of work are s numerous that even here it would be satisfactory t know that the War Office has really made the utmo effort to effect economies. While there can be n doubt that at some stage in the process of training division which will ultimately go abroad it is essenti that its complete medical units should be organized an trained to work with it, yet under the pressure due t the existing shortage of doctors it may be found tha the filling up of the cadres of the medical units migh be deferred to a period later than seems now generall to be the practice.

The medical supervision of garrison troops, pro visional battalions, and dépôts for drafts, raises a once the question of the merits of whole-time and par time service in existing circumstances. Under peac conditions it is, no doubt, very desirable that ever unit should be properly equipped with its medica officers, even if the majority of these officers may hav relatively little work to do. In the scheme of organiza tion for peace the army seems to have had on a average one doctor to every 250 soldiers; the Wa Office has undoubtedly effected economies, for th proportion is not at present so high as this; but it i still high, since if our calculations are correct th average is somewhere about one doctor to 400 soldier At the same time the average for the civilian popula tion is much nearer (and in this calculation con sultants and whole-time officers are included) on doctor to 2,000 persons; there are areas in thi country where there is only one doctor for 7,000 o more persons. We do not profess to say that th

army proportion is too high, but we feel bound to suggest that the civilian proportion is getting so low that the drain upon the civilian practitioners cannot be maintained indefinitely without a breakdown, to remedy which the public and Parliament will demand drastic measures to be taken, and we may all take the passages in Sir William Robertson's speech quoted above as a warning.

In dealing with troops never likely to leave this country and stationed at points near large centres, part-time service, for the performance of work which demands at most only a few hours a day, must be more economical than whole-time service; in fact, it is clear that as doctors become more scarce while the demand from the fronts continues to increase, some scheme for utilizing home doctors on the spot, partly for the soldier and partly for the civilian, must be adopted. In many instances this has already been done, but we would like to ask whether the principle has been developed to the fullest extent compatible with efficiency. The War Office has asked for all medical men under 41. Let us take the case of a village near the coast with one doctor under 41 and no other practitioner within ten miles, while at some fort in the neighbourhood with a small garrison there is a R.A.M.C. officer miles away from any other unit. The medical work of the village and the fort could be done by one man; either the civilian might take over the fort and release the officer, or the officer might take over the village and set free the doctor under 41 for a commission. Correspondence which reaches us suggests that in some instances, at all events, neither course has been adopted, yet unless one or the other is adopted a medical officer is lost to active service. The advantages or disadvantages of taking either course in any individual case can only be settled by co-operation between the military and the civil side.

The last class in our classification of troops in this country are the sick and wounded, and the great extension in the number, and in many instances in the size, of auxiliary hospitals raises problems of its own which have a direct bearing on the matter we are discussing. Here the indiscriminate withdrawal of men over or under 41 for army service cannot make for economy. We may take as an instance a town in the south of England in which and in its neighbourhood are military hospitals providing a large number of beds. Among the staffs of these hospitals are five medical men under 41 and they cannot be withdrawn for general military service unless some other arrangements are made for dealing with the military hospitals. The reply of the Army Medical Department may be that the men should be taken and that the military authorities will arrange for the work of the military hospitals. This can only mean that the War Office would withdraw whole-time officers from other military employment and send them to take charge. There will be periods when the officers so sent will be by no means fully occupied. It is in these intervals that the doctors now doing the work of the military hospitals are able to attend to the needs of the civil population. If they are taken away it is obvious, under present conditions, that there must be a waste of medical time and energy. No doubt the difficulty can be solved by an investigation of the conditions by the army and civilian representatives to ascertain the most economical way of running these military hospitals, whether by whole-time or part-time service, to the best advantage of the military and civilians.

We are convinced that co-operation of a proper kind conducted in a friendly and business-like spirit between the military and civilian medical authorities will make for economy without loss of efficiency. With co-operation it is probable that a better system for dealing with the examination of recruits could be evolved, a system combining efficiency with economy in medical service, while saving the country much expense and individuals much needless irritation and loss of time. With co-operation an effective and economical system for the use of part-time service might be devised, thus setting free many medical officers for medical service abroad and lessening the disability from which the civil community is already suffering, and from which, if the present conditions continue, it may suffer more severely in the near future. Again, with co-operation much might be done to curtail the large expenditure of energy and money on the multiplicity of small hospitals—a matter to which we referred more at length last week.

While fully recognizing the obligation upon the military authorities to see that the troops and the sick and wounded have the largest and most efficient medical service the country can provide, we believe that the time has come when it is essential that the War Office should give fuller consideration to the needs of the civil community and frankly recognize that hasty action such as that taken on April 18th introduces complications and obstructions which will be avoided by co-operation and consultation with the civil representatives.

A MINISTRY OF HEALTH.

THE position of the British Medical Association, so far as it is at present defined, with regard to the proposed Ministry of Health may be briefly set out as follows. As soon as it appeared that the Local Government Board was considering the introduction of legislation bearing upon the provision of midwives and nurses for expectant mothers, and medical care (possibly including domiciliary treatment) for children under 5 years of age, a deputation of the Insurance Acts Committee waited upon the chairman of the National Insurance Joint Committee, and the Medico-Political Committee addressed a letter to the Local Government Board. It was realized that the smaller question immediately involved could not be approached without regard to the much wider questions arising out of it, such as the extension of whole-time medical services under the Local Government Board, and the future position of medical practitioners under the panel system. A special committee was formed, and early arrived at the conclusion that the only satisfactory method of placing the health administration of the country on a sound basis was by the creation of a Ministry of Health, thus endorsing the continuous policy of the British Medical Association during the past fifty years. A deputation from the Association to the President of the Local Government Board put forward this view on March 16th, and elicited from Lord Rhondda the reply that whatever methods were contemplated by the Government full use would be made of the general practitioner in any legislative rearrangement of the present system of health administration of the country. He further expressed a desire to have the views of the Association upon the wider question of a Ministry of Health. The special committee accordingly applied itself to the task of roughing out a scheme for the approval of the Council and the Representative Body, and its recommendations have now been adopted by the Council and published in its annual report (SUPPLEMENT, May 5th, 1917, p. 88).

The committee assumed throughout its inquiries that the general wish both of the medical profession and of the public is for the construction at the centre of a health department of State, which to be effective must involve rearrangement and simplification at the periphery. Assuming that the proper course would be the creation of a Ministry of Health to take over from existing Government authorities such duties as are concerned with the health of the community, and to deal exclusively with these duties, it held that the administrative functions of this ministry should be carried out by a board presided over by a Minister of Cabinet rank, and containing in equal numbers members of the medical profession representing the clinical and preventive sides of medicine, and further that the medical administration of these two sides of the work of the Ministry should be directed by medical officials of equal status. These, stated in very general terms, are the broad proposals for unifying the existing health departments of the country. It is hoped that they will command the support of the medical profession and the public; but that they will prove wholly acceptable to the various departments of State already concerned to any large extent in matters of public health is scarcely to be expected. The attitude of the Local Government Board, for instance, to the suggestion that a Ministry of Health should be anything other than the Local Government Board on a larger scale—trimmed here and touched up there perhaps, but essentially the same department—may be guessed from a recent statement by its president. Replying to a deputation of infant welfare organizations on May 7th, Lord Rhondda said that for his part he was not in favour of a completely new ministry, but hoped that it would be based largely and mainly on the Local Government Board, converted into a Ministry of Health and Housing. He also repeated his hint that the proposals for a Ministry of Health might come to nothing in the near future, but added that even so a bill to provide for the feeding of nursing and expectant mothers, and for supplying milk to children would be introduced. It may be worthy of note that these remarks were made after the draft scheme had been forwarded to him by the Council.

With regard to local organization, the recommendation in the scheme is briefly that suitable administrative areas should be defined throughout the country, each geographical division being of such a size as to need the services of two whole-time administrative medical officers, one clinical and the other preventive, working under a local administrative health committee, representing the main interests affected—namely, the rating and education authorities, the participants under a health insurance scheme, the medical profession, the hospitals, dentists, pharmacists, and nurses — the first three interests forming a bare majority of the committee. The medical officer of health would, as at present, be the principal preventive medical officer of each committee, and beside him it is recommended that there should be a chief clinical officer of equal status with himself. Without attempting any precise definition of the duties of this chief clinical officer, it may be said that they would be to advise on all questions of medical treatment, to supervise treatment wherever given, and to co-ordinate the clinical work of the area, thus leaving to the medical officer of health the statistical and preventive duties now undertaken. The bulk of the practising medical men and women of each district would come into direct touch with the local health authority, and would form the medical staff of the area; thus fulfilling the principle laid down by the committee that as many medical practitioners as possible should be attracted to the work. The administrators and inspectors would be whole-time officers; the institutional officers would be whole-time or part-time medical officers according to local requirements; those engaged in domiciliary practice would not be salaried officers, but paid by some method dependent either on the actual items of work done or on the number of persons for whom they accepted responsibility. Some elasticity in the classification of medical officers and their duties must be provided for, if only at first.

The organization of treatment at hospitals, clinics, and similar centres, forms an integral part of the scheme put forward; for it is recognized that every patient, through his medical attendant, should be able to obtain the institutional, consultative, or specialist services which he needs, including the benefits of a pathological laboratory. This raises at once the question of the continuance of the voluntary hospital system and its relation to the proposed health service. The feeling of the committee which has been studying the subject, and doubtless also of the medical profession and the public, is against the abolition of the voluntary hospital, which might well be supplemented, but could not be adequately replaced by hospitals wholly maintained out of public funds and existing for the benefit of a section of the population only. It is proposed that where voluntary hospitals receive patients entitled to treatment under the public scheme they should be paid for this work, and that the medical staffs of the voluntary, no less than of the supported hospitals, should be paid for their services to such patients. Clinical and pathological laboratories, not divorced from research work and effectively linked up with institutions of university rank, should be organized throughout each area in proportion to the needs of the district.

Such are, briefly, the recommendations now before the British Medical Association; they will be considered by the Annual Representative Meeting, and, it is hoped, will form the basis for a definite policy which may commend itself to the profession at large.

THE DIMINUTION OF DRUNKENNESS.

"DRINKING is the cause of drunkenness" was a favourite saying of one of the pioneers of the scientific study of alcoholism. The aim of the platitude was to induce his hearers to think about the effect of the too numerous facilities and temptations to mere drinking offered by licensed victuallers. They had largely ceased to be victuallers, and become mere beer and spirit vendors. The Chairman of the Central Liquor Control Board has, during the last few days, been able to publish some very interesting information with regard to the result of the restrictions on the sale of intoxicants. One difficulty in estimating the fluctuations in the amount of drunkenness has always been the uncertainty of the statistics, because it has not been shown that the convictions for drunkenness—the statistics most easily available—and those of deaths attributable more or less certainly to alcohol, were comparable. Lord D'Abernon, in the address to the Royal Institute of Public Health, a report of which is published at page 651, has made a solid contribution to the subject, founded upon investigations made by Dr. E. W. Hope and others. He gives good reasons for thinking that a policy of control of the liquor traffic, by which the strength of alcoholic drinks is lowered, and the time during which they may be

LIBRARY U. OF I. URBANA-CHAMPAIGN

ought is shortened, has produced already a marked eduction in alcoholism throughout the country. The esult of this inquiry and the diminution in convictions for drunkenness in areas where restrictions ave been enforced, will no doubt encourage the overnment to proceed with the policy of State urchase and regulation.

In a speech made to the Chief Constables' Association on May 11th, Lord D'Abernon insisted that the reat reduction in the number of convictions for runkenness in those parts of the country where estrictions had been in force implied that the problem f drunkenness had become very much smaller from numerical point of view; he went on to suggest hat it might now be possible to adopt more specialized ethods, giving more attention to individual cases of runkenness and making fuller use of expert investiation and advice. This suggestion is sound, and ord D'Abernon's division of "drunk" cases coming efore magistrates into convivial, mentally defective, nd chronically alcoholic is reasonable, although the eal chronic alcoholic is generally the subject also of eurosis of some sort, and the line of demarcation etween the mentally defective alcoholic and the hronic alcoholic is ill defined, and probably not denable. Lord D'Abernon suggested that, fortified by xpert assistance, a magistrate would know whether the runkard charged before him was an ordinary convivial ffender, to be punished with a fine; a mentally efective, whose proper place was an institution for he feeble-minded; or a chronic alcoholic, whose best hance of recovery would be to be sent to an inebriate eformatory, or, failing to find sureties, to be committed to gaol for three or four months. Experience e think, however, shows that imprisonment is absotely valueless in the case both of the mentally efective alcoholic and the chronic alcoholic. The epeated imprisonment of such cases year in and year ut has been a gross fault in our methods for many ears past. The realization of this defect led to the assing first of the Habitual Drunkards Act in 1879, nd then of the Inebriates Act in 1898. Both these cts were insufficient, and have failed. Their main efect was that they did not make the provision of eformatory accommodation compulsory upon either entral or local authorities. They give permisve power to local authorities to establish initutions, and permissive power to magistrates use them or not at their discretion. As cal feeling usually ran counter to the policy of etention for the purpose of cure the local magisate did not commit; thus the Acts failed. All the ebriate reformatories established under the Inebriates ct are now converted, or in process of conversion, to institutions for the mentally defective; the esent is no time to ask local authorities to spend oney on the re-establishment of institutions for ebriates, and the Treasury is little likely to take hand new work of this kind, which must entail penditure on buildings and maintenance.

The fact is that in spite of the enthusiasm of those ho believed in the need for such legislation as it was oped to embody in the Inebriates Act the public uld not be induced to recognize its value; lack of ublic interest must be fatal to any permissive heme. After the war the Board of Control (Lunacy nd Mental Deficiency) may be able to deal with the entally defective inebriate, but to-day the financial ovision made for carrying out the provisions of the ental Deficiency Act of 1913 is very restricted, and e Board has often had to hold back work, of the ost urgent kind, for mental deficients.

We are glad to see that a committee of experts, with Lord D'Abernon as chairman, has been appointed to consider the effects on health and industrial efficiency of the consumption of beverages of various alcoholic strength. The guidance of physiology and pharmacology is greatly needed, and we have no doubt that on the administrative side Lord D'Abernon is right when he says that the 90,000 licences in England could be reduced by about one-third—in many places we should have supposed by a much larger proportion. But the policy which he said was under contemplation in a north-east coast area of closing public-houses for all purposes when they were closed for alcohol seems to require very careful consideration in view of the results obtained in Carlisle, where, as reported in another column, the trade in food at the Gretna Tavern, established by the Board, is over 75 per cent. of the total takings. There people can sit down comfortably in a properly appointed room to a meal, and are not tempted to stand about drinking and treating each other, as in the ordinary public-house bar. One of the recent conclusions of the Board itself is that many of the people who frequent public-houses desire food as well as drink, and that the attempt to meet this demand, with proper safeguards against abuse, should be encouraged.

MEDICAL INSURANCE AGENCY.

IN presenting the balance sheet for 1916, duly certified by the auditors, Messrs. Price, Waterhouse, and Co., to a meeting of the Committee of the Medical Insurance Agency on May 10th, the Chairman, Dr. G. E. Haslip, said that the total receipts from premiums and other sources during the year had reached £13,660, as compared with £12,250 in 1915, and £10,350 in 1914. The surplus available for medical benevolence was £841, compared with £798 in 1915. This had been accomplished while repaying to persons insuring through the Agency £790, so that the total saving to the medical profession derived from its work represented a sum of £1,631. Such a result in spite of the war, it was pointed out, was extremely satisfactory. Shrinkage in the accident and motor insurance accounts had been anticipated, as many men had laid up their cars owing to having received commissions in the R.A.M.C. During the period that a car was laid up the policy covered only fire and burglary, so that the amount of premium payable was considerably reduced. Nevertheless, the actual number of cars insured was larger than at any time since the formation of the agency. This, it was believed, was due to the fact that owners appreciated the prompt way in which claims had been met. Two interim distributions to medical charities had been made during the year, the total amount thus paid being £705, as compared with £630 in 1915, and with the unexpended balance brought forward from 1915 the audited accounts for 1916 disclosed a further sum of £231 available for benevolent purposes. The Chairman also reported that the anticipated surplus earned since January 1st, 1917, would justify the committee in making immediately an interim distribution for the current year of £500. The balance sheet for 1916 was approved, and the chairman was thanked for the interest he took in the work of the agency. The committee resolved to make the interim distribution of £500 as follows: the Royal Medical Benevolent Fund, £200; the Royal Medical Benevolent Fund Guild, £100; Epsom College Benevolent Fund, £150; Royal St. Anne's School (for Girls), £50. Some discussion took place with regard to differences of opinion arising between those responsible for the administration of medical benevolent institutions as to testamentary benefactions which were not clearly defined, and the Chairman was asked to raise the point with these bodies, in the hope that arrangements might be made under which any future difference of opinion would be settled by arbitration. The Chairman

referred to the arrangements made with a life office of high standing under which life assurance is obtainable by those undertaking military service, covering full war risk, or with the war risk suspended without ultimately invalidating the policy. The contract would appear to be the most favourable now available, and the agency has effected a considerable number of such policies. Full particulars will be supplied to those interested if they will communicate with the Secretary of the Medical Insurance Agency, 429, Strand, London, W.C.2.

OCCUPATIONAL RE-EDUCATION OF THE WOUNDED.

THE inter-allied conference on the occupational re-education of wounded men and on general questions concerning men crippled in the war, held in Paris last week at the Grand Palais, was attended by official delegates from all the allied countries. Great Britain was represented by Surgeon-General M. W. Russell, C.B., Deputy Director-General A.M.S., and Lieutenant-Colonel Sir Berkeley Moynihan, C.B., and Canada by Lieutenant-Colonel Finley, C.A.M.C. In addition to the official delegates, a large number of ordinary members of the conference were present either on their own behalf or on that of the many institutions, including the British Red Cross Society, which in all allied countries interest themselves in endeavouring to improve the well-being of wounded soldiers. The work of the conference was conducted in six sections, dealing with physical re-education, occupational re-education, the finding of situations for crippled soldiers, the consideration of their economic and social welfare, the treatment of the blind, deaf, and gravely crippled, and lastly, statistics and propaganda work. While the attention of the conference was most closely directed to matters concerned with the medical aspects of the questions involved, at least equal, if not greater, importance was given to social considerations affecting the future of wounded men. The main point insisted upon again and again in the conclusions reached by the various sections was the essential importance of early treatment and the need for the closest possible co-operation between the medical man, the patient, and persons specially skilled in the work of re-education. The work of the conference was carried out by a system of reports presenting general conclusions, and speeches were limited to five minutes. Members of the conference were invited to visit special installations for the treatment of wounded in and about Paris. The general conclusion of the British representatives was that while the French methods of work were most excellent, British practice was thoroughly abreast of the times. During the discussion at the conference on the importance of training men for local work and for those occupations in which they had been engaged before the war, it was urged as essential that in preparing men for civil occupations the problem of marketing their products must not be neglected; it was said that trade unionists might resent the State training men to skilled trades which they had not practised before, and it was therefore recommended that the attention of crippled men in France should be directed to trades that needed reviving in that country, and to new trades which might be introduced into it. Another official conference is being held this week at the Val de Grâce Military Hospital, Paris, to exchange views on the treatment of wounds, with the object more especially of disseminating knowledge as to the activities of the medical services of the various countries, and of adopting those methods of practice shown to be most valuable.

FOOD AND DRINK IN BILLETS.

ARMY ORDER 118 (March 28th, 1917) directs that when the keeper of a victualling house or the occupier of a public building, dwelling house, or other premises is required to furnish meals for a soldier billeted on him such meals shall consist of the following quantities of food and drink (*a*) *For breakfast:* Five ounces of bread, one pint of te with milk and sugar, four ounces of bacon. (*b*) *For h dinner:* Twelve ounces of meat previous to being dresse four ounces of bread, eight ounces of potatoes or oth vegetables. (*c*) *For supper:* Five ounces of bread, o pint of tea with milk and sugar, two ounces of cheese. shall be permissible to vary the description of food a drink by substituting such equivalents as shall be autho ized by the responsible officer. This scale of diet wou yield about 3,145 calories a day, but it is to be expect that the men supplement it by tea between midday dinn and supper, which, with sugar, milk, and bread, wou probably raise the total energy value to about 3,500 calori a day. This seems enough for the average soldier training at home. Some big men will find it rather sho as a marching ration. They may make up with gifts fro friends. There are many go-easy days when work lighter owing to various circumstances, including the sta of the weather, etc. At bayonet drill and some oth exercises, many look on while a few at a time wo The work is not of more than average heaviness, and t figures given by the Royal Society Committee for th is 3,500. Experience seems to show that it is ample f the home army. A great deal is being done now in ma commands to save waste. Fat is scraped from plates a rendered down. Fat from washing of dishes is trapp Broken bread is collected from tables, immediately bak and then ground and used for making cake, sausage, etc.

SHELL SHOCK, GAS POISONING, AND WAR NEUROSES.

IN his capacity as consultant to numerous Germ military hospitals, and as head of a special hospit Professor H. Curschmann[1] has been confirmed in t opinion, previously formed by him in private practice, to the marked difference between war neuroses in offic and in the rank and file of the German army. He l come to the conclusion that the same psychic and bod injuries set up far less serious neuroses among offic than among privates, whilst the prognosis also is usua much graver in the case of the lower ranks. T observation, according to Curschmann, does not ta with the view that war neuroses are the res of minute injuries to the molecular structure of t nervous tissues, but favours the view that they hav purely psychogenic basis, the better mental equipm of the officers—and he might have added, the grea comfort of their existence—rendering them relativ immune to the depressing effects upon the nervous syst of high explosives, exhaustion, and exposure. Dr. M in his interesting paper on punctiform haemorrhages the brain in gas poisoning, which we print this we mentions the *post-mortem* appearances of brain sectio from fatal cases of shell concussion, and discusses the p played by carbon monoxide and other poisonous gas including the German drift gas, which in some instan at least is a mixture of chlorine and carbon oxychlor ($COCl_2$). The latter, commonly called phosgene, i colourless suffocating gas about three times heavier t air, which is slowly decomposed by water into carbo acid gas (CO_2) and hydrochloric acid. The evide advanced by Dr. Mott of structural lesions in sev cases is quite conclusive, and it would appear, therefo that Curschmann's contention, if it has any validity, apply only to slight cases.

GERMICIDAL ACTION OF ULTRA-VIOLET RADIATION.

IN a paper on the germicidal action of ultra-violet radiat and its correlation with selective absorption, read at t meeting of the Royal Society on April 26th by C. Browning, M.D., and S. Russ, D.Sc., a new method w

[1] *Deut. med. Woch.*, March 8th, 1917.

LIBRARY U. OF I. URBANA-CHAMPAIGN

described rendering it possible to determine what portion of the ultra-violet spectrum is most effective in germicidal action and to specify the wave-length of the radiation at which such action practically ceases. The method consisted in exposing a thin film of organism spread on a nutrient surface, such as gelatine or agar, to the spectrum from a tungsten arc. The image of the slit of the quartz spectrometer used produced a permanent effect upon the bacterial film over a certain range of wave-lengths. This germicidal action became apparent on incubation at 37° C. subsequent to the exposure; a copious growth occurred except in those regions where the organisms had been killed. Records of such action were obtained which resembled a photograph of the spectral lines. The method has been applied to test the range of susceptibility of a number of different pathogenic organisms. By the process described it was possible to expose cultures of two different organisms simultaneously to the same intensity and character of radiation. The ranges of susceptibility of *B. typhosus* and *B. coli* were closely similar and practically the same as those of organisms such as *Staphylococcus pyogenes aureus* and the meningococcus. A striking feature of the germicidal action of the radiation in question was its abrupt termination at a wave-length of about 2960 Å.U. It had been found possible to correlate this feature with "selective absorption," for it was found that the organisms exhibited marked absorptive power for just those rays which have germicidal action.

FIGHTING DOCTORS.

IN an account of a cutting-out operation by gunboats which we remember to have read, the commander of the expedition was said to have asked for a "fighting doctor" to be sent to him. The doctor, whose proper function is the saving of life, is not generally expected to handle weapons of destruction, but there have been instances in which he has been carried away by the fighting spirit in the excitement of battle. Many years ago we knew an old army surgeon who at Waterloo threw away his bandages and tourniquets and took part in the famous charge of the Scots Greys, holding on to the stirrup of a horseman. According to Kinglake, the Duke of Cambridge in the Crimea on two occasions owed delivery from a position of embarrassment to army surgeons. When the Guards were hard pressed at Inkerman, the Duke went in search of reinforcements, and a remnant of the regiment had to be brought out through a heavy Russian column by Dr. Wolseley, who was, we believe, a brother of Lord Wolseley. The Duke was rescued a second time in the same action by the pluck of another doctor. Dr. Wilson was attached to the brigade of Guards as a volunteer assistant surgeon from the 7th Hussars. At a most critical moment of the battle he got the Duke of Cambridge out of a position of extreme danger. For this service he received the thanks of the Duke at the head of the brigade after the battle. Sir Anthony Home won the V.C. during the siege of Lucknow "for persevering bravery and admirable conduct in charge of the wounded men left behind the column, when the troops under the late Major-General Havelock forced their way into the Residency of Lucknow, on the 26th September, 1857." The details are given in the *London Gazette* of June 18th, 1858; "The escort left with the wounded had, by casualties, been reduced to a few stragglers, and being entirely separated from the column, this small party with the wounded were forced into a house, in which they defended themselves till it was set on fire. They then retreated to a shed a few yards from it, and in this place continued to defend themselves for more than twenty-two hours, till relieved. At last, only six men and Mr. Home remained to fire. Of four officers who were with the party, all were badly wounded, and three are since dead. The conduct of the defence during the latter part of the time devolved therefore on Mr. Home, and to his active exertions previously to being forced into the house, and his good conduct throughout, the safety of any of the wounded, and the successful defence, is mainly attributed." Dr. Ryan, author of *Under the Red Crescent*, took an active part in leading Turkish troops at Plevna. But fighting doctors have usually shown their warlike spirit defending their patients. In the Paris revolution of 1832, when the crowd threatened to attack the Invalides, Larrey took up a position at the main entrance and told the attackers they would have to pass over his dead body to get at his patients. Lieutenant-Colonel J. H. Reynolds won the V.C. by his active defence of the wounded under his care at Rorke's Drift. A correspondent of the *Chronique Médicale* gives some other instances. In a French retreat in one of Dumouriez's campaigns during the wars of the Republic, the serious cases could not be moved from the hospital at Aix-la-Chapelle, and Surgeon-Major Bavay alone remained at his post. After the evacuation of the town by the French the populace attacked the hospital. Bavay distributed guns among the orderlies, barricaded the doors, and held back the assailants. In another battle Surgeon-Major Martin when the French retired placed his wounded men in wagons, marched in the rear of the convoy, and foot by foot disputed the ground with the enemy. At the evacuation of Lisbon the surgeon-in-chief, Jean Béguerie, pistol in hand, defended his patients against the insurgents. Chirurgien-aide-major Pierre Pichon was on duty at the Madrid Military Hospital on May 2nd, 1808, when the Spanish rose against the French. When the crowd tried to storm the building Pichon, assisted by his orderlies, drove them off with guns.

THE FRENCH ARMY MEDICAL SERVICE.

IN an article on the French Army Medical Service published last week it was stated that many leading Frenchmen were dissatisfied with the status of the service in relation to other branches of the army and to the higher commands, believing that the position of subordination in which it was placed interfered with the efficiency of arrangements for the collection, treatment, and transport of wounded. We are glad to be able to state that an official decree, defining the relation of the Army Medical Service to other branches and to the commands, has just been issued, which it is believed will remedy the defects to which attention was called. The first article of the decree extends the reform instituted in 1882, which gave medical officers control over the personnel and material of the medical service and the command of administrative officers of medical units and hospital orderlies. In future the medical will stand in the same relation to the command staffs as other branches, will give to the command information as to the resources available and the arrangements which should be made for the supply of personnel and material, and will take part in the drafting and issue of orders concerning the medical arrangements.

TERRITORIAL AND SPECIAL RESERVE OFFICERS.

ON May 5th we printed the views of various correspondents upon the promotion of temporary R.A.M.C. officers. Correspondents in the R.A.M.C. Special Reserve and Territorial Force pointed out that promotion in these branches of the service is disappointingly slow, and maintained that it would be unjust to them if temporary officers were promoted to the rank of major as a matter of course after two years' service. We are aware from communications which we have received at various times during the war that many medical officers in the Special Reserve and Territorial Force feel aggrieved at the treatment accorded to them by the War Office. Their point, as we understand it, is that in times of peace they gave up their leisure in order to train themselves, in camp and otherwise, for a national emergency; that they have

been mobilized since the beginning of the war without any opportunity for carrying on, or safeguarding, their civilian practices; and that in return for this they have received little sympathy or recognition from the authorities. One correspondent sums the matter up rather bitterly thus: "The main thing that the present war has impressed on us is, 'Don't join any reserve force in time of peace, because when your country needs you it will give you better conditions, higher rank, and more pay if you have done nothing before.'" It cannot be denied that there is truth in this, nor that it represents a somewhat widespread feeling. So far as the Territorial Force is concerned the British Medical Association has taken advantage of the opportunity afforded by the War Secretary's appointment of a committee, with Mr. Winston Churchill as chairman, to inquire into anomalies of promotion in the Territorial Force and new armies, to put forward a memorandum on the subject. The first part of the memorandum was published in the SUPPLEMENT of March 17th, and the second, or supplementary, part in the SUPPLEMENT for this week. We will not attempt to appraise the relative value of the points raised, but would like to recall that the suggestion contained in paragraph 6 of the supplementary memorandum was put forward a year or more ago. We feel convinced that the Director-General would find his hands much strengthened and his anxieties diminished if he had upon his staff a Territorial medical officer with experience in administrative rank in peace and war.

THE APPEAL TO MEN UP TO FIFTY.

THE notification made by the Secretary of the War Office on May 12th, that it had been decided to open shortly two new groups for the voluntary attestation of men over the present military age—namely, one for men, married or single, not over 45 in January, 1917, and the other for men, married or single, who were between 45 and 50 at that date—does not, as we understand it, affect the position of medical men, and the Director of Recruiting has specifically stated that "the present extension of age for men for special corps will remain unaffected." Medical men between 41 and 45 have long been eligible for commissions in the R.A.M.C., and in June last we were authorized to state that the War Office had decided to give commissions in the R.A.M.C. to medical men between 45 and 55 willing to undertake whole-time general service in the United Kingdom. As was then pointed out, that decision afforded a great opportunity to medical men between 45 and 55, who could see their way to get free from civil obligations, to accept commissions in the R.A.M.C. with the home armies. Any medical man who now feels he can respond to the new appeal should not attest, but should communicate with the Central Medical War Committee (429, Strand, London, W.C.2), the Reference Committee of the Royal Colleges in London (Examination Hall, 8, Queen Square, W.C.1), or the Scottish Medical Service Emergency Committee (Royal College of Physicians, Edinburgh), as the case may be. The enrolment scheme has been very successful both in supplying the army with medical officers and in safeguarding the interests of the civil community, and it will be the wisest course for any medical man between the ages mentioned who considers he can be spared from the neighbourhood in which he practises to put his case before one or other of the committees. It is, of course, understood that the appeal is for volunteers; the Director of Recruiting, it may be noted, referred to the possibility of Parliament at some time raising the age for compulsion, but this again will not affect the position of medical men who enrol.

THE Library of the British Medical Association has received from Dr. Henry Rayner, formerly President of the Medico-Psychological Association, at one time editor of the *Journal of Mental Science*, a copy of vol. i of the *Asylum Journal of Mental Science* (1853–55). This volume is rare, and was missing from the series in the Library. It is, Dr. Rayner says, to be looked upon as a legacy from the late Dr. Hack Tuke. The title of the periodical was altered in the second volume to *Journal of Mental Science*, and Dr. Hack Tuke was appointed joint editor to that journal in 1880, and remained, we believe, connected with it until his death in 1895. Dr. Rayner was one of his successors in that office.

THE Central Control Board (Liquor Traffic) has appointed an advisory committee, consisting of Lord D'Abernon (Chairman), Sir G. Newman, M.D., Professor A. R. Cushny, F.R.S., Dr. H. H. Dale, F.R.S., Dr. M. Greenwood, jun. (Statistician to the Lister Institute), Dr. W. McDougall, F.R.S., Dr. F. W. Mott, F.R.S., Professor C. S. Sherrington, F.R.S., and Dr. W. C. Sullivan (Medical Superintendent State Criminal Lunatic Asylum, Rampton, Notts), to consider the conditions affecting the physiological action of alcohol, and more particularly the effects on health and industrial efficiency produced by the consumption of beverages of various alcoholic strengths, with special reference to the recent orders of the Central Control Board, and further to plan out and direct such investigations as may appear desirable with a view to obtaining more exact data on this and cognate questions.

Medical Notes in Parliament.

R.A.M.C. Officers Waiting for Work.—Mr. Watt, on May 11th, asked Mr. Macpherson whether, in the present shortage of doctors for service in France and elsewhere, there were doctors who had abandoned their practices months ago, had put on khaki, and were awaiting in various towns in England instructions from his department to proceed where they would be most useful, but who appeared to be forgotten by the department except in the way of the payment of their salaries. Mr. Macpherson said that any officers so situated were either awaiting passage or relief by officers who were unfit for foreign service. Until such reliefs were available it was not possible to deplete the commands at home of medical officers fit for general service. Mr. Watt: Does the hon. gentleman not admit that there are doctors who are waiting and doing nothing? Mr. Macpherson: They are either waiting their turns to go out or for reliefs.

Medical Practitioners in Combatant Units.—Replying to Mr. Watt, on May 15th, Mr. Macpherson said steps had been taken to withdraw medical practitioners from combatant units. All medical practitioners known to be non-commissioned officers and men were invariably offered commissions in the R.A.M.C. if fitted. If any specific case in which a medical man experienced difficulty in getting out of the ranks were brought to notice it would be looked into, and the same steps would be taken in regard to dentists.

Venereal Diseases Bill.—The Venereal Diseases Bill, as amended by Standing Committee of the House of Commons (after passage through the House of Lords) came before the House of Commons for report on May 15th.

Amendments were made in Clause 2 which designed to stop advertisements of remedies, etc., so as to make clear that the offer to treat persons with venereal disease should be an offence whether or not the offer was taken up, and to fix November 1st as the date for bringing the provisions of the clause into operation. The operation of the first clause, which prohibits treatment by unqualified persons, is to be made, as already explained, by areas, following upon the establishment of schemes for free treatment in those areas. Mr. Fisher stated that schemes had been prepared by 98 councils out of a total of 143.

On the motion for the third reading, Mr. Glyn-Jones returned briefly to the alleged grievance of the pharmacists, who wished in regard to these diseases the principle should be applied as it was in regard to treatment of other diseases under the National Insurance Act, that doctors should prescribe and pharmacists dispense. Sir Wm. Collins expressed confidence that the bill would achieve some of the objects aimed at, but thought that Clauses 1 and 2 still retained weak points. Mr. Dundas White brought a protest from Mr. Hayes Fisher by assuming his view

LIBRARY U. OF I. URBANA-CHAMPAIGN

to be that unregistered practitioners were for practical purposes no good. Mr. Fisher interrupting here recalled how particularly he had said on the second reading of the bill that it was not intended to pursue this policy in reference to any other bill. Mr. White met with further difficulty in saying that Sir William Collins had suggested that it should be applied to other cases. Mr. Fisher replied this was an unintentional misrepresentation. Sir William Collins was an opponent of the general tendency to exclude all but the duly qualified practitioner. Sir William Collins offering personal explanation later said his object had been to show the inconsistency of suppressing the unqualified practitioner in one direction and not in another. That was all.

The bill was afterwards read a third time and passed. It now goes back to the Lords for consideration of the amendments made in the Commons.

Army Nurses.—Mr. Charles Roberts asked whether the Army Council had completed consideration of the interim and final reports on nursing issued by the special committee set up by the War Office on this subject; whether any recommendations of either of these reports had been carried out; whether the urgent fresh appeal for young women for nursing and Voluntary Aid Detachment purposes was made after consultation with the committee which had carefully considered the subject, and whether the two reports would now be published. Mr. Macpherson replied that the consideration of this report was not yet completed, but stated subsequently that he would lay a copy on the table of the House this week.

Medical Treatment of Soldiers' Widows and Orphans.—Replying to Major Chapple, Mr. Barnes said the Insurance Commissions were considering, at his request, how the medical treatment of widows and orphans of sailors and soldiers killed in the present war could best be provided. The whole question of medical service would be further dealt with in connexion with the proposal to establish a Ministry of Health.

Pensions and Gratuities.—Mr. Barnes has informed Mr. Pennefather that of the 31,590 sailors and soldiers discharged as medically unfit since the Pensions Ministry took over its duties on February 15th 81.9 per cent. had received pensions and 7.8 per cent. gratuities. Of the 13,540 so discharged since the new Order in Council and Royal Warrant came into force on April 4th 84.7 per cent. had received pensions and 15 per cent. gratuities. Out of 3,000 men who since the latter date had applied for reconsideration of refusals to pension them under previous warrants 367 had been given pensions and 404 gratuities, and the remaining applications, which had come in rapidly during the last few days, were in various stages of consideration. In reply to another question by Mr. Pennefather, Mr. Barnes said that if a discharged soldier in receipt of a pension for wounds or disability due to military service who re-enlisted would, in the event of his being again wounded or further disabled by causes due to military service, if the second disability was distinct from that which caused the first invaliding, and both disabilities continued, a fresh pension would be granted in addition to the original pension, provided that the total of the two pensions did not exceed the pension payable for the highest degree of disablement. If, however, the second invaliding was for the original cause or aggravation thereof, one pension would be granted based on the condition of the disability at the time of the second invaliding. Mr. Barnes, in a written answer to Mr. Stanton, stated that soldiers and sailors who as a result of injuries in the present war had been left without useful vision were granted pensions of 27s. 6d. a week, with a further grant up to 20s. a week for an attendant. These grants were apart from any earnings which the men might be able to get as the result of the careful and sympathetic training given at St. Dunstan's or at the affiliated Scottish National Institution at Newington House. During the training the Pensions Department supported the families of the men; after it their welfare was watched and assisted by the institutions named.

Medical Examinations of Men Called Up.—Mr. Hogge called the attention of Mr. Macpherson to the statement of the military representative at Wandsworth, on April 30th, that 5,400 men in the borough were being called up for medical re-examination, and were being examined at the rate of 200 a day, and whether he could state the average time given to each of the men. Mr. Macpherson: Two hundred men are called up each day for medical examination. In all cases where the recruiting officer considers it manifest that a man is permanently disabled and unfit for any form of military service, a statement of his disabilities is submitted to the President of the Recruiting Medical Board, and if that officer is satisfied that no good purpose would be served by having the man medically examined, a discharge certificate is sent to the man. A very large percentage of the men called up proves to be in this category. The average time devoted to each man medically examined by the Medical Board is from fifteen to twenty minutes. In these circumstances there was no necessary ratio between the numbers called and the time devoted to men examined.

THE WAR.

MESOPOTAMIA.

AMARA CLINICAL SOCIETY.

In our issue of January 6th, 1917, a report was published of a meeting held by the medical officers of the Kut-el-Amara garrison in the fifth month of the siege, at which beri-beri, scurvy, and abdominal wounds were discussed. We have now received the report of the first two meetings of the Amara Clinical Society, which was formed in somewhat happier circumstances by medical officers of the Mesopotamia Expeditionary Forces stationed at Amara, at the end of September, 1916. The A.D.M.S. Amara (Lieutenant-Colonel C. A. Stone, R.A.M.C.) was elected *ex officio* president, and a small executive committee was formed as follows: Lieutenant-Colonel E. W. W. Cochrane, R.A.M.C. (chairman), Lieutenant-Colonel S. Anderson, I.M.S., Major Grey Turner, R.A.M.C.(T.), Major F. P. Connor, I.M.S., Lieutenant F. R. Barwell, R.A.M.C.(T.C.), Major F. P. Mackie, I.M.S. (honorary secretary).

SCURVY.

The first meeting of the society was held on October 6th, when eighty-nine officers were present, and a discussion took place on scurvy.

Major F. P. Connor, I.M.S., pointed out the principal characters of the disease at present met with in Amara, and laid stress on the influence of environment in the causation of the disease. Captain Kamat, I.M.S., showed a series of five cases in various stages of the disease. He said that the questions of caste, race, and dietary had been carefully inquired into in a series of 130 cases, but no definite conclusion could be arrived at. Other debilitating influences, such as malaria, hook-worm disease, etc., were not proved to affect the incidence of scurvy. Local treatment was directed to the teeth, which should be scraped, and if pockets were present these should be swabbed out with hydrogen peroxide and quinine powder dusted along the margin of the gums. General antiscorbutic treatment was carried out on the usual lines, and a medicinal mixture of limejuice, rum, and tr. nucis vomicae given thrice a day.

A discussion then followed, in which Lieutenant-Colonel Palmer, R.A.M.C., laid stress on certain early symptoms to be looked for in the diagnosis of scurvy.

Major Heathcote Roberts, I.M.S., referred to the more serious complications of scurvy, such as amblyopia, cerebral and meningeal haemorrhage, infective pneumonia, gangrene, and haemothorax, all of which he had met with from time to time.

Major L. Reynolds, I.M.S., pointed out that scurvy often appeared under conditions where it would be least expected, and referred to cases which he saw in an otherwise healthy regiment in a place where fresh vegetables were abundant and freely partaken of. Although the condition of the gums was a valuable indication of the severity of the disease, it was apt to be misleading because markedly scorbutic persons might show healthy gums and teeth.

Major G. Grey Turner, R.A.M.C.(T.), speaking from surgical experience amongst British troops, referred to three groups of cases which he had observed: (1) Where the presence of scurvy explained the occurrence of otherwise obscure cases of haematoma and other haemorrhages; (2) where wounds or ulcers took on a sluggish and unhealthy character owing to the presence of scorbutic changes, and (3) where patients under treatment for enteric group diseases or dysentery developed spontaneous haemorrhages. These, he considered, were probably due to a diet of preserved milk, and comparable to scurvy rickets (Barlow's disease). The first and second groups responded readily to treatment, but in the third the prognosis was bad, as the condition indicated profound nutritional disturbance.

Captain McCallan, R.A.M.C.(S.R.), showed a specimen with perforation of the heart and of the overlying border of the lung caused by a stab from an Arab dagger.

Captain F. Chapman, R.A.M.C., gave a demonstration of the use of the new Rogers's cholera outfit which had just been issued to hospitals.

PARATYPHOID FEVER.

At the second meeting, on October 20th, the President in the chair, a discussion took place upon paratyphoid fever. The number of officers present was eighty-one.

Lieutenant B. E. A. Batt, R.A.M.C.(T.C.), and Lieutenant A. Feiling, R.A.M.C.(T.C.), read a paper on the clinical aspect of paratyphoid fever as they had found it in Mesopotamia. This was nearly always paratyphoid A. Their experience was founded on over 300 cases. The onset might be sudden or insidious—more commonly the latter. Headache, abdominal pain, and general weakness were the most prominent early symptoms. The cases with sudden onset were chiefly characterized by rigors and intense headache, with high fever, and had not infrequently been mistaken for heat-stroke. The average duration of the disease varied from nineteen to thirty-five days or more, exceptionally over forty days. The cardinal features in the symptomatology were discussed in detail, and, briefly, were found to be: (1) the type of the fever, emphasis being laid on the spiky character and tendency to undulations of the temperature chart; (2) the pulse, whose slow rate, soft and frequently dicrotic character had proved a point of considerable diagnostic value; (3) the appearance of the tongue, which was found with a relatively clean tip and edges; (4) the enlargement of the spleen, a nearly constant feature—when palpable, it felt harder and firmer than the average typhoid spleen; when not palpable, an enlarged area of splenic dullness could generally be demonstrated by percussion. In their experience the rash had not proved a constant and reliable sign. Complications were, on the whole, uncommon and unimportant with the exception of hyperpyrexia, which proved disastrous during the hot season, but with the advent of cooler weather was rarely seen. Bronchitis, bronchopneumonia and myocarditis were found in all the fatal cases. Phlebitis, parotitis with and without suppuration, and periostitis had occurred. Haemorrhage and perforation were uncommon. Of three cases of perforation in their series one survived. Diarrhoea had been decidedly uncommon, and constipation the rule. The coexistence of other diseases, notably malaria, sandfly fever and dysentery, produced a puzzling symptom complex. Their mortality had reached the high figure of 10.4 per cent., but it was significant to note that out of thirty-nine deaths thirty had occurred in the month of July, that is, in the hottest part of the summer. The most common cause of death was cardiac failure from a profound toxic myocarditis. In one case haemorrhage and in two cases perforation were responsible for the fatal issue. They had found the ulceration to be generally less extensive than in typhoid, with a greater tendency to involvement of the large bowel.

Captain Stevenson, I.M.S., then spoke on agglutinins. After a brief description of the close relationship between the members of the enteric group he addressed himself chiefly to the interpretation of results derived from agglutination tests carried out by the staff of the Central Laboratory, Amara. The diagnosis of typhoid fever from agglutination results was full of fallacies. The factor of previous inoculation had to be considered. A high reaction to the typhoid bacillus in such a case was of little significance unless it could be shown in subsequent examinations that the agglutination titre was an ascending one. Again, in infection by the paratyphoid A bacillus, the group agglutinin for the *Bacillus typhosus* often was the earliest to appear. As a rule, the true specific agglutinin for *Bacillus typhosus*, developed in the course of typhoid fever, appeared early; from the seventh day of disease it might rise rapidly, but it would remain high in the great majority of cases for weeks or months. During infection by *paratyphosus* A not only might the specific A agglutinin be developed, but the group agglutinin for typhoid and paratyphoid B were usually thrown up, the latter more rarely, and these group agglutinins might develop earlier than the true specific agglutinin, causing great difficulty in the true interpretation of results. Owing to the fact that this paratyphoid A agglutinin was so often transient, it followed that even in repeated tests it might be missed altogether. A guide to this would appear to be the behaviour of the group typhoid agglutinin, which sometimes appeared early and rose very high. But, unlike the typhoid specific agglutinin developed in typhoid fever, it exhibited a great tendency to fall quickly though not invariably. Of the paratyphoid B bacillus they had had little experience. Its incidence had diminished gradually among British troops, and during the last three months no case was found amongst Indians. The difficulty of interpretation of agglutination results would be heightened by the increasing use of T.A.B. vaccine.

Lieutenant-Colonel Palmer, R.A.M.C., stated that the most characteristic features of the disease in his experience were (1) fever, often of an undulatory character, and sometimes accompanied by singularly few symptoms, the tongue in many cases remaining surprisingly clean; (2) marked tendency to relapse; (3) absence of complications as a rule. To this, however, there was one striking exception: gall bladder involvement was exceedingly common in paratyphoid A infection, and pain over that organ a frequent symptom. In a series of cases he had seen in Mesopotamia a slight tint of jaundice or icterus was visible in nearly half, but how much of this was due to the hot weather was difficult to determine.

Major L. Reynolds, I.M.S., referred to cases he had seen in India in which paratyphoid fever was very mild, and might readily have been overlooked without blood culture.

Lieutenant G. W. Spencer, R.A.M.C.(T.C.), pointed out the importance, when dealing with large numbers of patients, of a schedule of systematized diets. By this means the danger of patients getting food which had not been ordered for them was reduced. It was his practice to give light food to patients if there was no distension of the abdomen, a normal stool, a clean tongue, and the patient had an appetite.

Major G. Grey Turner, R.A.M.C.(T.), drew attention to cholecystitis as a complication of the typhoid group. There were some few cases in which the clinical evidence of infection of the gall bladder was sufficient to justify a diagnosis of cholecystitis, almost certainly post-enteric in origin, but they cleared up under medical treatment.

ELASTIC PRESSURE IN DELAYED HEALING.

STABSARZT DR. LIEK, in an article on the beneficial effects of pressure in the delayed healing of gunshot wounds,[1] states that it was not uncommon to meet with wounds in which the healing process came to a standstill without any obvious local or general cause, such as foreign bodies or sequestra, renal disease or syphilis. This happened mostly in wounds of the lower limb, and it was possible that circulatory derangement was the essential factor in its production, as in varicose ulcer. Pressure was applied by an elastic bandage; the wound was dressed with boracic acid ointment, the foot and leg well padded with wool, and the elastic bandage applied over this, so as to exert considerable pressure. The bandage was replaced every four or six days, according to the amount of discharge. In twenty cases thus treated healing rapidly resulted. The following are instances:

1. A clean perforating wound near the middle of the leg. After nine weeks' treatment the apertures of entry and exit showed no signs of healing or reduction in size. Compression with the elastic bandage was then commenced and the wounds healed firmly in six days.
2. Comminuted fracture of tibia and fibula; wound infection; incisions. At the end of twelve months healing was complete, except for the presence of two ulcers about two inches in length in the region of the cicatrix. In the course of the next three months these showed not the least change or evidence of healing. On applying the bandage, which was replaced every third or fourth day, the wounds healed soundly in sixteen days.

Delayed healing was seldom observed in the arm, the circulatory conditions being more favourable there than in the lower limb. It was more frequent in wounds of the trunk, and here pressure could be applied by means of adhesive plaster.

HEALTH OF THE GERMAN ARMY AND NAVY.

SOME particulars of what the German authorities desire to be believed with regard to the health of the German army and the German navy have been published in editorial articles printed in the *Deutsche medizinische Wochenschrift* of January 18th and February 15th, 1917. It is therein stated that in the first year of the war the average monthly incidence of sickness in the German army was 120 per 1,000, and that the rate fell to 100 in the second year of

[1] *Deut. med. Woch.*, 1917, No. 4, p. 104.

LIBRARY U. OF I. URBANA-CHAMPAIGN

e war. The following are given as the rates of each sease per 1,000 soldiers.

Diseases.	First Year.	Second Year.
Small-pox	0.01	—
Typhoid fever	5.60	1.40
Typhus fever	0.03	0.08
Dysentery	2.80	1.80
Asiatic cholera	0.32	0.24
Intermittent fever (*Wechselfieber*)	0.17	0.80
Scarlet fever	0.18	0.15
Measles	0.07	0.06
Diphtheria	0.24	0.57
Tuberculosis	2.90	1.70
Pneumonia	6.80	4.00
Pleurisy	7.70	6.00
Nervous diseases	24.30	21.50

The fall in the incidence of small-pox, cholera, and phoid fever was attributed largely to prophylactic inocu-ion, and the results were considered the more striking the campaigns of the second year were, it is said, con-cted in less healthy regions than those of the first year. ie rise in the incidence of diphtheria was observed also the civil population; its cause is not elucidated. Of e wounded about 70 per cent., it is claimed, returned to e front; others were fit for garrison or other duty, and ly 6.4 per cent. were totally unfit. About 1,250 soldiers ere blinded.

It is stated that in the first year of the war the incidence sickness in the German navy was 315.15 per 1,000, and at in the second year it fell to 287.19. The average nual rate of incidence of sickness for the five years of ace preceding the war was 410.86. The average monthly cidence of sickness in the first year of the war was 26.26 r 1,000, in the second year 23.93 per 1,000. The follow-g table purports to give the relative incidence of certain ecified diseases, the figures in the last column giving e average annual incidence of each disease in the five ars before.

Diseases.	First Year.	Second Year.	Peace Time.
Scarlet fever	0.39	0.78	0.23
Diphtheria	0.09	0.30	0.25
Typhoid fever	0.17	0.27	0.13
Typhus fever	—	—	—
Tuberculosis of the lungs	1.39	1.64	1.23
Tuberculosis of other organs	0.44	0.45	0.62
Dysentery	0.08	0.08	0.11
Cholera	—	—	—
Cerebro-spinal meningitis	0.01	0.03	0.03
Acute articular rheumatism	2.81	2.82	5.07
Total of general diseases	21.36	19.15	21.22
Nervous diseases	11.79	10.13	11.15
Diseases of the respiratory organs	35.87	27.00	44.83
Diseases of the circulation	8.49	8.00	10.80
Diseases of digestion	56.48	56.35	78.45
Diseases of the urinary tract	7.40	9.14	10.00
Diseases of the eyes	5.58	3.43	8.90
Diseases of the ears	11.63	8.14	14.17

ASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

SURGEON-CAPTAIN F. HUNTON, R.A.M.C.(T.F.).

Surgeon-Captain F. Hunton, R.A.M.C.(T.F.), was killed action on May 6th. He was the youngest son of the e John Hunton of Stockton, and was educated at wcastle-on-Tyne, graduating M.B. and B.S.Durh. in 91, and M.D. in 1893. He then went into practice at dgefield, Terry Hill, where he held the appointments medical officer of the Sedgefield Union Workhouse and ver Hospital, also of medical officer, public vaccinator, l medical officer of health of Sedgefield Rural District. took a commission as surgeon-lieutenant in the rthumberland Hussars (Yeomanry) on December 17th, 14, and was promoted to surgeon-captain after a year's vice.

Died on Service.

CAPTAIN P. C. MACRAE, R.A.M.C.

Captain Patrick Cameron MacRae, R.A.M.C., died on vice in March. He was educated at Edinburgh Univer-y, where he graduated M.B. and Ch.B. in 1915, and soon er took a commission as lieutenant in the Special serve of the R.A.M.C., being promoted to captain after ear's service.

CAPTAIN K. K. MUKERJI, I.M.S.

In the casualty list published on May 9th Captain Kalyan Kumar Mukerji, I.M.S., is reported to have died as a prisoner of war in Turkish hands. He was a member of the garrison of Kut, under General Townshend, which surrendered in April, 1916. He was born on October 24th, 1882, and educated in the Calcutta Medical College, where he took the diploma of licentiate in medicine and surgery in 1906, subsequently taking the diplomas of L.R.C.P.Edin. and the D.P.H. at Cambridge in 1908. He entered the I.M.S. as lieutenant on January 29th, 1910, and became captain on January 29th, 1913. At the beginning of the war he was medical officer of the 8th Rajputs.

Lieutenant and Quartermaster E. C. J. Curling, R.A.M.C.

Died of Wounds.

CAPTAIN G. S. BLANDY, M.C., R.A.M.C.

Captain Gurth Swinnerton Blandy, R.A.M.C., was reported as having died of wounds, in the casualty list published on May 12th. He was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1902, and M.D. in 1912. After filling the posts of house-physician at the Norfolk and Norwich Hospital, senior house-surgeon of the Scarborough Hospital and Dispensary, and assistant medical officer of the Norfolk County Asylum at Thorpe, he became senior assistant medical officer of the Middlesex County Asylum at Napsbury, St. Albans. When the war began he left that post to join the army, took a temporary commission as lieutenant in the R.A.M.C. on August 14th, 1914, and was promoted to captain on completion of a year's service. He received the Military Cross on June 3rd, 1916.

Accidentally Killed.

CAPTAIN C. B. BURDEN, A.A.M.C.

Captain Clive Britton Burden, Australian Army Medical Corps, died in St. George's Hospital on May 8th, aged 25, of injuries received by falling under a train from the platform of Victoria Station. He was the elder son of Mr. J. B. Burden of Adelaide, and had recently been invalided from the front.

Wounded.

Captain E. W. Adcock, R.A.M.C. (temporary).
Captain A. M. Alcorn, R.A.M.C. (temporary.
Captain F. R. Armitage, R.A.M.C.(T.F.)
Captain T. D. Dickson, R.A.M.C.(temporary).
Captain J. Fraser, R.A.M.C.(temporary).
Captain H. G. Hobson, R.A.M.C. (temporary).
Captain J. D. Marshall, R.A.M.C. (temporary).
Captain J. M. Moyes, R.A.M.C. (temporary).
Captain C. F. Searle, R.A.M.C.(T.F.).
Captain H. D. Smart, R.A.M.C.(temporary).
Captain O. C. S. Tandy, R.A.M.C.(S.R.).
Captain P. E. Voss, Australian A.M.C.
Lieutenant J. Kilroe, R.A.M.C. (temporary).
Lieutenant G. E. Spicer, R.A.M.C.(temporary).
Lieutenant J. Young, R.A.M.C. (temporary).
Lieutenant and Quartermaster R. J. Fleming, R.A.M.C.

DEATHS AMONG SONS OF MEDICAL MEN.

Buckell, C. J. A., Second Lieutenant Norfolk Regiment, only son of W. R. Buckell, F.R.C.S., of Salmon Arm, British Columbia, killed April 19th, aged 26. His commission was dated April 21st, 1915.

Clapham, Graham Windyer, Second Lieutenant Royal Field Artillery, second son of Dr. Lawrence Clapham of Thorney, near Peterborough, died of wounds in France on May 10th, aged 36. He was educated at Epsom College, and was farming till the outbreak of war. He enlisted in the 2nd King Edward's Horse in September, 1914; served in France from June to December, 1915, as a sergeant in that regiment. He received a commission in the Royal Field Artillery in January, 1916, and had been in France with his battery since July, 1916.

Clapperton, James Hugh, Major Royal Field Artillery, third son of the late Dr. James Clapperton, of Broughton, Hants, died on May 7th of wounds received on April 30th. He took a commission as second lieutenant in the 3rd Northumbrian Ammunition Column (T.F.), on March 30th, 1915, and had risen to acting major by September, 1916, in less than a year and a-half.

Cooper, Henry Weatherley Frank, Second Lieutenant Royal Fusiliers, only child of the late Dr. Thomas Henry Cooper, of Hampstead, died of wounds on April 29th. He was educated at Cambridge, where he had graduated B.A.

Humphrey-Davy, D. N. O'Neale, Second Lieutenant Hampshire Regiment, younger son of Dr. A. Humphrey-Davy, of Bournemouth, killed February 1st. He was formerly a cadet at Magdalen College, Oxford.

McConaghey, Maurice E., D.S.O., Lieutenant-Colonel Royal Scots Fusiliers, second son of the late Colonel John McConaghey, I.M.S., killed April 23rd, aged 39. He got his commission on December 15th, 1897, and after serving with his regiment through the South African war, when he was present in the actions at Belfast and at Colenso, and in the relief of Ladysmith, receiving the Queen's medal with four clasps, and the King's medal with two clasps, was promoted to captain on January 22nd, 1902. Before the war he was adjutant of the 8th Lanark (Territorial) Battalion of the Highland Light Infantry. Rejoining the Royal Scots Fusiliers at the beginning of the war, he was promoted to major and acting lieutenant-colonel, was severely wounded at Ypres, and received the D.S.O. On rejoining, he was posted to the command of another battalion of the regiment.

McKay, Philip S., Second Lieutenant King's Own Scottish Borderers, youngest son of Surgeon-Major P. B. McKay, R.A.M.C.(T.F.), of Doncaster, killed April 14th, aged 28. He was educated at Sedbergh School, got his commission on November 19th, 1915, and went to the front in July, 1916.

MacVicar, Neil, Second Lieutenant Seaforth Highlanders, only son of Dr. Colin MacVicar, Dundee, died of wounds recently, aged 22. He was educated at Harris Academy, at Dundee High School, and at University College, Dundee, where he was a third year medical student before he took a commission in July, 1916. He went to the front in August, and was wounded in the battle of the Somme at Beaumont-Hamel.

Mapleson, Gerald Horsley, Second Lieutenant Queen's Royal West Surrey Regiment, youngest son of the late Dr. Horsley Mapleson, of London, killed April 26th, aged 21.

Newton, John, Second Lieutenant Honourable Artillery Company, younger son of the late Dr. W. T. Newton, of London and of Lakenheath, Suffolk, killed April 24th, aged 21.

Orr, John C., Second Lieutenant Royal Berkshire Regiment, son of Dr. W. R. Orr, of East Finchley, killed April 28th, aged 19. He was educated at Highgate School, where he got his football colours, and was in the O.T.C., and got his commission from Sandhurst in October, 1916, going to the front last February. His elder brother, Second Lieutenant J. K. Orr, of the Middlesex Regiment, was reported missing on July 1st, 1916, and is presumed killed.

Profeit, Leopold, Captain King's Own Shropshire Light Infantry, youngest surviving son of the late Dr. Alexander Profeit, Commissioner to Queen Victoria at Balmoral, killed April 25th. He was born on April 7th, 1877, the birthday of Prince Leopold, after whom he was named; was educated at Aberdeen University and adopted the stage as a profession, having played with Sir Johnston Forbes Robertson. He enlisted in the Public Schools Battalion at the beginning of the war, got a commission in December, 1914, and became captain in August, 1915.

Purves, Walter Douglas Laidlaw, Lieutenant East Lancashire Regiment, youngest son of Dr. Laidlaw Purves, of London, killed April 28th.

Sandford, Charles V., Second Lieutenant Middlesex Regiment, son of the late Dr. Sandford, died of wounds on May 7th, aged 45. He was an actor by profession, and, though over age, joined the Artists' Rifles in 1915, subsequently getting a commission in the Middlesex. He had been invalided home, and returned to the front in March last.

MEDICAL STUDENT.

Ainslie, Archibald, Second Lieutenant King's Own Scottish Borderers, youngest son of A. Ainslie, of Dolphinton, Tasmania, killed April 19th, aged 23. Before he joined the army he was a medical student at Edinburgh University.

We are informed that Captain Stanley James Linzell, M.B., M.C., R.A.M.C., whose death in action was recorded in our issue of April 28th, p. 560, had also been awarded the decoration of *Croix de Guerre*, which has been duly forwarded to his mother.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A DISPATCH from Sir Douglas Haig, dated April 9th, 1917, contains a list of officers, ladies, non-commissioned officers, and men serving or who have served under his command whose distinguished and gallant services and devotion to duty he considers deserving of special mention. The lists are being published in special supplements to the *London Gazette;* that for the medical service of the army is not yet available.

The following medical officers are included in the list of officers connected with the Royal Navy: Temporary Surgeon H. B. Padwick, D.S.O., R.N.; Temporary Surgeon J. N. M. Ross, M.B., R.N.

A supplement to the *London Gazette*, issued on May 10th, contains a list of honours awarded by the King to officers and men of H.M.S. *Broke* and *Swift* for their services in the recent action with five or six German destroyers in the Channel, during which two enemy vessels were sunk. The list of officers receiving the Distinguished Service Cross includes Surgeon-Probationer Christopher Thomas Helsham, R.N.V.R. (*Broke*), and Surgeon-Probationer John Swift Westwater, R.N.V.R. (*Swift*), who "worked with great energy and ability in attending to the wounded."

A supplement to the *London Gazette* of May 11th contains list of decorations conferred upon officers and warrant office in recognition of gallantry and devotion in the field. Amon the recipients of the Military Cross is—

Captain Stanley Sextus Barrymore Harrison, R.A.M.C., attache South Staffordshire Regiment.

For conspicuous conduct and devotion to duty. He worked co tinuously for ten hours under very heavy fire and was responsible f saving many lives. He displayed great courage and determinatio throughout. He has on many previous occasions done fine work.

The Military Medal for bravery in the field has been awarde to six non-commissioned officers and men of the R.A.M.C. an three of the Canadian A.M.C.

A supplement to the *London Gazette* of May 12th contains list of officers receiving the D.S.O. for miscellaneous servic and includes the name of Lieutenant Commander Willia Wybrow Hallwright, R.N., whose death we recorded in our la issue. He was the son of Dr. Matthew Hallwright of Edgbasto

FOREIGN DECORATIONS.

Among the recipients of the Order of Chevalier of the Legi of Honour conferred by the President of the French Republ for distinguished services rendered during the war is Surge John D. Milligan, M.B., R.N.

A special supplement to the *London Gazette* issued on M 15th contains a list of Russian decorations awarded in Jul 1916, to British and Indian officers and men for distinguish services rendered in the course of the Mesopotamia campaig and the King has granted unrestricted permission in all cas to wear decorations and medals. The list includes the followi members of the R.A.M.C. and I.M.S.:

Order of St. George (4th Class): Captain J. A. Sinton, V.C I.M.S.

Order of St. Anne (2nd Class with Swords): Lieutenant-Colon and Brevet Colonel J. M. Sloan, D.S.O., M.B., R.A.M.C.

Order of St. Stanislas (2nd Class with Swords): Lieutenan Colonel and Brevet Colonel M. H. G. Fell, R.A.M.C.

Cross of St. George (2nd Class): Sub-Assistant Surgeon Kar Ram, I.S.M.D.; (4th Class): Assistant Surgeons G. H. Blak and E. A. Cotton, I.S.M.D.; Staff Sergeant D. Brown, R.A.M.

Temporary Captain Arthur F. G. Kerr, M.D., R.A.M.C., h received the Royal licence and authority to wear the Insignia the 4th Class of the Order of the White Elephant conferr upon him by the King of Siam in recognition of valuab services rendered.

NOTES.

MEDICAL WORK IN THE ARRAS AREA.

CORRESPONDENTS in describing the fighting of the Londo Regiments spoke highly of the work of the R.A.M. Thus the *Times* correspondent, on May 11th, wrote:

The troops are loud in praise of the whole medical staff a of the stretcher-bearers, and of one captain of the R.A.M. especially, and one orderly, who attended the wounded a superintended the stretcher-bearers under conditions of gre danger for several hours, and seemed to bear charmed lives.

The *Daily Telegraph* correspondent, speaking of th Australians at Bullecourt, wrote on May 13th:

All the Australian officers pay a high and touching tribute the work of their stretcher-bearers, who were superb in coura and self-sacrifice. I have seen the ground they had to cross, a I know the evil and the peril of it. But they went forward wi the infantry, and day after day crossed this country in the op with their heavy burdens, never stopping to glance at bursti shells on either side of them, regardless of their own lives, that they could save their comrades. Unfortunately, the enem did not respect the ambulances, though they could clearly s the sign of the Red Cross, but sniped them continually wi shells and shrapnel bullets as well as the stretcher parties wh had more faith in German chivalry, and for that reason walke deliberately in the open so that they could not be mistake The percentage of mortality among these men was rath higher than that of the infantry themselves, and that is a pro of their supreme valour.

The same correspondent, writing of the attack on Roeu confirms the statement that our casualties have been ve light and those of the enemy very heavy.

NEURASTHENIC WAR PENSIONERS.

The Hospital for Epilepsy and Paralysis and Other Diseases the Nervous System, Maida Vale, was founded fifty years ag During its growth it has accepted responsibility for the tre ment of functional nervous disorders arising in civil and indu trial life, and since 1896 has attempted with success to act third party between employer and employee under the Wor men's Compensation Acts. It has now established a branch f selected cases suffering from functional nervous disorder Highfields, Golders Green, in a building formerly a girls' schoo It contains accommodation for 150 patients, including 35 sing bed wards, and stands in extensive well wooded grounds. provides isolation beds and arrangement for local and gener massage, an electrical department, gymnasium, workshop Organized games are provided. An employment bureau an after-care arrangements are provided in conjunction with th local pension committee. Men who enter the hospital wi receive a pension from the Ministry, and wives and children married men separation allowance.

LIBRARY U. OF I. URBANA-CHAMPAIGN

England and Wales.

the annual meeting of the Medical Society of London May 14th Sir StClair Thomson was elected president, . Hugh Lett and Dr. Edmund Cautley honorary secre-ies, and Dr. Herbert R. Spencer honorary secretary for eign correspondence.

LOCAL AUTHORITIES AND FOOD CONTROL.

The Local Government Board, acting by arrangement th the Food Controller, has issued an order conferring on al authorities and their officers, under the Defence of e Realm Regulations, powers and duties to enforce tain provisions contained in orders made by the Food ntroller. These orders include those dealing with the ce of milk, confectionery sugar, the manufacture of ad, flour, cake, and pastry, and the conditions of sale of d and public meals. The Local Government Board ggests that sanitary inspectors, and other officials whose ties take them about their districts, should make inquiry to the operation of the orders in the course of their ual occupations, while local authorities are reminded t they are authorized to prosecute offences against the visions of the Food Controller's orders.

REFRESHMENT HOUSE EXPERIMENT IN CARLISLE.

The experiment in State management of the supply of oxicants is, we are informed by Dr. Henry Barnes of rlisle, going very well in that city. The number of ences acquired in Carlisle itself was 116, but two new mises have been opened for the supply of food at which r is sold. The number of licences suppressed down to ril, 1917, was 42, so that the net decrease is from 116 76. In the country districts surrounding the city the ensed houses have been, or will shortly be, reduced from to 52. At the Gretna Tavern in Carlisle the trade in d is over 75 per cent. of the total takings. Recently the le of spirits has been prohibited in Carlisle and Gretna trict on Saturdays; in Longtown it has been entirely ppressed. The number of convictions in Carlisle in the ree months (April, May, June, 1916) preceding the intro-ction of direct control was 351. In the first quarter of is year it was 159. The experience gained of the results the direct control of the liquor trade has justified the ntral Control (Liquor) Board in drawing the following oad conclusions:

a) That, by extinguishing private interest in the sale of uor, and by establishing a strict system for the control and spection of public-houses, it is possible both to reduce exces-e drinking in a very marked degree, and to ensure that strictions, such as those imposed by the Board's orders, shall effective to an extent impossible under conditions of private nagement, and of ill-regulated competitive trading;

b) That in houses in which liquor can be sold under conditions comfort and decency, and in which facilities are provided for creation and for the sale of food, not only is supervision made sier, but customers are less inclined to drink to excess than ey are in houses which have been designed as mere drinking rs;

c) That many of the people who frequent public-houses desire d as well as drink, and that, whatever the régime, the empt to meet this demand, duly safeguarded against possible use, should be encouraged.

d) That under a unified system, such as is necessarily in-ved in State management, arrangements can be made to gulate the conduct of the trade in order to meet local uirements or temporary emergencies.

MEDICAL WOMEN AND A MINISTRY OF HEALTH.

At a meeting of the London Association of Medical omen on May 8th, Dr. Helen Boyle in the chair, Dr. ne Walker, in opening a discussion on the advisability of stituting a Ministry of Health, said that the present ethod of dealing with health problems did not meet the blic need. Neglect of health in early life led to such ysical defects as were now found in the many recruits onounced unfit for general service. The whole health stem of the country was chaotic and was dealt with by least eight departments, the three chief being the Local overnment Board, the Board of Education, and the tional Insurance Commission. These all required ifying. Dr. Walker recommended the institution under Ministry of Health of a salaried State Medical Service ich would replace the National Insurance Scheme. It would be possible to institute special inquiries whenever a disease became prevalent; housing would be improved and overcrowding diminished. Dr. Christine Murrell doubted whether the relation between patients and their doctors could be preserved under a State Medical Service. The question of curative treatment also needed much thought and consideration before any decision was reached. Dr. Alice Benham, a member of the deputation from the British Medical Association to Lord Rhondda, spoke of the scheme now being drawn up by the Association (SUPPLEMENT, May 5th, p. 88). There was, she said, a general feeling that the Insurance Act, as such, was dead, and needed complete reorganization. Voluntary hospitals should continue, aided by a grant from the funds. Dr. Mildred Burgess laid stress upon the present difficulties of obtaining treatment for patients noted as requiring it on inspection at infant welfare centres, etc.

Dr. Sophia Jevons thought the school medical inspectors should also carry out treatment. Dr. Thornett-Johnson contended that under the present system the medical profession did far too much unpaid work and thought that this might be remedied under a Ministry of Health. Dr. Mary Bell advocated either a rota of visiting doctors at hospitals or a lower retiring age, so as to give younger practitioners an opportunity of gaining experience. Dr. Helen Boyle said that if a State Medical Service were to do away with the admirable relations between patients and medical practitioners she could think of nothing which would compensate for this loss. The red tape, apparently inseparable from all Government services at present, would prove disastrous in medicine. Competition was in many respects stimulating and good, whereas a fixed salary was very apt to be accompanied by a fixed and stereotyped mentality and practice.

Dr. Jane Walker, in reply, said that the State Medical Service was absolutely opposed to the insurance system and was much more comprehensive. Salaries would be equalized and there would be a limited choice of doctor.

Scotland.

IN view of the fact that owing to the calling up of more doctors in Edinburgh the attendance on 36,000 insured persons would have to be undertaken by forty-seven doctors left, it was determined, at a meeting of the representatives of the insurance and panel committees, to establish three bureaus for consultations, attendances, and receipt of messages. It is suggested that the bureaus should be open daily, except Sundays, and that two doctors should be in attendance in rotation.

THE HIGHLANDS AND ISLANDS MEDICAL SERVICE BOARD.

The Highlands and Islands Medical Service Board was constituted in 1913 for the purpose of improving the medical and nursing service in the Highlands and Islands of Scotland and now presents its annual report for the year 1916. Owing to the difficulties of providing doctors at present and of replacing those who have gone on active service, it has not been possible to carry out fully the schemes formulated by the Board, and temporary measures have had to be adopted in many areas. With regard to the medical service, three main questions had to be dealt with: First, what was a reasonable charge for medical attendance to persons of limited means; second, what classes of persons should be eligible; and third, on what principles should the medical practitioners be remunerated. After consideration it was resolved that the scheme should apply to the families and dependants of insured persons, uninsured persons of the crofter and cottar classes and their families and dependants, and that the fee chargeable to such persons should not exceed 5s. for a first visit and 2s. 6d. for each subsequent visit, additional moderate charges being made for medicines supplied by the doctors, and the patient paying any chemist's charges where the doctor did not dispense. For confinements the fee was to be £1, to include any subsequent visits necessary. Where two or more practitioners practise in an area the patients are at liberty to choose which they prefer, but it is understood that practitioners called to

cases outside the area where they have undertaken to give attendance under arrangements with the Board may charge what fees they like. It is an essential part of the scheme that fees under the Board's arrangements should be the same whatever the distance of the patient from the doctor's surgery. In determining the proper remuneration for the doctors, the Board had to consider how the introduction of low uniform fees would affect the doctors' income and the receipts from all professional sources of income, as well as the working expenses of the practice, and all the circumstances in each case had to be taken into account. In some instances it was necessary to guarantee a fixed income in order to secure or retain the services of a doctor in certain districts, and it is suggested that the Board's assistance should take the form of an annual grant to be adjusted as found necessary. It is stated that, except in a few parishes, the scheme has been in operation since the beginning of 1916, and agreements have been made with 141 doctors; the first year's experience is regarded by the Board as quite satisfactory.

The nursing service, in spite of the difficulties arising from the war, has been carried on satisfactorily. Grants have been made to thirty-nine nursing associations, the Board's liability amounting to £2,100. The new duties placed upon local authorities and the grants now available under maternity and child welfare schemes will materially assist the Board in the future, though it will be necessary to secure a unification of the service if overlapping is to be avoided.

The development of the other schemes of the Board is to a great extent in abeyance for the period of the war, but they will deal with such questions as grants to hospitals, houses for doctors and nurses, special emergencies such as payment of consultants' fees, conveyance of patients to hospitals, and payment of locumtenents where doctors are prevented by illness from attending to their duties. In some districts it has not been possible to enter into agreements with any doctors, and temporary grants had been made to practitioners amounting to about £323. The annual grant-in-aid amounts to £42,000, and as no unexpended balance has to be surrendered, the total income in the financial year ending March, 1916, amounted to rather over £129,000. The liabilities of the Board in respect of the year 1916 were £20,482 for the medical service, £2,116 for the nursing service, £480 for the hospital service, £517 for houses for doctors, and £224 for special emergencies. The balance to the credit of the Board at the end of 1916 was £98,540, while the grant of £42,000 for 1916–17 would be paid before the end of March, 1917. The Board regrets that owing to the war none of its schemes have yet been fully developed, and future conditions may make modifications necessary in all the schemes. The report concludes with a list of all areas in which arrangements have been made with medical practitioners, with their names and addresses. It is impossible to estimate the enormous boon which the services under the Highland and Islands Board will confer on the poorer classes in these parts of the kingdom.

Correspondence.

THE LIFE-HISTORIES OF THE LOWER BACTERIA.

SIR,—In the paper on the above subject which appeared in the BRITISH MEDICAL JOURNAL of May 5th I stated:

1. That the occurrence of aberrant morphological types of the lower bacteria has in the past been recorded by numerous observers, the usual explanation of such occurrence being the presence either of contamination, or of mutation, or of involution.
2. That the correct explanation had hitherto been missed, apparently because observation of the development of these aberrant forms in the warm stage had not been carried out.
3. That in consequence the question of these aberrancies representing phases in bacterial life-cycles occurring in orderly sequence appeared not to have been previously raised.

In addition to these statements I produced evidence which, from the fact that it was largely based on observations of the development of living organisms on the warm stage, appeared to me conclusive that the life-cycle of the lower bacteria is a highly complex process. And I laid particular stress on this evidence because I fully recognized that it is at present impossible to draw conclusi deductions from the use of any other method, whatever nature.

To-day I have received from Dr. Ainley Walker a let in which he points out, in the most charming mann possible, my error in supposing that the question of t true explanation of aberrant morphological types of b teria had not previously been raised. This error, arisi as it did from an incomplete search through the lite ture, I deeply regret. In the BRITISH MEDICAL JOURN of July 2nd, 1904, Dr. Ainley Walker and Dr. W. Murr recorded some of the results of their studies in b terial morphology, in cultures containing stains, a definitely suggested the "possibility of an unsuspect complexity in the life-history" of the micro-organis mentioned. These were the *B. typhosus*, the chol vibrio, and a coliform bacillus. Dr. Walker in his let frankly states that he has not yet been able to convi himself that he could absolutely prove his thesis of 19 though his four photomicrographs of dried preparatio together with the single photograph of a colony impr sion, go as far as anything—short of warm stage studies living organisms—can go in showing the likelihood of t truth of the thesis. The evidence his photographs pres of true branching, of mycelial-looking growth, and of lo flagellated filaments, together with the evidence he m tions in his letter of the presence of minute vegetat forms,[1] is, in fact, highly suggestive of complex life-cycl though he would be the first to admit that his record evidence does not go beyond suggestion. As, howev I have shown in my paper, the suggestion has been n "converted into demonstration" by observation of grow of single living individuals at suitable temperatur Moreover—and this should meet objections raised exponents of the involution theory—these aberrant morpl logical types can, as I have recorded, be found, if d gently searched for, in ordinary laboratory cultures o few hours old.

In concluding, I should, perhaps, note that in an adm able contribution on the parasitic fungi by Professor Pe Groom to the 1913 edition of Muir and Ritchie's *Manu of Bacteriology*, the theory is quoted that "bacte represent merely oidial conditions of very degener fungi." Professor Groom does not give the referen but it is possible—and Dr. Ainley Walker may, perhaps, himself the author referred to—that further search mig show that similar theories have been propounded prior 1904. This, however, would not absolve me from the la of knowledge of Dr. Walker's work, and of his theo which is the occasion of this letter.—I am, etc.,

London, W., May 11th. EDWARD C. HORT.

THE DANGER OF SMALL-POX.

SIR,—In reply to Dr. Millard's letter in your issue April 21st, I said that I did not see any reason why vac nation should not continue to be compulsory in infan and be repeated after the lapse of five or seven yea Dr. Millard now retorts that a single revaccination at t age of 5 will not protect "for life or anything like i I reply that quite possibly it may not—I never said it d It would, doubtless, give protection during childhood a early adolescence, and, should danger subsequently aris I can see no reason why the operation should not repeated. Does Dr. Millard?

Why, may I ask, is compulsory revaccination not "pra tical politics"? "We have done without it hitherto," sa Dr. Millard. No doubt, say I, but then we have suffer more from small-pox in the past than Germany, whe revaccination at the age of 12 is compulsory. Dr. Milla points with continued satisfaction to the "several serio outbreaks" stated to have occurred in that country duri the present war, but I submit that scarcely any details these outbreaks have as yet come to hand, and until w know more about them I maintain that no deduction against the efficacy of vaccination or revaccination c be drawn from them. To hint, as Dr. Millard seems to d that the outbreaks in question are the *result* of compulso revaccination is to run counter to all experience. B perhaps Dr. Millard does not quite mean that.

[1] In 1899 it was experimentally shown by Professor Adami that t "colon bacillus" appears under certain circumstances to give very minute vegetative forms, in addition to exhibiting oth aberrant morphological types. Adami, Abbott, and Nicholso Diplococcoid Form of the Colon Bacillus, *Journ. of Experim. Me* 1899, p. 349 et seq.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Dr. Millard "definitely challenges" my statement that vaccination we possess an admittedly certain means of fence. Yet in the very next paragraph he admits, in ply to Dr. Archibald Kidd, that "infant vaccination otects the individual." That is all I maintain. The arest approach to "certainty" we can reasonably hope om any such procedure is that obtained by an attack of e naturally acquired disease. Some people contract all-pox more than once. Some persons, even though ccinated, acquire small-pox. For practical purposes the fence afforded by recent vaccination is as reliable as ything of the kind can well be. If every individual were ccinated, every individual would be protected and the sease could not spread. It would seem as though, in . Millard's view, vaccination ceases to be a certain eans of defence when it becomes a "State institution." pparently it retains its efficacy in its private capacity!

To speak of inoculation as "producing similar or even ore striking statistics" than vaccination is, I submit, avely misleading. Dr. Millard has surely forgotten the story of that procedure. May I remind him that out of e first 845 persons inoculated in England no fewer than died of small-pox? that the inoculated is no less ngerously infective than the naturally acquired disease? d, lastly, that despite a fair trial amongst populations sperately anxious to find some means of protecting themves against the prevalent pestilence, the practice of oculation was gradually given up, and disappeared comtely on the introduction of vaccination? Is Dr. Millard t aware of these facts? I feel sure he does not intend to misleading, so that his is evidently a case of temporary nnesia.

It is with reluctance, Sir, that I trespass so largely on ur space, but Dr. Millard's is a serious heresy, threatenas it does the welfare of our country at a critical riod. Hence the time and labour spent in refuting are, perhaps, well expended.—I am, etc.,

E. J. MCWEENEY,
Pathological Department,
University College, Dublin.

May 14th.

*** This correspondence has already extended to great ngth, and, while ready to receive any correction of tters of fact, we cannot undertake to continue it.

DEATH FROM HIGH EXPLOSIVES WITHOUT WOUNDS.

SIR,—With reference to the interesting letter by Dr. wis Thomas of May 5th, it must be borne in mind that y change of atmospheric pressure applied to the whole dy is equally and instantly transmitted through the ids of the body to all its parts. Thus, when the circulan in the frog's web is projected on the screen, and the g (enclosed in a chamber with glass windows) is sudaly submitted to twenty atmospheres of pressure, no ange in the capillary blood flow is to be observed; so, , when the pressure is suddenly released. The parts of body which may be injuriously influenced by a sudden cuum are those parts which contain gas—for example, lung lobules may be made emphysematous by the lden distension of the air within them, which is unable escape rapidly enough through the bronchioles. Again, s in the intestine may expand and produce distension of guts and thus interfere with the circulation. Gas bbles may be set free in the blood by the sudden evacuan of a chamber in which an animal is placed, but is not at all easy to produce this effect. The bbles may block the circulation, just as occurs compressed air workers, divers, etc., when they too rapidly decompressed. The air by its elasticity s an enormous capacity of shielding the body from shattering effect of explosions; thus animals have perimentally been proved to survive the explosion out in open of large charges of gun-cotton a dozen feet or so ay from them, so long as the explosion did not shatter m by hurling stones, etc., as missiles. In closed places have to consider the possibility of a pressure exerted the body sufficient to kill the tissues. Between three or r hundred atmospheres of pressure will kill shallow water mals, the frog's heart and muscle, etc. Water enters o the tissue substance, the physico-chemical equilibrium which is altered so that it increases in weight and dergoes a kind of coagulation. Deep-sea organisms st be immune to this effect of water pressure. Is it possible in dug-outs that men are submitted to some hundreds of atmosphere of pressure by the bursting of a big shell? Another thing to consider is the production of a high concentration of poisonous gas—for example, the effect of carbon monoxide of a concentration equal to several atmospheres. Exposure to fifty atmospheres of pure oxygen, for example, will convulse and kill animals. May not such poisoning be a very probable cause of death?—I am, etc.,

London, May 15th. LEONARD HILL.

THE SOLDIER'S HEART.

SIR,—Your leading article and the correspondence that has resulted deal with a very important subject.

Those of us who are constantly handling men on boards for determining to what category they should belong, are frequently meeting cases that have been diagnosed as "D.A.H." I have found in a number of cases that men who were in a lower category and who have been examined and passed into category "A" with perfectly sound hearts, and have been sent to their third line for training, have been returned with distinct heart irregularities. The cause in most cases appears to me that their training has been too strenuous and not sufficiently graduated. After returning to a home service unit, when they come before the board again, there is no trace of heart affection.

While, therefore, the effect of tobacco smoking, overgrowth, and self-abuse in delicate lads may be the cause in a number of cases of heart affection, the most important at the present time seems to be the want of graduation in the training of youths not hitherto having done continued and strenuous physical work.

One of the most encouraging things is that the heart seems to be able to make a complete recovery in the majority of cases under suitable rest and moderate exercise.—I am, etc.,

London, April 15th. JOSIAH OLDFIELD.

MEDICAL BOARDS.

SIR,—Medical boards have had to endure a great deal of criticism, most of it very unjust, from the lay press; personally, I do not remember ever having read therein one word of praise.

It must be recollected that most of the members of medical boards are experienced examiners, who worked for very long hours without complaining, long before these boards were instituted. The insecurity of our position is a serious grievance. Members of medical boards are liable to be dismissed after receiving twenty-four hours' notice, which may result in real hardship for many men who devote their whole time to examining recruits.

We can only be granted twenty-four hours' leave. If we are ill for more than forty-eight hours, we are put on the waiting list, with only an off chance of being reinstated, and we receive no pay during such incapacity. The clerks in the recruiting offices are allowed six weeks' sick leave every year.

If only the authorities would improve our position, chiefly by making it more secure, I feel sure they would have no difficulty in procuring medical examiners, and that the present members of medical boards would be more contented.

I may add, in conclusion, that our work is sometimes very unpleasant, because often we have to bear, as best we may, a great deal of abuse from malingerers and prisoners.—I am, etc.,

May 11th. "PAREGORIC."

THE CALLING UP NOTICE.

SIR,—The warmest thanks of this our harrassed profession are surely due to the Central Medical War Committee for the firm stand they recently took with regard to Lord Derby's calling up notice to medical men.

A correspondent has already pointed out the waste of time and money involved by the holding of hurried committee meetings necessitated by this appeal.

But this is a trifle compared with the utter impossibility of any doctor arranging for his work to be carried on at such short notice even in normal times, and with the inevitable loss such a rapid exit would have entailed.

As a representative of an area which is already much

overworked, may I be allowed to offer in the name of that area our sincere thanks to the Central Medical War Committee?—I am, etc.,

H. L. EVANS,
Honorary Secretary East Yorks Local Medical War Committee.

May 8th.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE following additional subscriptions to the Fund have been received:

	£	s.	d.
Dr. Burrowes	1	1	0
Royal College of Physicians of Edinburgh, for the North British Branch of Pharmaceutical Society of Great Britain (per Dr. Norman Walker)—			
Subscriptions in hand, April, 1915	0	15	0
Dr. James Caskie	1	1	0
Mr. R. Hay	0	10	6
Mr. H. Dryerre	1	1	0
Edinburgh District Chemists' Trade Association (per Mr. A. A. Murray)	2	2	0
Mr. W. G. Johnstone	1	1	0
Mr. J. S. B. Heddie	0	10	0
Mr. Alex Inglis	0	10	0
Dr. G. D. H. Carpenter (24th donation—total £24)	1	0	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund crossed Lloyds Bank, Limited.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

Universities and Colleges.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary Comitia was held on May 10th, the President, Dr. Frederick Taylor, being in the chair.

Admission of Fellows.

The following gentlemen, elected to the Fellowship at the Comitia held on April 26th, were admitted, and gave their faith to the College:

Robert Henry Cole, M.D.Lond., David Nunes Nabarro, M.D.Lond., Henry Willoughby Gardner, M.D.Lond., Reginald Henry Miller, M.D.Lond., Percy Whittington Saunders, M.B.Toronto, Wm. Errington Hume, M.D.Camb., Henry MacCormac, M.D.Edin.

Licentiates.

Licences to practise physic were granted to two candidates who had passed the required examination and conformed to the by-laws.

Streatfield Research Fund.

A scheme presented by the Committee appointed by the Royal Colleges of Physicians and Surgeons for the administration of the Streatfield Research Fund was adopted.

Suspension of Systematic Lectures.

On the recommendation of the Committee of Management it was agreed that in consideration of the urgent conditions resulting from the war the Regulations of the Examining Board in England, which require attendance on systematic courses of lectures on anatomy, physiology, medicine, surgery, midwifery, pathology, pharmacology and therapeutics, forensic medicine including insanity, and public health, should not be enforced for the present.

The Committee of Reference.

At the request of the President a further grant was made towards the expenses of the Committee of Reference.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council was held on May 10th, when Sir Watson Cheyne, President, was in the chair.

Diplomas of Membership.

Diplomas of membership were granted to 103 candidates found qualified at the recent examinations.

Attendance on Systematic Courses of Lectures.

The attendance on such lectures was no longer made compulsory. This decision was arrived at as a result of a resolution adopted by the Committee of Reference of April 19th.

University of Wales.

Mr. W. F. Haslam was appointed the representative of the College on the Medical Board of the University of Wales for three years from May 12th, 1917, in the vacancy occasioned by the retirement of Mr. C. W. Mansell Moullin.

CONJOINT BOARD IN ENGLAND.

THE diplomas of L.R.C.P. and M.R.C.S. have been conferred upon the following candidates:

G. Adler, E. G. Anderson, E. B. Andreae, P. A. Ashcroft, E. Beale, D. C. Beaumont, W. T. Beswick, Alethea J. Bolton, A. Bolton, A. H. Boon, Marian N. Bostock, E. W. Bowell, J. Brash, I. Braun, E. D. Broster, D. Cameron, O. St. L. Campion, J. E. Carpenter, Kathleen L. Cass, H. Chadwick, C. C. Chesterman, H. J. C. Churchill, Stella Churchill, A. M. Clément, G. Cobb, J. C. Collins, R. S. Corbett, R. Coyte, W. Cramer, T. Cunnington, P. G. S. Davis, H. L. Douglas, J. R. Earp, Mahmoud Erfan, J. Fairbrother, R. French, P. E. F. Frossard, H. Gainborough, L. Gill, H. Gluckman, E. F. S. Gordon, M. Gourevitch, Grace M. G. Griffith, L. B. Hartley, F. J. Harvey, Lily Harwood, S. L. Higgs, H. W. H. Holmes, Cawas Homi, J. C. Howe, G. R. Hubbard, O. H. Hyman, Karam Chand Jaidka, Loiza E. Johnston, D. B. S. Jones, D. J. H. Jones, J. I. Keen, J. D. Kenyon, H. W. Leatham, H. W. Lewis, J. B. Lewis, I. J. Lipkin, E. E. Llewellyn, L. G. Lunnon, T. McLeod, A. N. McMillan, W. Marriott, J. A. Martin, H. G. Mence, F. M. Mosely, C. K. Mowll, W. W. Newton, A. L. Packham, A. E. P. Parker, A. H. Pearce, C. V. Pink, W. I. Fitz Powell, H. N. Pritchett, W. Murad Abdul Rahman, R. E. Rampling, D. W. R. Richardson, R. L. Robinson, A. Rose-Innes, Rowland, J. D. Rutherford, J. J. A. Scott, N. F. Smith, E. Spackman, M. B. R. Swann, Ellen Sylk, R. H. Tasker, J. P. Tennekoon, F. FitzG. Tisdall, W. J. Walters, F. E. G. Watson, Winifred H. Wells, W. H. White, J. P. Williams, J. H. Wiseman, L. H. Woods, W. G. Woolrich.

Obituary.

H. R. HUTTON, M.A., M.B.CANTAB.,

FORMERLY PHYSICIAN TO MANCHESTER CHILDREN'S HOSPITAL AND LECTURER IN DISEASES OF CHILDREN, MANCHESTER UNIVERSITY.

HENRY RICHMOND HUTTON was a man of marked abilities and many activities. His father was a civil engineer and his uncle the distinguished editor and founder of the *Spectator*.

After taking his degree at Cambridge Hutton entered St. Thomas's, and at the end of his course there was appointed an assistant demonstrator in physiology. The post he resigned on his appointment as physician to the Children's Hospital at Pendlebury after the retirement of Dr. Massiah in the early eighties of last century. For thirty years Hutton worked at the Children's Hospital and during that long time did a vast service for the welfare of children in Manchester. For the whole period of his office he saw out-patients in addition to visiting the hospital and taking charge of his wards. Not satisfied with this he acted for many years as physician to the Chest Hospital in Manchester and at Bowdon, and was for a time physician to the Ancoats Hospital. As a member of the committee of governors and of the medical board Hutton took due part in the administration of the Children's Hospital.

Hutton was a ready and fluent speaker, and was active in the Pathological Society, of which he was at one time president.

Though he did not write much on medical subjects, possibly because he was inclined to be too critical in the matter of style for ready composition, he gave valuable and ungrudging help in the preparation of his colleague's book on the *Diseases of Children*, and took a large part in the preparation of the abstracts of the Children's Hospital. The Children's Hospital, and the mothers of the district as well as his colleagues and successive generations of medical officers, know how invaluable Hutton's work was.

Hutton succeeded Ashby as lecturer in the university on diseases of children, and it is a pity that ill health compelled him to resign this post, for he devoted much time and thought to his lectures, and was a very successful teacher. This post also gave him the position of physician for children at St. Mary's Hospital, and here again he worked hard at the out-patient department and in the ward.

He took an active part in the development of the infant welfare schemes, being vice-chairman of the Executive Committee of the Schools for Mothers, and gave unstintingly his time and energy to promote the measures that were being taken to improve the conditions of infant life in Manchester. Apart from his profession Hutton had many activities. He took a prominent part in local administrative life. At one time he wrote for his uncle in the *Spectator;* he was a musician, a keen angler and shot, and a practical gardener. Perhaps his happiest days were those when he had a shooting of his own. In all these country interests the writer had at different times the

LIBRARY U. OF I. URBANA-CHAMPAIGN

privilege of sharing, and he knows how full was Hutton's delight in country life.

Hutton's brain was essentially keen and active. He loved an argument, and would have been a formidable opponent if he had been at the Bar. Politically he was a strong supporter of the Liberal Party. He was an active champion of any party or cause which was in his view suffering wrong, and was outspoken in criticism of any wrong-doing. Active and energetic as he was, Hutton's health was not robust, and he had a bad breakdown a year or so before his retirement in 1913. He never really regained strength, and in spite of the most devoted care by Mrs. Hutton, after being an invalid for three or four years he died suddenly at his house at Haslemere in March, 1917.

Hutton had many friends who valued him highly, very many who owed him gratitude; a home at all stages of his life to which he was devoted, and in which he was completely happy in a consciousness of good work done. We miss him, and will always remember him as a man of spirit and energy, and a true friend. G. A. W.

PROFESSOR LANDOUZY,

DEAN OF THE MEDICAL FACULTY OF PARIS.

LOUIS LANDOUZY, whose death was announced on May 10th, was born at Rheims on March 27th, 1843. He came of a medical family, his father and grandfather having been doctors. He received his literary education in the *lycée* of his native city. He began his professional studies at the medical school of Rheims and continued them in Paris, where he took his doctor's degree in 1876 with a thesis on convulsions and paralyses connected with fronto-parietal meningo-encephalitis. He was appointed physician to the Paris hospitals and professor of clinical medicine in the Faculty, of which he was dean at the time of his death. He was a member of the Institute of France and of the Académie de Médecine and an officer of the Legion of Honour.

Professor Landouzy was a conspicuous figure in the medical life of France. He was keenly interested in making the virtues of the French spas known to foreigners, and on several occasions personally conducted parties of medical pilgrims to these shrines of healing. He was the author, in conjunction with A. Gautier, Moureu, and de Launay, of a treatise on mineral water cures (1910). He presented a communication, written in conjunction with Jean Heitz, on the scientific basis of balneotherapy at the International Congress of Physiotherapy in Berlin in 1913 and at the International Medical Congress in London in the same year. Among his most important publications are clinical lectures on the various forms of ringworm, in conjunction with C. Lailler (1876); conjugate deviation of the eyes and rotation of the head by excitation or paralysis of the sixth and eleventh pairs (1880); trophic progressive myopathy, hereditary myopathy without nerve disease, etc., in collaboration with Dejerine (1885); serumtherapy (1898); a medical glossary, in conjunction with Jayle (1902); a textbook of medical anatomy and physiology, in conjunction with L. Bernard (1913); and numerous papers on food and hygiene. Landouzy was a leader in the campaign against tuberculosis in France, and wrote much on that and related matters. A short time ago he was awarded the médaille des epidémics in recognition of his services to preventive medicine, especially in the battle against tuberculosis. In 1915 and 1916 he presented memoirs on syphilis before the war to the Académie de Médecine, which were published in the *Bulletin* of that society, and in 1915 he contributed an article on war and the discharge of the tuberculous soldier to the *Revue d'Hygiène*. He was the editor in chief of the *Revue de Médecine*, and the scientific director of the *Presse Médicale*.

He was fond of travel, was a good judge of pictures, and a collector of books whose interest extended beyond the bindings to their contents. Professor Landouzy married a daughter of the late A. Richet, the distinguished surgeon. There is no issue of the marriage.

WE regret to record the death of Dr. T. EDGAR UNDERHILL, aged 62, who had practised for the last twenty-seven years at Barnt Green, in Worcestershire, having previously for four years practised at Bromsgrove, where he succeeded the late Dr. Prosser. Dr. Underhill belonged to a well-known medical family, his father and uncle having been among the best-known practitioners in South Staffordshire, where their work and name are still continued. He graduated M.B., C.M. at Edinburgh in 1876, and M.D. in 1886; he was also F.R.C.S. and F.R.S.Edin. He joined his father in practice at Tipton, Staffordshire, where he remained for ten years, holding at that time the post of surgeon to the Guest Hospital at Dudley. On moving to Bromsgrove he became medical officer to the school, and also surgeon to the local volunteer battalion of the Worcestershire Regiment, retiring with the rank of surgeon-major after sixteen years' service. He took an active part in local affairs, being vice-chairman of the School Board, and bailiff of the Bromsgrove Court Leet. These activities were combined with a large professional practice; he was President of the Birmingham Branch of the British Medical Association and of the Midland Medical Society. His interest in church work led him to serve several turns of office as President of the Birmingham Medical Mission. Latterly he has worked in connexion with the British Red Cross, and was medical officer to the "Beaconwood" Convalescent Hospital for Wounded Soldiers. He leaves a widow and several sons and daughters, of whom five are serving in H.M.'s Forces. He was a good and worthy representative of his profession, who will be greatly missed by a wide circle of friends and patients.

THE death, on May 5th, is announced of Dr. ISAAC COALBANK, M.D.Paris, M.R.C.S., L.S.A., aged 73. He was a son of the late Rev. Robert Coalbank, Vicar of Old Dalby, Leicestershire. He started early in the sixties at St. Bartholomew's Hospital, and held the offices of house-surgeon to Sir W. Savory and house-physician there after taking the two diplomas of the College and Hall in 1866. He was one of the first of the house-physicians, as there was no such office until his days of studentship at St. Bartholomew's Hospital. Before he became house-physician to the late Dr. Frederick Farre he studied in Paris and travelled with a patient in Syria, Palestine, and Egypt. For a time he filled the appointment of house-surgeon to the York Road Lying-in Hospital. Afterwards he settled in practice in Teddington, ending his days there after many years of useful work.

The Services.

EXCHANGE.

WOULD an officer on Home Service care to exchange with an officer holding appointment on Lines of Communications? Easy exchange from this to Front Line could be arranged if desired. Territorial Officer preferred.—Address, No. 1650, BRITISH MEDICAL JOURNAL Office, 429 Strand, W.C.

Medical News.

BY the will of the late Dr. William Price, of Southerndown, Glamorgan, the medical school of the South Wales University College will benefit by £20,000.

DR. E. GRAHAM LITTLE has been elected by graduates in medicine and surgery of the University of London to fill a fourth term of office (1917–21) on the Senate of the University.

DR. WILLIAM HENRY FRETZ, Senior Medical Officer of Health, St. Kitts, has been appointed an official member of the Legislative Council of the presidency of St. Christopher and Nevis.

THE War Pensions Statutory Committee now endeavour to provide for after-treatment and training for officers about to be invalided from the service, and to assist them, as far as possible, to obtain suitable posts. Application should be made to Lieutenant-General Sir F. W. Stopford, Statutory Committee (Officers' Branch), 4, Cowley Street, Westminster, S.W.1.

ON May 10th a number of medical men and women inspected the College of Ambulance, 3, Vere Street, London, W., and were shown by the Principal, Colonel James Cantlie, the technique and methods of teaching ambulance at the college. Subsequently an interesting display of transport drill, and improvisation of ambulance appliances was given by V.A.D. men and women, who had

been trained there. Among the visitors were Sir Rickman Godlee, president of the college, Sir Thomas Barlow, Sir Henry Morris, and Sir James Crichton-Browne.

MR. ALFRED T. DAVIES, C.B., of the Board of Education, has written under the title *Student Captives* a short account of the British prisoners of war book scheme (educational), whose object is to provide British prisoners of war interned in enemy or neutral countries with educational books. His pamphlet shows how much trouble has been taken by the committee to provide the prisoners with mental interests, and to make suitable provision for their education so as to enable them to redeem the time of their captivity. It includes letters of approval from Lord Crewe, and the present President of the Board of Education. Letters of inquiry should be addressed to A. T. Davies, Esq., C.B., Board of Education, Whitehall, London, S.W.1., and the words "Prisoners of War" written in the left-hand top corner.

THE Council of the Association of Public Vaccinators of England and Wales has been in correspondence with the Local Government Board with reference to the Board's recent order permitting medical officers of health to vaccinate small-pox contacts. In order to clear up any misunderstanding which may have existed with regard to this Order, we are asked to state that the Local Government Board has laid down that the object of the Public Health Small-pox Prevention Regulations, 1917, is to empower the medical officer of health to vaccinate or revaccinate small-pox contacts. The Board anticipates that the need for this will only arise when the services of the public vaccinator are not immediately available. In ordinary circumstances the operation should be performed by the public vaccinator as hitherto.

THE first meeting of the National Baby Week Council was held at Armitage House, Great Portland Street, London, W., on May 10th, under the chairmanship of Sir Robert Morant. A report from the Executive Committee was presented, dealing with arrangements for the baby week to be held from July 1st to 7th. Sir Malcolm Morris, in moving the adoption of the report, said that recent statistics showed that during the first three months of the year in which the Local Government Board regulations regarding venereal disease had been in force 4,000 cases of syphilis had been under treatment in the London clinics. These would never have been treated but for the Board's order. The effect of this treatment on the birth-rate of the future would be incalculable. The object of the Council, of which the Premier is president and Lord Rhondda chairman of Council, is to arouse a sense of racial responsibility in order to secure a birthright of mental and bodily health to every child born in the United Kingdom, and to keep the public generally informed as to what is being done for young children and mothers, and what could be done. Information may be obtained from the secretary, Miss Alice Elliott, Kingsway House, Kingsway, W.C.2.

THE *Southampton Medical Directory for 1917*, edited by Dr. A. A. Mackeith, is a somewhat novel publication of 68 pages, price 3s., intended to supply medical practitioners with not only the usual information about all the doctors of the area but of the chemists, dentists, midwives, nurses, hospitals, etc. Several pages are devoted to medico-legal information, and there is a summary of the public health activities of the county borough. Various directions for the use of panel practitioners are culled from the documents which have been from time to time issued by the Commissioners or Insurance Committee, and there are lists of all the Poor Law and other officials of the Local Government Board and other Government departments of the district. A number of pages are devoted to the various medical societies meeting in Southampton, the rules of the societies being given with in some cases extracts from their annual reports. There are also lists of the members of the Insurance, Panel, and Medical War Committees and particulars of practically all the various public, charitable, and private institutions of Southamptom which may be of use specially to medical practitioners. For this year the directory is published in what is called outline form, but it is hoped that in the future it may be used for publishing the reports of all the local medical societies. It ought to be of use to all the practitioners of Southampton and district as supplying in a handy and compact form much information which medical men require almost daily.

A REPORT of the work of the Invalid Kitchens of London during the past three years has been published by the Executive Committee. The object of this deserving charity is to provide invalid diet for women after childbirth, for convalescents from hospitals and dispensaries, for cases of pulmonary tuberculosis awaiting admission to sanatoriums, and for other acute cases nursed in their own homes. Dinners are supplied to two classes of patients (1) Those who, though able to pay, are not in a position to cook appetizing invalid diet in their own homes; (2) those who cannot afford to pay the full cost of invalid food. The war has naturally affected the work of the kitchens in many ways. In 1914 a war emergency committee was formed, and kitchens were opened in twelve new districts each with a representative local committee. The central organization was incorporated with the scheme of relief inaugurated by the National Relief Fund, and satisfactory arrangements were made with the two principal soldiers' and sailors' benevolent organizations, to the great benefit of the families of the men serving in the forces. Munition workers also have been helped back to health and work. Last summer, however, owing to difficulties of labour and transport, the work of the kitchens had to be restricted, and with the cessation of many contributions in money and kind it became necessary in July, 1916, to close ten kitchens temporarily. Funds are urgently needed to enable the committee to carry on the kitchens that are now open, to reopen as soon as possible those that have been temporarily closed, and to prepare for the time when kitchens will be wanted more than ever. The honorary secretary is Lady Muriel Paget, 32, Victoria Street, S.W.1.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand London;* telephone, 2630 Gerrard. (3) MEDICAL SECRETARY. *Medisecra, Westrand London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

INCOME TAX AND DEFERRED PURCHASE.

IN drawing up an agreement for deferred purchase of a practice unless it is made quite clear that the future annual payments are merely postponements of a predetermined purchase price the payer, that is, the purchaser of the practice, may be entitled to deduct income tax from the payments made, which in effect taxes the vendor on the full sale price of the practice. But tax is not deductible from payments accruing *de die in diem*, and not calculated at yearly rates. An alternative method of avoiding the granting of the right to deduct tax would be to exclude any reference to the "year" in stating the basis of payment. If this exclusion be joined to a statement of purchase price the vendor would be doubly safeguarded.

LETTERS, NOTES, ETC.

RHUBARB LEAVES.

DR. ALBERT E. TEBB (London) writes: In recording the unfortunate case of the death of an Enfield clergyman after eating rhubarb leaves cooked as a vegetable, it seems to me that the most important point in regard to causation and to the lesson to be learnt from the case has been omitted. In the report of the inquest given in the daily papers, the servant made special mention of the fact that she had used washing soda in the cooking of the leaves. Surely in this piece of culinary chemistry (quite legitimate in the case of cabbage and of most ordinary greens) lay the fatal mistake—for by its action a soluble oxalate was formed, if not also free oxalic acid.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

LIBRARY U. OF I. URBANA-CHAMPAIGN

MILITARY ORTHOPAEDIC HOSPITALS.

BY

W. COLIN MACKENZIE, M.D.,

MEMBER OF THE COUNCIL OF THE ANATOMICAL SOCIETY OF GREAT BRITAIN AND IRELAND, AND OF THE SURGICAL STAFF, MILITARY ORTHOPAEDIC HOSPITAL, SHEPHERD'S BUSH, LONDON.

PART I.—PRINCIPLES AND TREATMENT.

THE contributions made to surgical science by Great Britain in the last hundred or hundred and twenty years have placed the world for ever under a debt to the savants of this country. The discovery, about the year 1799, by Sir Humphry Davy that anaesthesia could be induced by vapour inhalation and the suggestion that nitrous oxide might be used with advantage during surgical operations;[1] the introduction of the antiseptic system by Lister, and the publication of the *Origin of Species* by Darwin which firmly established the principles of the law of evolution—these all effected a complete revolution on medical thought both as regards its theory and its practice. To show how great the revolution was a reference may be made to Lister's papers and more especially to the year 1873.[2] At that time a Scottish medical student was receiving his training in surgical wards from which hospital gangrene, blood poisoning and erysipelas had been banished, and he was witnessing operations under chloroform anaesthesia, the mortality from which in Syme's first series of 5,000 cases was *nil*. In anatomy not only could he, like Hunter, study man in relation to the animal world, but, thanks to the genius of Darwin, could study each animal in its sequence to some other. The law and order of function and structure took the place of chaos.

It is interesting to note that about that time a commission was sent to Edinburgh from Germany under Lindpainter. The wards of the hospitals of that country were foul with sepsis, and the magnificent hospital in Munich was about to be destroyed owing to the prevalence of blood poisoning, 80 per cent. of all wounds being affected by hospital gangrene. From this country, after a year spent in acquiring principles and methods, the German Commission took away a sound knowledge of the antiseptic system, anaesthesia, and of comparative biology—the three factors to which modern surgery owes its existence. After Lindpainter's return from Edinburgh not a single case of hospital gangrene occurred in the Munich Krankenhaus, and pyaemia and erysipelas were banished.

The effects on surgery of the introduction of the antiseptic—or, as called later, the aseptic—system were immediate. Its greatness was recognized throughout the world, and everywhere surgical wards and operating theatres were modelled on the British principle. The cranium, thorax, and abdomen could now be explored, and cases always regarded formerly as hopeless were rendered curable.

Unfortunately, the simplicity and power of the antiseptic system was not unassociated with danger. It placed a force in the hands of men who were apt to forget that a knowledge, if not of comparative, at least of human anatomy was the essential basis of all surgical treatment. If Lister regarded surgical treatment as largely a question of asepsis, it was because he recognized sepsis as surgery's curse, against which he bent his titanic energies, and over which he finally triumphed. Listerism was associated with action. In itself it did not convert the practice of surgery from an art into a science.

Why Britain's contribution to surgery stands unequalled is that not only did it introduce to the world the antiseptic or operative system but also its complement—the conservative system. Not only did it offer the world a system by which, for example, a tuberculous joint could be excised or explored without risk of sepsis, but also a method by which the joint, treated conservatively, could be absolutely cured. This complement we owe to a Welshman whose greatness is now only beginning to be generally recognized, and whose life, "teeming with good deeds done," was prematurely cut off at the early age of 57. I allude to Hugh Owen Thomas of Liverpool, of whom Professor Steele, the eminent American orthopaedic surgeon, in his oration on Thomas delivered before the Orthopaedic Congress at Washington,[3] said: "In orthopaedic surgery more of originality and practical therapeutic suggestion has been given by no one. I have greatly enjoyed perusing his works, and it has not been without profit; I trust that what he has left in print will be found in the library of every member of our Association, for from no single source within our own times has so much of orthopaedic originality and suggestive practice emanated."

As Thomas's work was so bound up with the principles of muscular action, and as we recognize that the restoration of muscular function to the normal is the foundation of all orthopaedic treatment, whether active or passive—and this applies equally to injury of muscle, nerve, nerve centre, joint or bone—a reference is necessary to certain fundamental principles connected with nerve and muscle discovered in this country, so that the position of Thomas can be clearly defined.

Professor Keith has told us that Hunter devoted a large amount of his time to the study of muscle and bone, and first distinguished between nerves of ordinary sensation and nerves of special sense. Hunter's Croonian Lectures[4] on the physiology of muscular motion probably constitute his most important work. In studying movement not only did he go to the lowest forms of the Invertebrata, but also to the vegetable world, just as in investigating form he studied crystals. Hunter differentiated atrophy of muscle from disuse as well as from disease. He differentiated between velocity and force of action, and dealt with the adaptation of muscle to joint, and of muscles going over more joints than one.

He recognized that relaxation of muscle was a power as much depending on life as contraction, and not, as had been previously taught, a simple cessation of action. The state of rest he regarded as the state of inaction. "The elongation of a muscle is not the immediate result of its relaxation." Thus, if we take such an apparently simple movement as flexion of the finger, the stimulus which excites contraction of the flexors produces also a relaxation of the opponent extensors. The flexors by their contraction become the elongators of the relaxed extensors, and these relaxed and elongated extensors become by their subsequent contraction the cause of elongation of relaxed flexors. These two groups Hunter defined as "Reciprocal Elongators."

> These reciprocal elongators, then, by their mutual action on each other bring out a middle state between the extremes of contraction and elongation, which is the state of ease or tone in both. Either extreme of motion leaves the muscle in an uneasy state. We find, then, that as soon as any set of muscles cease to act, the elongators, which were stretched during their action, are stimulated to act in order to bring these parts into a state furthest removed from the extremes which were uneasy and by which the stimulus arising from both is equally balanced. The elongated state of a muscle is an uneasy state—a muscle, therefore, that is stretched, although in a relaxed state, is uneasy, and will contract a certain length to what is probably the middle state.

We recognize that a muscle which has relaxed and elongated *pari passu* with the contraction of its opponent cannot at the same time be in a state of contraction. If the extensor communis digitorum extended the two distant phalanges we could not have extension of the metacarpophalangeal joint with flexion of the interphalangeal joints. Yet we can readily perform this. Nor could we have extension of the interphalangeal joints with flexion of the metacarpo-phalangeal, yet this normally also can be performed. A muscle cannot at one time help the extenders and at another the benders. To allow the opponent flexors to act, it, as an extender, becomes relaxed and elongated. Then, in some extraordinary way, this relaxed muscle fibre is supposed at the same time to be contracted and shortened to help the flexors.

Following shortly after Hunter came the brilliant researches of Charles Bell, whose classical work on the nervous system undoubtedly forms the basis of our knowledge of the physiology of the subject. For his work on respiration alone Bell's fame could stand. But Bell did more than that. In his own words he thus describes his great discovery.[5]

> I have now only to add that my opinions and experiments have been followed up to the satisfaction of all Europe. It has now been acknowledged that the anterior roots of the spinal nerves bestow the

power of muscular motion, and the posterior roots sensibility. When the anterior roots of the nerves of the leg are cut in experiment, the animal loses all power over the leg, although the limb still continues sensible. But if, on the other hand, the posterior roots are cut, the power of motion continues although the sensibility is destroyed. When the posterior column of the spinal marrow is irritated the animal evinces sensibility to pain, but no apparent effect is produced when the anterior column is touched.

In the year 1832 Bell's experiments were followed by the discovery in London by Marshall Hall of the reflex function of the medulla oblongata and medulla spinalis. In addition to the three modes of muscular action previously recognized—namely, voluntary, that of respiration, and the involuntary—Marshall Hall recognized a fourth, namely, the reflex action.

> The first three modes of muscular action are known only by actual movements or muscular contraction. But the reflex function exists as a continuous muscular action, as a power presiding over organs not actually in a state of motion, preserving in some, as glottis, an open and in others, as sphincters, a closed form, and in the limbs a due degree of equilibrium or balanced muscular action.

Not only did Marshall Hall discover and define "reflex action" but recognized the reflex function as the source of equilibrium in the muscular system. His original paper, read before the Royal Society,[6] in which his experiments are detailed, should form part of the armamentarium of all orthopaedic students. Then will they recognize in true perspective the work of the minor satellites who have audaciously associated their names with side issues of this great discovery.

The basic principle of the study of anatomy during the time of the Hunters and the Bells was function. Largely through the influence of Cuvier in France and Owen in this country—although the latter was curator of the Hunterian Museum—the study of the functional system was superseded by that of the structural, and it is idle to deny that the descriptive method, with its pernicious examination backing, accounts for the negligence with which not merely comparative but human anatomy is studied. As Charles Bell himself wrote: "The one chief purpose in studying the anatomy of the human body is to understand its functions and to compare them with those of other creatures till we arrive at last at some distinct conception of the whole; of the various structures of animals and vegetables; and of the various functions which in each of these classes support life and action, and through it the principle of life."

With the publication of the *Origin of Species* and the placing of the Law of Evolution on an unassailable basis a new weapon for the study of function was placed in the hands of the medical profession. Function could now be studied from the point of view of correlation, and structure from the point of view of necessity. Yet even this mighty impetus has so far failed to slacken the hold of the descriptive system on the medical curriculum, although in the last few years there are all the evidences of change.[7]

Unfortunately the descriptive system received in the antiseptic system a powerful ally. Cleanliness, a knowledge of technique, and of position of the main bodily structures, have for the last half-century constituted the main armamentarium of the operating surgeon.

To concentrate our attention on function as embodied by conservatism was the ideal which H. O. Thomas formulated. For that ideal, unpopular then as now, he fought throughout his all too short life. It was a fight that required a man with giant energies and an unswerving belief in his own principles. With what contempt must the young surgeon have looked on Thomas, who, discarding the ease with which—thanks to anaesthesia and antisepsis—a joint could be excised, preferred to "cure" the joint by scientific rest. His death, just as in Hunter's case, excited little interest in his own country. Not so, however, in America and Australia, where the scientific value of his principles was well known. The mists of prejudice are now becoming cleared from men's eyes as it is realized more and more that Thomas's principles embody the application of the functional method to practice. This, after all, is the only scientific method, because it is founded on the basis of the true anatomy—namely, the biological or comparative.

Thomas made in all ten contributions to medical science, and of these the most important are *The Principles of the Treatment of Joint Disease*, and *The Principles of the Treatment of Fractures and Dislocations*. It is generally conceded that these principles are on the level of Hunter's Croonian Lectures.

Thomas can be regarded as the apostle of the conservative or rest treatment of joints, bones, and muscles—not surgical rest, so called, but anatomical rest. He knew, of course, that complete rest could only be attained *post mortem*. In his methods he aimed at effective immobilization, abolition of concussion, and avoidance of pressure.

To his medical knowledge he added a sound acquaintance with the principles of mechanics and mathematics. The keynote of his work is to be found in his knowledge of the physiology of muscular action. Thomas recognized that in inflammation of a joint the altered position relative to the normal which the parts comprising the joint assumed was due to muscular action and not to so-called increased tension. Increased tension he knew could not cause movement. He looked on muscles as sentries needing control but not structures to be forcibly stretched or subcutaneously divided, as was taught.

> Hip and other joint deformities accompanied by inflammation arise mainly from the effort of the patient by the exercise of his will to pose the limb in the easiest position and fix the articulation, without which ease could not be gained. Knee-joints are not infrequently presented to the surgeon suffering from liquid distension only, which the muscles appear to know, for there is an absence of any deformity as there is no special muscular intervention. The articulation, however, is fixed more effectively by art than by the natural method of muscular action. In fact, a through fixation of a diseased joint is a physical method of physiologically suspending or disconnecting for a time muscle influence from a joint, and this inhibition of muscular interference will be the more complete just in proportion to the practical efficiency of mechanical aid.

Rest of the joint was secured by controlling all the muscles which produce or tend to produce movement. He rested the joint in the position naturally assumed in the inflamed condition owing to muscular action, the deformity being reduced gradually as the joint recovered. He gave relief to the unhealthy portion by action on the healthy—that is, he attached his controlling appliance to the sound portions only of the limb to which the diseased articulation belonged, and not as was usually advised to the diseased part, inasmuch as he knew that in this way the diseased area was subjected to pressure. Traction in the line of deformity he knew would be endless traction and that it was impossible for a flexed hip-joint to have its angle from the plane reduced if the traction were constantly at that angle.

> No matter what the primary cause of the disease in a joint, whether it be induced by trauma, struma, syphilis, gonorrhoea, or rheumatism, rest cannot be dispensed with, for, if surgery does not step in, Nature is sure to intervene by the muscular method, knowing that arrest of motion is the one thing needful before all others. In man's evolution it was his only chance of recovery from hip-joint inflammation.

It was his practice when treating a diseased articulation by enforced rest never to test for motion so long as resolution of the disease was not seemingly established, and then in the gentlest manner possible. No amount of rest, he knew, would produce ankylosis in a joint free of disease. It might produce stiffness, which is only a trivial and temporary hindrance.

Between a stiff and an ankylosed joint is no analogy beyond the absence of motion. His views on ankylosis of joints are noteworthy, and were years ahead of his time.

> In the condition of diseased articulation we find inflammation and the accident attendant on it—namely, deformity. To the treatment there can only be applicable the principle that the most perfect and continuous practical immobility should be enforced so long as unsoundness is known to exist. To this principle there is no exception. The more completely an unsound joint is maintained at rest, if the rest arrests friction and removes pressure, the sooner it will become sound and able to endure pressure and

LIBRARY U. OF I. URBANA-CHAMPAIGN

friction, the probability of ankylosis remaining is diminished, but if ankylosis results—and it cannot always be avoided—it should be accepted not as evidence of defective treatment, but rather as an indication of the intensity of the disease. The purpose of treatment should not be to induce ankylosis, as is so often done under the supposition that such a limb is better suited to the wear and tear of use, or that relapse and recurrence were not so liable to happen if ankylosis of an articulation occurred. An unsound ankylosis is quite as liable to retrogression with motion as an unsound joint. Deformity is evidence of Nature's attempts to secure rest for the articulation by fixation of the joint. It is Nature's mode of immediate help. Ankylosis is Nature's reserve assistance. Ankylosis prepares to fix the joint when the method by muscular control begins to fail. The surgeons of the past judged deformity to be an unavoidable defect, and ankylosis as often a necessary evil. But deformities are avoidable, and ankylosis is in no instance to be desired, though it may be in the presence of certain conditions an unavoidable termination. The fact that there has hitherto been no sure test of recovery has led to the belief that joints which have been excised are less prone to subsequent trouble from recurrence of unsoundness. It has always been a favourite argument that without excision the diseased joint is the subject of frequent and unexpected relapses, whereas the real cause of relapse has been the fact that treatment was in past time suspended ere soundness of the articulation had been secured.

Thomas was careful to distinguish clinically between healthy, inflamed, ankylosed inflamed or unsound, ankylosed but sound, sound or recovered, and deformed joints.

> In an unsound ankylosis progressive and evident motion will follow use if the limb in which the ankylosis exists be employed for its usual purpose, while in an ankylosed but sound articulation ordinary daily use cannot bring on any variation of position, an indication that such condition should be termed true ankylosis. An inflamed joint is an articulation the radius of action of which is gradually diminishing. The diminished radius of action designated joint deformity tends to increase so long as the joint is unsound and untreated, and is caused solely by the efforts of Nature to practise immobility as a means towards aiding restoration. A sound or recovered joint is one from which traces of previous inflammation have passed away. In evidence of this sound condition and complete recovery it is noticed that by ordinary daily use the radius of action to and from the position maintained during treatment is seen to be gradually increasing no matter in what position the limb may have been fixed during treatment—an infallible sign of soundness and a justification for no further restraint or surgical interference.

He protested against the terms true or bony and false or fibrous ankylosis.

> The expression false and true ankylosis should refer to the permanency of the rigidity, not to its structure; that is, no ankylosis which will vary either by test or use should be termed true ankylosis and no ankylosis which remains immovable by either test or use should be termed false ankylosis. As long as false or unsound ankylosis lasts there is always a prospective chance of recovery with complete or some motion by use alone.

He was careful to insist on a utilitarian position should ankylosis be inevitable. At the elbow flexion not extension; at the hip and knee extension; at the ankle with the foot at a right angle; at the wrist dorsiflexion, ordinary flexion giving a weak finger grip in grasping. In vehement terms he denounced the breaking down of contracted joints, a practice which unfortunately is still followed by the ignorant.

> Joints that have perfectly recovered either from injury or disease regain motion earliest by their being employed in their ordinary manner. Joints that are not in a healthy condition automatically resent attempts at compulsory employment. Passive motion applied to joints injured or diseased delays recovery, and if applied to joints cured it delays the event of complete restoration of function. The good repute which the public has given to bonesetters, osteopaths, passive motionists, shampooers, manipulators, and Bethshanites rests upon the fact that these unscientific practitioners get the charge of joints and fractures when their cure has been consummated and merely preside during the resumption of function. They only watch the rising sun and profess to assist its cure practising certain flexions, extensions, twists, jerks, and pushes, with passive motions and other details evidently intended to give proper dignity and importance to their proceedings. The treatment, however, which the sufferer is most in need of he seldom meets with—namely, no motion. As soon as the part under treatment has become healthy it will resume its function more fully and readily rather by the attempts of the late patient to use the part than by supplemental violence, such as passive motion or violent manipulations. If the part be sound its range of function increases with use. If ankylosis can possibly wear off it does so best by the patient's attempts at ordinary use of the part.

Treated on the above principles, he confidently asserted that every case of hip-joint could be cured without leaving a fractional deformity of flexion, and consequently without any shortening except that arising either from the arrest of growth where inflammation has interfered with the growing points in the upper part of the femur or from erosion. He asserted the same as regards the treatment of knee-joint disease. He was a bitter opponent of the indiscriminate excision of joints.

> Joints injured or diseased when they show no signs that may lead us to think they can recover, should be amputated. My contention has been that the joint that can recover after excision can recover without it, and joints that do not recover after excision ought to have been removed by amputation.

He never once excised an elbow-joint, and states:

> I have never met with a case of excision of the elbow which equalled in usefulness a diseased elbow-joint truly cured. Even if ankylosis remain, the part, if sound, is less liable to relapse or give future annoyance to the patient than after an excision, however successful.

That has been the experience of Peter Bennie, the distinguished Australian surgeon, during thirty years' application of Thomas's principles. "I have never," he writes, "seen a case in which amputation for hip disease was necessary, and if the joint is properly fixed by a Thomas hip splint excision will never be required."

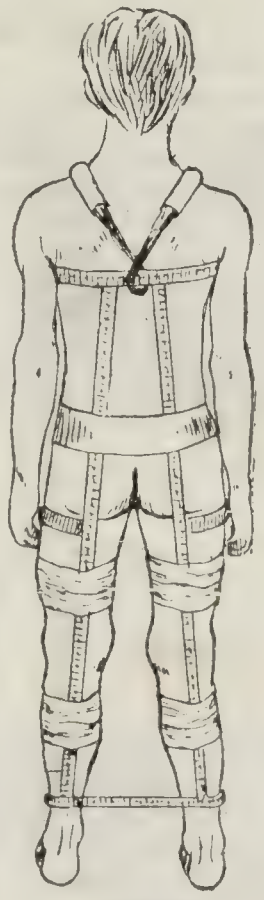


FIG. 1.

FIG. 1.—The double Thomas hip splint applied. (After Thomas.)

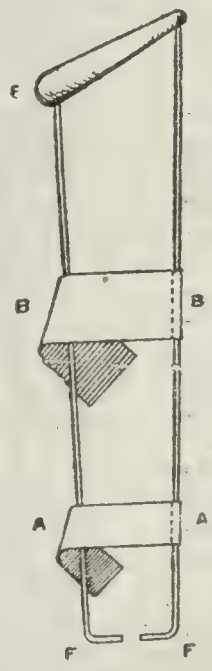


FIG. 2.

FIG. 2.—The caliper knee walking splint. (After Thomas.) E, Ring at upper thigh. B, Band behind knee. A, Band behind lower third of leg. F, Inserted into socket in boot heel.

To put these principles into practice Thomas introduced to the profession many ingenious appliances, of which the best known are the hip or dorsal fixation splint and the knee splint, the varieties of which are the "bed" for resting and the "caliper" for walking, which latter, by transmitting the weight from the hip to the heel, enables the patient to walk with the knee at rest. The knee splint has been the most universally used splint in the war. The hip splint, though quite simple in construction, is probably the least understood of all his splints; this, however, is the result of prejudice and of ignorance of principles both of mechanics and of rest. It is the only splint in the world whose application has been raised to a science. I allude to P. B. Bennie's formulae

for the accurate fitting of the splint and the correction of deformities. One formula is:

$$Sin\ \theta = \frac{cos\,\alpha,\ sin\,\beta}{\sqrt{(1 - cos^2\alpha,\ cos^2\beta)}}.$$

Where θ = angle through which the plane of the splint is rotated in the direction of the lateral displacement, α is the angle of flexion required calculated from 0° as normal, and β the angle of adduction or abduction, the rotation being made just above the joint and the flexion opposite the joint.[8]

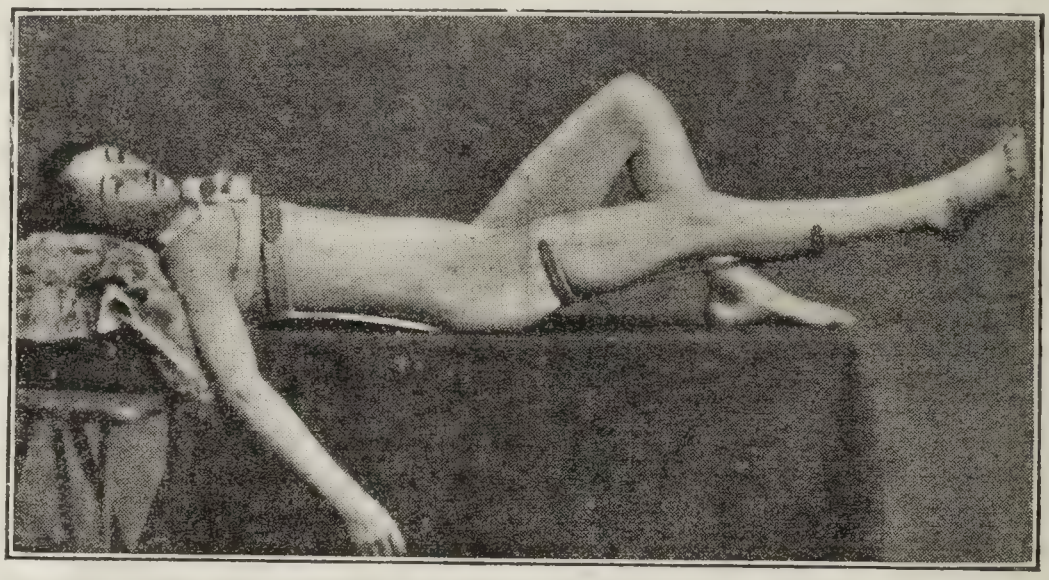


FIG. 3.—Effective rest of right hip-joint by Thomas's dorsal fixation splint. (After Bennie.)

For elbow flexion Thomas used a halter and collar; for the wrist a simple tin splint to hold the joint in the position of dorsi-flexion; for the dorso-lumbar spine a cuirass; for cervical disease a leather collar; and for ankle disease the simple "crab" splint.

Thomas's work on fractures is pregnant with original ideas. A brief mention may be made to some important

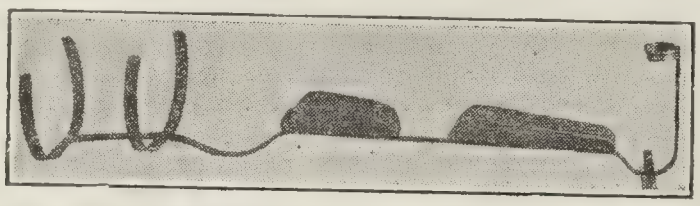


FIG. 4.—The combined hip and ankle splint illustrating a simple means of resting hip, knee, and ankle joints.

principles. Efficient fixation, he asserted, best assists the restoration and repair of the part fractured.

Perfect rest of a fracture, if it could be maintained without supplemental art and interference would best permit the repair of fractures up to a normal condition. If a fracture is in proximity to a joint the limb ought to be so fixed that the utmost prospective usefulness may be afterwards gained should the joint have also suffered an injury indirectly.

In fractured olecranon he merely advised the extended position, but if the fracture were compound, flexion, he said, should be maintained during treatment lest the injury may run a course ending in the loss of motion of the joint.

He was careful to distinguish between non-union after fracture of bone and delayed repair.

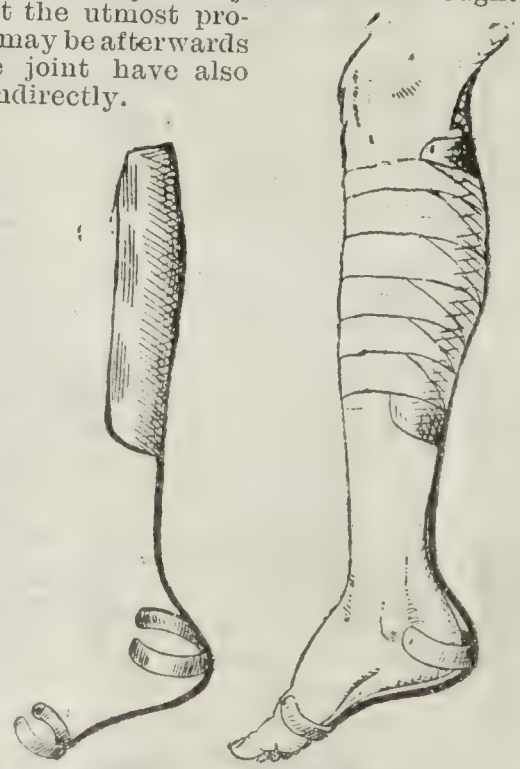


FIG. 5. FIG. 5A.

FIG. 5.—The simple "Crab" splint for resting the ankle and foot.
FIG. 5A.—The same applied. (After Thomas.)

Non-union should apply only to those fractures which have resulted in a cartilaginous, or otherwise, connexion having formed between the points of fracture—the bony points not being in actual contact. Examples of delayed repair are common, while those of non-union are rarely met with. The gravity of delayed repair depends on the locality. If found in the shaft of a bone it is not so easily remedied as when it occurs at an extremity.

He states that in the early years of his practice he invariably interfered with instances of delayed repair by saw, wire, rasping, and pegging, but during the later years he succeeded better without direct interference, although most of his cases were less hopeful of success than his earlier cases.

In these days of antisepsis it is not uncommon for even a recent fracture, especially if compound, to be at once drilled and wired or pegged, when ordinary mechanical appliances intelligently used would be better. This practice I hold to be a retrogression in the surgery of fractured bones; indeed, if we are more thoughtful of the fact that it is living matter that we have to manage, then it would seem that even in delayed union of fractures actual interference, such as drilling and excising, will seldom be required—nay, it will be found that such operations are in some instances a hindrance rather than an aid to repair, and operations of this character would then be reserved for old chronic cartilaginous connexions only.

He preferred to give cases of delayed union conservative treatment before operating—stimulating the part by compression and percussion combined with efficient fixation of the fractured area. At first he did not regard efficient fixation as essential, but later insisted on it as he found the time for repair shortened. By this mode of treatment he was invariably successful. Percussion was applied with

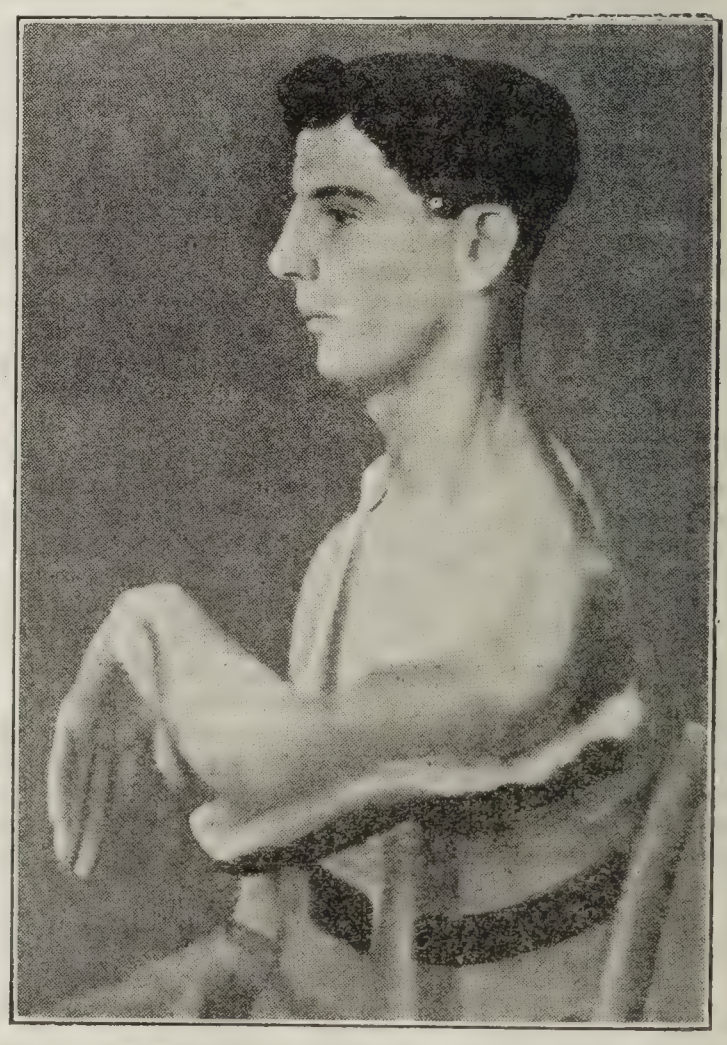


FIG. 6.—Gunshot wound of upper end of left humerus rested on upper limb abduction splint.

a rubber-protected mallet all round the site of fracture—the skin being protected by felt—about every third day for four weeks. Prolonged tumefaction for a distance around, above and below the fracture, was enforced by means of rubber bands. In a case of ununited fracture of

LIBRARY U. OF I. URBANA-CHAMPAIGN

humerus of nine months' standing, which he treated cessfully, he practised percussion weekly for four weeks l practised daily for half an hour "damming" the circu- on around the cture. It is in- esting to note t he regarded rcussion as a ans of bringing ut an increase bony structure n in cases of -fracture. It is portant to re- mber that omas was the ginator of the gestive or hyper- ic treatment, ough it received le notice in this ntry till asso- ted with the ne of a foreign geon.

Muscle.

homas's impor- t contribution to surgery of nerve muscle is that ociated with the eatment of opped wrist. re important n that, however, his explanation so-called con- cted muscle and tracted tendon:

The term con- tracted muscle is a misnomer— a shortening of true muscular tissue from long- continuous ac- tion does not occur. Neither true muscular nor true tendon structure, as long as it is not dis- eased, can be shortened or engthened. Dur- ng the action of true muscular structures the ibrous ramifica- ions radiating rom the ten- linous origins and insertions of muscles and connecting the true muscular structure become wrinkled, and if the true muscular tissue remain long and continuously active the folds of fibrous tissue become obliterated; and when the true muscle is tired out the contraction of this tissue acts so mechanically fix in a special position the part subjected to the control of that muscle.

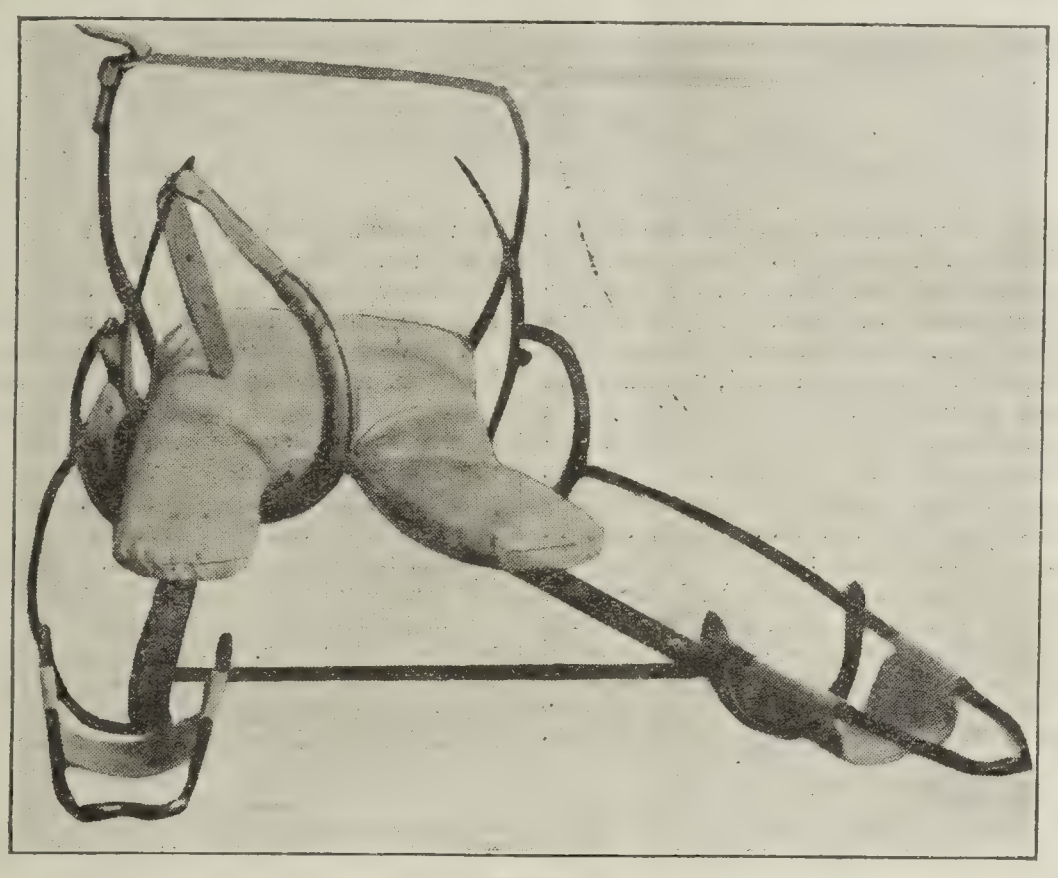


FIG. 7.

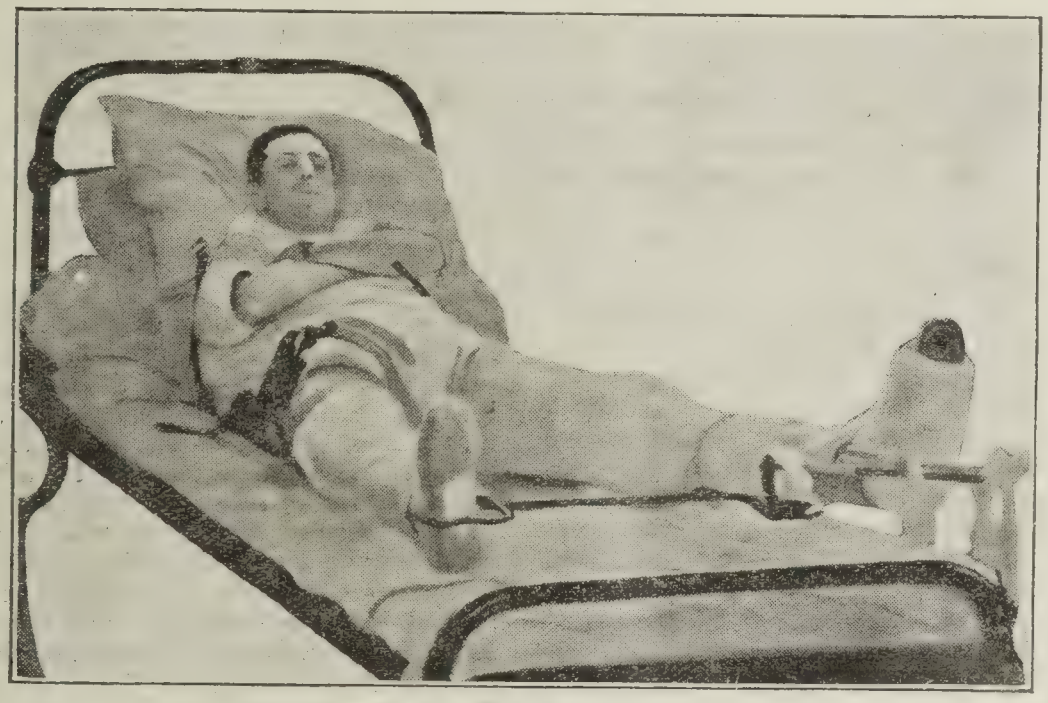


FIG. 7A.

FIG. 7.—The Robert Jones abduction frame. Used especially for old ankylosis of hip and to overcome shortening in malunion of femur. FIG. 7A.—The same applied.

This, together n alterations in form of and nd the arti- r capsule and sible connexions ween the bones ning the joint he regarded as the factors maintain- the permanency of joint deformity. As a clinician noticed that muscles possessed of much divergent fibrous tissue, as soleus and gastrocnemius, are the most prone to permanent and obstinate contraction, while much permanent rigidity of muscle is seldom met with in such a muscle as the sartorius, which possesses little fibrous tissue, except at origin and insertion. As further evidence, he regarded the fact that the true muscle of a tendon that has been severed will resume duty in a few days. An unhealthy condition of a joint and the necessity to place the components in the position of ease, constituting deformity, become the stimulus to contraction of one set of muscles and to relaxation and elongation of the opponents. In a joint deformity we are always dealing with these two factors. This muscle state is maintained as long as the necessity persists, but the muscles themselves are not diseased. If the abnormal position be prolonged owing, for example, to the severity of disease, reduction may be interfered with by secondary changes—namely, contraction of the intermuscular fibrous tissue, alterations in the capsule or perhaps bony or fibrous connexions between the joint surfaces.

Recognizing these factors and also that the deformity has been gradual in development—the contracting and shortening of one muscular group occurring *pari passu* with relaxation and lengthening of the opponents—such a procedure as forcibly breaking down a contracted joint must be condemned as absolutely unscientific and only worthy of charlatans.

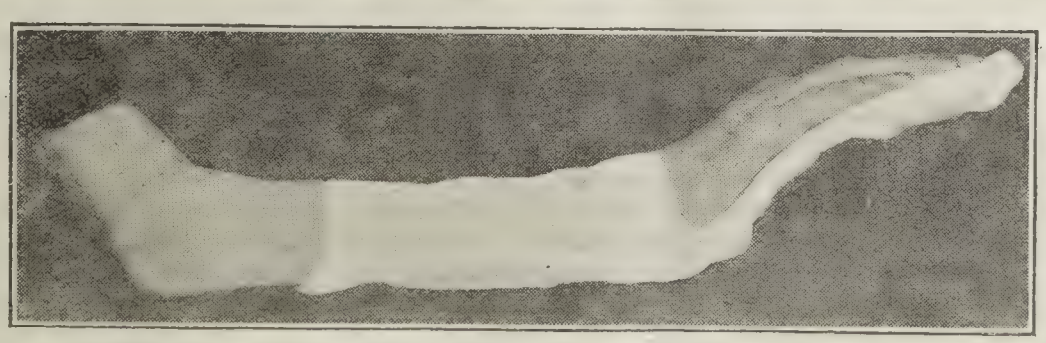


FIG. 8.—Long plaster "cock-up" splint for musculo-spiral paralysis.

Wrist-drop.

In the condition known as "wrist-drop," Thomas, instead of assuming that this was permanent and irremediable, argued that the primary cause may have been temporary, and that elongated extensors were mechanically prevented from contracting. They were not of necessity permanently paralysed and stretched. For purposes of prognosis he used a simple and effective test. "If the

patient be asked to try and perform by the exercise of the will only greater flexion than already exists, the fingers flex readily, and also by the act of the will extend forward again to the position of previous repose." Furthermore, "while the wrist is firmly flexed by supplemental assistance the patient can by the exercise of his will within a small radius rapidly flex and extend his fingers." Success in these tests enable a favourable prognosis to be given, and Thomas was successful in a case of eighteen years' standing. A recent case usually recovers in one to four weeks and an old one in six to twenty weeks. In treatment by means of a simple "cock up" splint the hands and fingers are maintained in relation to the forearm in the position of extreme extension "so as to allow the muscular tissue of the extensors of the wrist and fingers to retract from the overstrain or overdraw." On removal of the splint by the surgeon to test the result, "should the patient by the exercise of his will be able to maintain extension, the surgeon may allow the limb to be used, discontinuing the angular extension apparatus." Thomas did not of course regard this treatment as universally successful in all cases of dropped wrist or ankle, and in connexion with poliomyelitis he wrote:

> It is my experience that those cases which we meet with after infantile paralysis of the upper extremity are the most untractable because that the central nerve lesion in these cases is never perfectly recovered from; and, again, in many of these cases we have to contend with a dropped condition of shoulder, elbow, wrist, and fingers in subjects who do all they possibly can to thwart our endeavours to assist them.

Thanks to Robert Jones, these important views of Thomas on muscle, greatly amplified, have been introduced to the notice of the profession, and it would be idle to deny that round them is being built up the modern surgery of nerve and muscle injury.

Nerve Lesions.

Thomas directed our attention to the treatment of muscle in cases of nerve injury. Weakened or paralysed muscles must be rested just as a diseased joint or bone must be rested. The healthy opponents should not be allowed to contract, producing a stretching of the weakened group. Such conditions as contracted fingers or joints should never be allowed to occur, and should they be present they should be remedied before any operation is undertaken. In recent cases of divided nerve, where the diagnosis is certain, a reparative operation is essential. In old cases it is surprising what improvement can be effected by means of rest, together with scientific re-education aided by the patient's volition. Speaking generally, no operation should be undertaken till these methods have been exhausted.

In cases of injuries of nerves the ends are freshened and sutured. If a gap exist between the divided ends it may be necessary to flex a joint—for instance, as the elbow—or alter the position of the nerve. Should these fail, the gap may be bridged by a long segment of a sensory nerve or by strands of catgut, but it must be remembered that such operative treatment is only the beginning. The mere transmission of an impulse along a sutured nerve is not sufficient to cause recovery of muscular action, and that is the important thing. The muscle must be rested and re-educated from zero. Its recovery must be along biological lines—that is, along the lines of the acquisition of its mammalian function.

Stimulated by the work of the Liverpool School of Orthopaedics, much research work has been carried out on the evolution of muscular function throughout the mammalia so as to form a scientific basis for muscle re-education. Furthermore, in cases of muscle transplantation to strengthen the weak, or muscle lengthening or division to weaken the strong, it is important to remember that certain muscles in the economy are "survival results," and that by the comparative method we are enabled to estimate the relative value for grafting—for example, of the two peronei or the two tibials, or the brachio-radialis.

In connexion with military orthopaedics it should be remembered that Thomas first introduced three simple methods of treatment which are now universally recognized.

He taught us that spinal curvature was frequently associated with inequality of length of limb, and that an essential in treatment was to raise the boot on shortened side.

Inflammation of the metatarso-phalangeal joint of toes, especially the great toe, to which soldiers are lia can be relieved by a piece of hoop iron or leather placed under the shoe sole that its front margin is under the joint, so that in marching the toes miss cussion with the ground as the patient advances opposite foot."

The Thomas boot for flat-foot, with the oblique heel the raised sole and heel on the inside, is well known. its means strain is thrown off the inside of the foot, tibial muscles are given a chance to strengthen, and tendency to displacement of the internal cartilage of knee to which these subjects are liable is obviated.

I have dealt at some length on the principles of Tho because, although principles of rest were enunciated Brodie and Hilton, he was the first not only to enunc doctrines of conservatism but also to offer sim mechanical means by which these could be put practice, although at his death his work was largely o shadowed by the operative system owing to the introd tion of antiseptics. Thomas fortunately was succeede his practice by Robert Jones, who had the rare privileg having worked with the master himself during the l years of his life. Thanks to him Thomas's work been widened in its application, numerous improvem have been introduced, and scientific workers have b attracted to Liverpool from all parts of the world to l those conservative principles which, like Thomas, he always taught as forming the foundation of surg practice. Thus in appointing Colonel Robert Jones, C as Inspector-General of Military Orthopaedics, the W Office placed the treatment of the deformed soldier un the control of one who, himself trained in the mod aseptic school, is recognized as the greatest living ponent of the conservative method. In him the com mental schools of British surgery have been effectiv combined. The British soldier who has suffered divis of a nerve is assured not merely of a successful ase operation of suture, but of prolonged conservative tr ment directed to the scientific stimulation and re-educat of the affected muscles. Should these methods be successful, recourse may be had to the operation muscle grafting, by means of which a flexor is asked act as an extender and an extender as a bender as result of alteration of muscle insertion.

A fractured bone, even if union be delayed, may be trea by various methods of conservatism, but should these resort may be had to the operative methods of pegg bone grafting, and plating, for the advance in which dep ment of surgery the profession is under a debt of gratit to the genius of Sir Arbuthnot Lane. Should the fe be shortened it may be re-fractured and lengthened by assistance of the abduction frame of Robert Jones. Joi should they be deformed, are not forcibly torn down excised, but gradually reduced, so that recovery in one of muscles is always correlated to that of the opponen By anatomical rest of joints and bones amputations limbs are obviated; the soldier with a displaced fib cartilage of the knee, the replacement of which is alw easy and usually spontaneous, is rested so as to all rupture of the collateral tibial ligament on which it larg depends to repair, and when the patient resumes walking boot is built up on the inside to prevent recurrence relieving strain on the inside of the knee. Only in ca of recurring displacements due to an unrepaired collate ligament is resort had to removal, which, as described Robert Jones, is almost a minor operation. By means the Thomas boot and simple manipulative measures soldier with even a severe flat-foot can be treated succe fully without operative interference which is reserved extreme cases.

What a difference in the lot of the British soldier, trea in 1815, after Waterloo, by Sir Charles Bell, admittedly greatest anatomist and surgeon of his time, compared w the treatment of 100 years later! It is hard for us to rea that Bell in his paper was dealing with scenes of onl century ago. In this short period of time, thanks larg to the genius of our countrymen—although we ren homage to the names of Lavoisier, Lamarck, Cuvier, a Pasteur—the antiseptic system, anaesthesia, the conc tion of vaccine treatment, the placing of the physiology

LIBRARY U. OF I. URBANA-CHAMPAIGN

nerve and muscle on a sound basis, the publication of the *Origin of Species*, and the establishment of conservative surgical principles, have all been introduced. Without these no modern orthopaedic work would be possible. To these we must add *x* rays; and although we pay respect to Roentgen for his great discovery, we must always remember that the Crookes's tube was discovered in this country. We can recall with no little pride that these great discoveries have been freely given to the world for the benefit of humanity.

PART II.—STATEMENT AS TO MILITARY ORTHOPAEDIC HOSPITALS IN GREAT BRITAIN AND THEIR EQUIPMENT.

Orthopaedic cases comprise in one form or another a large proportion of the men invalided from abroad with severe surgical injuries.

Military orthopaedic cases are held by the Army Council to include the following:

(*a*) Derangements and disabilities of joints, simple and grave, including ankylosis.
(*b*) Deformities and disabilities of feet, such as hallux rigidus, hallux valgus, hammer toes, metatarsalgia, painful heels, flat and claw feet.
(*c*) Malunited and ununited fractures.
(*d*) Injuries to ligaments, muscles, and tendons.
(*e*) Cases requiring tendon transplantation or other treatment for irreparable destruction of nerves.
(*f*) Nerve injuries complicated by fractures or stiffness of joint.
(*g*) Certain complicated gunshot injuries to joints.
(*h*) Cases requiring surgical appliances.

These cases naturally fall into two groups—those whose disablement is only temporary and who after treatment will be fit for military service again, and those who are so disabled that they must inevitably be discharged from the army.

The wounded soldier receives immediate treatment in a general military hospital. If his case comes into the category of orthopaedics, as defined above, he is then transferred to one of the orthopaedic centres for special treatment.

If his disablement has been only temporary, he may be sent for after-treatment to a command dépôt until ultimate recovery and return to military duty.

Command Dépôt.

A command dépôt is officially defined as a convalescent camp equipped with facilities for electrical and massage treatment under medical direction, but mainly organized and controlled under purely military officers, with the object of hardening men by suitable exercises and graduated drill for return to active service at the front in a period of about six months.

The men live in huts. Beds are wooden forms with straw palliasses and military blankets. Ordinary diets only are given. The huts are heated by stoves.

The cases suitable for admission to a command dépôt are:

1. Men recovering from gunshot wounds not involving joints or nerves.
2. United nerves giving normal action to muscles.
3. Pott's fracture, Colles's fracture, with no ankylosis of joints.
4. Injuries to left hand not to such a degree as to prevent the use of a rifle.
5. Simple myalgia without obvious organic symptoms.

All scars should be firmly healed and not situated at points of regular pressure of equipment, for example, shoulder, scapula, waist.

Spinal injuries when there are resultant symptoms as headache or paresis; shell shock with the slightest tremor or mental impairment; paralysed limbs, drop foot or hand, and neuritis, are not considered suitable cases for admission.

The command dépôts are visited regularly by an orthopaedic surgeon, to help the staff in their choice of cases for orthopaedic treatment.

List of Command Dépôts in the United Kingdom.

Name of Command Dépôt.	Accommodation for Men under Treatment in Addition to Permanent Staff.	How Allotted.
Shoreham	5,000	Eastern Command.
Seaford	5,000	London District R.E.
Sutton Coldfield...	2,000	Southern Command.
Ballyvonare ...	4,000	Southern Command.
Tipperary	4,000	Irish Command and Eastern Command.
Randalstown ...	3,500	Scottish Command.
Ripon North ...	6,500	Northern Command R.A. (Regular and I.F.); Machine Gun Corps.
Alnwick	3,400	Northern Command.
Knowsley Park ...	4,000	Western Command.
Heaton Park ...	4,700	Western Command.
Eastbourne ...	2,000	Cavalry whose Reserve Regiments are in the Eastern, Southern, and Aldershot Commands; Yeomanry whose 3rd Line Units are in the Eastern Command, Army Cyclist Corps; South African Contingent.
Blandford	600	63rd (Royal Naval) Divisions (only).
Ampthill	877	For Infantry (Regular and I.F.) whose dépôts are situated in No. 9 District, preference to Bedfordshire soldiers.
Total beds ...	45,577	

The soldier who is permanently disabled and utterly unfit for further military service undergoes similar treatment in the general and orthopaedic hospitals, and is finally discharged and pensioned.

Curative Industries.

In each orthopaedic centre, besides surgical operations, massage, electrical treatment, hydrotherapy, and gymnastic exercises, a series of curative workshops have been established with successful and valuable results.

These curative industries serve a twofold purpose. First of all—and this is most important—they are directly curative by giving exercise, under the surgeon's control and supervision, to the affected part. They are also indirectly curative through their profound psychological influence upon the patient. Apathy and inertia are replaced by bodily and mental activity. In the second place, these industries enable a certain number of the men to acquire a craft or trade, by which they will become more valuable to the community by the increase of their wage-earning capacity after discharge.

A minor point that experience has shown very clearly is the monetary value to the institution of the work done, such as splint making, carpentering, painting, etc.

The curative workshops are an important evolution in the war. In each orthopaedic centre they form an essential part of the treatment, with local differences dependent on the character and staple trade of the district. For example, in Aberdeen a net-making industry has proved highly successful, and in Bristol basket making.

The permanently disabled soldier is not lost sight of after discharge from the hospital and the army. He then comes under the care of the Statutory (Pensions) Committee. He may be quite fitted for civilian employment, in which case he may at once resume his old trade or seek new employment. He may find a place in one of Lord Roberts's memorial workshops; or he may elect to undergo further training for a new craft or trade. The advantage of the establishment of curative industries in the orthopaedic centres becomes obvious. The technical schools of the country have placed their resources at the disposal of the Statutory Committee, and it is understood that arrangements are being made for the intensive education of suitable pensioners at these institutions.

When a man is transferred from a general hospital to a command dépôt it means that his disability is temporary, that he belongs to Group 1, and that he is considered likely to be fit for active service within six months. If, on

the other hand, he is transferred from a central hospital to an orthopaedic hospital he may belong either to Group 1 or Group 2. If to the former, his disability must be necessarily more severe than that of the man sent to a command dépôt, and the treatment required to fit him again for active service may of necessity be prolonged. If, however, he belongs to the latter, Group 2—if, that is, the medical authorities of the central hospital decide that his disability is such as to prevent him from ever becoming fit for any form of military service owing to the fact that he suffers from such a lesion as, for example, severance of the right sciatic nerve with foot-drop, he may also be sent to an orthopaedic hospital. If there were always available beds at orthopaedic hospitals these patients could be automatically transferred there from the central hospitals without delay, but the length of time involved in the treatment of patients at orthopaedic hospitals of necessity greatly lessens the number of new patients that can be admitted in any one year. The length of stay of the individual is prolonged, and at present this is a very real difficulty; because of this lack of accommodation at orthopaedic hospitals men may have to be brought before invaliding boards and discharged from the service at central hospitals who still require to begin skilled orthopaedic treatment. The fact, however, that a man has been discharged from the army does not prevent him from attending an orthopaedic centre as an out-patient or from subsequently being admitted for further treatment to an orthopaedic hospital, but it is a break in the logical sequence of treatment. Among this class of case may be patients with injuries of the musculo-spiral, median, and ulnar nerves, and hemiplegias after head injuries.



FIG. 9.—Patients returning from France suffering from gunshot wounds of the knee rested in Thomas's "bed" knee splint.

This difficulty is being met by the establishment of more orthopaedic centres and special annexes, but the numbers of beds will have to be very large, for these cases are a numerous and growing class. At present the War Office allows any discharged soldier disabled by the war to obtain further treatment at a military hospital, if he requires it, and these men can always seek out-patient treatment at a military orthopaedic centre or hospital; but here again we are faced with the difficulty that they may not live within several miles' walking distance and cannot, therefore, obtain treatment. Recognizing our debt to these men and their future value to the State, it is essential that skilled orthopaedic treatment, based on a scientific knowledge of the principles of surgical rest and of the anatomical and biological methods by which recovery of muscular function can be obtained, together with the mechanical training necessarily accompanying these, should be made available for them. Disabled soldiers fall obviously into two classes: (1) Those who are wholly permanently disabled for any kind of work; (2) those who may by re-education be restored to social and professional efficiency in varying degrees. The recognition of what patients constitute class (1) can only be left to skilled orthopaedic surgeons and be based on the principles above enunciated. How to best treat those comprising class (2) is the present urgent question, but enough has been said to show that the problem, at least from its medical side, is being energetically and adequately grappled with.

I must especially thank Major C. V. Mackay, M.D., R.A.M.C., of the King George Military Hospital, for numerous valuable suggestions and for his assistance in drawing up the plan on which this information is based.

Orthopaedic Centres in the British Isles.

There are now fully established ten orthopaedic centres in Great Britain and Ireland.

In England there are already four, of which one is at Shepherd's Bush. The other orthopaedic centres in England are: Alder Hey, Liverpool, the first to be formed, under Colonel Robert Jones; Leeds, and Bristol. It is proposed to found additional centres at an early date. In Wales the orthopaedic centre is at Cardiff.

Two centres have been established in Ireland, one at Belfast, one at Blackrock, Dublin. In Scotland there are three: Bangour near Edinburgh, Aberdeen, and Bellahouston, Glasgow.

The same general scheme of treatment is adopted in each centre under the supervision of Colonel Robert Jones.

It may be mentioned that each orthopaedic centre deals, in addition to the repair of deformities, with the preparation of the stumps of limbless soldiers before admission to Roehampton and other hospitals where artificial limbs are provided.

List of Orthopaedic Hospitals and Centres in the United Kingdom.

Military Orthopaedic Hospital, Shepherd's Bush, W. 1,000 beds.
National Orthopaedic Hospital, Great Portland Street, W.C. 170 beds.
Military Orthopaedic Hospital, Alder Hey, Liverpool. 850 beds.
Welsh Metropolitan War Hospital, Whitchurch, Cardiff. 500 beds.
Beaufort War Hospital, Fishponds, Bristol. 500 beds.
2nd Northern General Hospital, Beckett's Park, Leeds. 250 beds.
Bellahouston Hospital, Glasgow. 400 beds.
Bangour Hospital, Edinburgh. 400 beds.
Oldmill Hospital, Aberdeen. 250 beds.
Belfast U.V.F. Hospital. 300 beds.
Dublin. 200 beds.

The Military Orthopaedic Hospital, Shepherd's Bush, London, may be described as typical of all the centres. It is fully equipped, and has a visiting and resident medical staff. It is under the personal supervision of the Inspector, who visits weekly. The number of patients admitted from the opening of the hospital on March 1st, 1916, to February 28th, 1917, was 2,870, and the number discharged 2,101.

The following list of the discharged patients is important as showing the beneficial results of treatment:

	1. Duty.	2. Command Dépôt.	3. Re-classification.
1916.			
March	2	5	—
April	14	14	4
May	14	16	8
June	9	27	11
July	36	17	12
August	24	29	21
September	20	41	14
October	46	55	26
November	27	62	25
December	19	57	18
1917.			
January	34	27	16
February	17	32	26
	262	382	181

LIBRARY U. OF I. URBANA-CHAMPAIGN

The majority of the patients under Class 3 (re-classification) were able to undertake mild forms of military duty, thus relieving fitter men for active service.

In reference to discharged patients it is important to bear in mind that owing to more rigid army regulations the discharge of men from the army to civil life as "unfit for further military service" has recently been considerably curtailed.

Apart from the question of available beds, there is no difficulty about the admission of a discharged soldier into this hospital for further treatment. On March 1st, 1917, the number of discharged soldiers in the hospital was 50, and there were 10 out-patients.

Electro-therapeutical Department.

This department is under the supervision of Captain Rowley Bristow, R.A.M.C., F.R.C.S. During the period July, 1916, to March 1st, 1917, the number of treatments given in the department was 19,000, and the number of new patients dealt with 728.

Type of Case.—The cases dealt with were mainly:

1. Peripheral nerve injuries.
2. Stiff joints with muscular wasting.
3. Atrophy of muscle.
4. Adherent and painful scars.
5. Functional conditions.
6. Trench feet and allied conditions.

Staff.—The staff consists of fourteen trained masseuses A.P.M.C. working under the direction of a surgeon in charge.



FIG. 10.—Interior of department for electro-therapeutics.

The electrical treatment of muscle is largely carried out by a specially wound faradic coil introduced by Captain Bristow. This coil is arranged so as to yield a current which is as nearly as possible painless, and which is under the control of the operator, so that the intensity of the stimulus can be altered from moment to moment. Rhythmical graduated contractions of muscle are brought about by this method. The muscle to be treated is made to contract gradually from zero to the desired maximum, and then allowed to relax. It is allowed to remain fully relaxed for a second, and then again stimulated. The left hand of the operator grasps the muscle and appreciates the degree of contraction, whilst the right controls the intensity of the stimulus. In this way the exact degree of contraction desirable for each muscle or muscle group is obtained. The control by hand is essential for the most efficient method of working, and no motor-driven or other form of mechanical interrupter can replace this control efficiently. With trained operators there is no risk of muscles being stimulated to the extent of causing fatigue, and so retarding progress. The main differences between this coil and the ordinary faradic coil are:

The special coil has thick wire in both the primary and secondary windings, and the number of layers in the secondary is less than in the primary—5 : 3. The interrupter can be exactly regulated by a sliding weight. A condenser of appropriate capacity is placed in circuit, to damp out the spark and assist in reducing the "skin effect" to a minimum.

The intensity of the stimulus is varied at will by (1) using either one, two, or three layers of the secondary; (2) by pushing in or withdrawing the soft iron core in the primary.

Massage.

The massage department is under the supervision of Dr. J. Mennell, and is equipped with all modern appliances for mechanical treatment. There are twenty-three trained assistants in the department — namely, twenty-one masseuses and two masseurs.

The number of patients treated and discharged from March, 1916, to March, 1917, was 863. On March 1st, 1917, the number of patients under treatment was 280. The average number of weekly treatments is 1,680.

Gymnasium and Hydrotherapy Department.

A large gymnasium is now in course of construction, to which patients will automatically pass from the massage department. The plans for a hydrotherapy department have been completed, and a building will shortly be placed under construction. Both these departments will be under medical control and in the immediate charge of trained instructors.

The Curative Workshops.

The curative workshops are of utmost importance. In these workshops the men are given a definite, regular, and interesting occupation, and energy instead of being wasted is directed to serve some useful purpose. These workshops, which are under the personal supervision of Mr. Poate, owe their existence to the energy and foresight of King Manuel, who has not only devoted his valuable time to those at Shepherd's Bush but has also superintended the erection of similar ones in other orthopaedic centres throughout the United Kingdom. The men working are employed as follows:

Employments in Curative Workshops.

Splint makers, smiths, engineers	25
Carpenters	10
Tailors (abdominal belts, surgical slings) ...	8
Bootmakers (surgical boots, repairs)	5
Fretworkers (men with dropped feet)	3
Leatherworkers (blocked leather splints) ...	4
Electricians, plumbers, and ironworkers ...	7
Masons (repairs in hospital)	2
Grindery (instruments used in operating theatres)	2
Wood choppers (sawing and chopping firewood for use of hospital)	9
Cigarette makers	7
Office and stores	4
Draughtsman	1
Orderlies and fatigue party (errands between different departments, keeping yard and shops clean, taking completed work to different wards)	11
Painters (painting splints and general work in hospital)	8
Total	106

In addition to this special work, over 300 have occupations allotted to them.

Return showing Number and Value of Splints Made in Orthopaedic Workshops.

Week ending—		£	s.	d.
October 28th, 1916	36 ...	5	3	0
November 4th ,, ...	49 ...	7	14	6
,, 11th ,, ...	75 ...	17	3	9
,, 18th ,, ...	64 ...	9	11	6
,, 25th ,, ...	86 ...	12	9	0
December 2nd ,, ...	21 ...	11	2	6
,, 9th ,, ...	23 ...	13	16	0
,, 16th ,, ...	67 ...	14	18	0
,, 23rd ,, ...	26 ...	14	11	6
,, 30th ,, ...	29 ...	8	19	0
January 6th, 1917	43 ...	12	8	0
,, 13th ,, ...	70 ...	20	12	0
,, 20th ,, ...	55 ...	19	1	0
,, 27th ,, ...	133 ...	34	0	0
February 3rd ,, ...	122 ...	27	9	0
,, 10th ,, ...	91 ...	30	0	0
,, 17th ,, ...	55 ...	19	17	6
,, 24th ,, ...	81 ...	17	16	6
March 3rd ,, ...	106 ...	31	4	6
,, 10th ,, ...	139 ...	34	4	2
Totals ...	1,371	£362	1	5

Total number of splints made from October 28th to March 10th, 1,371.
Cash value at pre-war prices, £362 1s. 5d.

Of the above returns 1,013 are stock pattern splints, namely, cock-up splints, gutters, club-foot shoes, crab (long and short), Turner's arm, whole hand-splints. The balance (358) are special splints designed in workshops, and made to surgeons' instructions.

Quantity of Orthopaedic Repairs by the Bootmaker.

The total number of cases requiring orthopaedic repairs by the bootmaker from October 21st, 1916, to March 4th, 1917, was 361. This was apart from ordinary repairs. The work consisted of inside and outside elevations, T-straps, cork soles, bars on soles, crooked heels, surgical boots and alterations according to medical orders.

Painting, Drawing, Photographic Department.

This department is under the control of Mr. Bird, the distinguished artist, who is assisted in photography by Mr. Lewis. Here not only photographs and drawings of cases during the various stages of treatment and splints used are made, but actual paintings in natural colour whenever the surgeon thinks it necessary. In this way can be kept complete records of operation cases, which are especially valuable in demonstration for teaching purposes.

X Rays.

This department is fully equipped with all the latest methods for *x*-ray photography under the supervision of Captain Keys-Wells, R.A.M.C., who attends the hospital daily.

Plaster Department.

This is under the charge of Sister Hurch, formerly of St. Bartholomew's Hospital, who has, as chief assistant, Private Wilde. Casts are made of all deformities admitted and permanent records can be kept of cases before and after operation. In addition to plaster jackets for support and plaster splints, casts are made of limbs and other parts on which splints, both leather and steel, are moulded so as to ensure accurate fitting when finished.

Artificial Limbs.

In association with the question of military orthopaedics it is important to remember that at Roehampton Hospital for Limbless Soldiers all cases of amputation are being provided with suitable artificial limbs at the expense of the State.

I am largely indebted for information relating to the Shepherd's Bush Hospital to the courtesy and assistance of Major Jenkins, R.A.M.C., Officer in Charge, Captain Hill, R.A.M.C., Registrar, and Mr. Poate, Director of Workshops.

The medical staff is to be congratulated in having converted within a week what was formerly an infirmary into a modern orthopaedic hospital.

REFERENCES.
[1] *The Collected Works of Sir H. Davy.* Edited by his brother, John Davy, F.R.S. [2] *The Collected Papers of Baron Lister*, vol. ii. [3] *Transactions of the American Orthopaedic Association*, 1891. [4] *The Works of John Hunter.* Edited by Palmer. [5] *Anatomy of the Human Body.* John and Charles Bell. [6] *Phil. Trans. Royal Society*, 1833. [7] Position of Sir C. Bell among Anatomists. Lecture delivered by Professor Keith at Middlesex Hospital, January 19th, 1911. Review of *Arboreal Man*, by G. Elliot Smith, *Nature*, February, 1917. [8] *Effective Treatment of Hip Disease*, P. B. Bennie, 1907.

Observations
ON
THE PATHOLOGY OF CARDIAC DROPSY.

BEING THE OLIVER-SHARPEY LECTURES DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON, MAY, 1917.

BY
CHARLES BOLTON, M.D., D.Sc.LOND., F.R.C.P.LOND.,
PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL; LATE DIRECTOR OF PATHOLOGICAL STUDIES AND RESEARCH, UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

(Abridged.)

LECTURE II.

WE have now to consider the question of the abnormal exchange of fluid between the blood capillaries and the tissue spaces, which leads to an excess of tissue fluid in the congested area, to a deficiency in other parts, and to an increase in the total blood volume.

Absorption in Area of Superior Vena Cava.

It has been shown that when the inferior vena cava is obstructed the venous pressure in the fore part of the body falls, owing to abstraction of blood from this region, and also that at all stages of the disease this pressure is still below normal. The circulatory conditions in this part are, therefore, such as to determine a continuous absorption of fluid by the capillaries from the tissue spaces. It is not to be supposed that absorption is the only process occurring in this region, but that a new balance has been struck between lymph production and absorption. Exactly how this condition is brought about is not known, except that the low capillary pressure is a factor in the process of absorption.

Starling was the first observer to show that proteins are able to exert a definite though small osmotic pressure. In the case of the proteins of the blood plasma he found this pressure to be about 30 mm. Hg as compared with isotonic salt solution. The protein concentration of the extravascular fluid is a quarter or a third of that of the blood plasma, so that the latter is able to exert a definite osmotic attraction for the extravascular fluid. The force of this attraction, as I have already mentioned, is about equal to the hydrostatic pressure in the capillaries, so that when the latter falls below the normal level water will be absorbed.

Absorption in Area of Inferior Vena Cava.

Turning now to the consideration of the exchange of fluid in the area drained by the inferior vena cava our task is not so simple. I have so far assumed that increased absorption is occurring at the periphery as in the fore part of the body.

This question of absorption at the periphery can be examined experimentally, because the parietal peritoneum, which is included in this region, is particularly suitable for such experiments.

With regard to the visceral peritoneum, it is quite clear that output has overbalanced absorption, so that in order to find out what is happening in the case of the parietal peritoneum, we must inquire into the relative parts played by these two processes in the peritoneum generally during the various stages at which the fluid is accumulating, remaining stationary, or disappearing.

Output into Peritoneal Cavity.

Our inquiry into the subject must first be directed to the relative rates of output of fluid into the peritoneum at the different periods of the disease. I shall show later that absorption from the peritoneum is occurring always at the same rate, so that a comparison of the rates at which the ascites reaccumulates after the abdomen has been thoroughly emptied should give us the required information. For this purpose the animal was anaesthetized and the abdomen opened under aseptic precautions. The fluid was then removed with a graduated pipette and the abdomen closed. I found that, however large or small the amount of fluid removed, and whatever the stage of the disease, the ascitic fluid had reaccumulated on the next day.

LIBRARY U. OF I. URBANA-CHAMPAIGN

It may be stated generally that the rate of output is rapid from the beginning, that it increases to some extent as the blood increases in volume, and that it diminishes gradually as the dropsy disappears, although the blood volume is still high. In all stages of the disease, therefore, the dropsy is being actively produced, and it is not a question of the production up to a certain point, and then the gradual absorption of the accumulated fluid after the production has ceased. Absorption is constantly occurring at a certain definite rate, and the accumulation and disappearance of the fluid are entirely due to alterations in the rate of output of lymph. As the anastomoses are established this rate of output falls, and the ascites, therefore, disappears. The ascites is not a stagnant pool of fluid, which is rapidly put out and then slowly absorbed, but at all stages of the disease there is a rapid and continuous circulation of lymph from the blood into the peritoneum and thence back into the blood. The ascitic fluid is thus being constantly changed.

Absorption from Peritoneal Cavity.

We now turn to the question of absorption from the peritoneal cavity, and at the outset it appears self-evident that this process must be occurring at the normal rate at least; otherwise, judging by the amount of fluid which is put out during the day, the animal would soon become tightly distended with ascitic fluid. If the mechanisms whereby absorption is carried out are normal, it is clear that a check would be placed to such a rapid accumulation of fluid, because in the normal animal it is well known that blood serum and other protein solutions are readily absorbed.

In order to test the rate of absorption of a *normal cat* for the ascitic fluid of another cat I did three experiments, and found that the normal cat absorbs at the rate of at least 2 c.cm. per hour, so that in twenty-four hours it would take up from 40 to 50 c.cm. A further point to note is that the amount of solid matter in the residual fluid was precisely the same as that in the ascitic fluid introduced. Absorption occurs at a uniform rate, and the fluid is absorbed as a whole.

The points which have now to be determined are whether the absorptive mechanisms of the *ascitic cat* are in a normal condition, and whether they are as capable of fulfilling their functions as are those of a normal animal.

The normal animal absorbs fluid from its peritoneal cavity in two ways:

1. By its subperitoneal lymphatic plexus and thoracic duct, and
2. By its subperitoneal blood capillaries.

We have, therefore, to inquire into the condition of the lymph flow from the thoracic duct of the ascitic animal, and whether the blood vessels of its peritoneum are capable of absorbing fluid at the same rate as those of the normal animal.

I. *Lymph Flow from the Thoracic Duct.*

The effect upon the lymph flow of *complete obstruction* of the inferior vena cava above the diaphragm is well known. Experimenting on the dog, Heidenhain showed that the lymph flow is immediately increased. This increase may be moderate but sometimes it is enormous—ten to twenty fold. The total solids in the lymph are increased by 1 or 2 per cent. Ligature of the portal vein gives rise to a more moderate increase in the lymph flow, the increase being about five fold. The total solids in the lymph in this case are diminished by about 1 per cent. Starling has proved that the lymph after obstruction of the inferior vena cava comes entirely from the liver, that its increased quantity is due to the very high pressure of blood in the liver capillaries, and that its increased concentration is due to the great permeability of the walls of the liver capillaries as compared with those in other parts of the body. I have repeated these experiments on the cat and have obtained similar results. I have not, however, found such great increases of lymph flow as occur in the case of the dog. The increases which I have noted after ligature of the inferior vena cava have been much smaller, not more than two or three times the normal, and commonly less than this. In all, however small the increase in quantity, the total solids of the lymph were increased by about 1 or 2 per cent.

When the vein is *partially obstructed* above the diaphragm, there is no immediate effect upon the lymph flow. The animals with ascites may be divided into two groups with respect to their lymph flow: The first group includes those during the first few days after the vein is constricted in which the venous pressures are normal or moderately raised, and in which the blood volume is normal or not materially increased; in this group the lymph flow is within normal limits. The second group includes all those at a later date in which the venous pressures are high, and in which the blood volume is increased; in this group the lymph flow is always increased. In both groups the rate of lymph flow does not depend upon the amount of ascites present.

Cause of Increased Lymph Flow.

We see, therefore, that when the disease is fully established there is a considerable increase in the lymph flow from the thoracic duct, and we have now to inquire whether this excessive flow is indicative of increased rate of absorption from the peritoneal cavity, or whether it is due to increased rate of lymph production.

If the increased flow of lymph were indicative of *increased rate of absorption* from the peritoneal cavity, the rate of flow should correspond with the amount of ascitic fluid present, because there is no other reason than the accumulation of peritoneal fluid which would give rise to the increased lymph flow. But I have shown that, although the thoracic duct is capable of carrying away fluid much more rapidly than normal, the lymph flow is not increased during the first few days when large amounts of ascitic fluid accumulate. Also, in the later stages the flow may be greatly exaggerated, although there are only small amounts of ascitic fluid present. It is quite true that the lymph flow increases at the period when there is an increase in the ascites, but that the two conditions depend upon some common factor and not the one upon the other is apparent from the comparative study of individual cases.

That injections of fluid into the peritoneum do not give rise to an increase in the lymph flow was shown first by Orlow, and later by other observers. Saline solutions are absorbed readily, but during the process there is no increase in the lymph flow. In the human being, however, the pressure of ascitic fluid not uncommonly reaches a considerable height. An abdominal pressure of 100 mm. Na_2SO_4 solution was recorded by Starling and myself in a case of ascites in a dog with heart failure. The abdomen contained 2,310 c.cm. of ascitic fluid and the lymph flow was greatly increased. During the first ten minutes 30 c.cm. of lymph (about ten times the normal) were obtained and when the flow settled down to a steady rate it remained about five or six times above the normal. After tapping the abdomen and emptying the cavity the lymph flow still remained at its high level, showing that the rapid flow was not due to draining away of the peritoneal fluid, but still it might have been due to drainage of distended lymph spaces. In order to determine whether fluid at high pressure was rapidly carried off by the thoracic duct from the peritoneal cavity I performed two experiments, which gave identical results, and showed that there was no increase in the lymph flow, although fairly large amounts of fluid were absorbed.

A distinction must be drawn between absorption by the lymphatics from the peritoneal cavity and from the tissue spaces. The peritoneal cavity is enclosed by a definite membrane, and is in intimate relation with a subperitoneal plexus of lymphatics, but there is probably no direct communication between them. It is regarded at the present time that the endothelial cells of the peritoneal membrane are everywhere in close contact with each other, and that there are no permanent openings between them. Fluids and solid particles, however, pass with ease through the interstices between the cells. The force causing the movement of such fluids and particles into the subperitoneal lymphatics from the abdominal cavity is derived from the movements of respiration, and more particularly of the diaphragm, owing to the arrangement of its lymphatics. Solid particles are no doubt chiefly carried through by leucocytes. The composition of the fluid on each side of the peritoneal membrane is practically the same, so that there is no force tending to osmosis or diffusion. Absorption from the peritoneum is thus a relatively slow process, and it is possible that if the respiratory movements are interfered with by an excessive accumulation of fluid the

process of absorption by the lymphatics will be correspondingly slow. The mere accumulation of fluid in the abdominal cavity would not, therefore, increase the outflow of fluid from it. A rapid output of lymph from the capillaries would, on the other hand, distend the lymph spaces, and materially raise the pressure in them, thus increasing the outflow of lymph. This is particularly true of the lymph spaces of an organ such as the liver, which is enclosed in a capsule, so that any increase of lymph production in it more easily raises the pressure in its lymph spaces, and increases the flow of lymph from its lymphatics. So long as the tissue fluid remains inside the abdominal organs it is absorbed comparatively quickly by the lymphatics, but when it drains out into the peritoneum it is lost to the lymphatics, and a certain time must elapse before it can be absorbed in the usual manner. The increased lymph flow of the ascitic animal is therefore not indicative of increased rate of absorption from the peritoneal cavity, but such absorption by the lymphatics takes place at the same rate at all stages of the disease, and also at the same rate as in the normal animal. There is no increase in the rapidity with which fluid is drained off during the period of subsidence of the ascites from the peritoneum or from the lymph spaces, which might be supposed to have been overfilled.

If the increased lymph flow of the ascitic animal is not dependent upon increased rate of absorption of the ascitic fluid, it must be an index of *increased lymph production.*

We have already seen that, at the period at which the lymph flow becomes increased, the ascites attains its maximum height both in quantity and rate of production. The latter depends upon the rate of production of lymph, so that the increased lymph flow coincides with increased lymph production. At this time, also, a general plethora is established, the pressures in the portal vein and inferior vena cava rise and the liver swells to an increased extent. It was first shown by W. Müller, and is now universally recognized, that in artificial plethora there is increased lymph production and increased lymph flow from the thoracic duct. This increased lymph production takes place chiefly in the abdominal organs, which are thus responsible for the increase in the flow of lymph. There is therefore no doubt that the increased lymph flow and the increase in the ascites are directly dependent upon the plethora, and that the lymph comes from the abdominal organs, particularly the liver.

The question which now requires an answer is why there is no increase in the lymph flow from the liver in incomplete obstruction of the inferior vena cava until the condition of plethora is established, whilst there is a considerable output of fluid into the peritoneum, giving rise to ascites. The explanation appears to lie in the different degrees of tension in the distended liver. The flow of lymph is constant from the lymphatic radicles to the thoracic duct and thence into the veins. There must, therefore, be a gradual rise of pressure as we follow the lymph stream up into the liver. The higher the pressure in the lymphatics of the liver the more rapid must be the flow of lymph. In the early stages of narrowing of the inferior vena cava the liver distends owing to the rise of venous pressure behind the obstruction, but we have seen that this rise, although enough to dilate the vessels of the liver and fill out that organ with blood, is really only trifling. The vessel walls are altered and lose their tone, so as to remain dilated under a pressure which is normal or only slightly raised. The lymph production is increased owing to nutritive changes in the capillary walls, but the pressure in the lymphatics does not rise high enough to materially increase the lymph flow from the thoracic duct. The nutrition of all the tissues of the liver suffer, and lymph drains out through the capsule into the peritoneum. When plethora is established the venous pressures rise to a high level, the liver enclosed in its capsule distends further, and the tension within it becomes considerable. There is a further increase in the lymph production, and the lymph finds an easier exit through the lymphatics than through the capsule. The condition now has become somewhat similar in many features to that immediately resulting from complete obstruction of the inferior vena cava, in which there occurs a rapid rise of pressure in the liver, a great increase in the lymph flow, and slight ascites. Ascites will accumulate without any material rise of pressure in the liver, but the rate of the lymph flow is directly dependent on the pressure in that organ. In the case of complete obstruction the percentage of total solids in the lymph is increased, this being due to the fact that the lymph is entirely derived from the liver. In the ascitic animal there is no increase in the solids of the lymph although the flow is increased. This is what might be expected if the increased lymph flow resulted from plethora, because in this condition the lymph comes not only from the liver but also from the intestine, the lymph of which is of less protein concentration than normal lymph. The lymph is of no greater concentration than the normal because it is a mixture of intestinal and liver lymph. Before plethora is established, and when the lymph flow is normal, the percentage of total solids is also within the normal limits.

II. *Absorption by the Subperitoneal Blood Capillaries.*

For reasons which I have already stated, I assumed that increased absorption was taking place by the capillaries at the periphery of the body, and we have now to inquire whether this assumption is justified by experiment. The blood from the capillaries of the parietal peritoneum passes into the veins of the abdominal wall, so that these capillaries form part of the system of vessels which are situated at the periphery. If, therefore, it can be proved that an increased absorption is taking place from the peritoneum directly into the blood, we shall be justified in concluding that our assumption is correct, because it is obvious that the visceral peritoneum, which is putting out lymph at such a rapid rate, cannot be held responsible for increased absorption.

For many years it had been known to physiologists that the blood vessels were able to absorb fluids and dissolved substances, but due prominence was not given to this method of absorption until it was definitely proved by Starling and Tubby that absorption of colouring matters in solution from the serous cavities took place rapidly by the blood vessels. They found that the residue of the solution, which they had introduced into the serous cavity, on withdrawal contained protein, and concluded that the process at work was really one of interchange between the fluid in the cavity and the blood, each taking from the other that constituent which it did not possess.

Later researches by Leathes and Starling showed that this absorption was due to osmosis, and that there was no question of any active absorption by the endothelium because there was no material difference in the process when the endothelium was injured by sodium fluoride or by scalding. They proved that not only was water absorbed by osmosis, but also sodium chloride by diffusion.

Osmosis and diffusion will thus account for the absorption of saline solutions by the blood vessels up to a certain point—namely, that at which there is equalization of the amounts of the various salts on each side of the membrane when osmotic equilibrium is established. The osmotic pressure of the blood proteins, as Starling has pointed out, must also be taken into account, the force of attraction of which for extravascular fluid varies inversely as the concentration in protein of the latter. One would therefore expect absorption of fluid by the blood vessels to still continue until increasing protein concentration of the peritoneal saline solution reduced the absorbing force due to the difference of osmotic pressures on each side of the membrane to the level of the hydrostatic pressure in the capillaries. Further than this osmosis and diffusion will not account for the absorption of ascitic fluid by the capillaries.

Normal Cat.

Our first task is, therefore, to find out whether the ascitic animal is capable of absorbing salt solution by its subperitoneal blood capillaries, and, if so, what is the rate of this absorption as compared with the normal. In order to do this I have employed Starling's method of injecting a coloured solution into the peritoneum, and first, in order to obtain a standard of the normal rate of absorption in the cat, I repeated the experiments on the normal animal. As the urine is not uncommonly suppressed in these experiments, instead of noting the colour of this fluid as an index of the colour of the blood, small amounts of blood were withdrawn from the femoral artery at short intervals.

Three experiments were done, with the same results in each case. The blood serum was distinctly tinged blue in about six minutes after introducing the fluid into the peritoneum, and in a few minutes later it was fairly dark blue

LIBRARY U. OF I. URBANA-CHAMPAIGN

The lymph was tinged in from fifteen to twenty minutes, and was fairly dark blue in thirty to forty minutes. The urine was also coloured blue when it was excreted. In no case was the lymph flow increased, and it was never darker than the corresponding sample of blood.

These experiments are in entire agreement with those of Starling, and show that coloured saline solution is absorbed rapidly from the peritoneum of the cat by the blood vessels, being distinctly visible in the blood in about six minutes, and in the lymph in about fifteen to twenty minutes.

Ascitic Cat.

We now turn to a consideration of absorption by the blood vessels of the ascitic animal. I have done two experiments: the first animal had had its inferior vena cava narrowed twenty-four hours, and the second one twenty-seven days, previously. The experiments were conducted exactly as described above. In the case of the first cat the lymph flow, as is usual with animals on the day after operation, was normal. In four minutes after the indigo solution had been introduced the blood showed a distinct tint of blue which rapidly darkened, but the lymph was not stained until about sixteen minutes had elapsed after the first tint appeared in the blood. The second cat, which had been operated upon twenty-seven days previously, was well nourished and healthy. The lymph flow of this cat was increased, as is usual with animals at the end of a month when the blood volume is increased. The blood was tinged blue in four minutes, and the lymph in ten minutes, after the coloured fluid was introduced. The colours of the blood and lymph increased in intensity, the blood at first being the darker of the two.

It is quite evident from these two experiments that the ascitic animal is quite as capable of absorbing coloured saline solution by its subperitoneal capillaries as the normal animal, and that the absorption occurs more rapidly, because the blood was tinged in a shorter time in the ascitic than in the normal animal. The rate of osmosis is therefore greater than in the normal animal, and from this we are justified in drawing the conclusion that the capillaries of the abdominal wall are absorbing fluid from the tissue spaces more rapidly than normal. The same conclusion must be formed in regard to the hind limbs, so that in the whole periphery of the body increased absorption is taking place.

One further fact is noticeable. The lymph of the second animal was coloured in about half the normal time. This is due to the more rapid lymph flow of the animal. It is an additional fact in support of my statement earlier on that the increased lymph flow of the ascitic cat is an index of increased lymph production.

It will be remembered that a portion of the parietal peritoneum is drained by veins opening into the superior vena cava. It might, therefore, be objected to these experiments that the osmotic absorption of fluid really occurred into these vessels and not into those opening into the inferior vena cava, so that the experiments did not prove absorption by branches of that vessel. This question can easily be set at rest by ligaturing the superior vena cava before the coloured fluid is run into the peritoneal cavity, so that there can be no doubt that the fluid is absorbed by branches of the inferior vena cava. I therefore performed two experiments of this nature. In the first cat the inferior vena cava had been constricted three days. A cannula was connected with the thoracic duct, and the superior vena cava ligatured between the entrance of the azygos vein and the auricle. The lymph flow was normal. In two minutes the blood serum was tinged blue and in four minutes from the beginning its colour was markedly blue. The lymph was not tinged till twenty-one minutes after the fluid was introduced. The second cat was also a three days cat. The same procedure was adopted. The lymph flow of this animal was a little above the average. In two minutes the blood serum was tinged blue as in the first cat. The lymph was tinged in ten minutes.

These two experiments prove that the osmotic absorption of fluid occurs into the blood vessels of the parietal peritoneum when all anastomoses are cut off. It will be noticed that absorption occurs in a third of the normal time when the superior vena cava is ligatured. I have already shown that when this vein is ligatured there is a great rise of pressure in all its tributaries from the accumulation of blood in them, and that simultaneously the pressure in all the tributaries of the inferior vena cava falls owing to abstraction of blood. This is the reason of the increased rate of absorption of the fluid, Ligature of the superior cava relieves the abdominal vessels of some of their blood, with the result that they take in fluid more rapidly. It is thus clear that, when both superior and inferior venae cavae are obstructed together, increased absorption takes place in the extremities and in the body wall, whilst increased output is occurring in the central parts of the body. This must also take place in uncompensated heart disease, which I have shown to be precisely similar in its results to the simultaneous obstruction of the superior and inferior venae cavae.

So far we have considered the rate of absorption by osmosis at an early stage of the process, and we have now to study the rate at which it occurs *during the later stages* until absorption is complete. This was investigated by removing all the ascitic fluid and replacing it by normal saline solution, which was withdrawn at different periods of time, and examined in regard to its amount and its concentration in dissolved solids as compared with the normal animal.

On comparing the rates of absorption of saline solution in the normal and the ascitic cat I have found that during the first hour almost the same amounts are absorbed, the ascitic cat absorbing rather more than the normal, but the residual fluid in the ascitic cat contained a percentage gain of solid matter which was six times as great as that of the normal cat. In the next experiment the absorption was allowed to go on for eight hours: 70 c.cm. of saline solution were introduced into a normal cat and at the end of eight hours only 3 c.cm. could be recovered from the peritoneum; the percentage of total solids in it amounted to 4.7; 45 c.cm. of ascitic fluid were removed from the peritoneal cavity of a dropsical cat and 70 c.cm. of saline solution introduced; at the end of eight hours 45 c.cm. were recovered from the peritoneum. The rate of absorption in this cat had fallen off two and a half times as quickly as in the normal animal. The percentage of total solids in the residual fluid was 6.6. The original ascitic fluid of the cat contained 7.9 per cent. of total solids, so that in eight hours the animal had almost made up its original percentage of solid matter in the peritoneal fluid, and the volume of the fluid was precisely the same as the original amount of ascitic fluid. In another ascitic cat of two weeks' standing 30 c.cm. of fluid were removed containing 6.5 per cent. total solids. The amount of saline solution introduced was 49 c.cm., and after twenty-four hours 22 c.cm. of fluid were removed containing 6.5 per cent. solids.

One may state generally that certainly within twelve hours the introduced fluid will have become about the same as that originally withdrawn both in amount and composition. We see, therefore, that in the ascitic cat the interchange of solids between the blood and the saline solution contained in the peritoneum is a much more rapid process than in the normal animal. The process of osmosis is more rapid in the ascitic than in the normal animal during the early stages, but it is interrupted much more quickly in the ascitic animal by the more rapid output of solid matter, so that in the later stages absorption of fluid becomes much slower, and osmotic equilibrium is established long before the fluid can possibly be absorbed.

We have now to inquire into the *origin of the protein* which accumulates in the peritoneal fluid. The presence of salts which collect in the fluid are quite easily accounted for by diffusion, so that the partial pressure of each saline constituent of the blood becomes equal on each side of the separating membrane. The presence of the protein cannot be thus easily explained, as protein is indiffusible. In the first place, I must point out that we are dealing with two sets of blood vessels—those of the viscera, in which output has overbalanced absorption, and from which the ascitic fluid originates, and those of the parietal peritoneum which are absorbing more quickly than normal—so that we must distinguish two separate processes: osmotic absorption of fluid and equalization of partial pressure of salts by diffusion in the case of the capillaries of the parietal peritoneum, and increased output of lymph from those of the viscera. It is the increased output of lymph into the saline solution which rapidly brings its concentration in protein and salts up to that of the original ascitic

fluid, and so arrests osmosis and diffusion in the case of the parietal peritoneal vessels. This arrest of osmosis occurs at a certain stage in each animal, depending entirely upon the rate of output of lymph.

The protein thus originates in the lymph which is being rapidly produced by the viscera, and for this reason the fluid becomes of the same composition as the original ascites.

When salt solution is introduced into the peritoneum of the normal animal protein appears in it for the same reason—namely, that there is normally a very slow output of lymph into the peritoneum, which is being as rapidly absorbed, so that this structure is kept slightly moist, and there is no accumulation of fluid in it. It is this normal lymph production which accounts for the appearance of protein in the peritoneal saline solution. In support of this hypothesis may be mentioned the fact, noted by Gray and myself, that sometimes in the normal hutch-fed rabbit, and commonly when it is pregnant and the muscles are flabby and the abdomen is full, ascitic fluid is present. We showed that there were no pressure changes in the circulation of these ascitic animals. The ascitic fluid of these rabbits appears to be normal tissue fluid, the rate of production of which is probably normal, but absorption by the lymphatics is impeded owing to the respiratory movements and action of the abdominal muscles being less effective in this direction than are those of a wild animal, in which the abdomen is taut and the movements active and vigorous.

Finally, we arrive at the question whether absorption entirely ceases by the blood vessels of the peritoneum when osmotic equilibrium is established between the ascitic fluid and the blood. This entirely depends upon whether protein is absorbed by the capillary wall or not.

An increased absorption of fluid may be occurring by the capillaries of the abdominal wall, although they do not take up the ascitic fluid from the peritoneum. The explanation of this is that the protein concentration of tissue fluid is kept low by the tissue cells using up the protein during their metabolic activities, whilst the ascitic fluid remains of the same protein concentration. Until proof is forthcoming that absorption of protein may occur by the capillary wall, we must assume that when the ascitic fluid attains osmotic equilibrium with the blood plasma the ascites is entirely absorbed by the lymphatics.

SUMMARY.

1. The accumulation of fluid in the peritoneal cavity following an incomplete obstruction of the inferior vena cava in the chest, or in uncompensated heart disease, is due to an increased output of lymph from the viscera, more especially the liver. This increased output is constantly occurring at all stages of the disease; an increase in the amount of fluid is due to an increase in the rate of output, and the disappearance of the fluid is due to a gradual falling off of the rate of output.

2. Absorption from the peritoneal cavity by the lymphatics is occurring at all stages at the normal rate, a check being thus placed to an excessive accumulation of the ascitic fluid. The fluid is therefore being continuously renewed, and there is a constant circulation of lymph from the blood into the peritoneal cavity and back again to the blood by the thoracic duct.

3. Increased absorption of tissue fluid is taking place in the abdominal wall and hind legs, as in the fore part of the body, but it has not been proved that the ascitic fluid is absorbed as such by the capillaries of the parietal peritoneum. There is no evidence to show that the endothelial cells of the peritoneum actively absorb the fluid.

4. The increased lymph flow from the thoracic duct observed at a certain stage in the course of the dropsy is an index of increased lymph production in the abdominal organs owing to the plethora.

BIBLIOGRAPHY.

Bolton and Gray: BRITISH MEDICAL JOURNAL, March 18th, 1911.
Bolton and Starling: *Heart*, 1910, vol. i, No. 4, p. 292.
Heidenhain: *Arch. f. d. ges. Physiol.*, Bonn, 1891, Bd. xlix, S. 209.
Leathes and Starling: *Journ. Physiol.*, 1895, vol. xviii, p. 106.
Müller, W.: *Lect. Gen. Path.* (Cohnheim), New Syd. Soc. Trans., 1889, vol. i, p. 419.
Orlow: *Arch. f. d. ges. Physiol.*, Bonn, 1894, Bd. lix, S. 170.
Starling: *Journ. Physiol.*, 1895-96, vol. xix, p. 312; and 1894, vol. xvi, p. 224.
Starling and Tubby: *Journ. Physiol.*, 1894, vol. xvi, p. 140.

THE DISINFECTION OF DRINKING WATER

WITH A DESCRIPTION OF A NEW SUBSTANCE FOR THE PREPARATION OF STABLE TABLETS FOR THE STERILIZATION OF POLLUTED WATER.

BY

H. D. DAKIN, D.Sc., F.R.S.,

AND

E. K. DUNHAM, M.D.,

MAJOR, U.S. ARMY MEDICAL SERVICE.

(Report to the Medical Research Committee.)

THE sterilization of contaminated drinking water is a problem of special importance in war time. The use of bleaching powder, or similar hypochlorite or chlorine preparation, has been used with the greatest success for the sterilization of relatively large volumes of water. The use of water-carts containing water treated with a carefully regulated quantity of bleaching powder has given every satisfaction when the method could be satisfactorily carried out—as, for example, when troops are practically stationary. The problem of sterilizing small individual quantities of water, such as are needed by cavalry or rapidly moving troops, is much more difficult, and, up to the present, it has not been perfectly solved. The use of hypochlorites for such purposes is difficult, owing to the instability of small tablets containing the minute quantity of active disinfectant. In their place acid sulphates of the alkali metals have been extensively used in tablet form, but the superior potency of many chlorine compounds would indicate that a stable potable chlorine disinfectant suitable for the sterilization of small quantities of water is desirable. With this end in view, we have made a number of experiments with various types of substances, one of which we believe to be worth practical application.

Our first experiments were made with chloramine-T,* but it was found that when this substance was added to heavily contaminated waters it required a relatively high concentration to sterilize the water promptly, particularly in the case of hard alkaline waters. For example, 1 part of chloramine-T to 25,000 parts of water may be necessary, and such an amount is decidedly unpalatable. Subsequently it was found that much lower concentrations of chloramine-T were effective if the contaminated water was slightly acidified with any acid—for example, citric, tartaric, acetic, etc. Under these conditions 1 : 250,000 or less of chloramine-T was effective (see Table I), and the resulting water was not unpleasant to the taste. But

TABLE I.

Experiments with Chloramine-T, with and without Addition of Tartaric or Citric Acid.

No.	Water Treated.	Concentration of Disinfectant.	Acid Added. Grams per Litre.	Time of Action in Minutes.	Surviving Organisms per c.cm.
1	Hard water + B. coli ...	—	—	—	2,508,800
		1 : 25,000	None	10	35,200
		1 : 25,000	None	30	14,880
2	Hard water + B. coli ...	—	—	—	1,120,000
		1 : 300,000	0.4	10	180
		1 : 300,000	0.4	30	0
3	Hard water + B. coli + 0.1 % faeces	—	0.8	—	3,232,000
		1 : 200,000	0 8	10	0
4	Hard water + B. coli ...	—	0.2	—	520,000
		1 : 250,000	0.2	10	27,200
		1 : 250,000	0.2	30	7,200
		1 : 250,000	0.8	10	130
		1 : 250,000	0.8	30	50
5	Hard water + V.cholerae	—	—	—	744,000
		1 : 250,000	0.8	10	0
		1 : 500,000	0.8	10	0
6	Hard water + B. typhosus	—	—	—	345,000
		1 : 250,000	0.8	10	0
		1 : 500,000	0.8	10	1,760
		1 : 500,000	0.8	30	0

* The abbreviated name for sodium toluene-*p*-sulphochloramide. (Cp. BRITISH MEDICAL JOURNAL, January 29th, 1916; *Proc. Roy. Soc.*, B, 89, p. 232, 1916.

LIBRARY U. OF I. URBANA-CHAMPAIGN

chloramine-T could not be made up in a tablet with the addition of an acid without decomposition, and the two tablet system was regarded as impracticable.

Subsequently we experimented with preformed toluenesulphondichloramines, since a substance of this type is formed on adding acid to chloramine-T. The early results were most encouraging (see Table II), and it was

TABLE II.

Experiments with o- and p-Toluenesulphondichloramine in Powder and Tablet Form.

No.	Water Treated.	Concentration of Disinfectant.	Time of Action in Minutes.	Surviving Organisms per c.cm.	Form of Disinfectant.
1	Tap water + B. coli...	—	—	11,520	
		1 : 250,000	7	680	*o*-powder
		1 : 250,000	15	0	
2	Tap water + B. coli...	—	—	40,980	
		1 : 250,000	7	20	*o*-powder
		1 : 250,000	15	4	*o*-powder
		1 : 250,000	30	0	*o*-powder
3	Hard water + faeces suspension	—	—	22,080	
		1 : 250,000	7	200	*o*-powder
		1 : 250,000	15	0	*o*-powder
4	Hard water + 10% city sewage	—	—	64,000	
		1 : 250,000	7	448	
			15	210	
			30	74	
			60	2	
5	Tap water + 2.5% city sewage	—	—	6,420	
		1 : 250,000	7	0	*o*-powder
6	Tap water + 5% sewage	—	—	18,300	
		1 : 250,000	7	1,644	*p*-powder
		1 : 250,000	15	455	
		1 : 250,000	30	0	
7	Tap water + 5% sewage	—	—	18,300	
		1 : 500,000	7	11,928	*p*-powder
			15	2,600	
			30	930	
			60	0	
8	Tap water + 5% sewage	—	—	18,300	
		1 : 1,000,000	7	19,405	*p*-powder
		1 : 1,000,000	15	18,920	
		1 : 1,000,000	30	7,024	
		1 : 1,000,000	60	630	
9	Hard water + B. coli	—	—	161,000	
		1 : 200,000	10	166,400	*p*-tablet
		1 : 200,000	40	108,288	
		1 : 200,000	60	56,160	

not until we had the product put up in tablet form that we found it to be unsuitable. The difficulties were twofold. When the small necessary quantity of dichloramine —for example, 0.002 gram for 0.5 litre of water—was mixed with what were assumed to be inert salts, such as, for example, sodium chloride, for making into small tablets, the very slow normal rate of decomposition of the dichloramine was greatly accelerated. Secondly, the dichloramine, in tablet form, became too insoluble to effect prompt sterilization. The substance had therefore to be abandoned, and we turned our attention to a search for similarly active compounds which would show greater stability and solubility.

The substance which is the most suitable that we have yet found is *p*-sulphondichloraminobenzoic acid—$Cl_2N.O_2S.C_6H_4.COOH$. It is easily prepared from cheap, readily available materials, and appears to be effective and reasonably stable. The presence of the COOH group confers a slight but definite degree of solubility in water, which is increased by dispensing it with alkaline salts such as sodium carbonate or bicarbonate, borax or sodium phosphate. Formulae for the tablets are appended, together with details of the preparation of the substance and an estimate of its cost. Since the synthetic name of the disinfectant is inconveniently long for ordinary use, we propose to apply the name "halazone" to the tablets containing it. The abbreviated name gives some indication of the character of the compound.

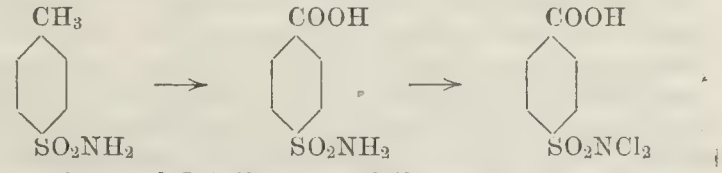
In Table III (p. 684) are given some of our bacteriological results. The technique employed was that in general use and requires no special description. Five or ten standard drops of the treated water were generally used for plating on agar for counting the surviving organisms. Suitable controls were invariably carried out.

From the results in Table III it appears that a concentration of 1 : 300,000 is sufficient to sterilize an ordinarily heavily contaminated water in about thirty minutes. Such a concentration could be relied upon to remove *coli*, typhoid, or cholera organisms. Special experiments showed that the substance in tablet form was efficacious when acting on water contained in aluminium bottles, although a very trifling action on the metal may be observed if tablets are allowed to remain undisturbed in long contact with the metal. We believe such action to be of no practical moment. The concentration of disinfectant given above is just perceptible to the taste, especially in warm water containing little organic matter, but the water is perfectly palatable. One point of advantage possessed by the present disinfectant over most hypochlorite preparations is the fact that the active chlorine is less rapidly used up, so that the process of disinfection continues for a longer period.

Preparation and Properties of the Disinfectant.

The starting-point in the preparation of the substance is *p*-toluenesulphonamide, a product which is readily obtained by the action of ammonia on *p*-toluenesulphonic chloride. The latter substance is a very cheap waste product in the manufacture of saccharine, and is available in relatively large quantities. It is now used for the manufacture of chloramine-T.

Toluenesulphonamide is oxidized to *p*-sulphonamidobenzoic acid, and the latter substance on treatment with chlorine under suitable conditions gives the desired dichloramine acid. The reactions may be expressed as follows:



The experimental details are as follows:

Preparation of p-Sulphonamidobenzoic Acid.

Add 250 grams commercial sodium dichromate to a mixture of 200 c.cm. concentrated sulphuric acid and 600 c.cm. water contained in 2-litre round flask. Then add 100 grams crude toluene-*p*-sulphonamide, and heat on a sand bath with reflux condenser for one hour, using a small flame at first as the reaction is vigorous. On cooling, wash the separated crystals well with cold water, and then dissolve them in hot dilute sodium hydroxide in slight excess. Filter hot, and add excess of hydrochloric acid, and when cold filter off the precipitated acid and wash well with water and dry. The yield is about 80 per cent. of theory.[1]

Preparation of p-Sulphondichloraminobenzoic Acid.

Twenty grams of *p*-sulphonamidobenzoic acid are dissolved in 200 c.cm. approximately normal sodium hydroxide (2 mols.), warming if necessary. About 200 grams of crushed ice is then added, and the mixture saturated with a rapid current of chlorine. The reaction is most conveniently carried out in a fairly wide-mouthed flask, which may be shaken while the gas is being introduced. If the temperature should rise more ice can be added. A white, rather chalky precipitate of the dichloramino acid is at once precipitated. The acid is filtered off, using suction, well washed with cold water, and dried *in vacuo* on a porous plate. The dry substance is practically pure, and may be powdered and preserved apparently indefinitely. Prepared by this method, the yield of the dichloramino acid is practically the theoretical amount.

The substance is sparingly soluble in water and in chloroform and insoluble in petroleum. It readily dissolves in glacial acetic acid, crystallizing in stout prisms, which melt at 213° C. The substance explodes feebly when rapidly heated on platinum foil, but, compared with most members of the group, is remarkably stable.

The purity of the compound may be checked by titration as follows: 0.1 gram is weighed out, dissolved in glacial acetic acid and potassium iodide added. The liberated iodine is titrated with decinormal sodium thiosulphate, of which 14.8 to 14.9 c.cm. will be required.

The dichloramino acid dissolves, apparently without change, in excess of cold sodium hydrate solution, and may be reprecipitated on addition of acids. With smaller quantities of sodium hydroxide or with feebly alkaline

salts, such as phosphates or borates, hydrolysis occurs, with liberation of disagreeably smelling compounds of nitrogen and chlorine.* (See footnote at end.)

Preparation of Tablets.

We have observed no very marked differences in the behaviour of the sulphondichloraminobenzoic acid when made into a tablet with salt and either sodium carbonate or bicarbonate, dry or crystallized borax, or sodium phosphate, although the crystallized salts are undesirable if the tables are exposed to high temperatures. The sodium carbonate tablets seem as satisfactory as any, and a convenient formula for tablets weighing 100 to 105 mg. is to use sulphondichloraminobenzoic acid 4 per cent., sodium carbonate 4 per cent. (or dried borax 8 per cent.), sodium chloride (pure) 92 per cent. The acid should be ground up with the dry salt and the sodium carbonate added subsequently. The mixture may be passed through a 40-mesh sieve. No lubricant or other addition is necessary and should be avoided. The strength of the tablets should be tested by dissolving in acetic acid and potassium iodide solution, and titrating with sodium thiosulphate as already described (1 c.cm. of N/10 thiosulphate = 0.00675 gram of the dichloramino acid). They must not be allowed to dissolve in water and subsequently titrated, as then decomposition occurs. The tablets should be stored in small amber glass bottles.

Tablets so prepared of the weight mentioned contain about 4 mg. of the disinfectant, and are suitable for the sterilization of a litre or quart of reasonably heavily contaminated water. In the case of extreme contamination a second tablet may be necessary.

Stability of Tablets.

The practical success of the disinfectant we propose will depend very largely on the stability of the tablet. At present sufficient time has not elapsed for entirely convincing experiments, but it appears, as judged by a very few months' observation, that the tablets are stable enough for practical use. They are certainly more stable than other similar compounds with which we are acquainted. When kept in amber bottles under ordinary conditions no decomposition was noted in two months. When exposed to bright sunlight in clear glass tubes decomposition was more marked, and the same was true of the crystallized borax tablets at a temperature of 38° C. The dried borax and sodium carbonate preparations were stable under these conditions, the bicarbonate ones less so. On the whole, dry borax or dry sodium carbonate appear preferable to the other salts.

TABLE III.

Experiments with p-Sulphondichloraminobenzoic Acid in Tablet Form.

BACILLUS COLI.

No.	Water Treated.	Concentration of Disinfectant.	Time of Action in Minutes.	Surviving Organisms per c.cm.	Tablet Dissolved, in Minutes.
1	Tap water + B. coli ...	—	—	63,800	
		1 : 200,000	30	0	4
2	Tap water + B. coli ...	—	—	38,629	
		1 : 200,000	30	0	9
3	Tap water + B. coli ...	—	—	112,525	—
		1 : 200,000	15	0	9
4	Tap water + B. coli ...	—	—	112,525	
		1 : 250,000	15	0	9
5	Tap water + B. coli ...	—	—	112,525	
		1 : 400,000	15	0	10
6	Tap water + B. coli ...	—	—	178,528	
		1 : 500,000	15	987	10
		1 : 500,000	30	0	10
7	Tap water + B. coli ...	—	—	125,420	
		1 : 500,000	15	406	12
		1 : 500,000	30	0	12
8	Tap water + 5% sewage + B. coli	—	—	1,119,000	
		1 : 175,000	15	6,000	9
			30	0	9
			60	0	9
9	Tap water + 5% sewage + B. coli	—	—	1,158,500	
		1 : 330,000	15	120,064	7
		1 : 330,000	30	9,146	7
		1 : 330,000	60	0	7
10	Tap water + 5% sewage + B. coli	—	—	1,120,000	
		1 : 500,000	15	284,800	5
		1 : 500,000	30	49,318	5
		1 : 500,000	60	70	5
11	Deep yellow polluted river water + B. coli	0	—	33,152	
		1 : 250,000	20	10,940	13
		1 : 250,000	40	852	
		1 ; 250,000	60	0	

TABLE III (*continued*).

PATHOGENIC ORGANISMS.

No.	Water Treated.	Concentration of Disinfectant.	Time of Action in Minutes.	Surviving Organisms per c.cm.	Tablet Dissolved, in Minutes.
12	Tap water + B. typhosus	0	—	1,155,400	
		1 : 225,000	20	0	17
13	Hard water + B. typhosus	0	—	85,400	—
		1 : 333,333	20	0	14
14	Tap water + 5% sewage + B. typhosus	0	—	66,017	
		1 : 333,333	20	242	14
		1 : 333,333	40	0	
15	Tap water + 5% sewage + B. typhosus	0	—	240,000	—
		1 : 225,000	20	13	14
		1 : 225,000	40	0	
16	Tap water + B. paratyphosus A	0	—	112,000	
		1 : 225,000	20	0	17
17	Tap water + 5% sewage + B. paratyphosus A	0	—	138,880	—
		1 : 225,000	20	0	13
18	Tap water + 5% sewage + B. paratyphosus A	0	—	29,400	—
		1 : 333,333	20	15	12
		1 : 333,333	40	0	
19	Tap water + B. paratyphosus B	0	—	322,500	
		1 : 225,000	20	10	17
		1 : 225,000	40	0	
20	Tap water + 5% sewage + B. paratyphosus B	0	—	309,120	
		1 : 225,000	20	305	13½
		1 : 225,000	40	0	
21	Tap water + 5% sewage + B. paratyphosus B	0	—	139,776	
		1 : 333,333	20	290	12
		1 : 333,333	40	0	
22	Tap water + V. cholerae	0	—	13,706	
		1 : 450,000	20	0	13½
23	Tap water + 5% sewage + V. cholerae	0	—	11,170	13
		1 : 333,333	20	0	
24	Tap water + B. dysenteriae (Flexner)	0	—	66,998	
		1 : 450,000	15	25	13
		1 : 450,000	30	0	
25	Tap water + B. dysenteriae (Flexner)	0	—	98,990	
		1 : 333,333	20	17,363	7
		1 : 333,333	40	58	
26	Tap water + 5% sewage + B. dysenteriae (Flexner)	0	—	164,864	
		1 : 333,333	20	38	13
		1 : 333,333	40	0	
27	Tap water + B. dysenteriae (Shiga)	0	—	33,852	
		1 : 450,000	15	12,227	6
		1 : 450,000	30	1,060	
28	Tap water + B. dysenteriae (Shiga)	0	—	31,200	
		1 : 333,333	20	10,934	11
		1 : 333,333	40	0	
29	Tap water + 5% sewage + B. dysenteriae (Shiga)	0	—	2,108	
		1 : 333,333	20	0	13

Tap water = New York City water (Croton Reservoir).

Cost.

It is rather difficult to give precise estimates of the cost of the finished product, but it is safe to say that the tablets could be sold at such a price that 100 gallons of water could be sterilized at a cost of one penny.

REFERENCE.

[1] Cf. Remsen, *Ann.*, 178, p. 298, 1875.

* If the ethyl ester of sulphonamidobenzoic acid is chlorinated in chloroform solution in the presence of aqueous sodium acetate, ethyl sulphondichloraminobenzoate is readily obtained on evaporating the chloroform solution. It crystallizes from acetic acid or carbon tetrachloride in stout prisms, which melt at about 80° C. One tenth of a gram on titration with thiosulphate, after adding potassium iodide, required 14.0 c.cm. The theoretical amount for $Cl_2N.SO_2.C_6H_4.COOC_2H_5$ is 14.1 c.cm. The substance was not found to present any advantages over the free acid as an antiseptic or disinfectant.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

COLLOID SILVER IN INVETERATE PROSTATIC GLEET.

THE remarks of Sir M. Morris (BRITISH MEDICAL JOURNAL, May 12th) on colloidal preparations afford me an opportunity of drawing attention to a mode of using argentum collosol which I have found useful—namely, its injection into the substance of the prostate gland.

Chronic gonorrhoeal prostatic gleet often defies remedies and occasionally leads to such ravages in the gland that prostatectomy has been done for the condition in America and on the Continent.

The chief difficulty is the impossibility—even by ionization—of getting medicaments into contact with the epithelium of the ducts, so long and sinuous are the latter, so peculiarly guarded are their mouths, and so replete with secretion. Moreover, residual abscesses and abscess sinuses are often scattered through the gland.

In such circumstances I have successfully injected the gland through the endoscope with the aid of vision. A hypodermic needle is set on a long silver tube. To the proximal end a small syringe is attached. The veru montanum is the landmark, and the needle is driven into the prostatic sinuses on each side, or, perhaps, on the side alone whence pus is seen to ooze. The proceeding is quite easy. By this means the ducts are transfixed and the drug is brought into direct contact with the disease.

Short of this, I employed for years alternate suctions and injections under pressure. That medicaments reach the ducts in such circumstances is proved by the prostatic threads remaining stained for a day or two, should a coloured drug (permanganate) be used.

Before employing any drastic treatment for the prostate, it is well to apply local anaesthetics and inject morphine and phenazone into the rectum.

London, E.C. JAMES MACMUNN.

Reports of Societies.

MAKING AND CLOSING OF COLOSTOMY OPENINGS.

AT a meeting of the Subsection of Proctology of the Royal Society of Medicine on May 9th, Mr. F. SWINFORD EDWARDS, the President, being in the chair, Mr. P. LOCKHART-MUMMERY opened a discussion on the methods of making and closing colostomy openings. He said that with the advent of antiseptic surgery the necessity for an extraperitoneal route ceased and inguinal transperitoneal colostomy became the fashion, replacing lumbar colostomy, which had almost disappeared from surgical practice. The left lumbar operation had still a possible field of usefulness in cases in which a temporary colostomy preceded an abdominal section, and might still be the safest plan when there was obstruction and great distension of the colon with solid faeces.

Selection of Operation: Transverse Colostomy.

The inguinal operation as described by the Allinghams held the field until a few years ago. The modifications devised by Witzel, Braun, Bailey, and Weir, to produce a valvular opening failed to attain their object. This was true also of Lienthal's operation, in which a twist was given to the bowel. A very great improvement was introduced by making a vertical section through the belly of the left rectus. He had followed this method since 1907, and now never used the oblique incision in the left iliac fossa except when some very special reason precluded the use of the rectus incision. It gave better control over the opening, especially when the patient stood or walked. The following factors in performing the operation were of chief importance: (1) Bringing out the colon through as small an opening in the abdominal wall as possible; (2) making a good spur and subsequently completely dividing the bowel; (3) bringing the bowel through the rectus muscle; (4) providing a reservoir for the faeces immediately above the opening. The last could not be secured in the case of sigmoid colostomy without incurring the risk of prolapse, but was possible in transverse colostomy, which had recently come into considerable favour; it had certain advantages. By making the opening in the ascending part of the transverse colon towards the splenic flexure an excellent reservoir was provided for the faeces immediately proximal to the opening. Prolapse of the bowel was very unlikely to occur. In most cases excellent results as regards control were obtained, but he had met with at least two cases in which the stools had remained persistently loose after transverse colostomy.

Temporary Colostomy.

With regard to the best form of temporary colostomy, he did not think there was much to choose between the transverse and sigmoid operations. Transverse was certainly preferable as a preliminary to excision of the rectum, as the surgeon had the whole of the sigmoid to use in restoring the bowel, and the opening was further away from the site of operation. Apart from this, he favoured sigmoid colostomy as a temporary operation, but it was important that the centre of the sigmoid loop should be used so that the colon could be readily mobilized when the opening had to be closed again.

Closure.

There was still considerable difference of opinion as to the best method of closing a colostomy opening, and quite a number of operations with this object seemed to be failures. He thought that the best method was to dissect the bowel out from the abdominal wall, free the loop sufficiently to allow the colon to be drawn well out of the abdomen, and then, after cutting away the edges of the opening, to restore the lumen by direct suture. He attached considerable importance to the following procedures in the method he employed:

1. Before commencing the operation the external mucosa is either sterilized thoroughly or dissected loose and the opening temporarily closed with suture.

2. An incision having been made around the opening it is deepened on one side until the abdominal cavity is opened; then with one finger inside the abdomen as a guide, the bowel is freed from the abdominal wall with scissors.

3. The loop is drawn through a hole in a towel, and after being clamped on the proximal side a wedge-shaped piece of bowel, with its apex towards the mesenteric attachment, is cut away so as to secure a good blood supply and compensate for the narrow lumen at the site of the join.

4. The ends are sewn together with a catgut stitch, taking up all the coats, and a serous stitch, also of catgut, is placed over them.

5. The bowel is cleaned carefully, and, the gloves and instruments having been changed, is replaced in the abdomen.

6. The abdominal wall is closed with a small rubber tissue drain at the lower corner of the wound.

7. After operation the bowels are not confined, but are kept acting daily by small enemata or small doses of magnesium sulphate by the mouth. The advantages of this method were obvious, but good technique was essential.

The oldest and easiest method was by dividing the spur with an enterotome, and subsequently closing the external fistula by paring away the edges, inverting them, and bringing together the abdominal wall by deep sutures. The method was safe and the results were good. If safety were the only consideration, the patient being a bad risk, he thought that it was probably the best method. Greig Smith's operation left the gut inside the abdominal wall, and with a narrowed lumen. The patients generally suffered from chronic constipation and a weak place in the abdominal wall which required a support. Coffey's operation was open to similar objections. With regard to the young men wounded in the war for whom it was necessary to close a temporary colostomy it was most desirable to use that method which would give perfect anatomical restoration of the parts.

For the purpose of estimating the degree of control over the opening he had taken fifty cases and classified them according to the amount of control possessed at the end of three months after operation, as follows: (1) Excellent control, the patient being able to live an ordinary life

without the fear of an accident occurring; (2) good control, the patient living an ordinary life, but with occasional accidents; (3) poor control, the patient having to be very careful, and accidents being not infrequent; (4) bad, where control was absent. Out of the 50 there were 17 cases with excellent control; of these, 15 had either had the growth removed or the colostomy had been for a non-cancerous condition; in 4 of these transverse colostomy was done. Twenty-three cases had good control; of these, 13 were of inoperable cancer. In 6 cases the control was poor; 5 of these were inoperable cancer; 2 were transverse colostomies. In 4 cases the control was bad; of these, 2 were inoperable cancer and in 2 the growth had been removed. One was a transverse colostomy. In percentages the result was excellent in 34 per cent., good in 46 per cent., poor in 12 per cent., bad in 8 per cent. When the patient was in good health, with no growth, and not old, the colostomy did not cause serious inconvenience in the majority of cases, and with few exceptions the cases in which such inconvenience occurred were those in which an inoperable growth existed and the patient was old and feeble.

DISCUSSION.

Mr. SAMPSON HANDLEY agreed that the opening in the rectus sheath was a great improvement. The sigmoid was not a very suitable bowel to employ, and the transverse colon should be chosen. This was particularly true in the case of very stout patients, when the sigmoid could only be brought out with great difficulty; the transverse colon was, moreover, further from the growth. The anterior layer of omentum sometimes introduced a technical difficulty in transverse colostomy, but this could be got over by scratching through it. He had no strong views as to the relative advantages of the extraperitoneal and intraperitoneal methods of closing the openings.

Mr. A. BALDWIN said that the patient in these cases should not be subjected to more in the way of an operation than was absolutely necessary. He had always used a modification of Greig Smith's method, and thought that the degree of narrowing of the bowel was negligible. He had not met with constipation after it.

Mr. F. SWINFORD EDWARDS said that fifteen years ago he had adopted hypogastric as opposed to iliac colostomy, and had found the control excellent in many cases. He preferred it to transverse colostomy, which was not always easy because of the omentum lying before it, which was sometimes very thick. He had always used the extraperitoneal method of closure suggested to him by Mr. Baldwin, a small margin of skin being left all round.

Rebiews.

GLAUCOMA.

THE interest that has been aroused in the treatment of glaucoma has produced a notable literature within the last few years. This is reflected in the added space given to the consideration of the disease in the standard textbooks and in the number of clinical essays appearing in the medical press. This little book by Lieutenant-Colonel R. H. ELLIOT, entitled *Glaucoma*,[1] is a useful contribution to the means of information at the disposal of the general practitioner, and one calculated to furnish him with a ready and exact means of appreciating the conditions, the mode of treatment, and the dangers attending the disease. The book is simply and clearly written and free from controversial discussions. After a general explanation of the nomenclature in use, a clear account is given of the anatomy of the parts concerned in glaucoma, and this is illustrated by excellent photomicrographs and line drawings. The physiology of the circulatory fluids of the eye and the manner in which they maintain the necessary internal pressure are explained. An account of the tissue changes in the vessels and filtration spaces brings the normal conditions into connexion with the disease state, and leads up to a consideration of the causes and consequences of glaucoma and its diagnosis. The signs and symptoms of glaucoma are set out very clearly; especially to be commended is the simple paper-folding scheme which illustrates the cupping of the disc and the alteration this produces in the appearance of the retinal vessels at the disc. It might, perhaps, have been wise to have given more space to the discussion of "differential diagnosis." To the man who is not constantly treating affections of the eye the overlapping of the symptoms of conjunctivitis, iritis, and glaucoma, when these states are not full blown and unmistakable, may often cause hesitation and uneasiness as to the accuracy of his diagnosis.

The treatment of the disease both by drugs and operation is detailed on generally approved lines, and the operative section gives an account of the several methods most in vogue; the notice given to the value of massage in the treatment of chronic high tension is particularly to be commended. The last two chapters deal with secondary glaucoma, congenital glaucoma (buphthalmos), and juvenile glaucoma. The scope and purpose of the book have caused the author to write often in a dogmatic tone, but this affords no ground for criticism, more especially as Colonel Elliot states in his preface that he has in preparation a larger, fully documented work, the publication of which has been postponed owing to the call of the war.

[1] *Glaucoma: A Handbook for the General Practitioner.* By Robert Henry Elliot, M.D., F.R.C.S. London: H. K. Lewis and Co. 1917. (Pp. 60. 3s. 6d. net.)

NOTES ON BOOKS.

The Care of the Teeth, by Dr. A. T. PITTS,[2] gives a brief and business-like account of what the average man, woman, and child should know about the subject. Dental caries, as the author points out, is the commonest of modern diseases; yet it is very largely preventable, and the reader of this little manual will learn what he ought to do to conserve the teeth. The early chapters deal with the structure and eruption of the teeth; the causes and effects of dental decay are next considered, and the last chapters deal with the prevention of dental irregularities and decay.

In *The Health of the Skin*[3] Dr. G. PERNET gives a chatty and interesting description of the care demanded by hair and skin, illustrating his remarks with apt quotations from the poets, historical parallels, and travellers' tales. Beauty doctors, specialists in the care of hair and face, experts who will take twenty years off the looks, and other such by-products of idleness combined with wealth and conceit have been as common as they were in the ancient civilizations of Egypt, Crete, Greece, or Rome. Dr. Pernet's book may be praised as a sound corrective to over-carefulness; it sets out, no less well, the amount of attention that the skin may duly claim. The volume ends with a note on the advisability of the foot-bath; the reader will perhaps be reminded of the lady who, being reproached for her dirty hands, turned away wrath by the apology: "Ah, Monsieur, but you should see my feet."

Miss C. W. SMART has written an excellent account of the prevention and cure of *Bed-Sores*,[4] an affliction now happily as rare as it once used to be common among the bed-ridden and paralytic. Though the volume may contain little that is new, it gives a sound and practical account of the matter.

[2] *The Care of the Teeth.* By A. T. Pitts, M.R.C.S., L.R.C.P., L.D.S. Methuen's Health Series, edited by N. Bishop Harman, M.B., F.R.C.S. London: Methuen and Co., Limited. 1916. (Fcap. 8vo, pp. 117; 20 figures. 1s. net.)

[3] *The Health of the Skin.* By G. Pernet, M.D. Methuen's Health Series, edited by N. Bishop Harman, M.B., F.R.C.S. London: Methuen and Co., Limited. 1916. (Fcap. 8vo, pp. 113. 1s. net.)

[4] *Bed-Sores: Their Prevention and Cure.* By C. W. Smart, Matron of Waddington Hospital, Waddington, Yorks. London: J. Bale, Sons and Danielsson, Ltd. 1916. (Pott 8vo, pp. 52; 6 figures. 1s. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

Liquid Paraffin.

WE have received from the Stern Sonneborn Oil Co., Ltd., 16, Finsbury Square, E.C., a sample of "Elite" brand liquid paraffin, which this firm is now offering to the wholesale trade as a comparatively inexpensive article of high quality. On examination we find that the sample complies with all the tests of the *British Pharmacopoeia*, 1914, and that in some respects it attains an even higher degree of purity than the *Pharmacopoeia* requires; our results, therefore, confirm the claim that the article is of exceptional purity.

LIBRARY U. OF I. URBANA-CHAMPAIGN

British Medical Journal.

SATURDAY, MAY 26TH, 1917.

RIDING FOR A FALL?

An instruction was issued by the Recruiting Department last week directing recruiting officers to take no further action with regard to the calling up or posting of medical men under the notifications issued on April 18th–21st, until further orders from the War Office. Thus a satisfactory ending has been reached to an unfortunate episode, against which the Central Medical War Committee and the Committee of Reference felt called upon to protest, and the strain to which the machinery of the Committee was put has been relieved.

The general result of the new instruction issued by the Recruiting Department would seem to be that matters return very much to the position in which they were before the War Office took the step of calling up all medical men under 41 without discrimination. For the present, at any rate, every medical man called upon to take a commission will be asked to do so only on the advice and under the supervision of the Professional Committees.

We have spoken of the incident as "unfortunate," and we think that this term is fully justified, for the anxiety and uncertainty inflicted on individual medical men and the disturbance of machinery caused by the hasty action of the War Office could have been entirely prevented by proper co-operation and consultation between the military authorities and the bodies acting for civil practitioners. The information in the possession of the Professional Committees would have shown the Recruiting Department and the Army Medical Department that the issue of the instructions in April could only cause unnecessary disturbance and waste of time in the case of men who could not be spared from civil work; proper consultation would have ensured a total gain in commissioned medical officers at least as large without these disadvantages.

Sir Alfred Keogh, when he made his appeal in 1907 for the organization of the Territorial Hospital Medical Service, fully recognized that his scheme could only achieve success if it commanded the active and cordial co-operation of the medical profession. This it did receive, and the result of his foresight has been shown by the rapid and efficient organization of the Territorial general hospitals at the beginning of the war, and their expansion both on the spot and by means of auxiliary hospitals. Sir Alfred Keogh recognized that the medical profession was one body, though certain sections specialized for particular purposes, and recognized also that in a great national emergency it must act as one body. We are quite sure that he is of the same mind to-day, but in the stress of a war, the magnitude of which no one really foresaw, it is to be feared that the military machinery to meet the new conditions which have arisen has been strained, and we venture again to express the hope that the profession itself will take the matter in hand and quickly establish a method of co-operation between the military and the civil machines which shall ensure the efficiency of both and the rapid adjustment of difficulties which have arisen and are bound to become more acute in the future.

We are glad to find that in repeating this suggestion we have the support of Sir Donald MacAlister, who, in his presidential address to the General Medical Council on May 22nd, observed that while "the loyalty to national duty hitherto shown by medical practitioners as a body gives assurance that to the limit of their power they will respond to further calls should the needs of the country make further calls imperative," yet "to ensure the best results from their devotion, closer co-ordination of competing authorities and a more effective control of the actual distribution of medical services at home and abroad, are now much to be desired." Through such co-operation as is desired, and through it alone, can due consideration be given to the questions in which both military and civil interests are involved. At present there are signs that the military authorities are not attaching due weight to civilian interests, even in such a matter as medical services vitally affecting the supply of men and munitions for the army. Owing to the present want of co-operation the civilian committees are periodically confronted with demands for the withdrawal of more medical men from the civil side to serve on the military side, and the committees have in consequence considered it to be their duty to make sudden large calls for more medical officers for the army. By proper co-ordination it would be more possible to keep up a steady continuous flow of recruits, the best conceivable means of ensuring efficiency on both sides.

When a limited number of individuals, such as constitutes the medical profession, is called upon to furnish services essential to the nation but in two different directions—the military and the civil—at the same time, it is plain that if the demands of one side continue to increase, while the demands of the other side show no signs of diminishing, a point must be reached beyond which no amount of goodwill on the civil side can go. It would seem that this point, if not already reached, is not far distant; and that even if substitution—voluntary or compulsory—became practicable the period at which the supply will stop cannot be long postponed. As evidence for this view we propose to take three illustrations. In a district in England the Professional Committee has assented to the reduction to three of the medical man power for attendance on a population of 18,000, although there is no other doctor within ten miles. If one or two of the three medical practitioners fell ill it is difficult to see how the medical service of the area could be carried on. Our second illustration is from London; it is understood that the Committee of Reference is considering a scheme for closing some hospitals, and spreading the staffs remaining after the army has taken its toll, over fewer beds. If the total number of beds, after this process is complete, falls short by many hundreds of those usually available, the civilian difficulty will become very acute. Lastly, it appears that in certain cases where the members of the staff of a general hospital consists of Territorials *à la suite* (available on mobilization) who have taken the imperial service obligation, the Army Medical Department has lately called upon many of them to take service abroad. We understand that for the moment this fresh form of calling up has been suspended as the result of representations showing the difficulties in which the civil population would be involved; but the mere fact that its application has been contemplated in places already largely denuded of skilled assistance, without previous consultations with representatives of the civilian side, raises a serious question, for it must be remembered that though these Territorial officers are under military discipline, they

have continued to serve civil hospitals and to practise amongst the civil community.

If the time has come when the War Office and the Professional Committees consider it necessary to contemplate action in the directions we have just indicated, then the time has come for the medical profession, military and civil, acting together as one whole—a single body aiming at rendering similar services to the nation at this time—to grasp the nettle boldly. Sir Alfred Keogh said in 1907 that after every campaign there was a commission of inquiry to find out where things had gone wrong, and that the reports published about the medical service always seemed to make it quite clear that there was room for improvement. The Army Medical Service has done so well in this war—it has been extended by bringing in an immense number of civil practitioners with, until quite recently, very remarkable ease; it has succeeded in abolishing or reducing to an almost negligible proportion the sickness and invaliding due to those scourges of armies in previous wars, the enteric diseases; and it has handled the treatment and transport of wounded from trench to base hospital so efficiently—that nobody in his senses would ask for a royal or any other kind of commission or committee to inquire into its work for the army. But if from this time forward the utmost discrimination, founded upon careful examination of all the facts, civilian and military, is not shown in making further calls for military service upon the civilian profession, there are good grounds for the apprehension that the civilian public and civil Government departments may become alarmed, and that a demand will arise for an inquiry into the distribution of medical personnel between the civil and military sides. We do not pretend to forecast the direction which Government intervention would take; possibly the War Office might be forced into appointing a small committee, representing medicine, labour, and Government departments, as well as the War Office (for which there are several precedents), to make a speedy report, and such a committee might possibly be given certain executive powers; or there might be a move for an interdepartmental committee—a very unsatisfactory tribunal. But whatever form of committee were favoured, there will be before it only two alternatives. One is, to promote legislation for the mobilization of the medical profession, in order that the authorities might be able to enforce substitution. Some members of the profession would welcome compulsory substitution as a way of equalizing burdens. But such a scheme, applicable to one class of the community only, is one which no Government could contemplate without misgivings or would undertake unless convinced that it had public opinion behind it. The other alternative would be to exert such pressure upon the Army Medical Department as to make it reconsider the distribution of its medical officers. In our opinion, even if the objections to compulsory mobilization of one class were set aside and that method enforced, it could not postpone the day of difficulty for any great length of time. On the other hand, pressure upon the Army Medical Department is not likely to be effective without causing considerable unrest in it, and that is not advisable in the midst of a great war. The adjustment between the military and civil sides is a matter which should be settled by the medical profession itself—military and civil acting together—but, so far as we are aware, no definite steps have yet been taken by either side to bring about such co-operation. So long as it is lacking so long will the risk of interference from outside constitute a serious menace. We hope that the appeal of the President of the General Medical Council will be heeded. It is no time for procrastination on either side.

WATER PURIFICATION IN THE FIELD.

THE water problem of an army at war differs in a hundred ways from the same problem in civilian life. To the military sanitarian in the field every water is necessarily suspect, and his task has always been to devise a simple, rapid, handy method for making the foulest water safe and drinkable for troops on active service, whether in camp, on the march, in trenches, or in the thick of fighting. For years past the Army Medical Department and its scientific experts have laboured at this problem; to their credit it must be said that they grasped the bitter lessons of former campaigns, and applied them to the full in this war, with the happy results which all can see. The dangers of water-borne disease and the need for care in the matter of drinking water have been impressed upon officers and men of every branch of the army, and organized bodies of men, trained in their duties by medical officers, have vigilantly safeguarded the water supply at every point. As knowledge has been gained during the war from laboratory investigations and from practical experience, this has been used to perfect the technique of water purification. Old notions have undergone revision. Thus the test of practice under active service conditions has shown that certain methods, such as boiling and filtration, are difficult to use or unsatisfactory in their results. Chemical disinfection, on the other hand, which was formerly looked upon with less favour for routine purposes, has proved its value and practicability.

Chemicals have long been used, of course, for three distinct purposes in water purification—to clarify, to soften, and to disinfect. The last named alone need detain us. It used to be said in the textbooks of military hygiene that while disinfection by chemicals was theoretically promising, the difficulties of applying it to the conditions of life in the field were very great. Nevertheless, continuous efforts were made to develop the idea, and the chemical disinfection of drinking water has steadily gained in favour since the early months of the war. Of the chemical agents which have been tried at one time or another, chlorine and its compounds are by far the most important. Other members of the halogen series have been tried, but chlorine in the liquid state, or in the form of bleaching powder ("chloride of lime," calcium chloro-hypochlorite, CaCl.OCl), or of sodium hypochlorite, seemed to be the only one suitable for sterilizing water on a large scale. More than twenty years ago calcium hypochlorite was tried in a crude way in the Austrian army, but no attempt was made to overcome the disagreeable taste and smell of the water thus roughly chlorinated. The results did not encourage our own military hygienists to adopt the method at that time, although they recognized the strong germicidal effect of chlorine upon drinking water, and its advantages in this respect over permanganate, acid sodium sulphate, and even iodine. Twelve years ago, however, the sterilization of water by simple chemicals in the shape of hypochlorites was tried on a large scale in civilian life during a water-borne outbreak of enteric fever at Lincoln, with successful results. Between 1905 and 1911, as we learn from a valuable recent monograph,[1] Houston and McGowa

[1] *Rivers as Sources of Water Supply.* By A. C. Houston, M.B., D.Sc. F.R.S.Edin., Director of Water Examinations, Metropolitan Water Board. London: J. Bale, Sons, and Danielsson, Limited. 191 (Sup. roy. 8vo, pp. 96. 5s. net.)

LIBRARY U. OF I. URBANA-CHAMPAIGN

pursued the method further and treated the Lincoln water supply with an alkaline solution of sodium hypochlorite containing 10 to 15 per cent. of available chlorine; while since 1908, when Johnson disinfected the notorious Bubbly Creek water, at Chicago, with bleaching powder, the use of hypochlorites for sterilization has spread throughout the United States. In our own country progress by the civil water authorities along these lines has been slow, but the example set by the Metropolitan Water Board last year in its remarkable experiments with chlorination, and the success which has been achieved in the army, are bound to have far-reaching effects on civilian methods. In bleaching powder, as has been well said, nature and art have placed at our disposal a simple and invaluable means of sterilizing water on active service; the bulk and weight are very small in proportion to the amount of water which can be treated, and the use of a solid reagent has obvious advantages. It is also, we might add, a comparatively cheap method, and commercial chloride of lime is even less expensive than the corresponding sodium salt. One pound of bleaching powder in 33,000 gallons of water suffices to give one part per million of available chlorine, and in this strength the liberated chlorine can usually be depended on to kill off the germs of water-borne disease within five hours, the last being the total destruction of *Bacillus coli*. Effective treatment in this manner confers absolute, not merely relative, protection, and Dr. Houston maintains that properly chlorinated water is not only quite innocuous, but can also be rendered tasteless to all but the most fastidious of palates. Speaking of the future of water purification and the popular prejudice against "doctored" drinking water, he makes the significant remark that the war has taught many lessons, including the necessity of subordinating sentiment to expediency.

Early in the war Professor Sims Woodhead in these columns[2] reported that by experiments along the lines indicated above, which were first laid down in this country and then adopted on a large scale in America, he had satisfied himself that even a highly polluted water after ordinary filtration could be made perfectly safe and tasteless for drinking purposes by chlorination with bleaching powder, and that the amount of chlorine needed in any particular instance could be determined by means of the simple iodine and starch test which he described. Further practical investigations by Colonel Horrocks and others indicated a way of treating water with bleaching powder in the field, and the matter was vigorously taken up by the Army Medical Department. The results of this work have been incorporated in the sanitary organization for our troops in the various theatres of the war with the best results. Chlorination, preceded where possible by rough filtration, has thus come to be the normal method of water sterilization in the front area, and, indeed, on active service generally. The method has been standardized for the use of the water personnel of the army, and complaints on the score of unpalatability are, we believe, seldom heard.

So far we have spoken mainly of the disinfection of comparatively large volumes of water such as can be stored in tanks and water-carts or run in pipes from make-shift reservoirs. The purification of drinking water for scattered soldiers or small isolated bodies of troops has presented special difficulties, due partly to the deliquescence of chloride of lime and kindred chemicals in pellet form, and partly to the limitations of human nature. In another column Dr. Dakin and Major Dunham, of the United States Army Medical Service, describe a new substance which they have devised for the preparation of stable tablets for disinfecting polluted water by the individual soldier. Their paper illustrates the happy results which may follow investigations into a practical problem when they are carried out along strictly scientific lines, and, incidentally, the power the modern scientific chemist has over his materials, so that he can set to work deliberately to produce a substance fulfilling certain conditions as to activities and solubility which he desires to obtain. The substance which Dakin and Dunham, after several experiments, have selected as fulfilling both the biological and practical requirements of the problem is parasulphondichloraminobenzoic acid, to which, when made up into tablets, they propose to apply the convenient working name of "halazone." The substance can be easily prepared from accessible substances at small cost, and it is estimated that with it a hundred gallons of water—a quantity which would meet the normal demands of two hundred men for drinking water in a day—can be disinfected for one penny. The result of this research marks a further step forward in the task of safeguarding the health of all soldiers at the front from water-borne disease.

[2] BRITISH MEDICAL JOURNAL, September 19th, 1914.

THE PATHOLOGY OF CARDIAC DROPSY.

THE Oliver-Sharpey Lectures at the Royal College of Physicians were founded in memory of his famous physiological teacher at University College by the late Dr. George Oliver, who inaugurated the course by "Recent studies on the tissue lymph circulation" in 1904. It is therefore appropriate that Dr. Charles Bolton, Physician and late Director of Pathological Studies and Research, University College Hospital, should have the opportunity, as Oliver-Sharpey Lecturer for 1917, to sum up his investigations, spread over the last fifteen years, on the pathology of cardiac dropsy, which, from an experimental standpoint, supplement Sir James Mackenzie's Oliver-Sharpey Lectures in 1911 on the present-day conception of cardiac failure.

As it is impossible to produce gradual cardiac failure by experimental interference with the heart in its capacity as a force pump, Dr. Bolton adopted the alternative method of preventing the free diastolic filling of the heart, and eventually effected this by narrowing to two-thirds of its normal diameter the inferior vena cava of cats just below the right auricle. These experimental cats survive and rapidly show ascites, which is measurable after two hours, becomes considerable during the first few days, slowly increases till about the fifth week, and then, with the development of anastomoses, gradually subsides so as to disappear about the sixth month. The increased outflow of lymph constituting cardiac dropsy is one of the definite series of events due to failure of the cardiac pump. These circulatory changes occur in the following stages: (1) Accumulation of blood in the veins, causing a moderate rise of venous and capillary pressure and a fall of arterial pressure; (2) dilatation and engorgement of the veins and capillaries with a fall of blood pressure to the normal in the central parts of the body, and dropsy in the engorged area. The peripheral parts of the body become anaemic, and as a result increased absorption of water, causing simple hydraemia, follows; (3) vasomotor constriction, due to anaemia of the medulla, causes a rise to normal of the arterial pressure and a moderate rise of the venous

and capillary pressure in the central parts of the body; (4) hydraemic plethora supervenes and greatly increases the venous and capillary pressure in the same central area; (5) ascites and hydrothorax progress, oedema spreads peripherally, and true plethora occurs.

The abnormal output of lymph constituting the dropsy is primarily due to nutritional defect in the capillary wall and is increased by the general plethora and consequent high capillary pressure. In uncompensated heart disease in man the central portions of the body are relieved by gravity at the expense of the legs, which thus become included in the area of engorgement. The ascites is due to the increased flow of lymph from the viscera, more especially the liver, which persists as long as there is ascites; increase of the ascitic effusion depends on an increase, and a diminution on a falling off, in the rate of lymph output, for the absorption from the peritoneal cavity by the lymphatics remains constant. There is therefore continuous change in the peritoneal effusion.

Dr. Bolton has carefully refrained from any application of his experimental results to the practice of medicine, and, though this angelic caution is probably wise, especially in view of the title of his lectures, it may be hoped that he will, perhaps after further investigations, evolve precise directions as to the treatment of cardiac dropsy, and discuss the most promising means—for example, the limitation of the fluid intake. A dry diet is an old form of treatment, and has recently been revived, as is shown by Goodman's[1] interesting account of the Karell cure for dropsy of cardiac, renal, or hepatic origin. The patient remains in bed on a daily diet of 800 c.cm. of milk and no other fluid or food; a quarter of this amount is taken at 8 a.m., 12 noon, 4 and 8 p.m., and diuresis follows. The success of the cure has been variously explained by the restriction of the fluid intake, the low salt content, melting of the body protein, the absolute rest, or by a combination of some of these factors.

MILITARY ORTHOPAEDICS.

MILITARY orthopaedics as a special department of surgical practice has arisen during the course of this war, and its importance grows as each month passes and the number of maimed and broken soldiers mounts up. So large is their number, so serious the crippling, and so remarkable the result of appropriate treatment, that it has become a matter to which every practitioner should give attention. Dr. Colin Mackenzie's comprehensive survey of the principles and practice of modern military orthopaedic surgery, and the organization of the military orthopaedic hospitals of the United Kingdom, will therefore be read with particular interest. He claims, with pardonable pride, that the pioneer work upon which all modern practice is based was done in this country. In particular, the name of Hugh Owen Thomas, to whose genius Colonel Lynn Thomas paid a tribute in our columns on July 15th, 1916, and from whose writings Dr. Mackenzie freely quotes, is honoured wherever the surgery of deformities is practised. The principle was laid down by Thomas that the restoration of muscular function to the normal is the foundation of all orthopaedic treatment. He first grasped the full possibilities of the conservative treatment of joints, bones, and muscles by providing anatomical and physiological rest, and himself invented simple mechanical appliances for putting his ideas into practice. Before he fell out of the race Hugh Owen Thomas passed on the torch to Robert Jones, in whose hands the conservative or functional method has been perfected and its principles applied to new conditions both in peace and war. When the Army Council decided to organize the care and treatment of the deformed soldier upon a large scale, it was inevitable that Robert Jones, whose name is bound up with the modern surgery of nerve and muscle injury, should have been appointed Inspector-General of Military Orthopaedics. Dr. Mackenzie, in the second part of his paper, gives some idea of the scale upon which arrangements have already been made for wounded soldiers who come within the official definition of orthopaedic cases. It will be noted that he has the highest opinion of the value of curative workshops as an integral part of orthopaedic treatment, thus confirming the view expressed in an article on curative industries which we published on May 5th, 1917, p. 585.

[1] Goodman, E. H., *Arch. Int. Med.*, Chicago, 1916, xvii, 809–827.

MEDICAL MUSEUMS.

BY a coincidence the report of the last meeting of the American section of the International Association of Medical Museums has reached us in the tercentenary week of Elias Ashmole, a man "affected to the furtherance of all good learning," who, with the contents of John Tradescant's "closet of rarities," founded the first public museum of natural history in this country, and may almost be looked upon as the father of British scientific museums. Ashmole was born on May 23rd, 1617, at Lichfield, and lived an energetic and useful life. He was a Fellow of the Royal Society, and the University of Oxford—to which he presented his collection—made him a doctor of medicine. Although the Ashmolean Museum at Oxford has never held the place among scientific institutions of which its founder dreamed, his name deserves to be honoured for what he did for the furtherance of natural knowledge. The inscription on his tomb states that his name will endure as long as his museum, and so no doubt it will. A century later John Hunter, a far greater man, compiled his wonderful collection, which became the nucleus of the Museum of the Royal College of Surgeons of England, and gave an impetus to scientific research which has reached every civilized country. But although for many years past every school of medicine worth the name has possessed its own museum, it was not until the beginning of this century that the International Association of Medical Museums was formed, for the linking together of workers throughout the world, and the interchange of specimens and material for research. The association had its origin in America; subsequently local European centres were organized, and the British branch held its first meeting in 1911 in London. Nearly every curator and active museum worker in this country is now a member, and improvements in methods of museum technique, as well as a greater recognition of the medical museum as a teaching medium, have resulted. The last meeting of the American section, held in New York on April 5th, showed that the association is flourishing in that country. There was a large attendance of representatives from the leading medical museums and laboratories of the United States and Canada. In view of the declaration of war a resolution was passed offering to place the services of the society at the disposal of the American Government for any purpose of research and scientific organization. A committee was appointed to organize a central bureau for the permanent preservation of the results of scientific research, especially histological material, for the purpose of study by scientific workers throughout the country, and the president was empowered to confer with the councils of kindred societies in order to secure co-operation, and avoid overlapping, and the clashing of meetings. Valuable work has been done by a special committee, which inquired into the supply of standard glass specimen jars for museums throughout the continent of America. Arrangements have been made with an American firm to manufacture and supply these jars at a considerable saving in cost to members of the Museum

LIBRARY U. OF I. URBANA-CHAMPAIGN

ociation. The proceedings closed with discussions on seum technique and teaching and an exhibition of cimens.

THE AMERICAN MEDICAL UNITS.

first element of the United States army to arrive in ope is a medical unit, which reached a British port week, and will leave for the war zone very shortly. unit consists of 23 medical men, in addition to the or and adjutant, both of whom belonged previously to United States regular army; 65 trained nurses, and orderlies, as well as four lady stenographers and others ing in subsidiary capacities, including a drum and le corps. It was organized for Red Cross work by George W. Crile, professor of clinical surgery at the stern Reserve University, Cleveland (who has already e to France), and it has been placed under the com- d of Major Henry L. Gilchrist, chief surgeon of the Division (22,000 troops) of the United States army. or Gilchrist was serving on the Mexican border at the nning of May, and was relieved in order to assume this command. The order to go to Europe was received on 3rd, and by May 6th 288 men had been examined and 155 orderlies selected from this number and sworn During the same period the organization, which had inally been voluntary, was made a part of the regular y; every officer, nurse, and orderly has signed on for e years in the regulars and four years in the reserve. the medical men in the unit, apart from Major hrist and Captain Tuttle, the adjutant, are connected h the Western Reserve University, and in addition Dr. Crile, they include Major Hoover, professor of icine, Captain Karsen, professor of bacteriology, and or Lower, of the Mount Sinai Hospital. Nearly all professors of the medical faculty of the university are ng the contingent. The nurses are mostly college en, many of them from wealthy families in the West, 90 per cent. of the orderlies are also college graduates ndergraduates from the best universities of the Middle t, principally Ohio. Had it been authorized, a thousand could have been enlisted at once. The unit left eland on May 6th, arrived at an American port the wing day, still in civilian clothes, and donned their i uniforms as soon as they were out of the harbour. ses were started on board, and the men were schooled en hours a day. The future plans of the unit cannot, urse, be fully disclosed, but it can be said that they mmediately to take entire charge of one of the large hospitals, consisting of 1,000 beds, and its present staff be relieved and re-distributed. It is hoped to devote al study to shell shock cases. Major Gilchrist, who these particulars, added that six special units Boston and other parts of the States, with twenty- medical men attached to each unit, would be sent, as the United States had an abundance of medical —1 in 699 of the population—he did not doubt that more would be forthcoming. He had heard it l that in all a thousand doctors would arrive within next two months. On May 23rd, at Buckingham e, the King and Queen received the medical and ng staff of the first American medical unit, whose l title is No. 4 Base Hospital, United States Army. lfred Keogh, G.C.B., Lieutenant-Colonel F. W. Beg .A.M.C., and Miss E. H. Becher, Matron-in-Chief .M.N.S., were in attendance, and the American sur- were presented to His Majesty by the United States ssador. The King, in a few gracious words, expressed easure and satisfaction at meeting the first detach- of the American army which has reached our shores their country resolved to take its part in the war; it haracteristic of the American nation that the first ance rendered to the Allies should be in connexion the profession of healing. On the same day a second gent, comprising 26 surgeons, 60 nurses, and 250 lies, arrived at a British port.

STIGMATIZATION AND SUGGESTION.

A SHORT time ago Dr. Gosse of Poole asked if the statement made at a medical meeting that a blister was raised on the arm of a hypnotized patient at the Salpêtrière by pressing a clinical thermometer on the skin with the suggestion that it was burning hot could be authenticated. In a later communication our correspondent informed us that he had found the corroboration required in Frederic W. H. Myers's *Human Personality* (abridged edition 1907). He opens up a wider question by referring to the phenomena of stigmatization which are discussed by Myers in his chapter on hypnotism. Speaking of the effects of suggestion on the vasomotor system Myers says (in the original work, 1903, vol. i, p. 187) that "simple effects of this type form the commonest of 'platform experiments.'" What is generally known as "stigmatization," from the fact that its earliest spontaneous manifestations were suggested by imaginations brooding on Christ's passion, was long treated both by scientists and devotees as though it must be either fraudulent or miraculous; now, however, it is found to enter readily within the ever-widening circuit of natural law. "Stigmatization," said Myers, "is in fact a form of vesication; and suggested vesication—with the quasi-burns and real blisters which obediently appear in any place and pattern that is ordered—is a high development of the same vasomotor plasticity of which the ammonia-rose-water was an early example." In an appendix Myers gives a number of references to cases of blistering by suggestion, but in none of them, it seems to us, is the element of conscious, subconscious, or unconscious deception wholly excluded. It was shown by James Braid (Milne Bramwell: *Proceedings of the Society for Psychical Research*, vol. xii) that the alleged action of magnets, metals, and medicines in sealed tubes noted at the Salpêtrière owed their supposed virtue to suggestion, and this view was confirmed by other observers. The greatest care is needed to avoid error on this slippery ground and the will to believe often leads the most honest inquirer astray. Charcot was a clinician of the most penetrating insight, but the dramatic instinct was highly developed in him, and his demonstrations of hypnotized patients at the Salpêtrière made hypnotism fashionable. But after many years spent in the study of hypnotic phenomena he found that the proportion of truth in them was as the poor half-pennyworth of bread to the intolerable deal of sack in Falstaff's tavern reckoning, and he gave the whole thing up in disgust. With regard to blisters in particular, we may recall the fact that Luys made a number of experiments in the Charité Hospital, Paris, by the application of sealed tubes containing alcohol, pilocarpine, spartein, pepper, and valerian, to the skin of the neck, and claimed that in this way these substances produced the symptoms of tipsiness, sweating, and so forth. It was shown in the report of a Committee of the Paris Académie de Médecine, presented in 1888, that when the experimenters did not know what substances they were using no specific results followed. Some years later Mr. Ernest Hart showed that Luys was deceived by his subjects, who confessed the fraud; an account of the exposure is given in *Mesmerism and the New Witchcraft* (London, 1896, p. 101 et seq.). In an article entitled "The Eternal Gullible," which appeared in the *Century Illustrated Monthly Magazine* for October, 1894, and is reprinted in the same volume, Mr. Hart related the confessions of a professional medium who had, as he said, come to see the error of his ways. Before an informal committee of medical men the interesting penitent gave, in Mr. Hart's house, a demonstration of his methods. He said that at St. Mary's Hospital a doctor had raised a blister on his arm, as the operator fancied, by suggestion, and he explained the trick as having been done by rapidly biting and sucking the skin of the wrist. He went through the performance at Mr. Hart's house, and with some difficulty succeeded in raising a slight

swelling, but one of the witnesses assures us that the marks of the teeth were plainly visible. Seeing how easily even men with a scientific training are often deceived by the most vulgar tricks, the hypnotic showman may almost be forgiven for saying, with Autolycus, "Ha! ha! what a fool Honesty is and Trust his sworn brother, a very simple gentleman!" As for stigmatization, the classical instance is St. Francis of Assisi, but Dr. Imbert-Gourbey, in his book, *Les Stigmatisées: Palmé* (1873) enumerates 145 persons, all but twenty of whom were women, who are said to have received the stigmata. Paul Sabatier in his *Vie de St. François d'Assise* (Paris, 1898), speaking of the saint's stigmata, says the testimonies are at once too numerous and too precise not to carry conviction; but he does not admit their miraculous nature. He points out that the generally accepted account of them as bleeding wounds is not historically accurate. All the early documents describe those on the wrists and feet as fleshy excrescences resembling nails in shape and colour; only the one on the side was a wound from which oozed a little blood. The famous case of the Belgian "extatic" Louise Lateau is fully discussed by Dr. Charbonnier in his *Maladies et Facultés Diverses des Mystiques* (Brussels, 1875); he shows that her stigmata could be explained without reference to supernatural influence. The case mentioned by Myers, in which, according to Dr. Biggs of Lima, cruciform marks with the words "Sancta" above and "Crucis" below them were produced by his suggestion, seems to us unworthy of serious notice; the elusive grammar alone is sufficient to excite suspicion. Stigmata are by no means confined to holy persons. Dr. Toussaint Barthélemy's *Etude sur le Dermographisme ou Dermoneurose Toxivasomotrice* (Paris, 1893) contains much curious learning on diabolic stigmatization, with illustrations of the devil's seal, his claws, stamps of Satan's hand, and other examples of what he calls "dermographism by suggestion and auto-suggestion."

MILITARY HOSPITALS IN THE FUTURE.

IN a pamphlet entitled *The Medical and Nursing Services of the Imperial Army*,[1] Sir James Kingston Fowler sketches in outline a scheme for the organization of military hospitals in preparation for war, based upon the sentiment which clings round the medical schools of the empire. After a brief account of the present medical organization of the army in the field, and of the service of Territorial general hospitals at home, he lays down certain conditions which should be fulfilled in any scheme of military hospital organization. The method, in his opinion, should be independent of the form of military service, whether voluntary, compulsory, or Territorial; it should be elastic and capable of unlimited expansion; and it should be applicable to the whole empire. The feeling of *esprit de corps* and attachment to hospital and university should be utilized; and to this end Sir James Fowler proposes to name the military hospitals after the medical school, university, or town supplying the personnel, and forming in each case the bond uniting the individual members of the staff to one another. The number of hospitals for which each centre would be responsible would necessarily vary. Continuity of administration would be secured by a permanent staff, with an officer having R.A.M.C. training as commandant, and the organization of the nursing profession would follow similar lines. The author claims for his scheme that it would have the advantages of decentralization, and would maintain a direct association between the army and the medical schools and universities, and through them between the army and the whole medical profession. He puts it forward in the hope that it may serve to stimulate imagination and thought, and tend towards united effort and efficient service for the army.

[1] London: Macmillan and Co., Ltd. 1917. Price 3d.

CURATIVE AGRICULTURAL WORK.

DR. BERGONIÉ, professor of clinical electrotherapy Bordeaux, is the latest and one of the most unexpect converts to the superiority of work with a purpose over called mechano-therapeutic methods. At a recent meeti of the Académie des Sciences he laid stress upon t superiority of agricultural work, especially for men w had been engaged on it before they were wounded. agricultural work the intolerable monotony engendered the repetition of purposeless movements that do not ent any effort of the will is absent, although at the same ti when once the particular operation is started the mo ments in field labour are largely reflex, so that fatigue diminished. At his hospital at Martillac, with 125 beds, has substituted agricultural work for all mechano-the peutic methods, with results that appear to him m more satisfactory. The medical officer prescribes kind of movement required and fixes the hours of labo He must, however, take care that the patient does make shift to avail himself of other muscles or joi than those it is desired to exercise, nor have recourse irregular mechanical solutions which would tend to hin the return of function. The results have been most sa factory, both morally and physically. From 80 to 90 cent. recovered. Though this treatment is particula applicable to subjects accustomed to agricultural purs it is often useful for others.

MOTHERS' PENSIONS.

BY invitation of the Earl of Lytton, Chairman of the S Children's Association, members of both Houses of liament met, on May 17th, to hear a description by Ju Neil, of Chicago, of the scheme of mothers' pens which has been adopted in thirty out of the forty-e United States of America. The scheme had its origi the juvenile courts, which were first set up in Illino 1898. These courts were empowered to take away f their mothers children under 14 who were not recei proper care. It was found that 75 per cent. of these c of improper care were traceable to the widowed or dese mother's inability to provide the necessaries of life. an amending Act, largely due to the exertions of Ju Neil, judges of the juvenile courts were given discretio power to make maintenance grants to the mother her instead of to an institution or to another woman. purely economic grounds, and apart from the of every child for a mother's love, it was f that the cheapest person to hire to look after child was its own mother. Of the mothers who c before the juvenile courts experience showed that third did not need supervision, one-third would give pr care under supervision, and only one-third would not proper care whatever was done to help and guide t During 1916 money grants amounting to 10,000,000 do were given to mothers of 100,000 children. Had t children been sent to institutions it is estimated that taxpayers would have had to pay from twice to t times the sum. This takes no account of the women have been saved by not breaking up their homes, and children who have been put in the way of becoming b citizens by remaining under their mothers' care. amount of the pension in each case is settled, within s tory limits, by the judge, and the work of supervisi carried out by probationary officers of the court. E thing is done to maintain the mothers' self-respect a avoid any slur of pauperism. The result has been a ma improvement in the health of mothers and children, a steady decrease in juvenile delinquency.

AMERICAN medical men on war duty in this co are invited to make use of the library of the B Medical Association, 429, Strand, London, W.C. library is open from 10 a.m. to 5 p.m., and on Satu till 2 p.m.

LIBRARY U. OF I. URBANA-CHAMPAIGN

HE Council of the British Medical Association has de arrangements whereby books on all branches of dical literature and general science can be obtained on n by members of the Association free of charge (other n for postage) from the Lending Department of the rary of the Association. Books so issued will be the st editions. These facilities are in addition to those viously available to members for borrowing medical rnals and periodicals, scientific reports of hospitals laboratories, transactions of societies and congresses, public reports. Copies of the Rules, and all other rmation, may be obtained from the Librarian, 429, and, London, W.C.2.

Medical Notes in Parliament.

he New Pensions Warrant for Officers and Nurses Post-ed.—Sir A. Griffith-Boscawen, Secretary to the Pensions partment, said on May 21st, in reply to a question by onel Yate, that it had been found necessary, since the ft warrant for officers had been submitted to the asury, to consider certain of its provisions further. He ld not say when the warrant would in these circum-nces be issued, but he hoped very shortly. It was a y difficult document to formulate, and to wait a little e to get it right was much better than to bring it in maturely. The warrant would also include provision nurses.

ayment of Civilian Doctors in V.A. Hospitals.—On a question Sir William Collins, Mr. Forster said that very large nbers of civilian doctors had rendered and were dering medical service in Voluntary Aid Hospitals. If vilian doctor, in the exercise of his own discretion, saw to claim payment for his services, the General Officer mmanding had power under War Office instructions to w suitable remuneration, having in view the circum-nces of each case; and in that event the grant to the pital in question would be increased by an equivalent unt.

olunteer Field Ambulances.—Mr. Macpherson informed William Collins that the formation of field ambulances home service on a volunteer basis had been approved, offers of service had been invited from certain counties. he result proved satisfactory the scheme would, it was ed, be extended. The appointment of medical officers proceeding, but it was not free from difficulty owing he demand for medical officers for service overseas and full-time service at home. This had necessitated the osition of certain restrictions as to age upon candidates volunteer appointments.

nsions v. Gratuities for Discharged Soldiers and Sailors.—reply to Mr. Wardle in the House of Commons, on 17th, the Minister for Pensions said that the nbers of the tribunal to hear appeals from decisions rding gratuities to soldiers and sailors discharged as ically unfit were: Lieutenant-General Sir A. E. rington, Admiral Sir Wilmot Fawkes, Mr. Bilton ard (Royal College of Surgeons of England), Dr. man Moore (Royal College of Physicians of London), A. Bellamy (National Union of Railwaymen). He ed to obtain the services of a distinguished retired d Justice as president.

e Medical Examination of Female Prisoners.—In reply uestions as to the alleged illegal order of the Brentford istrates for the medical examination without their ent of two women committed to Holloway Prison the e Secretary said: I have made inquiries into this case am informed that the magistrates did not order an nination of the two women referred to in questions. women were charged with disorderly behaviour, and magistrates, after hearing part of the evidence, re-ded them for inquiries, and endorsed upon the com-al order a statement that the justices would be ged by the opinion of the medical officer as to whether the women were suffering from disease. I have informed the magistrates that in my opinion this request should not have been made. In consequence of the magistrates' request the two women were medically examined at Holloway Prison, with the result that they were reported by the deputy medical officer to be free from disease. The prison medical officers have definite instructions that no woman is to be examined without her consent, and I am assured that in this case the necessary consents were obtained. On the hearing of the case being resumed, the magistrates dismissed the charge. It appears from the information given to me that no illegality was committed, but I desire to repeat that in my opinion there was no reason whatever why the magistrates should have asked for any opinion from the medical officer, and I regret that the request was made. In reply to a further question as to the medical examination of girls due for discharge from Aylesbury Gaol, Sir George Cave promised inquiry.

The Venereal Diseases Bill.—The Venereal Diseases Bill as amended in the House of Commons came up in the House of Lords on May 22nd, Lord Rhondda moving that the amendments be agreed to. Exception, however, was taken to the substituted clause regarding the sale of drugs, Lords Haldane and Parmoor raising the question whether the change altered the original provision in that matter. It will be remembered that as the bill was presented and passed through its stages in the Lords the clause would have prohibited the offer or sale of drugs or other preparations as remedies for venereal disease except on the written prescription of a duly qualified medical man. The substituted clause which Mr. Hayes Fisher accepted in Grand Committee at the instance of Mr. Glyn-Jones would in effect prohibit any announcement or recommendation verbally or by label of any remedies or preparations. The point raised in the Upper House on Tuesday was whether this left the door open for a chemist, if asked specifically for preparations, to supply them without written prescription. After a discussion occupying about ten minutes it was resolved that Lord Rhondda's motion should be deferred to enable further consideration of the matter.

Medical Committee of Reference.—In answer to Sir William Collins, Mr. Macpherson said that the Committee of Reference was composed of the following: The President of the Royal College of Physicians was chairman, and the other members were four Fellows of the Royal College of Physicians, and the President and four Fellows of the Royal College of Surgeons. This committee was appointed under Section 7 of the Military Service Act, 1916 (Session II), and the Military Service (Professional Committees Regulation) Order, 1916, as the Committee of Reference for the purpose of Section 7 of those regulations. The members of the Committee were appointed by the Royal Colleges of Physicians and Surgeons, and approved by the Army Council. Their powers and duties were contained in the regulation mentioned.

Medical Students in the Army.—Asked by Mr. E. Harvey whether any further steps had been taken to release medical students now serving in the army, Mr. Macpherson stated that fourth and fifth year students could be released, their employment in the army was not considered desirable, as it was thought better for them to wait until they could be commissioned as medical officers.

War Pensions Statutory Committee.—Sir A. Griffith-Boscawen informed Major Chapple that the War Pensions Statutory Committee was continuing its functions, its relations with the Ministry of Pensions being governed by Section 3 of the Ministry of Pensions Act, 1916. He added, however, that this matter was under the consideration of the Government.

Artificial Limbs for Disabled Soldiers.—Taking up an inquiry by Major Chapple, Sir A. Griffith-Boscawen said that practically no artificial limb making was undertaken by the Military Orthopaedic Hospital at Shepherd's Bush. The hospital authorities stated that they made Syme's foot, a peg leg, and an artificial Duralumin leg. With regard to splints, it was estimated that they were produced at about 50 per cent. below the ordinary price, but the estimate was for salaries of instructors and for part of the cost of materials only, and took no account of the capital cost, the labour which was supplied by the patients, or the wear and tear of machinery.

The Medical Inspection of School Children.—Mr. Herbert Fisher, the President of the Board of Education, said, in answer to Sir Francis Blake, that the expenditure of local education authorities upon the school medical service was not taken into account for the purpose of the new supplementary grant. Prior to the war the authorities were rapidly developing this service. The war had necessarily stopped this development, but he had no reason to anticipate that it would not be resumed as soon as normal conditions were restored. The need for co-operation between the school medical service and agencies for child welfare and similar organizations had been frequently emphasized in the reports of the Board's chief medical officer, and local education authorities had taken various steps in this direction.

THE CAMPAIGN AGAINST VENEREAL DISEASE.

SIR WILLIAM OSLER'S ORATION.

ON May 14th, the president, Mr. D'Arcy Power, being in the chair, the Annual Lettsomian Oration of the Medical Society of London was delivered by Sir William Osler on "The campaign against venereal disease." The orator said that Nature in the form of disease was more fatal to man than man with his weapons. The needless deaths of peace far exceeded those of the most disastrous wars. More people died of plague in two years in India than had been killed on both sides since the great war began. In 1915, while nine of our soldiers abroad died every hour to save their country, twelve babies died at home in the same time to the scandal of their country.

The story of the conquest of the great infections was the brightest single chapter in the history of science. There was a fly in the amber, of course, as one looked in two directions—towards cancer and towards venereal disease.

Fallacy of Venereal Statistics.

Among infections syphilis and gonorrhoea stood alone. Against all other diseases man waged keen warfare. They presented the remarkable and subtle combination of man and Nature in an incessant and successful propaganda against the health of mankind.

The first thing to arrest attention in the Registrar-General's report for 1915 was the absence of all reference to venereal disease in the "Review of the vital statistics for the year 1915," by Dr. T. H. C. Stevenson. Of eighteen causes of death specially discussed all but three belonged to the infections, of which tuberculosis and pneumonia headed the list—but not a word about syphilis. Syphilis had been, and remained, the despair of the statistician. Trustworthy data were not forthcoming. Even in death a stigma was associated with it, and the returns were everywhere but under the special caption of the disease itself. In a list of eleven causes of infant mortality during the first year syphilis was not mentioned. Syphilis was stated to have been responsible for 1,885 deaths at all ages, and other venereal disease for 61. Of the 1,885, 1,162 were under a year, 1,277 under five years; of the ten best killers among the infections syphilis came last. Content at this stage, the superficial reader would have a very erroneous idea of the position of venereal disease in the nation's life.

The Case against the Gonococcus.

The gonococcus was not a great destroyer of life, but was the greatest known preventer of life; one of its cruel properties was to sterilize a very considerable proportion of its hosts. As high as 25 per cent. of the major operations at gynaecological clinics and hospitals for diseases of women might be for gonorrhoeal complications, which were among the commonest sources of chronic ill health. Conservative estimate placed the percentage of sterility in women due to gonorrhoea at 50. A large majority were innocent victims of infection by husbands who thought themselves free from all traces of what they regarded as a harmless indiscretion of youth, and who could have been cured under a proper system of control and treatment. The complicating epididymitis in the male was another common cause of sterility. One recalled the dictum of Noegerrath, "90 per cent. of sterile women have husbands who have had gonorrhoea."

From the standpoint of race conservation gonorrhoea was a disease of the very first rank, and cost the country annually thousands of lives. With 30 to 40 per cent. of all cases of congenital blindness, with the chronic pelvic mischief in women, and with the unhappiness of sterile marriages—with these and many minor ailments scored up against it, we might say that while not a killer, as a misery producer Neisser's coccus was king among the germs.

The Heritage of Syphilis.

The frequency of transmission of the spirochaete of syphilis from parent to child stood out less as a biological peculiarity than as a fact of supreme importance in the national health. The spirochaete might kill the child *in utero*, a few days after birth, or within the first two years of life, or the blighted survivor might be subject to innumerable maladies.

The stillborn were at last to be numbered. Until no they had remained the "hidden untimely births," to u the language of Job. Sir Arthur Newsholme estimat them at close upon 100,000. What percentage of the deaths were spirochaetal we did not know, but we kne that syphilis was, perhaps, the most common cause abortion, and, from examinations made at large materni hospitals, more than 25 per cent. of the stillborn had be found infected. Rejecting the larger estimates, the sti births due to syphilis might be put at, say, 20,000 for t year 1915. Of the first 10,000 cases at the special clinic the Johns Hopkins Hospital there were 705 fetal deaths that is, from the seventh month onward. In all cases t placenta was examined as well as the fetus. "By far a away the most common etiological factor in the producti of death in the fetus is syphilis" was the conclusion; was responsible for 26.4 per cent. in the series. addition, at least 53 of the 127 macerated fetuses we probably syphilitic, though this could not be determin microscopically.

In 1915 of 800,000 children born, 90,000 died within t first year. If this were added to the intrauterine deaths made stock-raising for the human animal a very po business. About one-fifth of these died within the fi week, and one-fourth within the first month. Ten caus were mentioned, but again the interest of the list centr in what was not there—syphilis was not even mentione When we turned to the total deaths from syphilis, then did get light, as among the 1,885 deaths 1,162 were und one year, 1,277 under five years, but these figures were be'ow the mark. Careful work was in progress to det mine the number of deaths within the first year fr syphilis, and we should not be far wrong in placing t figure at between 15,000 and 20,000.

Latent Syphilis.

The second point in the biology of the spirochacte w a peculiarity it shared with many other parasites of resti dormant in the body for years. Its capacity to work e was not to be measured by years. Since Schaudinn's gr discovery there was a sharper point to Sigmund's aphoris "Syphilis is the worm that never dieth." *Venus impu* was a hard mistress—Venus of the long arm she sho be called—as ten, twenty, thirty, even forty, years from t date of the infection the book bills were rendered, a she wrung the uttermost farthing out of her poor victim

No insurance company to-day would take a man w had a positive Wassermann reaction. A good test of t importance of a disease was to take the thirty-sev volumes of the two series of the *Index Catalogue* of t Surgeon-General's Library, Washington, in which w indexed practically all medical literature between 1884 a 1917. In vol. xvii of the second series, issued in 19 there were 207 double-columned pages of referen against 117 pages in vol. xiv of the first series in 18 No other single disease except tuberculosis had so mu space devoted to it. The improved technique by whi the spirochaete was demonstrated in the tissues and t serum reactions had opened a new chapter in our kno ledge of the prevalence of the disease. The profession h read it with amazement, the sanitary authorities w bewilderment, but, best of all, the public was actua reading the chapter in the open.

The Statistics Unravelled.

From the Registrar-General's report, of the 562,0 deaths in 1915, about 58,000 were due to disease of t nervous system. Two of these needed no discussio locomotor ataxia and general paralysis *were* syphilis, a accounted for 735 and 2,263 deaths respectively. A cert number of cases classed under meningitis were syphili After locomotor ataxia came "other diseases of the spi cord," 2,846 deaths, a larger proportion of them in t fourth to the sixth decades. Any neurologist wo say that a reasonable estimate would ascribe at le one half of these to syphilis—say 1,500. By far the larg single cause was cerebral haemorrhage, 25,423—a major of the deaths occurring after 50, beyond which age it w the privilege of any man to rupture a blood vessel in brain without suspicion; 3,713 of these deaths were betwe the ages of 25 and 50, of which 3,400 could be claimed due to syphilis. There were 1,472 returns under the c tion of "softening of the brain," and who could deny

LIBRARY U. OF I. URBANA-CHAMPAIGN

of these as syphilitic? The "paralyses" without specified cause—2,983 cases—was a hopeless section, but as more than two-thirds were hemiplegia we could add at least another 500. That a certain proportion of other forms of mental alienation—1,100 deaths—were cases of general paralysis of the insane was very probable. From epilepsy, infantile convulsions, and "other diseases of the nervous system" which mount up to about 15,000, we could claim for syphilis 2,000 at least. This gave a total from this section of about 10,000 deaths in which syphilis was the probable cause.

The spirochaete attached itself to the vascular system in preference to all other parts. Aneurysm and the aortitis on which it depended were usually spirochaetal. Between the twenty-fifth and the fifty-fifth years the cases were always spirochaetal. Of the 1,141 deaths we could put down 1,000 to syphilis. There was a terrible bill opposite organic disease of the heart—56,000 deaths. About 17,000 of these were between the ages of 30 and 55, and a majority of these were in men. We should be safe in taking one-third of the cases between 30 and 55—say 5,000 at least—and we might take an equal number from the 10,000 dead of diseases of the arteries, atheroma, and aneurysm. A low estimate would put the cardio-vascular deaths due to syphilis at above 10,000.

It was unnecessary to bring in the comparatively small number contributed to other organs. We had enough to put the grand total of the ravages of the *Spirochaeta pallida* above 60,000, and to move syphilis from the tenth place in the Registrar-General's report to where it belonged—*at the top, an easy first among the infections.*

In all parts of the world investigations were in progress dealing with the incidence of syphilis in ordinary hospital work. Dr. Warthen investigated the tissues in a series of consecutive necropsies with the most scrupulous care to determine the existence of the spirochaete. One-third of the autopsies in adults showed its presence somewhere in the organs. Of these 41 cases, only 11 were known to have had syphilis, 5 had active lesions in the nervous system, and 25 had shown no clinical changes suggestive of syphilis. In 36 there were syphilitic lesions in the heart, 32 in the aorta, 31 in the testicles, 4 in the liver, and 6 in the adrenals. He concluded that interstitial myocarditis, aortitis, and fibrous orchitis formed a triad distinctively syphilitic. After quoting other investigations, the orator said that modern researches led to three conclusions—first, that there is an immense body of latent syphilis in the community; secondly, that a very large number of persons have not been thoroughly treated; and, thirdly, that to the enormous groups of cerebro-spinal and cardio-vascular deaths syphilis is an all-important contributor.

The Dawn of Action.

Centuries of silence had made venereal disease taboo. The beginning of the twentieth century saw us in a condition of hopeless apathy. Within a decade what a changed attitude in profession and public! The Royal Commission appointed in 1913 gave practical expression to a realization of the importance of the problem by the public. Best of all, Lord Sydenham's report had not been sterile. An outcome of the work of the Commission was the founding in 1914 of the National Council for Combating Venereal Diseases, the primary function of which was educational. The work of the Eugenic Education Society had been most helpful. The outset of the great war had stimulated, not retarded, the plan of campaign. War meant an enormous increase in the number of infections. The last quoted figures for the British army at home were 21,000 cases of gonorrhoea, 21,000 cases of syphilis, and 5,000 cases of soft chancre. In the Canadian army there had been enough cases of venereal disease to stir public opinion in the Dominion to boiling point.

These various agencies had at last the desired effect. The Government felt that opinion in the country was strong enough to act on the advice of the Commission, and hand over the venereal problem to the public health authorities, represented by the Local Government Board. Legislation had been enacted to fight the enemy in a settled plan at many centres under its control. It was a new departure to deal with an individual disease in this way. The word "may" instead of "shall" in the Tuberculosis Act gave us an ineffective guerilla warfare of local bodies instead of a Kitchener and a general staff. The Government made no mistake this time, and all over the country the clinics were in course of formation. No more hopeful legislation had ever been enacted than the establishment of these venereal clinics. But let the people and their representatives realize that they were dealing with the subtlest foe of humanity and the greatest sanitary problem which confronted civilization.

Organization of the Campaign.

A general staff, controlling the campaign, would work from the Local Government Board (or before long, he hoped, from a Ministry of Health), with laboratory, statistical, and several service departments, a publicity bureau and a library. Already the Commission had opened the doors of the general hospitals to these victims. The profession welcomed the scheme from the educational side, as there would be within easy reach opportunities for the study of all aspects of both disorders, and from the practical side they would be able to bring their patients freely for special treatment, for consultation and for the laboratory tests. There would, he hoped, be at each centre lectures and demonstrations. A sympathetic and loyal feeling on the part of the practitioners in each district was really essential to the success of the work. Between the clinical and the laboratory side there would be enough at each clinic to occupy a large part of the time of a male or female doctor, who would, he trusted, become the skilled advisers of the profession and of the public in each district. These positions should be made sufficiently attractive to catch the very best, and he was sure the hospital authorities would welcome them as members of the staff. A great missionary field would be opened to women doctors, who should do the work among their own sex at the clinic. Social workers of the right sort with the right spirit would do much to make the clinics known and appreciated. The National Council could supervise this work, which should be done by carefully selected volunteers.

The clinic should be the centre in each district of an active educational propaganda, which should be stimulated and planned by the general staff, and not left to the timid discretion of local authorities. By meetings, literature, placards—in every legitimate way—a knowledge of the dangers of venereal disease should be distributed, and the importance of early and thorough treatment insisted upon.

Compulsion or Persuasion?

For any legislation to be successful the people must be prepared. We were committed to a campaign of education and an elaborate scheme of treatment. Two circumstances made it probable that these measures would not suffice to reach the enemy. So deep was the stigma associated with the disease that patients avoided hospital and even their family doctors. To be successful in any fight the primary essential was to know where the enemy was placed. Realizing as fully as any one the strong arguments against notification, the gravity of the situation overweighed with him all private considerations, and he felt sure that within a year we should be ready for the change. It worked well in the Scandinavian countries, and the results from those Australian dominions in which it had been introduced would be interesting.

The other point really more serious was also connected with notification. Both syphilis and gonorrhoea required protracted treatment, and the primary symptoms were often so slight that it was impossible to get patients to continue a course of medication lasting a year or more. Reports from a Boston hospital showed that 28 per cent. of the patients did not return, and to a New York venereal clinic 29 per cent. of the syphilitics came but once. To be successful in this fight we must have control of the patients—the treatment must be compulsory; it was so in the army. If the House of Commons represented outside opinion, the public was a long way from appreciating the appalling risks they ran. The Government was committed, for a time at least, to a policy of persuasion, feeling that notification and compulsory treatment were too far in advance of public opinion.

For the first time in history the outlook was bright. The public was at last awake to the necessity of an educational campaign. That the preaching of chastity appeared a ghastly failure in face of the record of 800,000

fresh cases annually in this Christian kingdom was no reason why the earnest appeal for personal purity should not take the first place in the educational campaign.

That the State had at last intervened was another ground for hope, and most hopeful of all was the changed heart of the people. At last the sinner was to receive Christian treatment.

THE LISTER INSTITUTE.

THE annual general meeting of the Lister Institute of Preventive Medicine was held on May 16th, when Surgeon-General Sir David Bruce, C.B., chairman of the governing body, presided. The report of the governing body showed that the Institute had again been actively engaged in war work, both in the production of serums and vaccines, and in the prosecution of research on problems arising out of the war. In the bacteriological department Dr. Schütze and Mrs. Barratt had prepared large quantities of typhoid, paratyphoid, cholera, melitensis, and plague vaccines for military purposes, over 40,000 c.cm. of these having been issued to the War Office, Admiralty, and Australian Imperial Force.

At Elstree, under the direction of Dr. MacConkey, assisted by Miss Homer and Dr. Zilva, large quantities of various serums had been prepared for the naval and military authorities, and, in addition, two kinds of univalent antimeningococcus serum had been prepared, and proved to be efficacious for curative purposes. Satisfactory accounts of the usefulness of antidysentery serum supplied regularly every month to the War Office had been received from Sir John Rose Bradford, consulting physician with the army in France. In the director's department at Chelsea Miss Chick, assisted by Miss Rhodes and Miss Dalyell, had continued the preparation of agglutinating, haemolytic, and anti-human precipitin serums, and the examination of cultures derived from cerebro-spinal meningitis and various intestinal infections. In the same department Miss Chick, assisted by a number of other ladies, had made a series of investigations into the distribution in food materials of the accessory substances which prevent beri-beri and scurvy, with special reference to the suitability of these foodstuffs for incorporation in the rations of the troops, and the biochemical department had taken a share in similar experiments dealing with the best way of drying foodstuffs, the presence of accessory factors in beer, and the chemical nature of these elusive substances. In the entomological department Mr. Bacot, who has been appointed honorary adviser to the War Office on entomological questions, has been largely employed in testing insecticides for use at the front. During the year the Institute made a grant of £500 to a committee for the study of tetanus formed by the War Office under the chairmanship of Sir David Bruce, and placed a research room at its disposal. The main object of the committee is to study the occurrence and treatment of tetanus arising from wounds, and experimental work for it is being carried on in various laboratories. At the University of London Captain Golla, R.A.M.C.(T.), and Mr. Ransome are directing an investigation into the best mode of administration of tetanus antitoxin, the chemical nature of the toxin and the effect on it of various reagents, the mode of its distribution in the nervous system, and the treatment of infected wounds with antiseptics. At Oxford Professor Sherrington is inquiring into the relative value of different modes of injection of the antitetanic serum in arresting tetanus. At the Institute's department at Elstree Dr. MacConkey and Miss Homer have worked on the duration of the passive immunity conferred by a prophylactic dose of antitetanic serum, and at Chelsea Miss Robertson has investigated the presence of tetanus bacillus in wounds, both in cases showing and not showing clinical symptoms of the disease. Miss Robertson is now engaged, in collaboration with Captain Tulloch, R.A.M.C.(T.), in a detailed investigation of organisms found in a large number of these cases having the morphological characteristics of the tetanus bacillus but not producing the specific toxin. Laboratories in the Institute had been placed at the disposal of the biochemical staff of the Medical Research Committee, of the Canadian Army Medical Corps, of the Australian Army Medical Corps, and of the Ministry of Munitions.

LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

THE annual meeting of the London and Counties Medical Protection Society, Ltd., was held at 32, Craven Street, Strand, on May 16th. The council's report stated that the work of the society had been but little affected by the war; any decrease in one class of cases dealt with had been counterbalanced by an increase in some other class. The membership of the society had remained almost stationary, and the financial position was satisfactory. Colonel E. C. Bensley, F.R.C.S., chairman of council, said that an alteration in the method of remuneration by the War Office for the medical examination of recruits had been made without the doctors being informed until afterwards when the question of payment arose. Instead of payment per head, the War Office issued an order limiting the fees for one day's work to a maximum far below the amount of the fees earned, on the scale agreed to, on days when the numbers were large. Medical men who objected to the alteration in the terms of their contract without their knowledge or consent had applied to the society, and the society succeeded in obtaining payment of a great part of the amount due under the existing contracts. The administration of the Insurance Act had given rise to many difficulties, and the society had had to adopt legal measures to protect some of its members against unjust surcharges. He also referred to the successful fight in the Court of Appeal which the society had made on behalf of a member who had attended a patient suffering from leprosy, and whose action, after the patient's death, in having the rooms disinfected drew attention to the nature of the disease and led to a claim for damages on the ground that the fact that the leper was in residence should have been disclosed to the landlord. The new departure entered upon in 1911 in regard to insurance against the costs of the other side and damages in unsuccessful cases had been of great advantage to the society. The risk, which formerly cost each member 10s. a year to insure against, was now undertaken by the society itself, and the excess of that risk over £4,000 a year was covered by an insurance with Lloyds underwriters up to £24,000. Sir John Rose Bradford was re-elected president and the vice-presidents were re-elected together with Surgeon-General Sir George H. Makins and Professor Sidney H. C. Martin, to fill vacancies caused by the deaths of Sir Lauder Brunton and Sir James Goodhart.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

LIEUTENANT-COLONEL W. B. GRANDAGE, M.D.CANTAB., R.F.A.(T.F.).

Lieutenant-Colonel William Briggs Grandage, R.F.A. who was in command of a brigade of the Royal Field Artillery, died on May 14th of wounds received in action half an hour earlier. He was 37 years of age and was the fifth son of Mr. and Mrs. A. Grandage, of Kent House, Rawdon, near Leeds. He was educated at Sedbergh School, Clare College, Cambridge, and St. Bartholomew's Hospital, and in his student days was a well-known Rugby football player. He took the diplomas of M.R.C.S. and L.R.C.P. in 1905, and graduated B.A. and B.C. in 1906 and M.D. two years later. Before the war he was in practice in South Kensington and held the posts of honorary anaesthetist to the Victoria Hospital for Children, Chelsea, and clinical assistant in the gynaecological department of St. Bartholomew's Hospital, where he had formerly been house-physician. He held a captain's commission in the London brigade of the Territorial Force, R.F.A., prior to the war, was promoted major in August, 1914, and in April, 1916, was given the temporary rank of lieutenant-colonel. The injury from which he died was caused by a large shell bursting whilst he was walking from his own head quarters to that of an infantry brigade. An R.A.M.C. officer went to his assistance, but was told by the wounded officer to take shelter, as the enemy was sure to send over more shells. He was conveyed to a first-aid field post

LIBRARY U. OF I. URBANA-CHAMPAIGN

ıere he died, his last words being a cheery message to s men. A former colleague writes: "Grandage's death action when in command of a combatant unit will be plored by a wide circle of friends. He was a very able, ergetic man of strong personality, with a natural gift of ıdership, which he developed in the football field and in e Territorial Force before the war. His gallant death ɔates a loss which will be felt not only in the army, but the medical profession and the social life of London."

Died on Service.

MAJOR C. RYLEY, R.A.M.C.

Major Charles Ryley, R.A.M.C., died on service on ıy 4th, aged 40. He was born on April 25th, 1877, the ly son of Charles Ryley, was educated at St. Mary's ɔspital, and took the diplomas of M.R.C.S. and L.R.C.P. ınd. in 1901, also the D.P.H. of the London Colleges 1904. After serving as house-surgeon of St. Mary's ɔspital, and as house-physician of Paddington Green ıildren's Hospital, he entered the R.A.M.C. as lieutenant July 30th, 1904, becoming captain on January 30th,)8, and major on July 1st, 1915.

CAPTAIN J. F. ST. J. ANNESLEY, M.D., R.U.I., R.A.M.C.

Captain James Ferguson St. John Annesley, R.A.M.C., .s killed whilst flying in an aeroplane on May 19th, ɔd 52. He received his medical education at Queen's llege, Belfast, and graduated as M.D., M.Ch., B.A.O., U.I., in 1888. At an inquest held in Norfolk, evidence 's given that Captain Annesley had expressed a desire lbe allowed to go for a trip with a pilot in order to judge ɔ effect of flying on the nerves, and that his request was ɔeded to. An air mechanic in his evidence stated that ɔ machine, after passing over the road at a height of ɔut 400 feet, banked and then dived to earth. On .ching the wreckage he found the doctor thrown clear, ; the pilot was pinned beneath the machine. The jury urned a verdict of accidental death.

Died of Wounds.

CAPTAIN P. H. BURTON, R.A.M.C.(T.F.).

Captain Percy Herbert Burton, R.A.M.C.(T.F.), died on y 12th of wounds received the same day, aged 49. He s educated at the London Hospital, and took the lomas of M.R.C.S., L.R.C.P.Lond., and the L.M.S.S.A. 1914. After acting as surgical clinical assistant at the ıdon Hospital he went into practice at Stansted, Essex. joined the 4th (City of London) Battalion of the ıdon Regiment, the Royal Fusiliers, as lieutenant and dical officer, on December 15th, 1914, and was promoted ɔe captain after a year's service. He was attached to t regiment at the time of his death.

Lost at Sea.

LIEUTENANT J. T. BROWN, R.A.M.C.

ıieutenant James Turner Brown, R.A.M.C., was lost at on May 4th. He was the only son of the late James wn, Rector of Larkhall Academy, and was educated at sgow University, where he graduated M.B. and Ch.B. 911. After acting as house-surgeon of Glasgow Royal rmary he went into practice at Gravesend, and had ɾ recently taken a temporary commission in the .M.C.

Wounded.

ſajor T. W. Leitch, R.A.M.C.(T.F.).
aptain J. G. Brown, R.A.M.C. (temporary).
aptain J. H. Brown, Australian A.M.C.
aptain T. C. Clarke, R.A.M.C.(T.F.).
aptain E. S. Cuthbert, R.A.M.C. (temporary).
aptain C. A. R. Gatley, R.A.M.C. (temporary), attached to the Buffs.
aptain E. C. Gimson, D.S.O., R.A.M.C. (temporary).
aptain F. Harris, R.A.M.C. (temporary).
aptain J. M. Macdonald, R.A.M.C.(temporary).
aptain A. O. P. Reynolds, R.A.M.C. (temporary).
aptain J. M. Stalker, R.A.M.C. (temporary).
aptain D. J. S. Stephen, M.C., R.A.M.C. (temporary).
aptain J. L. Stewart, R.A.M.C. (temporary).
aptain H. S. Sugars, R.A.M.C. (temporary).
aptain R. A. S. Sunderland, R.A.M.C. (temporary).
aptain H. G. Willis, R.A.M.C. (temporary).

Missing.

ırgeon A. M. Russell, R.N.

DEATHS AMONG SONS OF MEDICAL MEN.

Brunton, Edwin Benjamin Durnford, Lieutenant Middlesex Regiment, only son of Dr. C. E. Brunton, Walthamstow, reported missing on November 13th, 1916, now presumed killed on that date, aged 23.

King, Thomas Shirley, Captain East Surrey Regiment, only son of the late Dr. Thomas Radford King, killed May 3rd, aged 35. He was born in 1881, educated at the Birmingham Oratory, and at Exeter College, Oxford, and took a commission in the beginning of 1902 in the East Surrey Militia, with which he served in South Africa, receiving the medal. Resigning in 1904, he entered the service of the Rajah of Sarawak, and served in that State for ten years. When the war began he returned home, and rejoined his old regiment. He was promoted to captain on March 16th, 1915, went to the front in March, 1916, was wounded in July, and returned to the front last January.

Owen, Iorweth ap Roland, Second Lieutenant Royal Flying Corps, son of Dr. Rowland Owen, of Seaforth, killed in action on May 7th, aged 20. He was educated at the Merchant Taylors' School, Crosby, and Mill Hill School. After matriculating at the University of London preparatory to studying for the medical profession, he joined the Inns of Court O.T.C. On obtaining his commission in August, 1916, he joined the Royal Flying Corps, and received his pilot's certificate on March 31st, 1917. He left for France on April 11th, and was killed whilst engaged single-handed against five German planes.

Paton, Edward Kesson, Second Lieutenant Machine Gun Corps, third son of Major Edward L. Paton, R.A.M.C.(T.F.), of Perth, killed May 3rd, aged 21.

Powell, George Henry, Second Lieutenant Machine Gun Company, killed in action on April 29th. He was the only surviving son of the late Dr. G. H. Powell and of Mrs. Powell, of Cookstown.

Powell, Robert Branks, Lieutenant Canadian Infantry, only son of the late Dr. Powell, of Oakdene, Victoria, British Columbia, killed April 28th, aged 36.

MEDICAL STUDENTS.

Bell, Cecil William James, Corporal R.A.M.C., officially reported "missing, believed drowned," was the only son of Mr. Andrew Bell, of Rathmines, Dublin, and was a first-year medical student at the School of Physic, Trinity College, Dublin.

Fishbourne, Derick Haughton Gardiner, Second Lieutenant R.G.A., reported killed in action on May 6th, 1917, was the only son of Mr. J. G. Fishbourne, Bank House, Tralee, co. Kerry. He was a second-year medical student at the School of Physic, Trinity College, Dublin. Lieutenant Fishbourne joined the army in January, 1916, and at the time of his death was in his 21st year.

We regret to learn that Private Alan John Hosegood, 28th Battalion of the Canadians, son of Dr. Hosegood, of Cheslyn Hay, near Walsall, was severely wounded in the right forearm in France on May 9th. He has been admitted to the 5th Northern Hospital, Leicester.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

NOTES.

HONOURS.

THE following medical officers are included in a further list of officers upon whom the President of the French Republic has conferred the decoration of the Legion of Honour for distinguished services rendered during the course of the campaign:

Croix d'Officier: Major W. H. Tucker, I.M.S.

Croix de Guerre: Captain J. Angus, M.B., Lowland Field Ambulance, R.A.M.C., Captain O. Teichmann, R.A.M.C., attached Worcester Yeomanry, Major M. F. White, M.B., I.M.S.

APPARATUS FOR RE-EDUCATION.

Privat and Belot,[1] in discussing the principles underlying the choice of a mechanical apparatus for the assistance of a partially paralysed limb, so that the best recovery of function may be obtained, take paralysis of the radial nerve as a text; they combat the view that no apparatus is desirable to balance the action of the flexors when extensor activity is deficient, holding that this would lead to greater weakness of the extensors and increased power of the flexors, and therefore an aggravation of the defect. They hold that it is necessary to distinguish between the anatomical and physiological activity of a muscle group. The anatomical activity of the extensor group is slight, but its physiological activity is of great range, and may be of great power. With such a variability of exercise as is here indicated, an instrument providing for only anatomical support would be wholly useless in work, the flexors would be uncontrolled, and therefore powerless, and the limb would become lost by disuse. They urge that no apparatus can be too powerful if it be calculated to provide an effective physiological substitute for the extensor control, for in all heavy tasks there are frequent occasions of superior activity of the flexors when the injured extensors will be forced by an effort of will to supplement the action of the momentarily overpowered apparatus, and these strenuous efforts will be re-educative in the highest degree. Instruments should be capable of easy interchange according to the nature of the work to be done.

[1] *Presse médicale*, 1916, p. 584.

England and Wales.

A CONFERENCE of representatives of approved societies under the National Insurance Acts from England, Scotland, Ireland, and Wales was held on May 21st, under the chairmanship of the Lord Mayor of Hull. A resolution was carried to the effect that a Ministry of Health should be formed, which should co-ordinate in a separate ministry all the health departments of the country, and that the National Health Insurance Commission should form the basis of the new ministry.

MATERNITY AND A MINISTRY OF HEALTH.

The Women's Co-operative Guild, Hampstead, has issued a memorandum on the national care of maternity, in which the immediate formation of a Ministry of Health, based on the public health side of the Local Government Board, with a strong and active maternity department, is advocated. The guild holds that it is only in connexion with general public health work that the needs of maternity can be fully met. The hardships of the working-class mother at the time of her confinement are described, and the corollary that such conditions react unfavourably on the child is emphasized. In order to improve matters the guild maintains that the care of the mother should have equal consideration with that of the infant, and for this purpose organized local health services and a money allowance are necessary. Maternity services, it is claimed, should be open to all whose health requires them; they must not be associated with Poor Law or inquisitorial methods; and the working women's help is essential to success. Beyond the direct care of the health of mothers and infants, indirect work connected with housing, sanitation, pure food and milk, should be linked up in the maternity department of a Ministry of Health. The principle is laid down that to secure satisfactory advice and treatment before, at, and after confinement, it should be arranged that every midwife has a doctor behind her, that every general practitioner has a specialist or consultant behind him, that adequate hospital accommodation exists, and that all should be closely linked with maternity centres. It is urged that the provision of dinners should be based entirely on the health needs of mother and child, and should be regarded as medical treatment. Finally, it is argued that an increase in the scope of health insurance to meet the needs of women has failed, and must always fail.

Scotland.

THE death is announced, at the age of 96, of Mrs Kennedy, of Dunain Park, Inverness. It is believed that she was the last survivor of those who had known Sir Walter Scott personally. She was the daughter of Dr. Alexander Gillespie, a well-known Edinburgh surgeon born in 1767, and an intimate friend of Scott. When a little girl Mrs. Kennedy played Scots melodies on the piano at Walter Scott's request.

PREGNANCY CLINICS AT THE EDINBURGH ROYAL MATERNITY HOSPITAL.

Early in March last the directors of the Edinburgh Royal Maternity Hospital, acting on the recommendation of the medical board, appointed Dr. J. W. Ballantyne, one of the hospital's senior physicians, to take charge of the pregnancy clinics to be held twice weekly in the hospital, under the City of Edinburgh's scheme for maternity and child welfare. The details of the arrangement were to be subject to revision at the end of a year, and Dr. Ballantyne was to continue to take charge of the whole work of the hospital in the autumn quarter of the year (July–September). A series of rooms in a block of buildings adjacent to the maternity hospital has been prepared for the accommodation of the clinics, and these rooms were informally opened on May 15th, when Dr. Ballantyne, with the assistants and nurses in charge, carried through the first clinic in the new premises. Formerly (for more than two years) there had been weekly clinics for expectant mothers in the basement floor of the hospital itself; but under the city's scheme the clinics will now be held twice weekly (on Tuesday and Friday) at 5 p.m. It is intended that these clinics shall be mainly consultative in nature, and that pregnant women who have attended one or other of the subsidiary maternity centres in the city, and have there been found to be suffering from any of the abnormalities of pregnancy, shall be sent to the hospital for further diagnosis, for advice, and it may be for residential treatment in the prematernity wards. At the same time patients may come directly to the clinics on the recommendation of medical practitioners or on their own initiative.

Ireland.

THE Kilkenny guardians resolved on March 26th to increase the salaries of medical officers in the union to £150 a year, rising by £10 every four years to a maximum of £200, and by a subsequent resolution made this scale retrospective to the doctors with over twenty years' service. The Local Government Board has notified its approval of the amended scale on the assumption that it applies only to the dispensary medical staff.

DOMICILIARY TREATMENT OF TUBERCULOSIS PATIENTS.

At the last meeting of the Dublin County Council a letter was read from the County Tuberculosis Committee stating that its experience had been that tuberculosis patients returning home after undergoing a course of institutional treatment rapidly deteriorated in health where their circumstances did not permit them to obtain a sufficiency of nourishing food. The committee, being convinced that expenditure on institutional treatment in such cases would be to a great extent wasted unless provision was made for after-care domiciliary treatment, had obtained the sanction of the Insurance Commissioners to the provision of extra nourishment in cases in which it was considered necessary. The cost of carrying out this extra treatment had amounted to £150 for the whole county. The Local Government Board had been notified by the Treasury that "while it will no doubt be generally agreed that the supply of special foods and medical comforts under medical direction should be deemed to be 'treatment,' their lordships cannot contemplate an application of the Exchequer grant to the provision of ordinary subsistence." The Local Government Board added that it was bringing the matter under the notice of the Treasury, with a view to further instructions. The Chairman said it was a waste of public money to send certain patients to an institution for treatment, and then after a period of detention to send them back to their homes of poverty, and very often homes of hunger. The committee felt bound to see that reasonably adequate means would be available to give them food in their homes. That had been done under the direction of the tuberculosis officers and nurses. There was no reason for thinking that any abuse in administration occurred. The Treasury, it appeared, would approve of giving the people cod-liver oil and patent food, and things of that sort, but they did not consider that Irish oatmeal, made from home products, and sweet milk produced on Irish soil should be provided. That was reducing administration to a farce, and if it was persisted in it would be their duty to advise the committee to reconsider its position, as it would be hopeless to carry on if these instructions were imposed upon it.

LUNACY IN 1915.

From the Report for 1915 of the Inspectors of Lunatics for Ireland we learn that in Ireland, as well as in other portions of the kingdom, there has been a decrease in the number of lunatics coming under the supervision of the Government inspectors. On January 1st, 1916, the total number was 25,103 (13,070 males and 12,033 females) as compared with 25,180 (13,187 males and 11,993 females) on January 1st, 1915, so that the net decrease during the twelve months amounted to 77. This is remarkable in view of the fact that every year since 1863 an increase has been recorded, and it is pointed out as an encouraging circumstance that the decrease is to some extent due to lessened admission rate. The decrease, however, has been limited to males, females showing an increase of 40 as compared with 1914. With regard to mental stress the inspectors remark that amongst the admissions for 1915 less than 19.22 per cent. were attributed wholly or partly

LIBRARY U. OF I. URBANA-CHAMPAIGN

to that cause, and in 13.16 per cent. this was assigned as the principal cause, as compared with 16.88 and 11.40 (respectively) in 1914. The general conclusion with regard to civilian cases is that in over 1 per cent. of the admissions of 1915 it was possible to attribute to war conditions some direct part in the causation, and a prominent part in 0.32 per cent.; and that women suffer more than civilian men from the mental effects of the war. The list as to the number of soldiers and sailors admitted to civil asylums during the war is necessarily imperfect, owing to the special arrangements made by the War Office for dealing with insane soldiers, but 34 men who had served abroad and 51 who had not so served were admitted during 1915, in whose cases the war was assigned as a cause or an associated factor of insanity. There was some decrease in the proportions of cases admitted in which alcohol was assigned as the principal cause. The rate, however, still remained higher than before the war. The number of patients discharged recovered was 141 less than in the previous year. This is equivalent to 38.2 per cent. on the admissions (2.7 per cent. lower). The deaths in 1915 numbered 1,676 (896 men and 780 women), being an increase of 201 on the numbers of 1914.

Canada.

Trinitrotoluene Poisoning.

Several cases of trinitrotoluene poisoning have occurred amongst munition workers in Montreal. One case, that of a medical student who worked during the months of July and August, 1916, on the manufacture of trinitrotoluene, terminated fatally, and is reported in full in the *Scientific Reports of the Royal Victoria Hospital*, Montreal, Series B, No. 1, p. 203. It appears the vapours of toluene possess intoxicating or exhilarating qualities, and workers have exposed themselves voluntarily to these fumes in order to produce the effect of intoxication. This was done by the young man in question, who developed jaundice, and on account of increasing weakness was obliged to leave the factory. During the autumn he improved sufficiently to return to college, though still slightly jaundiced, but on October 18th was taken ill suddenly with profuse haemorrhages from the nose, bowels, and kidneys. He was admitted to hospital and died within forty-eight hours of admission. The *post-mortem* examination showed diffuse and profuse haemorrhages in practically all the parenchymatous organs, the whole pelvis of the kidney and the ureter were blocked by coagulated recent blood, and there were haemorrhages in the skin, pericardium, and intestines. The left lobe of the liver was much diminished in size, collapsed, flat, and extremely haemorrhagic; the right lobe was enlarged owing to parenchymatous swelling, which was greyish and produced a peculiar relief-map appearance of the parenchyma around depressed vascular channels. It is concluded from these findings that trinitrotoluene is not a parenchymatous but a vascular poisoning which injures the endothelium of blood vessels and lymphatics. Fatty changes, coagulation necrosis, and marked bile precipitation, were absent. An examination of the nitrogen partition of the urine of five cases of trinitrotoluene poisoning was made by Drs. Harding and Mason, of the Royal Victoria Hospital, Montreal, and the results are reported on pages 21–26 of the *Scientific Reports*. They found that the undetermined nitrogen was high in all cases and excessively so in three of them.

The Care of Lepers at Canton.

In December, 1909, a mission was founded at Canton by the Sisters of the Immaculate Conception, Outremont, Montreal, and from time to time since then a party of nuns has gone out to the East from the convent at Outremont; five sisters have left recently. In addition to the mission work, the nuns have established on an island a few miles from Canton a lazaretto, where about four hundred lepers are nursed and taught. The care of the lepers is undertaken by the nuns voluntarily, and cases of leprosy are sent to hospital by the Chinese Government, which makes a small grant towards the support of these patients.

Health Statistics and Notes.

It would appear from the annual reports of medical officers of health and hospitals throughout the Dominion that from the point of view of the general health of the public the year 1916 was satisfactory. With the exception of extensive outbreaks of measles, usually of a mild type, no severe epidemics are reported. The absence of epidemics of typhoid fever is particularly encouraging, and is due, no doubt, to the efforts of municipalities to protect citizens by purifying the water supply, which in most places is taken from the rivers into which sewage is permitted to enter, by chlorination or otherwise. In St. John, New Brunswick, the death-rate from tuberculosis has been lowered from 186 per 100,000 in 1914 to 127.26 per 100,000 in 1916. The infant mortality is still high, particularly in Montreal, but a good deal has been done to improve matters by education and by the establishment of milk stations in the more crowded parts of the cities.

Much is being accomplished in the direction of educating the public in matters pertaining to health by the Institute of Public Health in London, Ontario, which is under the able direction of the M.O.H., Dr. H. W. Hill. The institute was organized under the Board of Governors of Western University, London, Ontario, in July, 1912. The fourth annual report shows that the work has grown rapidly; the staff, which in 1912–13 consisted of 5, now comprises 13 members; 400 specimens were examined during the first year, but 5,400 during the year 1915–16. Efforts have been made to interest all classes of the community. As in the laboratories of the Ontario Board of Health, specimens of sputum, diphtheria, cultures, typhoid blood, water, milk, and sewage are examined free of charge at the institute, and commercial analyses and clinical examinations of all kinds are undertaken upon payment of a small fee, or, in necessitous cases, upon the request of a physician, free of charge. The work of the institute is conducted in three divisions —epidemiology, with a subdivision of vital statistics; chemistry, with public health bacteriology and sanitary engineering as subdivisions; and pathology. In the future, "when public health has emerged from the struggle with disease into the greater field of developing health," to quote from the report, it is hoped that the present division of pathology will become a division of public health physiology. A course leading to the degree of D.P.H. is given at the institute.

South Australia.

(From our Special Correspondent.)

Since I last wrote there has been nothing of a very startling nature to communicate so far as this State, or indeed the rest of the Commonwealth, is concerned. Two bounteous seasons have followed upon a record drought, and although the wheat harvests have provided some records it will be years before the flocks and herds are replenished. Except that we do not get mails so frequently as of yore, and consequently see our British Medical Journals at irregular and fitful intervals, there might be no war going on at all so far as Australia is concerned. I mean no world-war. It is true prices are higher in every direction and wages have risen, but there is no famine nor even great scarcity. But Australia has found plenty of occupation. There have, I believe, been more strikes and trade disputes since the great war began than during the twenty years that preceded it, although medical and lodge questions are in abeyance. Mr. Hughes came back ready to enforce conscription and literally send the last man and expend the last shilling to aid the old country. But he had not reckoned with his own party, and now they have had a split, and we are in the throes of Federal elections. If our men do not know of an existence of a war the women at all events do. Our wives and daughters, sisters and cousins, are "manfully" striving day after day to alleviate the condition of our boys, whether in camp here or training on Salisbury Plain, whether baking in the deserts of Egypt or freezing in the trenches in France, whether invalided in the hospitals in England or returned damaged home. Socks (now often spelt "sox") and smokes, Christmas puddings and chutney, and a thousand

and one other comforts were sent by the ton. Nor amongst the recipients are the units of the Australian Army Medical Corps lost sight of.

THE MEDICAL SCHOOL.

A year ago Dr. J. C. Verco decided to resign the lectureship on medicine which he had held for twenty-nine years—indeed, ever since the medical school was first established. The Council of the University appointed him to be Emeritus Lecturer and a member of the Faculty of Medicine. In his place Dr. Swift, the lecturer on clinical medicine, was appointed, he in his turn being succeeded by Dr. Frank Hone, an Adelaide graduate, and an assistant-physician to the Adelaide Hospital. Six members of the Faculty of Medicine are still at the war—namely, Lieutenant-Colonels Hayward, De Crespigny, Newland, Wilson and Downey, and Major Cavenagh-Mainwaring. As soon as our medical students graduate they are sent into camp, instead of, as formerly, becoming house-surgeons to the various hospitals.

THE PROFESSION.

Practitioners were mobilized in a sense in anticipation of conscription. Many have actually deserted their practices and gone to the front, such as Lieutenant-Colonels Powell and Corbin; others leave their work in the hands of colleagues, and take a month in rotation at the Adelaide Hospital, or the Keswick Camp. Others, again, serve on transport or hospital ships. Meanwhile, a locumtenent is indeed a *rara avis*. Several honours have been gained, especially by the juniors—Mentions in Dispatches, D.S.O.s, Serbian Military Crosses, etc.

THE BRANCH.

With so many of our leading lights absent, it is no wonder that our proceedings seem a little flat, and yet our meetings in the Lister Hall are well attended, perhaps because the duty of providing a paper for discussion seems so frequently to fall upon Dr. J. C. Verco, who has been occupying the presidential chair for two years in succession. Several interesting contributions in the direction of war experiences and observations have been made by Lieutenant-Colonel Cudmore, Staff Surgeon Morris of the Naval Bridging Train, Major J. A. G. Hamilton, Captain Fooks, and others, and all seem to agree that some muddles have occurred which might have been avoided; but they recognize that in an enterprise of such magnitude some details will suffer, some supplies will be deficient, and some transport arrangements inefficient.

Correspondence.

A MEDICAL POLICY AFTER THE WAR: PART-TIME STATE SERVICE.

SIR,—It is not enough simply to recognize that, if English medicine is to retain its place in the world, it must primarily retain a reasonable amount of freedom; it is also, and urgently, necessary to determine, whilst time for deliberation is left to us, how that essential condition is to be ensured. That things medical will be left as they are after the war is exceedingly unlikely. Changes are as good as certain. What we have got to see to is that the changes will be for the better, not for the worse. The Insurance Act stands as a warning of what may happen if we are again caught unprepared with a policy.

The conditions of medical work may be any of the following:

1. Wholly independent.
2. Part-time local service.
3. Part-time State service.
4. Whole-time local service.
5. Whole-time State service.

1. *Wholly independent service* survives (so far as any work can be so described), and doubtless will continue to survive, in many private practices. There is little likelihood of immediate interference there; but for the huge section of medical work lately converted into "panel practices" no return to independent service can now be looked for.

2. *Part-time local service* sufficiently describes panel conditions and the work of the voluntary hospital staffs. In both of these there is great probability of change and we are urgently in need of a policy.

3. *Part-time State service* is just now widely existing in the hospitals throughout the country for the care of our sick and wounded soldiers.

4. *Whole-time local service* finds its chief example in the public health appointments, and its defects are the main argument for a change to a whole-time State health service, free from local interests.

5. *Whole-time State service* is the necessary condition of the administrative Army and Navy Medical Services.

Of these part-time and whole-time services, some of which presently will become the arena of a momentous struggle, the issue of which concerns the health at least of a generation, it may be said that whole-time local service has, in the case of public health, proved itself unsatisfactory, and has, in fact, little to recommend it for any sort of medical work.

For a few sections of medicine a whole-time State service is the only reasonable arrangement. The Army and Navy Medical and the Public Health Services are included here. But to convert the great bulk of medical activity into whole-time State service would assuredly be a disastrous procedure. The natural impulse towards strenuous progress would thereby be weakened. Competition in professional excellence and success would practically vanish. Ambition would be diverted into more questionable channels. "Why, then," it may be asked, "permit any whole-time State services at all?" "Because it cannot be avoided," is the obvious reply. And so long as the great mass of medical work is free from the damaging influence of whole-time service, the dominant healthy progressive influence of the mass will react on the comparatively small whole-time section, and do much to remove the natural tendency to stagnation.

We come, then, to consider the local and State part-time services. The most illuminating instance of part-time local service exists in the panel practice, with its partly semi-educated local control. Let us be quite clear about the nature of this control. Much umbrage was once caused by the statement that it is disastrous to place a skilled industry under the control of "inferior intelligences." Well, that great elucidator, War, has thrown some light on this question. And it seems unlikely that, for some time to come at any rate, the profession of English medicine, with its unsurpassed record of unselfish patriotism and superb achievement, will look for control and guidance to those sections, at all events, of the community, whose equally conspicuous selfishness and stupidity have again and again impeded and imperilled our soldiers at the front. This is no "class" question. It is a question of "training"—training of character and intelligence. The inferiority formerly referred to, so far as these sections are concerned, is now placed beyond question, with its corollary of unfitness for guidance and control. That control must cease. The local part-time service must be taken over by the State, when guidance and control will rest with intelligences of a higher order of training.

It is to *part-time State service* that I would venture to direct attention as the solution of several problems likely to arise as soon as the war is over. Its advantages are these:

(*a*) It leaves sufficient independent work to maintain a healthy progressive competition, avoiding the deadening effect of whole-time service.

(*b*) It provides control by trained and selected minds.

Three examples will indicate how it may be expected to work out—namely, in the voluntary hospitals, in the medical teaching centres, and in panel practice.

The *voluntary hospitals* are doing a vast amount of public work, in which the medical profession is asked to bear the elephant's share of the burden and to take the donkey's share of the credit. I question whether the continuance of this system as it stands is assured. The eyes of those who rightly regard a disunited calling as fair game are certainly upon these hospitals. I would suggest a State part-time service for the staff as having many advantages. A young physician or surgeon receiving, say, £300 a year for his work—instead of nothing, as it now is!—could afford to start consulting work without the possession of private means; that would remove from the consulting body of medicine the suspicion of being primarily a plutocracy. Then the certainty of this pay would remove both the distraction of financial anxiety and

LIBRARY U. OF I. URBANA-CHAMPAIGN

he need for "pot-boiling" in the scientific output. Moreover, the work (such is human nature) would be likely to e better done, since the sense of responsibility is apt to be uickened by fair financial assessment. At the same ime, such an income could only suffice in very early days, nd all the present incentives would remain in ample orce to stimulate to industry and enterprise.

Medical education cries aloud for some kind of State ontrol. That the General Medical Council has not rodden far faster than it has (moving unconsciously along ines which its peculiar constitution has fixed) the primrose ath of general-educational degradation, reflects the most ignal honour upon its members. What is needed is a one-ortal State examination and part-time State service for linical teachers of medicine. Such men should be well aid and pensioned, and should have part time to devote ndependently to private consulting work as well as to he hospital practice which forms their clinical field for nstruction.

Panel practice would not be less agreeable if the ame (or higher, as they should be) emoluments proeeded from the State, and if the control of the medical fficer passed from the hands of the inadequately educated nto those of the adequately educated.

I indicate these examples as examples only. There are ther departments of our work where the same arrangenent seems desirable. Were medicine so organized, a Ministry of Health would be its natural centre. It has een long called for. Is it coming into existence? If o, and if it comes on the lines of the control and coordination of one of the vastest responsibilities of the uture, by intelligences cultured and capable, well. If ot on those lines, let us set ourselves with all our energy o prevent the advent of a tremendous evil.—I am, etc.,

Exeter, May 15th. W. GORDON.

ARMY AND CIVIL CO-OPERATION FOR MEDICAL ECONOMY.

SIR,—Your article upon army and civil co-operation is much to the point. A great deal could and ought to be one in this matter.

Mine is a case in point. My partner—a Territorial edical officer and at one time medical officer at the arracks—was called up in August, 1914. He was taken way from the district, and has often had very little to do. Most of this time I have had too much work. Two men re shortly leaving the neighbourhood, leaving more for us home. There was no real reason why my partner ould not have been given charge of the barracks instead bringing a man away from another practice, as was one. He could have done a little private work in his are time. The barracks work rarely takes the whole me of the medical officer.

Further, we now have a camp a mile from the town, at hich there are a number of doctors who are by no means orking all day. My partner might do the work of one of ese men and have time to help a little at home. The my doctors are not even allowed to attend civilians in e camp. We are called out there to attend workmen, M.C.A. workers, and the like. This sort of thing if happening in many places must lead to serious waste of doctors' ne and energy.

We who are overworked feel that a little consideration the part of the War Office would make it unnecessary r us to get so overstrained, and to expose ourselves to e risk of nervous breakdown. We cannot do our work iciently under the present conditions of chronic overork.—I am, etc.,

Richmond, Yorks, May 19th. H. M. EYRES.

SIR,—To those who have served, or are serving, in the A.M.C., the waste of men and money is very obvious, ten due to want of thought or to lack of business pacity. Saving money by laboriously collecting empty ne inkpots, empty jam tins, etc., costing to collect as uch as they are worth, while at the same time giving a ncheon to an inspecting officer at a remotely situated ess at a cost of £8 19s. 5d., is one example of many of e way in which money is wasted.

The number of medical officers in charge of small bodies troops scattered about in country towns is very great, d there is no doubt that very many of them could be eased for service where the need is more pressing by using the civil medical practitioners. The greatest obstacles to efficient and economical medical service are the "dug out" R.A.M.C. officers serving at home. Their strict adherence to the traditions of the service and to the inflexible rules of red tape prevent, or greatly hinder, really good medical work.

The War Office, or those at the heads of the various commands, are never content unless there is an overflowing complement of full-time medical officers in every district ready to cope with any possible emergency, however remote. We are told in the BRITISH MEDICAL JOURNAL that the proportion of doctors to the army strength is 1 in 400. This is all very well in theory, and if there were plenty of medical men to go round, would be a counsel of perfection; but is not so when it leads to the appalling scarcity of doctors in the industrial districts, where, from the nature of the work, serious accidents are common.

I know an isolated area whose 9,000 inhabitants are practically all workers in ironstone mines, blast furnaces, and munition works, which it is proposed to leave to one medical man; and another area of the same population or more, all ironstone miners except a scattered agricultural element, to be entrusted also to a single doctor. In both these cases three or four medical men could be well employed. How is it possible for one man to give anything like decent attention? Within a few miles are five R.A.M.C. officers looking after 1,800 soldiers, and having the greatest difficulty in filling up time.

Let the army use efficiently the men they already have before they call any more from their practices.—I am, etc.,

May 15th. LATE R.A.M.C.

MEDICAL BOARDS.

SIR,—I agree with your correspondent. At the beginning of the war I offered my services, and was told that this was the most useful way in which I could "do my bit." I have worked very hard, and never received a word of thanks but plenty of kicks. I am, like most of the men doing this work, retired and of independent means, and would not do it for one week for treble the pay but for patriotism, and would appreciate some kind of acknowledgement.—I am, etc.,

May 22nd. R. M. P.

SIR,—I entirely agree with your correspondent that it is quite time that something was done to improve the position of the members of medical boards. I have been acting continuously as a medical examiner of recruits since the beginning of the war, and on occasions have been on duty ten, twelve, and once sixteen, hours in a day in the earlier stage of the war. I can safely say I have never received the slightest recognition or word of appreciation from any quarter, official or otherwise. I have had no leave since my appointment as medical examiner. These remarks apply equally to some of my colleagues, who have worked on as cheerfully as possible actuated by patriotic motives, and we all agree that it would be a welcome change to hear from some quarter that our services were appreciated.—I am, etc.,

May 21st. EXAMINER.

CHILD MORTALITY.

SIR,—In my letter in the JOURNAL on May 5th I wrote: "It is not feasible for the State to cause an increase in infant life." I used the word "feasible" advisedly because it had reference entirely to the inception of life, and had nothing to do with life at any stage of its progress after that event. It is, of course, quite possible that parents might be found who were willing to renounce all claim to their children, and to hand them over to the care of the State immediately they were born; and in this, as well as other ways, the State might cause an increase in infant life, but schemes having this object in view are not, in my opinion, feasible.

It is an established fact, and one which even the Local Government Board itself recognizes, that a diminished birth-rate bespeaks invariably a diminished infant mortality, and the explanation is not far to seek. Most married women, it must be remembered, desire and are anxious not only to have but to rear at least one child, and she who so resolves and goes through the ordeals connected with motherhood will not readily as a rule run the risk of losing in early life the child for whom she has

made certain sacrifices, and in whom some of her future hopes are centred; consequently she is generally not unwilling to bestow some measure of maternal care and attention upon her infant, and for this reason a diminished birth-rate portends a diminished infant mortality. This question of maternal care and attention, embracing as it does not only the indoor but the outdoor life of the infant, is undoubtedly the secret to the solution of our infant mortality problem, but how best to deal with it is a very moot point, and it will most assuredly tax the ingenuity and skill of any statesman who resolves to grapple with it.

Unfortunately we are becoming too engrossingly a pleasure-loving and a pleasure-seeking people, and the pernicious influences associated therewith are the very influences which are undermining that form of family life which best conduces to the bestowal of that amount of maternal care and attention which is indispensable for the welfare of the child.—I am, etc.,

London, W., May 12th. JAMES OLIVER, M.D., F.R.S.Edin.

THE TREATMENT OF TRENCH FEET BY THE SUBCUTANEOUS INJECTION OF OXYGEN.

SIR,—The results described by Captain H. Oswald Smith in the JOURNAL for April 21st tell their own tale of unfailing success in averting by a simple and harmless method the worst evils of the prevalent and disabling affection for which the only remedy seemed to lie in prevention. By immediately allaying the pain, by quickly relieving the oedema, and by forestalling or arresting its destructive consequences, his treatment fulfils the ideal cure. Its value is not, however, limited to that satisfactory management of a condition special to the trenches and almost unknown in civilian practice. It has the significance of a novel departure in subcutaneous oxygen-therapy.

The original purpose of the method, to which the latest reference in this JOURNAL was an editorial review of its history,[1] was to furnish an artificial supply of oxygen for the blood when imperfectly arterialized owing to some disablement of the ventilating function of the lung. Partly with a similar view surgeons have recently availed themselves of oxygen in operative surgery of the abdomen and of the thorax. But the original idea was elaborated mainly in France, where it has been developed into a systematic method of treatment for pulmonary tuberculosis. The new departure consists in injecting the oxygen at the seat of the trouble, not for any general arterializing purpose, but for the sake of its action upon the lesion. The first question which arises is as to the mode of that action. Captain O. Smith specifies clearly two demonstrable activities: the mechanical or inflatory "gaseous" influence upon the tensely waterlogged swelling, and the physiological "oxygenating" influence upon the stagnant venous blood. Behind this lies a further question, perhaps only theoretical, but possibly fraught with unlimited practical utility—the question as to any direct, specific, biochemical action exercised by gaseous oxygen upon the tissues *in vivo*. Hitherto this line of investigation, which Mr. George Stoker has pursued clinically for many years for the cure of cutaneous ulcers, had been exclusively limited to the "open" method of oxygen ventilation. It has, at any rate, eventuated in our belated recognition of the factitious nature of the delay in healing of indolent ulcers treated under dressings, and of the supreme healing power of open air and of its oxygen. But we are still in the dark as to the action of "subcutaneous" oxygen upon cell life in health and disease. Captain O. Smith has now established beyond any doubt that artificial oxygen emphysema, which in the original method was regarded as an inevitable drawback, far from being destructive to starved tissues, is capable of rescuing them from incipient gangrene. For a variety of much less precarious surgical conditions this opens up the possibility of a safe trial of the injection of oxygen (and perhaps eventually of other gases or vapours); and incidentally it reminds us that everything has not yet been tried for cancer, even in its cutaneous variety. It will also give physicians much to think as to the future management of dropsy, when they look back upon the risks of our crude early methods of drainage by multiple puncture, by Southey's tubes and by deep incisions. The anaesthetic, and perhaps analgesic, action of oxygen is another aspect for study which conceivably might prove of much practical clinical value. The early "neuritic" stage of trench foot, still free from swelling, which has not been submitted to the new treatment, might furnish a special opportunity for observations in that direction.—I am, etc.,

London, W., April 28th. WM. EWART.

[1] BRITISH MEDICAL JOURNAL, 1915, vol. i, p. 973.

TREATMENT OF BRONCHIAL ASTHMA.

SIR,—Dr. Auld in his communication on asthma (BRITISH MEDICAL JOURNAL, May 5th) makes the following statement:

> I may be permitted, first of all, to make reference to the view as to the nature of bronchial asthma which I submitted in the course of a lecture on the subject in 1908. It was to the effect that the asthmatic attack is a reaction on the part of the lungs to a toxic substance, etc.

I consider this statement should not be allowed to pass without drawing Dr. Auld's attention to some literature on the subject which may have escaped his attention and may be of interest to him. Dr. James Adam of Hamilton published in 1913 a book on *Asthma and Its Radical Treatment*, and in its introduction (page 2) the following extract will be found:

> The book is an expansion of post-graduate lectures delivered in 1910 at Glasgow Royal Infirmary; these in turn were based on a thesis written in 1900, and published in Glasgow Hospital Report, 1901. The view expressed twelve years ago was that asthma resulted from two factors—a toxaemia and a lesion in the respiratory tract, etc.

—I am, etc.,

Glasgow, W., May 11th. HUGH MORTON, M.D.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

SIR,—In spite of the fact that a circular has been issued stating that the National Committee for Relief in Belgium is ceasing to take part in the relief of the suffering in Belgium, this committee (the Belgian Doctors' and Pharmacists' Relief Fund), as the result of a letter received from the Commission for Relief in Belgium, has decided to continue to send £800 a month to the committee in Brussels. The letter contained the following words:

> . . . Every arrangement has been made to assure that the relief shall go on without interruption. Spanish and Dutch representatives will take the place of the Americans, and the actual handling of the relief cargoes, the distribution of money, etc., will be supervised by Belgian representatives of the Commission in a way which we feel confident will ensure the food and funds arriving at their proper destination. . . . I therefore hope that you will be able to continue the . . . contributions from your society as in the past. They have afforded great relief. . . .

—I am, etc.,

H. A. DES VOEUX, Hon. Treasurer.

14, Buckingham Gate, London, S.W.1, May 22nd.

The Services.

ROYAL NAVY.

DEPUTY INSPECTOR-GENERAL ISAAC H. ANDERSON, M.D., has been awarded a Greenwich Hospital Pension of £50 a year in the vacancy caused by the death of Fleet Surgeon Fleetwood Buckle, M.D.

EXCHANGES.

M.O., attached to an infantry battalion in France, desires to exchange with a M.O. in an ambulance train, Red Cross barge, motor ambulance convoy, or fever hospital.—Address, No. 1549, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Regimental Medical Officer, Ripon, desires to arrange transfer with medical officer, London district.—Address No. 1750, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

THE German military authorities have decided that it is incompatible with military interests for medical students to be granted furlough in order to resume their studies. Special facilities are, however, granted for their final examinations.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Obituary.

MAJOR GREENWOOD, M.D., LL.B., M.R.C.S., L.R.C.P., D.P.H.

MAJOR GREENWOOD, the eldest son of the late Dr. Major Greenwood who practised for nearly fifty years in North-East London, was born on April 29th, 1854, and died, after a long and trying illness, on May 16th. He was educated at Merchant Taylors' School and the London Hospital, took the diplomas of M.R.C.S.Eng. in 1876, L.R.C.P. Lond. in 1878, and graduated M.D.Brussels in 1887. He commenced practice with his father, but in 1890 entered into partnership with the late Dr. Frederick Wallace, and resided in Hackney Road from that time until his death.

Dr. Greenwood was a man of remarkable energy and versatility. Not content with the labours of a busy general practice, in the course of which he earned the respect and affection of both patients and colleagues, he applied himself energetically to the study of law, graduated LL.B. in the University of London, and was called to the Bar by Lincoln's Inn. He soon became a recognized expert on medico-legal questions, particularly those connected with Poor Law administration. At the time of his death he was Deputy Coroner for North-East London.

Few men have been more zealous in serving the interests of his brother practitioners or more loyal to the British Medical Association, of which he had been a member for many years. After serving on the Council of the Metropolitan Counties Branch he became a member of the old Parliamentary Bills Committee, and was elected a member of the last Central Council before the adoption of the present constitution. After the reconstitution Dr. Greenwood frequently served on the Central Council, of which he was continuously a member from 1910 until his death. He had served as one of the Representatives of the City Division at the Annual Representative Meetings, and was a member of the Medico-Political, Public Health and Central Medical War Committees.

All who have taken part in the active work of the Association will recall Dr. Greenwood's incisive personality, and the vigour with which he fought for principles deemed by him vital to the honour and welfare of his profession.

Dr. Greenwood was a man of wide literary culture. In 1915–16 he was president of the Metropolitan Counties Branch, and his scholarly presidential address, entitled, "Sidelights on the practice of medicine in the past from early English literature," was published in the JOURNAL of August 7th, 1915. Not to speak of various technical works, mostly on medico-legal subjects, he was the author of *John Armstrong*, a novel favourably reviewed and highly thought of by several good judges. He also possessed great skill in the composition of graceful verses, both in Latin and English. The history and literary associations of his native city were to him a source of life-long pleasure. One of his earliest published papers was an essay on The Great Plague in London, one of his latest, a poem on the history of the metropolis. Friends whose painful lot it has been to watch helplessly the advance of inoperable disease will recall how a well-timed literary allusion could rouse him from weariness and depression into an animated discussion of literary or archaeological topics.

In Dr. Greenwood the profession loses a fine example of the scholarly physician who never grudged time and labour spent in the service of the public and of his professional colleagues. He was an enthusiastic officer in the City of London Volunteer Regiment, and it was a source of bitter disappointment to him to be obliged by ill health to relinquish active participation in the work of his unit.

Dr. Greenwood married, first, Annie, daughter of the late Dr. P. L. Burchell of Kingsland Road, who died in 1904, and by whom he had three children; the eldest, a member of the medical profession, survives. Dr. Greenwood married again in 1906, Emily Maud, daughter of the late Mr. J. M. Pearle, who survives him. To Dr. Greenwood's widow and son the sympathy of the whole profession will be extended.

The interment took place at Abney Park Cemetery on May 19th, when the Council of the British Medical Association was represented by Mr. Guy Elliston and the Poor Law Medical Officers' Association and the London Panel Committee by Dr. A. Withers Green.

Dr. ARTHUR HAYDON, ex-president and now secretary of the Brussels Medical Graduates' Association, sends a tribute to the kindness and unfailing courtesy of Dr. Greenwood, by whom the association was founded thirty years ago. He had done good work ever since in looking after the interests of the graduates of the University of Brussels, not only in England, but in all parts of the world. It was mainly Dr. Greenwood's efforts some years ago that brought about the registration of the degree in the Transvaal, and he had always hoped for full reciprocity between this country and Belgium. Dr. Greenwood had been president of the association and at the time of his death was its treasurer. In 1915 he collected over £100 from members of the Brussels Medical Graduates' Association for the Belgian Doctors' and Pharmacists' Fund.

THE death is announced of Dr. H. W. WILLIAMS at his residence at Guilsborough, Northamptonshire, where he had resided for some time. He was born in 1836 and received his medical education at the University of Aberdeen, Birmingham, and Anderson College, Glasgow; he took the diplomas of L.R.C.P.Edin. and L.R.F.P.S. Glasg. in 1863, and graduated M.D., C.M.Aberd. in 1867. He was for many years physician to the Hospital for Consumption, Margaret Street, and practised as a consulting physician in London. He gave much attention to the prevention of inebriety and was one of the founders of the British Medical Temperance Association, vice-president of the Society for the Study of Inebriety, and a member of the British Medical Association. For thirty years he had been actively associated with the Salvation Army and had held the position of director of its medical department for twenty-seven years.

Dr. WILLIAM FINDLAY, whose death is announced, was born in Kilmarnock in 1846. He was educated at the University of Glasgow, where he was one of Lister's pupils, and graduated M.B., C.M. in 1870 and M.D. in 1878. He commenced practice at Dennistoun, and continued in that district until his retirement some ten years ago. He had held the office of president of the West of Scotland Branch of the British Medical Association, and was one of the founders of the Glasgow Eastern Medical Society. His chief recreation was literature, and he was one of the early members of the Glasgow Ballad Club. He was a great admirer of Burns, and was the author, among other works, of *Robert Burns and the Medical Profession*. He was himself no mean poet, and his collected verse was published in two volumes, *Ayrshire Idylls*, and *Carmina Medici: the Poems of a Physician*.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on May 19th the following medical degrees were conferred:

M.B., B.C.—K. B. Bellwood.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

IT has been found impossible to bring into force in time for the election this year the new by-law sanctioned by the Council for sending out voting papers early enough to give Fellows abroad the opportunity of voting. A formal explanatory notice will appear next week.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following have been admitted Fellows: M. A'B. M'Carthy, H. E. Allanson, J. H. Cobb, G. W. Gower, E. R. Holborow, H. J. M'Caw, F. A. St. John.

The Bathgate Memorial Prize for materia medica, consisting of a bronze medal and books, has been awarded to Mr. L. P. Samarasinha.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have obtained the Diploma in Public Health: Gladys Ward and Ella Elphinston.

A REUTER'S telegram from Petrograd announces that the Russian Government has ordered the mobilization of all women doctors under 45 years of age, except those with children under 3.

Medical News.

THE house of the Royal Society of Medicine will be closed on Whit Monday, May 28th.

WE have received from the British Thomson-Houston Company (Limited), of Rugby, a copy of their new Coolidge tube list. The Coolidge tube, since its introduction from the United States a few years ago, has established itself so firmly among *x*-ray workers that there is no need to enlarge on its advantages. Two varieties of tube are listed; the smaller, with a bulb only 3¾ in. in diameter, is specially for use in work requiring fine definition.

THE National League for Physical Education and Improvement, 4, Tavistock Square, has published a series of five leaflets intended to help parents who find it difficult to put their own thoughts into words to give elementary teaching in sex hygiene to their children. The tone is reverent and healthy, the wording simple, and the message seems to be plain enough for the purpose in view. There is no lack of such literature nowadays, but this little series will no doubt be welcomed by many parents.

IT is announced that grants from the Exchequer are now available in relief, or part relief, of the duties paid upon spirits used in voluntary hospitals. The grants are not available to institutions conducted for gain, and methylated spirits or spirits obtained free of duty under the Finance Act of 1902 are not to be included in the returns. The grants are in respect of spirits used solely for medical or surgical purposes, thus excluding brandy, whisky, and the like. Applications should be addressed to the secretary of the Local Government Board in London, or in Edinburgh, and returned not later than June 30th, 1917.

SIR OLIVER LODGE published some months ago a book entitled *Raymond, or Life and Death* which has had a very large circulation and is now in its seventh edition. It consists of two parts. The first contains an account of communications which the writer and other members of his family believed they had had with his son, who was killed in action in Flanders in September, 1915, at various dates beginning a few days after his death. The second part is a disquisition on the theories and methods of spiritualism. We understand that Dr. Mercier has now in the press a criticism entitled *Spiritualism and Sir Oliver Lodge*, and that the book is expected to be ready about June 21st.

THE annual meeting of the Poor Law Medical Officers' Association of England and Wales was held on May 9th at the offices of the Association, 34, Copthall Avenue, E.C., when the President, Surgeon-General G. J. H. Evatt, C.B., occupied the chair. The president and officers of the association were re-elected except the secretary, Dr. Major Greenwood, who had resigned in consequence of his serious illness, which has since proved fatal. Dr. A. Withers Green, 4, Wardrobe Place, E.C., was elected secretary, with Dr. Arthur Drury as literary adviser. The council amended the rules by authorizing the election of vice-presidents, and Dr. Balding (Royston), Dr. M. Greenwood (London), Dr. Jackson (Plymouth), and Dr. T. Gidley-Moore (Ongar) were chosen as vice-presidents.

IN his report for 1916 to the Board of Agriculture the assistant secretary of the animals division states that one outbreak of foot and mouth disease appears in the records, as against 56 outbreaks in 1915, and 27 in 1914. The number of outbreaks of anthrax confirmed bacteriologically during the year was 571, as compared with 575 in 1915. Of swine fever there were 4,331 outbreaks, as against 3,994 in 1915. A suspected case of rabies was disproved after full investigation. Forty-seven outbreaks of glanders and farcy, otherwise than amongst army horses, were reported to the Board, as compared with 49 in the previous year; of these 14 occurred in coal mines.

THE part which Brighton has played during the war in providing hospital accommodation for wounded Indian soldiers is well known. The buildings set apart for the Indians were the Dome and Pavilion, the Municipal Secondary Schools, and the Kitchener Hospital. Steps are now being taken to commemorate those who have given their lives for the empire. A committee for this purpose was formed, largely through the exertions of Sirdar Daljit Singh, and included among its members Sir Walter Lawrence, then Chief Commissioner of Indian hospitals, and officials of the India Office. We learn from the *Brighton Herald* that the committee has already raised a large sum entirely subscribed by Indians. A marble domed building will be erected, probably on the sea front, and the component parts will be carved in India by Indian craftsmen, and sent over to England in pieces. An appropriate memorial is also to be erected over the burning ghat on the downs. This *chatri* will form a permanent memorial in keeping with Indian sentiment.

A SECTION of the British Electrical and Allied Manufacturers' Association has been formed, enrolling British manufacturers of *x*-ray and electro-medical apparatus, with the object of improving the status and prospects of that industry by co-operation and research. As was pointed out in a recent discussion at the Röntgen Society on the future of the British *x*-ray industry (BRITISH MEDICAL JOURNAL, April 21st, 1917, p. 521), before the war the greater part of the *x*-ray and electro-medical apparatus used in this country was made in Germany and other foreign countries. Since 1914, however, great strides have been made by individual British manufacturers, and it is hoped that the enrolment of them as a section of the larger association will enable them to supply, not only the home trade, but the whole of the empire, and offer a means whereby the manufacture of British electro-medical instruments may be systematized and fostered. The section has lately co-operated with the Government in research work connected with the improvement of some essential instruments. It is hoped that this will be a preliminary to wider investigations, and the section invites the co-operation of medical men and hospitals.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY. *Medisecra, Westrand London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

O. desires to find a home, preferably with a medical man, for the wife of a Belgian doctor now at the front and her daughter, 2½ years old. The lady is well up in bacteriology, and can perform Wassermann, T.B., and other tests.

PROTECTION FROM ULTRA-VIOLET LIGHT.

WE are asked what protection is necessary for the eyes and the rest of the body in working with an apparatus which produces ultra-violet rays quite exposed—that is, not in a lamp—working at 10 milliampères, say for thirty minutes at a time.

*** We have referred this question to Sir James Mackenzie Davidson, who writes: "Sir William Crookes invented a glass which prevents the passage of violet rays; the eyes can be protected with this glass, or lenses made with it in suitable spectacles or goggles. Opticians now supply spectacles with Crookes's glass when desired. Ordinary clothes and gloves will be ample protection for the body and hands. The face must have a mask made of any light fabric. It takes very little thickness of any opaque material to stop the passage of ultra-violet light." We may add that Sir William Crookes's investigation was made for the Glass Workers Cataract Committee of the Royal Society, to which society he communicated his results, after nearly four years' work, in November, 1913.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

LIBRARY U. OF I. URBANA-CHAMPAIGN

HE DEVELOPMENT OF BRITISH SURGERY AT THE FRONT.

BY

URGEON-GENERAL SIR ANTHONY BOWLBY, K.C.M.G., K.C.V.O., A.M.S.,

AND

COLONEL CUTHBERT WALLACE, C.M.G., A.M.S.,

CONSULTING SURGEONS, BRITISH ARMIES IN FRANCE.

r is not possible in a few pages to do full justice to the evelopments of British surgery during the war, but it is easonable to place the more salient facts on record, and to ummarize, however briefly, the present position of surgical ork in the British Expeditionary Force in France and elgium.

THE REGIMENTAL MEDICAL OFFICER.

It is unnecessary to write at length on the work of the egimental medical officer, for his duties in this war are uch the same as they have ever been. He shares the angers common to the combatant officers and men, and tays with his battalion or brigade, as the case may be. Iis treatment can only be that of first aid, but he and his rderlies have saved innumerable lives, both by the rescue f wounded comrades from dangerous situations and by areful and rapid transport to the field ambulance sections n the support line.

THE FIELD AMBULANCE.

At this, the "advanced dressing station," there is a per-onnel of two or three medical officers, non-commissioned fficers, and orderlies, and it is here that the first-aid ressings can be supplemented by additional dressings nd by suitable splints, so as to ensure a more easy ransit to the "tent section" of the field ambulance, a nile or two further back.

The field ambulance has not needed to undergo any ery radical changes during the war, because its constitu-ion and personnel proved it to be thoroughly well suited o its duties. But its surgical equipment has been very greatly improved and increased, so that it is in all respects vell supplied for the performance of any urgent opera-ion undertaken for conditions which do not require that he patients should be retained for any length of time.

The following instructions, which are amongst those ssued in all the "armies" at the front, will best indicate he limitations of their work:

"(1) Only operations of emergency should be performed n field ambulances, but the following exceptions must be oted:

"(*a*) Completely smashed limbs should be removed, and the patients retained for at least a day before being sent to a casualty clearing station.

"(*b*) Haemorrhage should be arrested by ligature of bleeding points whenever possible. If this is not possible, then plugging or direct pressure on the wound itself should be resorted to. Patients should never be sent down with tourniquets on their limbs.

"(2) Abdominal wounds and all severe cases requiring arly treatment at a casualty clearing station should be ent there by a special motor ambulance direct from the dvanced dressing station. They should not be kept vaiting for the regular convoys."

A further development of the tent section resulted from he conditions at the battle of the Somme, where, on ccount of the small area and the few good roads, "corps lressing stations" were created by joining up some nembers of the staffs of various field ambulances, so as o supply tent accommodation for a thousand or more vounded, with a staff of about thirty medical officers. A nit such as this performed the duties ordinarily per-ormed by several separate field ambulances, and proved ery successful as well as economical in medical officers nd orderlies.

Motor Ambulances.

It is unnecessary to write much on a subject which is lready thoroughly well known to all, but it is the supply f motor ambulances alone that has enabled us to deal dequately with the surgery at the front. One aspect f this subject, however, is very commonly overlooked, amely, the use of motor transport in saving the wounded from capture, for there can be no doubt that, had motor ambulances been supplied in large numbers, the tale of British prisoners after Mons and Le Cateau would have been very small. The first complete convoy came to the front in the middle of October, and at the first battle of Ypres was of the utmost possible value, both in getting patients quickly to the casualty clearing stations and also in saving wounded from falling into the hands of the enemy during our retirement to the ground we subsequently held.

The motor ambulance, indeed, is the very foundation on which all our surgery at the front is based. Without it the whole system would break down, for no horsed vehicles could possibly deal with the numbers of a heavy fight unless they were so numerous that they would practically block the roads for all other transport, and even then their slowness would result in such delays in delivery that surgery would be of little use. In addition, the well hung and well driven motor causes the patient infinitely less distress than the old ambulance wagon, and so delivers him in a much better condition for recovery.

THE QUESTION OF TIME.

This is a matter of so much importance to surgery that it is well to explain the time that is required to take a patient from the front trenches to the casualty clearing station. It is, in the first place, not sufficiently realized that the chief cause of delay, if it occurs, is "the enemy," for there have often been, and there still are, localities from which the wounded can only be moved under cover of darkness, so that a man may have to be kept in a dug-out the whole of a long summer's day before he can be carried to the rear. Again, in the desert of mud behind the firing line on the Somme stretcher-bearers sometimes took hours to carry a wounded man at night for several miles to the nearest point to which, in the absence of all roads, an ambulance wagon could approach. In yet other cases men lie out in the open ground on the so-called "No Man's Land" for many hours, or even for several days, before they are rescued. But supposing that none of these difficulties exist, the time occupied is very short, for, if communication trenches are good, and if a man is able to walk, he will often get to the advanced sections of the nearest field ambulance within an hour. If the communication trench is long and muddy, it may take twice that time. If he has to be carried it may take another half-hour or more, but as soon as he has got to a good road another hour will see him safely delivered to the place where his injuries can be thoroughly treated and where he can be well nursed under excellent conditions.

All this is comparatively simple if no great battle is in progress; and as great battles occur at infrequent intervals, it is evident that in most parts of the line of trenches evacuation is easy and rapid except for unusual local conditions. But in very heavy fighting, and especially when troops are advancing, it is often impossible to find sufficient stretcher-bearers in proportion to the great numbers of wounded, for only a limited number are attached to each regiment, and it is therefore necessarily true that the greater the number of the wounded who have to be carried, the longer must it be before the last of them can be brought in. No work is heavier than stretcher carrying for long distances and on difficult ground; and as men become exhausted their pace becomes slower, and they are obliged to rest at more frequent intervals. But even when all difficulties have been surmounted and the patients have arrived at the tent sections of a field ambulance, there are many who are too much exhausted for further immediate moving; and while the staff may have their hands full with dressing the wounded, they have also to care for the needs of the many men who need to be rested, fed, and warmed. While they are thus engaged on these patients, all those who require urgent treatment by operation have been taken direct to the casualty clearing stations, and thus have avoided delay.

The speed with which even patients who have to be carried can be brought in is best shown by taking the case of a consecutive series of abdominal wounds at one of the more advanced units. The following are the figures, and they show both how quickly men can be brought in when there are no unusual difficulties, and also how long it may be before a man can be rescued when an attack has been temporarily driven back.

Time of Evacuation to Casualty Clearing Station.

Under 3 hours	24	78 in first 6 hours.	134 in first 12 hours.
Between 3 and 4 hours ...	20		
,, 4 and 5 ,, ...	24		
,, 5 and 6 ,, ...	10		
Between 6 and 9 hours ...	34	56 in second 6 hours.	
,, 9 and 12 ,, ...	22		
Between 12 and 18 hours	25	35 in second 12 hours.	169 in first 24 hours.
,, 18 and 24 ,, ...	10		
Over 24 hours	31		

200

THE CASUALTY CLEARING STATIONS.

The development of the casualty clearing stations has been the most important factor in the creation of a new school of surgery at the front, and it is not too much to say that they have saved many thousands of lives which would have been lost but for the surgical opportunities which they have provided.

Before the war the "C.C.S.'s," as they may be named for brevity, appeared only on paper and as untried units, for they did not exist at the time of the South African war. They were originally called "clearing hospitals," and their proposed function was merely to clear the field ambulances and pass the patients on to the base hospitals. Their equipment, therefore, was only very slight, and their staff of eight officers, including the command officer and the quartermaster, was less than the staff of a field ambulance. They carried 200 stretchers, and were supposed to be able to deal with the same number of patients.

It is not necessary to enter into details to show how the six casualty clearing stations, which came with the original Expeditionary Force, were overtaxed, for, in spite of this, it became very evident during the first battle of Ypres that the casualty clearing stations might well be made the nucleus around which to build an efficient organization for much more complete surgical treatment than had been contemplated when they were first planned. The first change was the supply of bedsteads and bedding and the appointment of trained nurses; the next was the addition of more surgical equipment in the way of instruments, splints, sterilizing apparatus, etc. The selection of special surgeons was a natural consequence, and before the end of the year 1914 good surgical work was being done at eight centres. Since that time there has been further development and progress, and by the end of 1916 more than fifty casualty clearing stations were at work.

These hospitals, for such we can call them, are situated behind the line of trenches along the entire front, and certain local conditions are essential for the success of their work. First, they must be at or near to railway sidings, so that evacuation by train is easy. Secondly, they must be where good roads can connect them with the front. Thirdly, they must have a good water supply.

They are arranged in practically two series: (1) Those nearest the front are at a distance of from six to nine miles from the front trenches; (2) those of the second line are from three to six miles further back, and act as a reserve during active operations, or as units for special cases during quieter times.

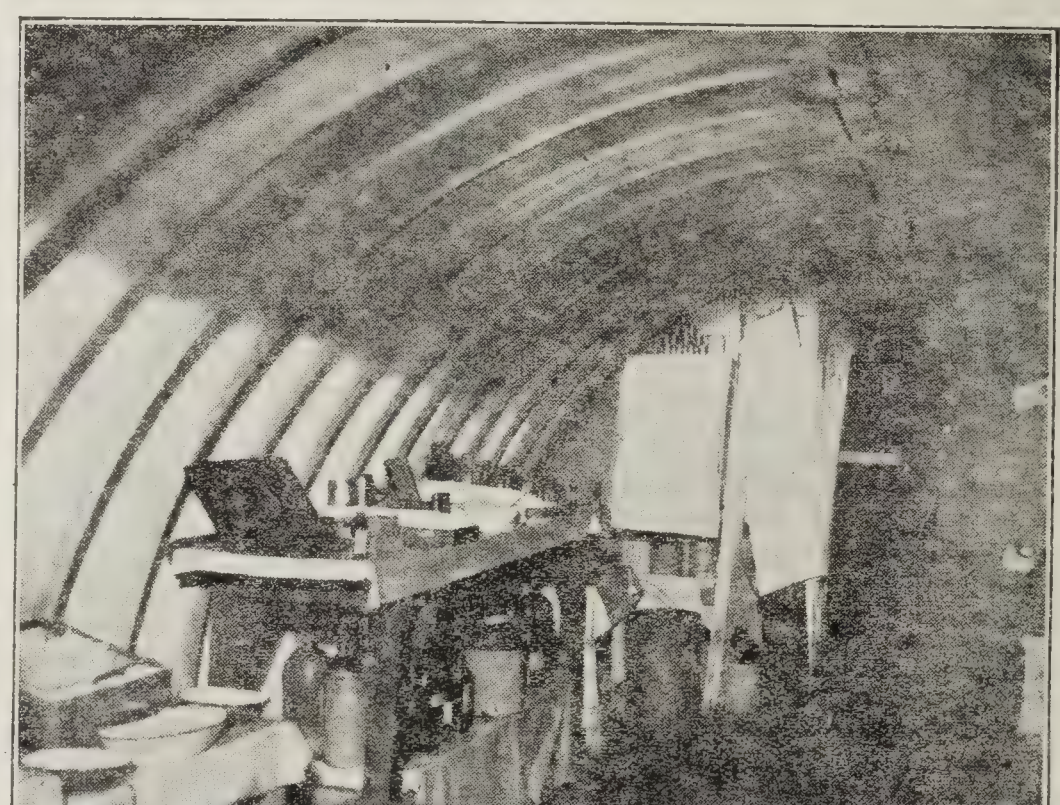


FIG. 1.—Interior of regimental aid post.

The casualty clearing stations vary greatly in the accommodation, according to the size of the buildings they may occupy, or to the amount of ground available for huts or tents when they are encamped. The smallest accommodate 400 to 500, and the largest from 800 to 1,200. The staff is reinforced, as may be required, from other casualty clearing stations less actively employed, and from the staffs of the field ambulances.

Wherever possible the casualty clearing stations at the front are linked in pairs, and take in the wounded alternately. In this way it can be arranged that, after admitting as many as can be adequately treated, the wounded are diverted to the other casualty clearing station, and the staff is left free to treat those they have admitted, without being disturbed by fresh arrivals.

Operating Theatres.

When a casualty clearing station is housed in buildings these theatres must, of course, vary in size with the accommodation afforded. In the hutted or tented hospitals, however, which are the most numerous, the operating theatre is a hut about 60 ft. by 20 ft., giving space for four tables, and for sterilizing and store rooms. Large theatres are essential in dealing with large numbers.

The Treatment of Wounds in the Casualty Clearing Stations.

It is the object of every casualty clearing station to treat and retain all patients until they can be safely sent down by ambulance train. In times of comparative quiet there is no difficulty in attaining this ideal, and consequently, whatever standard of treatment is required from the surgical standpoint can ordinarily be attained. In times of heavy fighting and especially when there is the certainty that many more wounded will arrive during periods extending over days or weeks it is evident that the provision of empty beds necessitates sending patients away who might, with advantage, be retained a little longer. This pressure, however, does not prevent the performance of all really necessary operations, and these are now always performed. If the requirements of our army did not place a limit on the number of surgeons, nurses, orderlies and patients who can be retained in close proximity to the fighting line, there would be no reason why all patients should not be kept near the front, but it must be clearly appreciated both that there is this limit in every war, and also that casualty clearing stations are maintained everywhere in as great numbers as the military authorities can permit. It must also be remembered that if many hundreds of patients were kept in every casualty clearing station the staff of nurses and orderlies would be so much occupied in dressing and caring for them that they would not be free to attend to the wants of the recently wounded men coming in convoys from the field ambulances.

For more than two years it has been the deliberate policy of the British Army Medical Service to make the casualty clearing station the chief place for the treatment by operation of the dangerously wounded man who requires prompt treatment, rather than the field ambulances. The latter is too mobile and too frequently moved a unit to be thoroughly well equipped surgically, and, in addition, it

LIBRARY U. OF I. URBANA-CHAMPAIGN

as been proved to be much better to move a patient before
operation to a place where he can be kept and nursed
r several days rather than to move him directly after he
as been operated upon.

ressing and Distribution of the Wounded at a Casualty Clearing Station.

It is now the custom of all casualty clearing stations to ess their patients in large reception huts or tents as soon they arrive, and to distribute them from this place in ree classes: (1) For immediate evacuation; (2) for re-ntion; (3) for operation. In the first class are included iefly the slightly wounded. In the second class are tients suffering from shock, from the effects of bleeding, om wounds of the lung, from exposure to cold, etc. In e third class are all serious wounds of the soft tissues hich require thorough dressing, and especially lacerated ounds due to shells and bombs; most fractures; many juries of vessels; all perforating abdominal wounds, etc. The proportion of cases requiring operations to the hole number of wounded will depend on many conditions for example, the larger the proportion of shell wounds to ullet wounds the larger is the number requiring opera-on, and if a train is waiting to go to the base, men may sent by it who would require operation if they had to kept for thirty-six hours. But it may be stated in neral terms that the proportion of patients treated under aesthetics may be as high as one in four, but is more ten about one in six.

The following table, compiled by Captain Hey, who is e Surgical Specialist at one of the forward casualty aring stations, will give a very good idea of the erating work of a particular unit, and it includes a riod of heavy fighting during a recent battle:

able of Operations Performed at a Casualty Clearing Station.

A. Ligature of arteries:	
Carotid	5
Vertebral	2
Subclavian	2
Axillary	15
Brachial	39
Radial	18
Ulnar	8
Ext. iliac	2
Femoral	51
Popliteal	31
Ant. tibial	16
Post. tibial	58
Various	30
	277
B. For treatment of fractures:	
Skull	189
Vertebrae	18
Humerus	298
Forearm	133
Femur	299
Leg	309
Jaws	38
Various	119
	1,403
C. For treatment of joints:	
Knee	183
Other joints	64
	247
D. Amputations:	
Shoulder joint	14
Upper arm	77
Forearm	31
Thigh	186
Knee	10
Leg	76
Ankle	6
Various	31
	431
E. For drainage of pleura	49
F. For wounds of the abdomen	106
G. Removal of testis	33
H. For ruptured urethra	9
J. Enucleation of eye	43
K. Plastic operations	33
L. Tracheotomy	17
	280
M. Excision and cleansing of wounds:	
Head and neck	95
Trunk	309
Upper limb	249
Lower limb	765
Multiple	398
	1816
N. For conditions not due to gunshot wounds:	
Appendicitis	34
Strangulated hernia	1
Cellulitis	53
Various	13
	101

It will be seen that the total number of operations performed for gunshot wounds amounts to 4,554, and the total number of wounded admitted during the period in question was 20,589 in this particular unit. It will be noticed that a very large majority of the operations were for fractures of the limbs and wounds of the soft tissues which required complete surgical clearing. The proportion of abdominal operations would have been higher but for the fact that an "advanced operating centre" was near at hand, and took charge of many cases of this class.

During heavy fighting, operating work such as the above goes on continuously day and night, and consequently necessitates relays of surgeons, nurses, and orderlies. The work is exceedingly trying, and it must be reckoned on that not a few of the staff will be more or less knocked up after three or four weeks of it. But it is also quite certain that the early and thorough treatment of a very large proportion of all wounds has done more than anything else to save both much suffering and many lives.

Advanced Operating Centres.

It has sometimes been found that difficulties of locality have prevented the placing of so large a unit as a casualty clearing station exactly where its position should have been when heavy fighting has been expected, and in such cases a smaller unit has been placed so as to deal with the most urgent cases, and especially with those which required prompt operation. These small special hospitals of fifty to sixty beds have done excellent work, and a very large proportion of their cases have been abdominal wounds. The large number of the casualty clearing stations has prevented any necessity for creating many such units, for the casualty clearing stations are usually as well placed as is the special hospital, and the greater number of all the abdominal operations have been performed in them.

Special Hospitals.

Special Hospitals for Head Cases.

Operations for wounds of the head are dealt with in a subsequent section, and all that need be said here is that it has been found advisable to retain a considerable number of these cases near the front either in stationary or general hospitals, or else in a casualty clearing station of the reserve. They do not need the immediate operations required for abdominal cases, and are consequently provided for further back.

Special Hospitals for Shell Shock.

It is very desirable to remove such cases from the sound of shelling, and, as they require special treatment for some time, they also are dealt with in the rear of the front line of casualty clearing stations.

Special Hospitals for Diseases of the Skin.

These deal mainly, but not exclusively, with scabies, and the work is usually undertaken by the casualty clearing stations of the second line.

Stationary Hospitals at the Front.

A few of these units, which normally belong to the line of communication, also find a place at the front. So much of the work which would previously have been done in them is now performed by the casualty clearing stations that, in proportion as the latter have increased, the need for the stationary hospitals has diminished. Those that are at the front are commonly engaged more in the treatment of the sick than of the wounded, or else in treating some special class of case, such as injuries of the head or shell shock.

LIBRARY U. OF I. URBANA-CHAMPAIGN

X RAYS.

At the beginning of the war *x* rays were not supplied at the front, but, coincidently with the development of operating work in the casualty clearing stations, the need of these became apparent. At first mobile *x*-ray vans were supplied, but, as demands for these increased, it became necessary to supply stationary plants as well, more especially to those casualty clearing stations to whose share it fell to do most of the operations; and, not only have *x* rays been of great service in guiding the operator, but in many of the abdominal wounds where the missile has been retained they have been of the greatest service to the surgeon in deciding whether or no operation should be done at all. In many other cases, such as some of the wounds of the head or of the knee-joint, it has been found better not to undertake an operation without a preliminary *x*-ray examination, so that in the present stage of development of surgery at the front the *x*-ray plant has become essential for the work of the casualty clearing stations.

ANAESTHETICS.

At the beginning of the war chloroform was in general use, but it was evident that there were many objections to its universal application, and other agents were soon employed as well.

Ether has been largely used, and was formerly administered by the open method, but experience has shown that it is often inadvisable to use it thus because of its tendency to irritate the air passages. For at least six months of the year the men who are exposed to the wet and cold in the trench area are suffering in very large numbers from catarrhs of varying degrees of severity, and in many of them these are accentuated by the further exposure which follows on a wound, especially when a man falls or lies in mud or water. The result is that the administration of any anaesthetic commonly sets up so much bronchial irritation that the patient's life is endangered by an attack of bronchitis or bronchopneumonia. These complications are specially dangerous in cases of abdominal wounds where abdominal respiration is difficult and where coughing up of mucus is often impossible because of pain or intestinal distension. It is indeed a fact that a very large proportion of all the deaths following abdominal wounds and operations are due to lung complications, and these injuries are at least twice as fatal in the winter as in the summer.

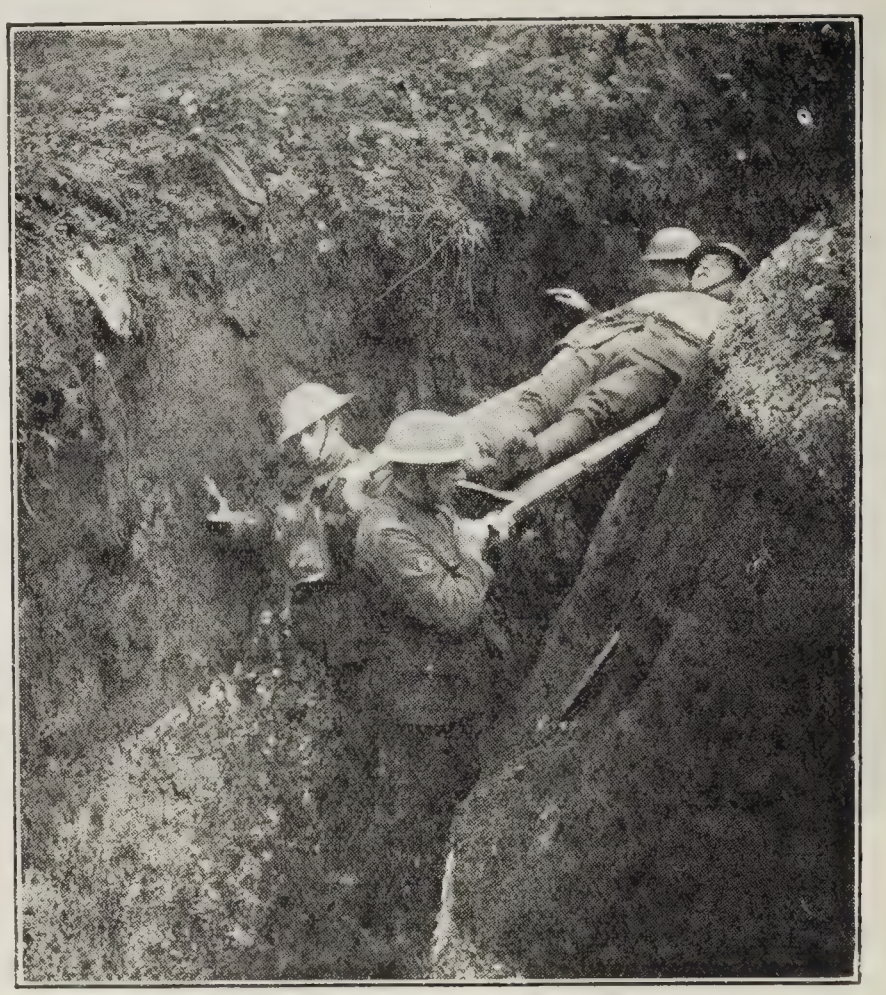


FIG. 2.—Handling a stretcher round a corner of communication trench.

Dr. Shipway's apparatus for the administration of warm ether vapour has been of the greatest value under those circumstances, and it is in common use in all the clearing stations. We have found that it possesses the following advantages:

1. There is very little secretion of mucus or saliva, and the patient is very quiet during the operation.
2. There is less sickness, probably because of the lessened quantity of mucus swallowed.
3. There is much less tendency to bronchitis and pneumonia.
4. The ether used is not more than one-third of that employed by the open method, and, as a consequence, it bulks less largely in transport.
5. Patients suffering from shock or haemorrhage can be pulled through an operation with less collapse than by other methods.
6. It can be connected with an oxygen cylinder, and ti ether vapour can be administered in combination wi oxygen in cases of shock.

The subject of the administration of anaesthetics at t front is decribed more fully in the paper by Capta Geoffrey Marshall printed on a later page.

THE USE OF ANTISEPTICS.

It may be stated in general terms that it is the custo at the front to use antiseptics in the treatment of woun both at the field ambulances and the casualty cleari stations. No attempt is made to use antiseptic agents disinfect the wounds on the field at the time of injury, t all who know the character of the wounds and the con tions of the wounded men, are agreed as to the compl futility of all such efforts, even if this had not been co pletely demonstrated during this war. But experien has also shown that in France and Belgium the woun are so heavily infected from the soil that it is n necessary in all but the smallest wounds to excise ve freely all the exposed and torn tissues which have be killed or else partially devitalized by the injury, a which are ingrained with dirt or portions of clothing. this treatment is n carried out very thorough and carefully, and if f drainage is not secur the gravest forms of sep may commence in seri wounds in a very f hours. It is common perience that if a ba wounded man cannot rescued and brought i the field ambulance u after the lapse of twen four or thirty-six hou the wound is often alre so badly infected and patient himself is in toxic a state that surgi treatment has but li chance. It may be s truly that the most portant alteration in tre ment since the early d of the war is that excis of damaged tissue become the routine met and that the earlier it carried out the more lik it is to be successful.

"*Eusol*" and "*Dakin Fluid.*"

Very many antisep agents have been employ and there is naturally so diversity of opinion to which is the b There is no doubt, however, that at the present ti hypochlorous acid in the form known as "eusol," the hypochlorite of soda in the solution known "Dakin's fluid," are more extensively used than a others. The method of Dr. Carrel has been increasin employed for the past year, and wounds treated in t way have done exceptionally well, although it is always possible to employ the method universally a time when the wounded are in very great numb At other times there is no difficulty, and in order to est lish continuity of treatment Dr. Carrel's method is fre employed on every ambulance train taking wounded the base hospitals.

Hydrogen Peroxide.

This is not highly esteemed as a potent antiseptic, bu is of great service in loosening adherent dressings, and preventing pain and injury to the soft tissues by forci separation of gauze or wool.

Carbolic Acid.

At an early stage of the war, and in consequence representations made by surgeons in England, attem

ere made to sterilize recent wounds by pure carbolic id. They entirely failed to achieve this object, but lutions of a strength of 1 in 20 or 1 in 40 are in common e, and many surgeons have had a very favourable experi- ice in using qual parts of lutions of rbolic acid id hydrogen roxide.

odium Chloride.

The hypertonic salt solution has not proved successful at the front, and at the present time is hardly used at all. The wounds treated by it were usually very slow in healing, and the granulations were generally pale, flabby, and much overgrown. There has also been a good deal of evidence to show that secondary haemorrhage is not nearly so frequent an occurrence since hypertonic saline has been displaced by other antiseptics. This is not at all surprising when it is considered that rapid cicatrization is the best safeguard against this complication.

The salt pack largely used at Rouen is also to a great extent supplanted by the employment of "eusol" and "Dakin's fluid." It is, however, at the front a useful method of treatment of large open wounds in patients who are in transit by train. It does not need to be disturbed for several days, and then there are large numbers of wounded to dress this is a very great advantage.



FIG. 3.—Advanced dressing station of field ambulance.

B.I.P.

The mixture of bismuth subnitrate, iodoform, and paraffin, recommended by Professor Rutherford Morison for suppurating wounds (B.I.P.), has also been used for the past few months in recent wounds of the soft tissues, and also in cases of fracture. The results have been good, and encourage the further use of this remedy at the front. The fact that the wounds do not need dressing for several days gives it the same advantage as the salt pack, while its use permits of an early closure of the wound, and this is an additional advantage.

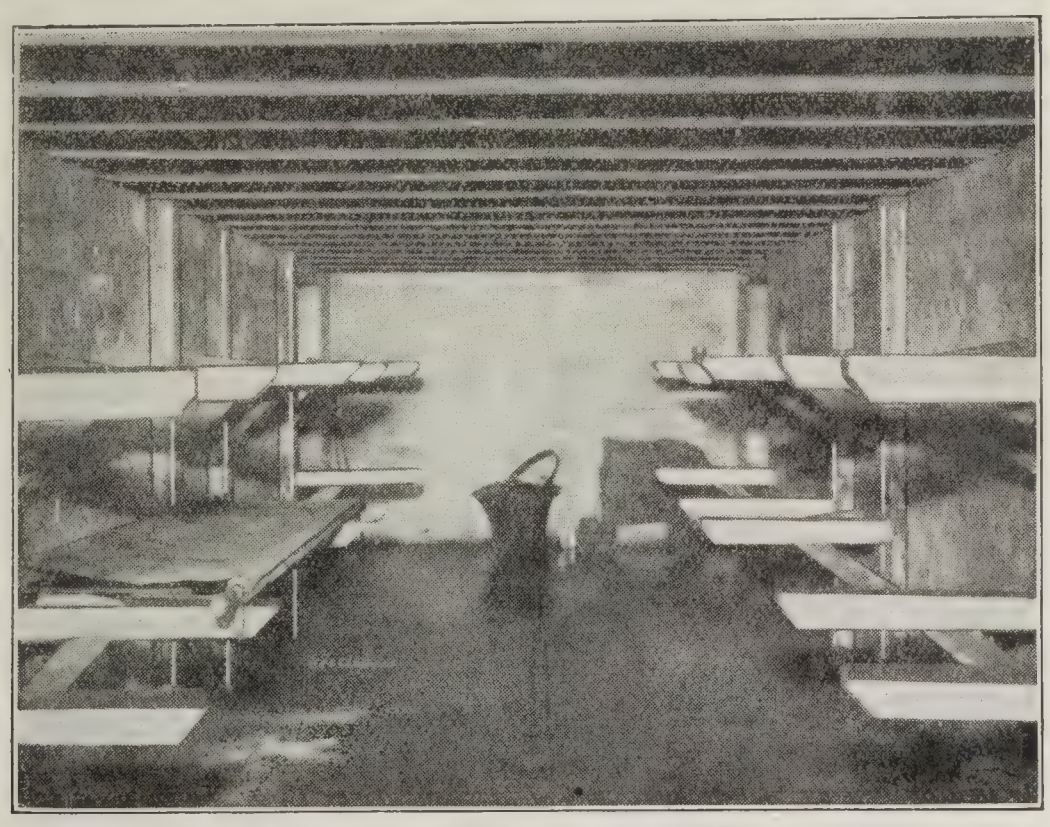


FIG. 4.—Interior of advanced dressing station.

SHOCK, AND THE CONDITION OF WOUNDED MEN.

The condition of wounded men necessarily differs as wounds are more or less severe, but in even slightly wounded men there may have been much bleeding, exposure to cold, want of sleep, or want of food. If to these are added severe pain and the exhaustion due to a hazardous journey over broken roads, it is easy to appreciate that very many patients arrive in a state bordering on collapse. Experience has shown, as a result of knowledge of these conditions, that it is not possible to estimate accurately the real condition of the patient until he has been rested and warmed, and has taken food; and especially in winter time the most important of these remedial measures is undoubtedly warmth. This may be applied by warm blankets after the removal of wet clothes, or by hot bottles. But in more severe cases we employ a "light bath" of electric lamps beneath a cradle, or else a "hot-air bath" extemporized by leading under the bedclothes a pipe connected with a primus stove. Hot liquid food is good if the patient can take it, but he is often nauseated or actually sick in the worst cases of shock, and then small enemata with brandy are very useful. Warmth and rest are, however, of more importance than nourishment, and if the patient goes to sleep, as he very often does, it is best to leave him undisturbed for some time.

PRIMARY AMPUTATIONS.

Unless a man is bleeding it is usual to treat him as has just been described before any operation is performed, but it is often necessary to postpone amputation for as long as a day, or even two days, if the removal of the limb is to be done at the thigh. Many men will survive if they are allowed sufficient time to get completely over the shock of the injury and its attendant conditions, who would certainly die if subjected to immediate operation, and the more experienced the surgeon the less is he likely to hurry on a severe primary amputation.

It is, of course, evident that delay in removing a badly smashed limb may result in dangerous sepsis, and there is no doubt that the threat of gas gangrene may necessitate operation earlier than might be wished. Much must therefore of necessity be left to the discretion of the surgeon in

each case, and, as it is only after a considerable experience at the front that really sound opinions can be formed, it is very necessary that those who have not had this experience should seek the advice of those who have before a decision is come to in a doubtful case.

Other questions concerning the treatment of shock and the use of saline infusions are dealt with in Captain Marshall's communication on anaesthetics at the front.

When the condition of the limb and of the patient permit, a primary amputation should be performed by one of the recognized methods practised in the usual circumstances of civilian surgery, suitable flaps being provided. It is, however, never right to neglect drainage of the stump, and this should always be secured by the use of a large drainage tube, at any rate for a period sufficient to ensure that no serious sepsis exists.

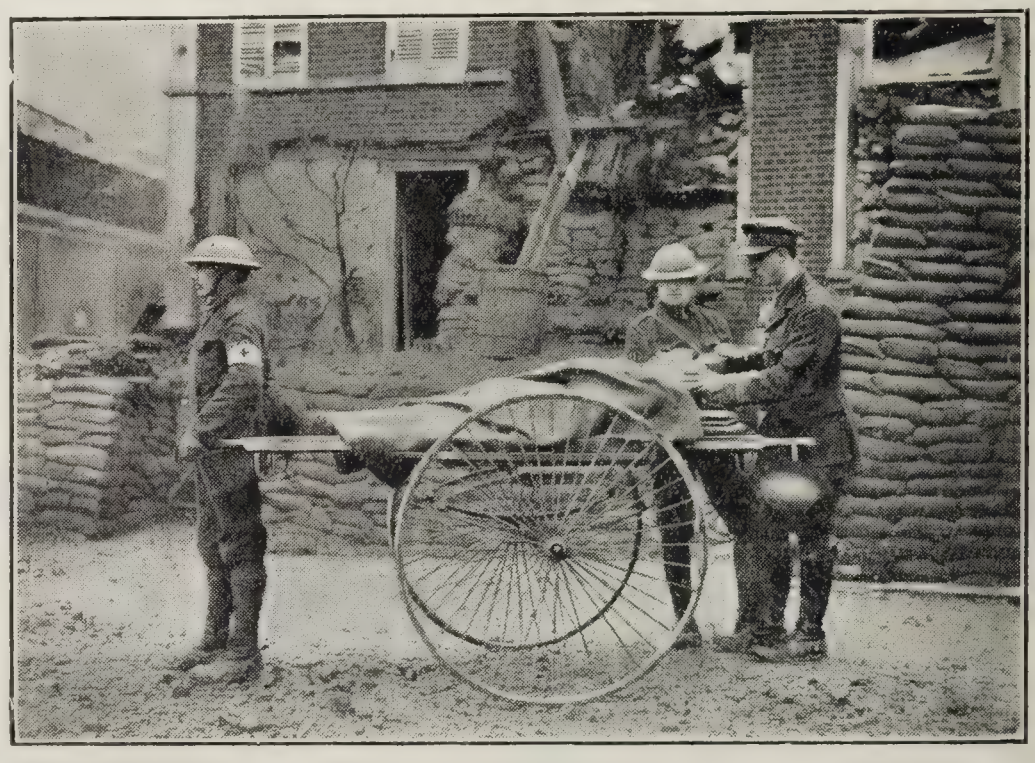


FIG. 5.—A wheeled stretcher.

The seat of amputation has been much discussed, but in our experience the best general rule is that as much of the limb as possible should be saved, quite regardless of the typical "seat of election" as prescribed in former years; primary amputations through joints are, however, as a rule to be avoided.

Departure from these ideals may be necessary, either because of the condition of the patient himself or of his limb.

If the patient is desperately ill from the combined effects of loss of blood and other complications his condition may be such that the additional shock of a high amputation may be quickly and inevitably fatal. In a pulseless patient who has a numbed and still oozing limb the best thing is to remove it as quickly as possible by cutting through the soft tissues at the site of fracture, subsequently clipping away torn and ragged tissues and tying the main vessels.

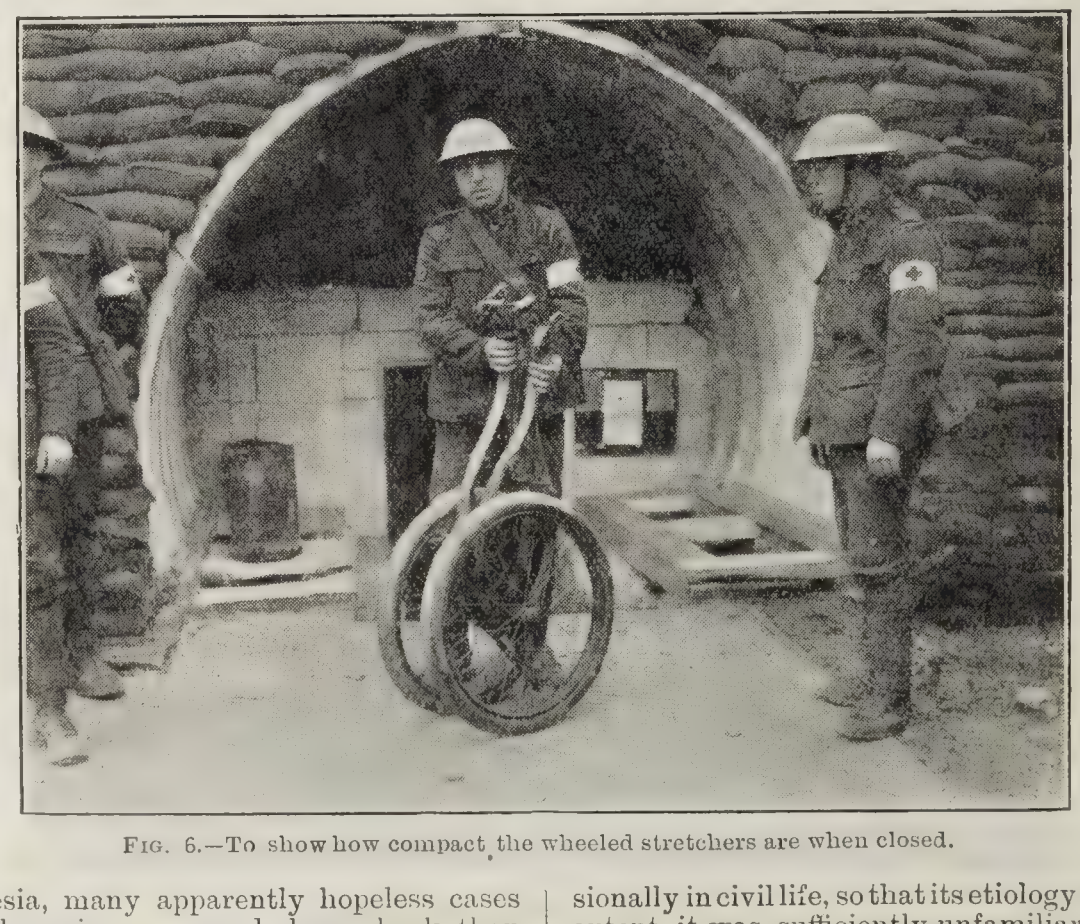


FIG. 6.—To show how compact the wheeled stretchers are when closed.

Not more than ten minutes need be spent on such an operation, and, if it is conducted under the influence of gas and oxygen anaesthesia, many apparently hopeless cases can be saved, for there is very much less shock than would be entailed by either a longer operation or by the cutting though healthy and sensitive skin and muscle higher up the limb. In such a case the making of a suitable stump must be left to a future time.

In another class of case the leg or the forearm may be smashed beyond recovery, while the thigh or the upper arm is the seat of other severe wounds complicated by t presence of mud, of portions of shell, or of clothing. It quite unwise in such a case to amputate high up the lim and it is best to perform a "flush amputation" close abo the fracture, and again leave to the future the formati of a useful stump at a time when the damaged tissu have recovered. this is not done, n only is the patie exposed to mo severe shock by high amputatio but his stump m slough and a y higher up remov may be necessary he ultimately do survive.

WOUND INFECTIO

It is well know that in Fran wounds are liable be very heavily i fected by numero pathogenic orga isms, and inqui from surgeons w have had experien in other theatres warfare enables to say that, esp cially in Egypt a in the Dardanell the gas gangre and tetanus inf tions were notably much less common than they are France.

While no time of year or condition of weather brin immunity, it is very evident that wet weather and mud a far more dangerous than summer weather and dust; a this danger is much increased when patients are wound in very cold weather and are thoroughly chilled bef they can be brought in. Most surgeons are also agre that the coldness and lowering of vitality caused severe haemorrhage have a similar predisposing effect microbic infecti and it will be fou that wounded m are attacked tetanus and gas ga grene in proport as the various con tions exist whi are inimical to t human organis It has also be noted that gas ga grene has oft affected wounds patients who ha subsequently veloped tetanus al

GAS GANGRE

This disease peared very early the war and was very unpleasant s prise to the s geons. It had been described a usual complicatio gunshot wounds, a though seen oc sionally in civil life, so that its etiology was known to a certa extent, it was sufficiently unfamiliar to render an accum lation of experience necessary for its proper treatment.

Two clinical types of the disease were recognized ea and were named "gaseous cellulitis" and "massive gangrene." The former term was applied to the mil cases in which the cellular tissue round the wound considered to be the primary seat of the disease; the lat

LIBRARY U. OF I. URBANA-CHAMPAIGN

m to those cases in which the whole limb was rapidly ected and died. The milder type of the disease was ated by incisions and drainage, the severer type by putation.

From a clinical point of view it was found that the conditions that favoured the onset of the disease were: (*a*) the retention of extravasated blood and wound secretions, (*b*) interference with the circulation, (*c*) the presence of large masses of partially devitalized or dead tissue, (*d*) extensive comminution of long bones, (*e*) the presence of particles of clothing in the depth of the wound. Each of these observations was quickly turned to account in the treatment of cases in which the disease might appear.

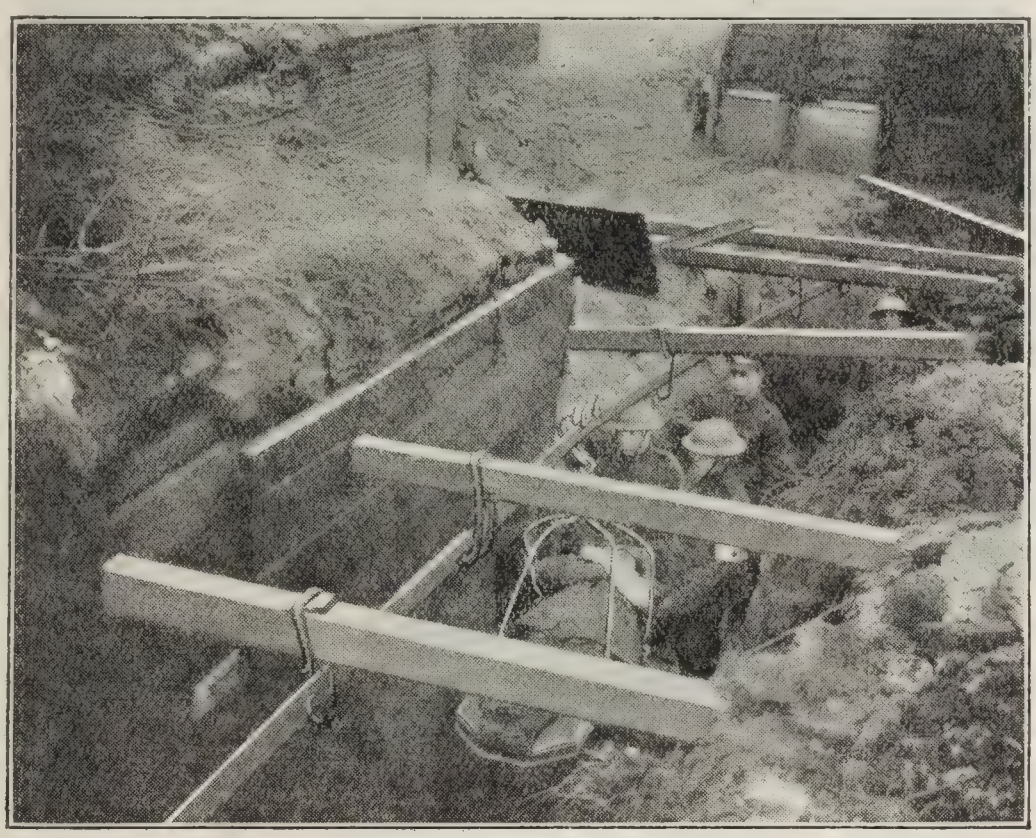


FIG. 7.—Overhead railway ambulance trolley.

RETENTION OF BLOOD AND SECRETIONS.

The avoidance of the retention of blood and secretions necessitated the employment of some sort of dressing that would not dry and cake during the transit of the patient to the casualty clearing station and from there to the base. Thus the dry gauze and wool dressing was abandoned for one that would keep moist and favour the discharge of blood and serum. It did not seem to matter what chemical was used so long as the dressing remained moist.

INTERFERENCE WITH THE CIRCULATION.

Interference with the circulation was brought about in several ways. First there was the tourniquet. Every effort was made to dispense with this instrument, and where this was not possible the patient was sent with all celerity to the nearest place where the haemorrhage could be stopped. Circular bandages were found also to be a source of trouble, especially when the bandages took the form of a pressure dressing wrapped round and round the limb, which mode of application was very tempting in treating multiple wounds.



FIG. 8.—Two light railway ambulance trolleys.

In simple flesh wounds it was easy to arrange that the bandages and dressings should be loosely applied, but in the case of fractured lower limbs it was necessary to obtain some fixation of the limb, for the movement of the fragments was not only painful to the patient, but calculated to produce further damage to the soft parts. The adoption of the Thomas splint largely solved this part of the problem, but there were and still are difficulties in the way of its adoption as far forward as is desired. Some fractured lower limbs are still sent to the casualty stations with the old Liston splint; the rapid evacuation of all wounded that now pertains has, however, lessened considerably the disadvantages of this splint.

The arrest of the blood supply to a segment of a limb by the rupture or thrombosis of an artery has so far baffled the surgeon. Attempts were made by suture and the employment of Tuffier's tube to restore the circulation, but, so far, have not met with the success that was hoped. All that can be done is to favour the collateral circulation in every way.

DEVITALIZED TISSUE.

The devitalized tissue that formed a nidus for the development of the gas-producing organism was got rid of by excision through the opened wound, and as the attention paid to this mechanical cleaning of the wound became greater so did the results improve.

BACTERIOLOGY.

While surgeons were working out the best methods of treatment the bacteriologists were studying organisms found in the wounds, which were nearly all infected with many varieties of amoebic bacilli. Many bacteria were found, but the blame could not be definitely fixed on any one organism, and in many cases there was a mixed infection. The *Bacillus aërogenes capsulatus* of Welch was found present in the greater number of cases. The interesting and important observation was, however, made that the numbers of gas-producing organisms steadily decreased with the lapse of time, whilst the pus-producing organisms increased. This bacteriological fact corresponded with the clinical observation that the likelihood of gangrene occurring became steadily less as the wound became older and suppuration more obvious.

Our knowledge of the disease, both from a bacteriological

and clinical point of view, remained much in the above condition for a long time. The following points were always being debated:

(*a*) What were the organisms capable of producing the disease?

(*b*) Could any one bacterium alone cause the gangrene?

(*c*) If not, what mixture might be necessary and what part did each organism play in the clinical picture?

(*d*) What tissue was primarily and chiefly affected?

(*e*) How did the disease start, and what was the cause of the extraordinary rapidity with which the condition spread?

(*f*) What was the reason of the return of the disease after an amputation through apparently healthy tissue?

(*g*) What was the nature of the poison that caused the death of the patient?

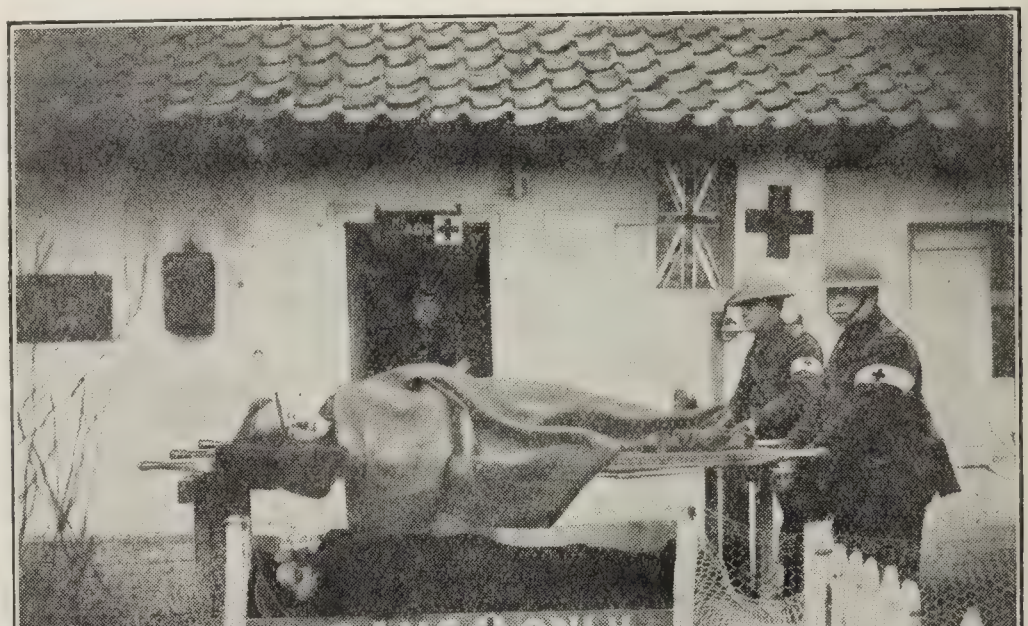


FIG. 9.—Light railway stretcher carrying four wounded.

It cannot be said that a complete answer to any of these questions has been found, but some suggestive work has been done. For answers to the first three questions (*a*), (*b*) and (*c*), the reader is referred to the statement by Captain Herbert Henry, R.A.M.C., which will appear later.

In answer to the fourth question (*d*), Kenneth Taylor, a member of an American ambulance near Paris, stated that he believed that the disease was essentially a disease of the muscles. Some clinical observers working in the British army have supported this view It was found that gas gangrene sel dom produced serious symptoms unless muscle was infected, and that the muscles might be killed and gaseous while the intermuscular planes remained little altered. It was also pointed out that single muscles and muscle groups were very apt to be picked out while others remained healthy. It was noticed that invaded muscles were nearly always muscles that had been wounded. The disease would spread up and down these, but showed little disposition to pass to their uninjured fellows. Advantage was taken of these facts to excise those muscles affected, and thus arrest the disease without recourse to amputation.



FIG. 10.—Outside an advanced dressing station. Each of such is marked with flags as shown.

It was further recognized that crepitations and colour changes in the skin might be comparatively late manifestations of the disease and that death of the muscles might take place before these signs were evident. Vomiting, a rapid pulse, and a tympanitic condition of the limb came to be more and more relied on as symptoms of the disease and as an indication for immediate interference. It became apparent that the discoloration of the skin was due to arrest of the blood supply brought about by the death of the underlying muscles and that crepitation was largely due to a forcing out of the gas generated in the muscles into the intermuscular planes and subcutaneous tissue, and that the crepitation in muscle was really a very late stage in the process of disintegration.

When gangrene occurs in a segment of a limb distal to the point at which the main vessel has been obstructed, all the muscles are affected, and the process appears to be similar to that which takes place in the body after death, though the actual route by which the organisms gain entrance is undecided.

As muscle became infected it was found that the normal purple-brown colour altered to a dirty brick red, and that this change took place before the muscle became crepitant to the finger. Advantage was taken of this observation to distinguish between healthy and hopelessly infected muscles.

In some cases the connective tissue was found to be the seat of the disease, especially the retroperitoneal tissue when infiltrated with blood.

Metastatic infections at the site of saline injection were described by McNee, Mullally, and other observers. This observation is important, for it may explain in part the return of the disease after amputation.

(*e*) When all wounds were infected by the gas producing organisms why should some pursue a normal course and others give rise to gangrene? If it be accepted that the disease is mainly one of muscle some measure of explanation is afforded. The question still remains, Why do some muscle wounds lead to gas gangrene and others not?

Most observers believed that the organisms could only live in dead muscle. In every muscle wound there is dead muscle; but if the diseased condition should spread, the organism, on the assumption that the bacillus could only live in dead muscle, must be able to kill the muscle. How did it do this?

D'Este Emery, who had been impressed with the

LIBRARY U. OF I. URBANA-CHAMPAIGN

repeated return of the disease in amputation stumps and its rapid spread, in a most suggestive paper showed that the poison produced by the *B. aërogenes capsulatus* had a powerful negative chemiotaxic influence on the leucocyte. These experiments performed *in vitro* were in strict consonance with the histological observation that there is no leucocytosis where gas gangrene is active, and that the leucocytes only appear when the disease is in process of arrest. D'Este Emery's observation appeared rather to explain the non-arrest of the disease than to account for its rapid spread.



FIG. 11.—The ventilating shafts of an advanced dressing station.

Taylor thought that there might be two factors. In the first place, as the toxin produced by the organism was found to be little toxic, he suggested that the toxin elaborated by the breaking down of the muscle might cause the death of the contiguous muscle substance. He also suggested that the presence of the gas generated produced disintegration of the muscle, and thus made it a pabulum for the bacilli.

McNee and Dunn have offered the following explanation:

The bacteria which are responsible for the causation of gas gangrene lead their normal existence as saprophytes in decaying organic material. When these organisms obtain access to tissues which have already been devitalized by loss of blood, they find an environment entirely suited to their growth, and proliferating readily, they produce gas and liquefaction of the tissues. This process is simply the uncontested invasion of dead material by bacteria, and it is entirely similar to what may occur in the whole body after death. The problem which has presented greater difficulties, and which possesses the graver interest, is the manner of involvement of living tissues by gas gangrene. The causal organisms are known to exhibit only slight general pathogenicity. If pure cultures of them are injected subcutaneously into animals the effects may be surprisingly slight and transient. The organisms are most frequently unable to establish themselves in the healthy undamaged tissue, and are soon destroyed by phagocytic action. The effect, however, is considerably greater if the bacilli are injected into muscle, and especially if some damage is caused at the site of injection. In this way the whole picture of a spreading gas gangrene has been produced in the leg of an animal by inoculation of a pure culture of the *Bacillus aërogenes capsulatus*.

The mere presence of the anaërobic bacilli in the muscle does not necessarily entail death of the fibres, for the organisms have often been recognized in sections, and have been successfully cultivated from portions of muscle which were remote from the gangrenous area and still contractile. How, then, does death of the fibres arise?

The rapid spread of gas gangrene into living voluntary muscle depends mainly on the peculiar anatomical conformation of that tissue. At the advancing edge of the gangrenous process only a limited number of muscular fibres are necrosed. The dead fibres, in contrast with the normal ones around them, are separated off from their vascular sheaths by spaces filled with fluid. As the stripping of these sheaths is coincident in extent with the histological appearance of coagulation in the fibres, it is suggested that coagulation is caused by a toxic fluid permeating and filling the sheaths. At this stage organisms are not more numerous than may be found in living muscle higher up. The toxic material is presumably derived from the action of organisms on the tissues lower down. In a slightly more advanced stage the above alteration is found to extend to all their fibres and their sheaths, and bacilli are met with in greater numbers. Later still the whole of the tissue elements are invaded by the bacilli, and undergo extensive distortion and disintegration.

The above outline suggests a process which, once started, may maintain itself indefinitely, for the progressive death of the muscle permits further luxuriant growth of the organisms and extension of their lethal effects. The sugar content of muscle is favourable to the growth of the anaërobes, and the result is the production of a highly toxic fluid. The primary infection no doubt occurs in the wound in lacerated ends of fibres which are healthy in the rest of their length, and the establishment of a gangrenous process is permitted by this continuity of structure.



FIG. 12.—Advanced dressing station. Where the patients are received.

RECURRENCE AFTER AMPUTATION.

(f) In discussing the question why the disease sometimes recurs in an amputation stump when the operation has been done through apparently normal muscle, it seems necessary to distinguish between two types of amputation:

1. An amputation through the upper healthy part of muscles, the lower portions of which are gangrenous.
2. An amputation through muscles which are normal throughout their length, as in removal of the thigh for gangrene of the leg.

McNee and Dunn have shown that the *B. aërogenes capsulatus* is found in healthy contractile muscle far beyond the gangrenous edge. As the only clinical test we have of healthy muscle is its normal colour and its contractility, it may happen that an amputation through such muscle may still leave numbers of bacteria in the stump.

This explanation does not seem sufficient. The fact that metastatic infections appear from time to time shows that bacilli may be floating in the blood. Should this happen in a case submitted to amputation it is possible to conceive that they may find a resting place in the muscle damaged by the amputation and thus start the disease afresh.

(*g*) At present the nature of the poison and its mode of action are unknown.



FIG. 13.—Interior of an advanced dressing station: Operating theatre.

TREATMENT.

The treatment in vogue at the present moment, and based on the above observations, may be summarized as follows:

Preventive.

The wounds are opened up and all dead tissue and foreign bodies removed and adequate drainage provided. The circulation is encouraged in every possible way.

When the Disease is Established.

(*a*) When gangrene appears in a segment of a limb where the main blood supply has been interrupted higher up the only treatment is amputation.

(*b*) When the gangrene appears in the muscles or muscle groups actually wounded. Here the treatment must depend on the condition of the patient. If this is good the wounds are freely opened and the affected muscles or muscle groups removed. The test employed to distinguish dead from healthy muscle is the want of contractility or the presence of the brick-red colour.

Even with the gangrene localized to certain muscles amputation is the safest course if the general condition is bad, and it is seldom possible to save such a limb if the bone is broken.



FIG. 14.—Operating theatre at a casualty clearing station.

ABDOMINAL WOUNDS.

SURGICAL OPINION WHEN THE WAR STARTED.

For many years it had been held that the operative treatment of abdominal wounds was not to be advised under war conditions. This was partly due to want of success, as in the Spanish-American war, and partly to the fact that many military surgeons were opposed to extensive operating anywhere near the firing line; as abdominal surgery, to be successful, must be done at once, it is obvious that it could not be undertaken with success where all operations had to be postponed to a late period. Although the expectant treatment was the orthodox one when the South African war broke out, many surgeons at that time hoped to prove that it was wrong. Surgeon-General W. F. Stevenson even issued an appeal for the trial of operation. The result was, however, only to confirm former opinion, though this opinion was now held on two somewhat different grounds. One school held that the expectant treatment was in itself the right procedure, the other that it was the best that could be done in war.

Some believed that wounded intestine healed sufficiently often to warrant abstention, others believed that small gut lesions were practically always fatal, and that the success obtained by the "wait and see" policy was due to the escape of the bowel from injury, although the belly had been penetrated. The opinion that it is possible for the small gut area to be traversed by a rifle bullet without injury has been proved to be correct in this war. A study of the literature of the South African war, both private and official, makes the real reason for want of success in operating at once obvious—the cases arrived too late. It was not so much a question of the success of the expectant treatment as failure of the operative, and the two strikingly successful cases of resection of small gut (Neale and Tuke) were operated on within six and twelve hours of injury respectively.

The reason for the late operation was the nature of fighting in an unsettled country of great distances. The wounded could not be quickly brought to a hospital with the necessary appliances. To operate in the veld with what appliances were at hand was too disheartening. It was impossible to get even moderately good conditions. There was little or no water, and what there was was often too filthy for words—the water of dams. In addition, there was the plague of flies that settled on everything.

The conditions were utterly different from those that pertain at the present time. This is the first time since the rise of abdominal surgery that a great campaign has been fought in a settled country, and, what is more important still, with a fixed fighting line.

LIBRARY U. OF I. URBANA-CHAMPAIGN

The small number of cases dealt with in the South African campaign was also a source of error, for in order to form an adequate idea of the efficacy of any treatment it is necessary to strike an average over a large series of cases.

The statistics of the South African campaign are very defective. Surgeon-General Stevenson in the official history of the war was only able to collect 207 cases of abdominal wounds. Among them it is stated that there were 26 laparotomies with 18 deaths, a mortality of 69.2 per cent., and according to Stevenson the mortality was really even worse. The total death-rate of all abdominal wounds quoted—operated and unoperated—is given as 30.4 per cent.

In the same author's most recent work, *Wounds in War* (1910), the mortality is shown as 51.6 per cent. for laparotomies, the total of cases remaining the same—namely, 207. In any case the figures are really too small to have any real value.

In this present war one of the difficulties of establishing the operative treatment was the run of bad luck which any operator might have to face. Even now, with conditions as nearly ideal as possible, a series of nine consecutive fatal cases may be met with. This must have a very depressing effect on any surgeon, especially on one who is not yet convinced that the operative treatment is in the main the best of all. Now nine abdominal cases means roughly about 600 wounded men, taking a moderate estimate of the proportion of abdominal wounds to total wounds.

As a matter of fact, in the South African campaign a casualty list of 600 wounded was considered a large one, and if an operator happened to encounter such a series of fatalities, it is not a matter of surprise that he should have had doubts as to the correctness of his procedure.

Statistics in the present campaign show that an operative mortality of 50 per cent. is a good result, but such a mortality in civil practice would be considered an awful death-rate to face. And yet it means, looking on the bright side, many lives saved.

The South African campaign may, then, be said to have left surgical opinion opposed to operation, but it must always be remembered that not only were there practically no shell wounds in that campaign, but also that the ogival bullet was a much less harmful missile than the sharp-pointed bullets of the present war.

Method of Treatment in the Earlier Period of the War.

In the retreat from Mons and on the Aisne adequate provision for the performance of abdominal operations near the front was well-nigh an impossibility, and all that could be done was to send the wounded to the base with the least possible discomfort to them. When, in the ensuing winter, the line became fixed the circumstances were very different, and there soon developed a possibility of operating under good conditions. It was no longer a question of whether a man could be operated upon, but whether he should be operated upon. Still, however, a good deal of the old belief in the efficacy of the expectant treatment obtained for some time longer. A man wounded in the abdomen was sometimes kept in a dug-out in the trench system; often he was kept at a field ambulance, usually he was transferred to the casualty clearing station and there treated.

The customary mode of procedure was to put the man in the Fowler position, to improve the general condition by rest and warmth, to withhold food and water for three days and to administer morphine. The thirst, which was a distressing symptom of this treatment, was combated to a certain degree by rectal salines and mouth washes.

A tribute must here be paid to the great care and attention which the medical officers lavished on the patients. Certain officers were told off day and night to attend to them and everything possible was done to alleviate their suffering and to make them as comfortable as possible and to cheer them up. If anything could have got these men well the attention that they received would have done so, and it must be remembered that the medical officers who conducted the treatment were convinced of its efficacy.

This belief was strengthened by the behaviour of many of the patients, for some who were at first gravely ill, went through a period of improvement which often was very striking. It was in a way unfortunate, but there is no doubt that improvement did take place, and so well were many of them that after several days they were evacuated to the base and arrived there sometimes in fair condition, although more often gravely ill. But the surgeons who had seen the cases leave the casualty clearing stations apparently on the way to recovery could not at first bring themselves to believe that they did badly at the base, and if evacuation had not been necessary and it had been possible to keep patients at the casualty clearing stations the expectant treatment would not have survived as long as it did, for medical officers would have seen many such cases become worse and worse, and in the end—die.

Commencement of the Operative Treatment.

Although rest treatment was the rule, some attempts at operation had been made as early as November, 1914; but it was only when the more complete development of the casualty clearing stations provided satisfactory conditions that surgeons felt that their opportunity for operating had arrived, and during the winter of 1914–15 operations were done by several medical officers. But the early results were undeniably bad—so bad that most people abandoned the attempt, and the reasons for failure were no doubt both the late arrival of the patients at a place where an operation could be performed and the want of knowledge which later on was acquired by experience alone, for there was no literature which dealt with such injuries as the surgeons were now called on to treat, and each man had to learn the best methods for himself.

Owen Richards was the first to publish results of operative treatment in the British army.[1] His first operation was performed on January 28th, 1915, and the first successful operation, that of a resection of 2½ ft. of the small intestine, was performed on March 18th, 1915, thirty-six hours after the injury was received.

In May, 1915, an inquiry into the causes of death after abdominal wounds established the following facts:

1. That the injuries were as a rule of such a nature that recovery must be a very rare event.
2. That haemorrhage was a chief cause of early death.
3. That bullets produced very extensive injuries.

It had always been granted that haemorrhage was the chief cause of early death, but the advocates of expectant treatment seem to have focussed their attention more on the danger of peritoneal infection and the possibility of its localization or disappearance than on the possibility of spontaneous arrest of haemorrhage.

The discovery that bullets produced extensive gut injuries was also of great importance, as much stress had been laid on the smallness of the lesions produced by the modern small bore bullet, and the expectation of spontaneous recovery of gut lesions had been based on the quite erroneous assumption that such projectiles were comparatively innocuous.

The re-establishment of the fact that haemorrhage was the chief cause of early death was of great importance, as it showed that only rapid evacuation afforded any hope of combating such a condition. Arrangements were accordingly made to ensure that all patients suffering from abdominal wounds, and who were not too ill for transport, should be sent by special motor ambulances to the clearing station and not retained in the field ambulance. At the same time meetings of the medical officers of field ambulances and regiments were held at different centres, so that it could be demonstrated to them that the lesions of the hollow viscera were much more extensive than they had believed, and that in such conditions early operation gave the only chance of recovery. The result of this diffusion of more accurate knowledge was soon seen in the much earlier arrival of patients, and the greatest praise is due to all those who combined in the effort to rescue the men and convey them to the rear as rapidly as possible. The consequences of these improvements soon became apparent in the saving of many lives, and the operative treatment, now that it was placed under favourable conditions, very soon won for itself the confidence of the medical service, and quickly became universally adopted.

Where to Operate.

The British practice has been to operate a short distance behind the line, and the wisdom of this has been demonstrated. Here it is possible to operate under good

conditions and to nurse the patient among cheerful surroundings for a week or more subsequently.

The casualty clearing stations have, as a rule, been used for this purpose. If for some local reason it has not been possible to put one sufficiently far forward at any one part of the line, a small operating centre has been opened for

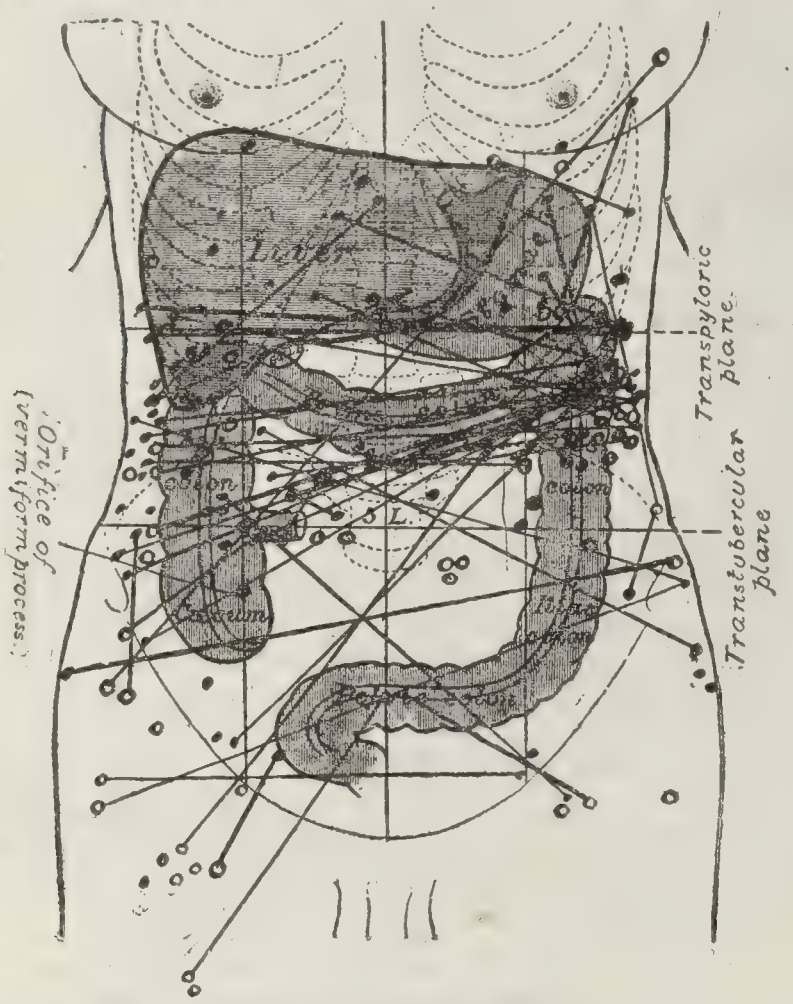


DIAGRAM 1.—No operation. Died.

the reception of abdominal and other urgent cases. The influence of time is shown very clearly in Table I.

TABLE I.—*Effect of the Time Elapsed between Receipt of the Wound and Arrival at the Operating Centre.*

Total number of cases 591.

Hours:	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	Over 20
To base ...	3	30	75	55	34	19	7	4	11	4	27
Died ...	2	30	53	59	41	23	10	12	15	11	56
Total ...	5	60	128	114	75	42	17	16	26	15	83

A very significant fact comes out from a study of the next table (II)—namely, that of 145 patients with a pulse above 120 only 16 recovered.

TABLE II.—*Prognosis from Pulse-rate.*

Total number of cases 577.

Pulse up to:	60	70	80	90	100	110	120	130	Over 130
To base... ...	1	7	23	30	108	27	37	7	9
Died	1	2	13	18	39	38	88	37	92
Total... ...	2	9	36	48	147	65	125	44	101

Table III shows that bullet wounds are highly fatal.

TABLE III.—*Relative Mortality of the Different Projectiles.*

Total number of cases 629.

	Bullet.	Shell Fragment.	Shrapnel.	Bomb.
To base	91	105	15	60
Died	106	154	40	58
Total	197	259	55	118

TABLE IV.—*Relative Number of Different Projectiles and Proportion Retained.*

Total number of cases 834.

	Bullets.	Shell Fragments.	Shrapnel.	Bombs.
Passed out ...	203	30	15	6
Retained	131	254	67	128
Total	334	284	82	134

The Most Dangerous Wounds.

The chart (Diagram 1) shows the entrance wound or the course of the projectile in cases that arrived too bad for operation.

Possibility of Escape of Hollow Organs after Penetration of the Abdomen.

Diagram 2 shows the course of the projectile or its place of entrance in those cases in which coeliotomy proved that no hollow alimentary viscus had been penetrated. In some such cases many organs were bruised.

A certain number of cases of rupture of a hollow viscus without abdominal penetration have occurred, and have made it advisable to explore the intestine in some instances even when the whole thickness of the abdominal wall was not penetrated by the missile, but where the symptoms have pointed to the probability of a lesion of one of the hollow viscera.

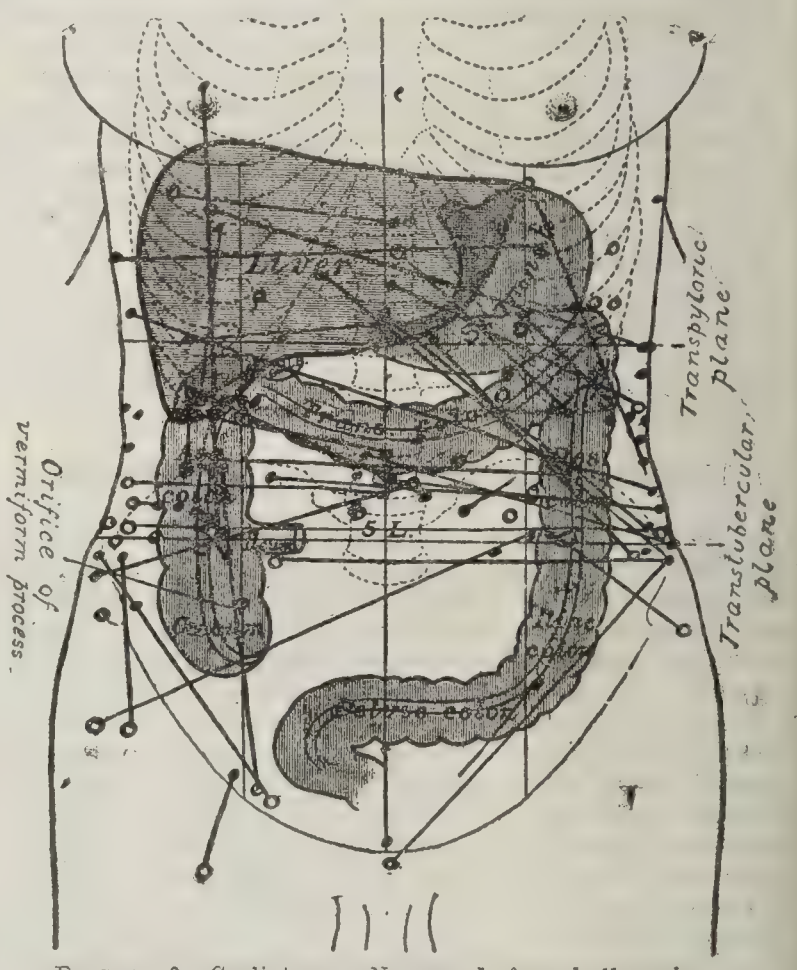


DIAGRAM 2.—Coeliotomy. No wound of any hollow viscus.

General Line of Treatment.

The practice is now to operate on all cases unless there is some reason to the contrary, and to operate on principle rather than on the indications by symptoms.

The cases on which operation has been found, as a general rule, to be inadvisable may be divided into two classes—(1) those in which solid organs alone are wounded and in which there are no signs of continuing haemorrhage, and (2) cases arriving after thirty-six hours.

The liver furnishes by far the greater number of cases in Class (1). This organ is the only solid organ in which it is possible to say from inspection that no other organ is wounded. In the other solid organs, such as the kidney and spleen, the likelihood of hollow visceral injury nearly always compels exploration. Were it not for this contingency, the solid organs would require little operative attention.

In Class (2) the time for successful interference in the

LIBRARY U. OF I. URBANA-CHAMPAIGN

case of hollow viscera has as a rule gone by, and the bleeding, from whatever source it came, has ceased spontaneously.

Before operation a period of rest has found favour with most people. This period is used to combat shock, for which purpose heat in various forms has proved by far the most efficient means.

When the missile is retained the position of the projectile should be ascertained by an *x*-ray picture, as its localization will influence the site of the exploratory incision. The incision should as a rule be placed by the side of the mid line and be of ample length. A transverse incision is much favoured by some for exploring wounds which traverse one side only of the body.

The question of the administration of saline is important. The subcutaneous injection of saline has found favour in the past, but it is coming to be recognized that very little is absorbed in a shocked man, and that this method presents no advantages over its administration by the natural orifices. If these are not available the intravenous method should be used.

Axioms of Operative Procedure.

Celerity is of great importance. The body heat must be preserved in every way. There should be the least possible exposure of the viscera, and the intestines should be kept inside the abdomen as much as is compatible with the necessary manipulation. The least possible should be done. All the intestine should be examined. Suture of the intestine should always be preferred to resection unless the latter is inevitable, or saves time, and experience has shown that a single continuous suture, applied so as to invert the peritoneum, is quite sufficient and perfectly secure. Linen thread or thin silk are both preferable to catgut, and care is required not to draw the stitches too tight. If resection is unavoidable, end-to-end anastomosis is preferable to lateral apposition as a rule.

Solid organs should be disturbed as little as possible, unless vessels have been opened. Excision of spleen and kidney should be practised with great reserve.

Through-and-through wounds of the liver are best left alone, but if the *x* rays show a large piece of shell or bomb in an accessible position it should be removed, for if left it generally causes dangerous sepsis in the organ.

Abdominal drainage is most probably of little use except in local lesions.

Artificial ani in the colon are to be avoided if possible.

Wounds of Special Organs.

Stomach.—Wounds of the stomach, though less severe than those of the small and large intestine, have proved decidedly more dangerous than was supposed. The fatal result has largely been caused by haemorrhage and shock and by complication with other visceral injury.

Small Intestine.—In the small intestine the multiplicity of the lesions and haemorrhage from the mesentery have been the chief causes of failure. As many as twenty lesions have been met with. In one case a successful result followed a resection of 6 ft. for twenty perforations (Captain Owen Richards). In another case fourteen lesions were sutured and followed by recovery (Captain John Fraser).

Large Intestine.—The large intestine wounds have been mostly fatal from sepsis of the retroperitoneal tissue in the case of the ascending and descending colons and from complicated injuries in the case of the transverse colon.

Rectum.—The rectum proper has not been wounded so often as would be expected, but has a high mortality.

Liver.—The liver shows a large proportion of recovery after operation, but many patients would have got well without operation.

Spleen.—The spleen injuries have not been very dangerous except where the lesions have necessitated excision, and the same may be said of the kidney.

Bladder.—Intraperitoneal wounds of the bladder show a mortality of 56 per cent. where uncomplicated, but those associated with small gut injury have proved exceedingly dangerous.

Causes of Failure.

Haemorrhage, sepsis, and shock have been the chief causes of death.

Haemorrhage has come from every vessel in the abdomen except the aorta. Principally it has proceeded from the mesentery and the pelvic vessels. On two occasions a rent in the vena cava has been closed—in one by the application of forceps (Captain Taylor), and in one (by Captain Sampson) by suture. The former recovered. In one instance the vena cava was ligated, but the patient survived only ten hours.

Sepsis.—Under this head are included peritonitis, retroperitoneal sepsis, and wound infection. It is unnecessary to say much about peritonitis. It causes death in the same way as seen in civil practice. Many attempts have been made to combat the so-called obstructive symptoms by enterostomies and short circuits, but with little if any success. It must be mentioned here that a certain amount of evidence has accumulated showing that some obstructive cases have as their basis a nervous traumatic paralysis. Retroperitoneal sepsis, accompanied or not by gas formation, has proved a great source of mortality. This has been obvious in the case of the colon injuries, but a recent series of *post-mortem* examinations by Captains McNee and Dunn has proved that such sepsis is frequently the cause of death where that death has clinically been put down to shock.

Shock.—This subject is dealt with in another place by Captain Geoffrey Marshall, but a word may be added here. It is very difficult to trace any definite relation between the amount of injury and the amount of shock. It can only be said that multiple injuries produce, as a rule, much shock. A severe intestinal lesion will not in all cases prevent a man from completing the task on which he was engaged or even from walking one or two miles, and many who subsequently die arrive at the hospitals in good condition. The pulse-rate table gives some indication of the patient's condition. Prolapse of the small gut seems to cause less disturbance than that of the stomach and colon. Haemorrhage is by far the most frequent cause of death, and as it is nearly always present, it is difficult to determine how much shock is due to this cause and how much to the accompanying injury. There is a certain amount of evidence to show that comparatively slight injuries of both kidney and liver will cause intense collapse, but such cases are not common. Sepsis of the retroperitoneal tissue without severe injury does cause the most intense shock.

Results.

The following table gives the results obtained by the operative treatment in a certain sector of the British line over a period of eighteen months. Practically every case that got to hospital is included, so that a true picture is presented, and the varying results produced by locality and different conditions are eliminated as far as possible.

TABLE V.—*Abdominal Wounds operated on in a Sector of the British Line during Eighteen Months.*

Total number of cases	1,288
Arrived moribund	250
Total mortality, excluding moribund ...	50.06 %
Total mortality, including moribund ...	60.02 %
Considered with view to operation ...	1,038
No operation advised	73
Total operations	965
Total operative mortality...	53.9 %
Total hollow viscera mortality	64.7 %
*Stomach mortality	52.7 %
*Small gut mortality	65.8 %
*Colon mortality	58.7 %

* Uncomplicated by wound of other hollow alimentary viscus.

It is very difficult to compare the present mortality with that of the pre-operative period. The whole method of evacuation has completely changed. The operative treatment has attracted to the casualty clearing stations all men wounded in the abdomen, so that those who would have died in dug-outs, at the advanced dressing stations, and at the field ambulances, now reach an operative centre.

Neglecting the more forward positions, a calculation made in the pre-operative days showed that the mortality at field ambulances and clearing stations was 70 per cent. In addition there were the deaths at the base, which raised the mortality to about 80 per cent.

There would therefore seem to have been an improvement of from 15 to 20 per cent.

WOUNDS OF THE HEART.

There has been one successful suture of a heart wound. It was performed by Captain John Fraser. The details are as follow: A bomb fragment entered immediately internal to the left nipple. There was a persistent and pulsing escape of rather dark blood. A probe passed upwards and towards the mid line evidenced a cardiac rhythm. The pulse was small and irregular; the patient distressed and cyanosed. A portion of the fifth rib and its cartilage was removed, and the fourth costal cartilage detached from the sternum. The pleura and fat were retracted, and the pericardium incised. The latter contained a quantity of dark blood. A small hole, the size of a pea, was found in the right auricle. By a suture the auricle was pulled up into the wound and the hole closed by two linen sutures. The progress was good, and the pulse, which had been 120, dropped to 90 on the fourth day.

The patient nine months later reported his health as excellent.

WOUNDS OF BLOOD VESSELS.

It may in the first place be noted that the conception of many surgeons of the size of the lumen and of the thickness of the wall of arteries in general has undergone a change in this war, and it has often been remarked by medical officers that the arteries are smaller and have slighter walls than was expected. No doubt the class of subject from which one gained an idea of the size of the normal blood vessels is so different from the class met with in war surgery that there was an exaggerated idea both of the size of the artery and of the thickness of its walls in healthy young adults.

Surgeons, knowing that they would have to deal with healthy arteries, hoped that many opportunities would present themselves for arterial suture, but unfortunately the opportunities have been few, and the injuries have rarely been of such a nature as to offer any prospect of success or even of trial of such treatment. Lateral suture both of veins and arteries has been done in a fair number of cases, and in two instances a lateral rent in the vena cava itself has been closed, although the only successful case was one in which the sides were brought together by artery forceps and not by suture. The opportunity of end-to-end suture of arteries has rarely offered itself at the front, and as far as the writers know has only been even temporarily successful in one case, that of a bullet wound of the brachial artery; and this vessel gave way and formed an aneurysm some three weeks later. In a few cases the femoral artery has been sutured, but in no case has the operation saved both the limb and the patient.

Although so far the results have been disappointing, this is not a matter for surprise if the condition of the wounded vessels is examined. The class of case in which it was hoped to try this method at the front was that of open wounds such as are generally caused by shell; but unfortunately the ends of the artery are commonly so far apart that it is found that they cannot be brought into apposition after the necessary dissection of the vessel has been done. Even in the popliteal space, where some approximation of the arterial ends can be obtained by flexion of the knee, no case has yet occurred in which arteriorrhaphy has seemed feasible, while small wounds of the limbs or neck with an arterial haematoma seem hardly suitable for this method of treatment.

It was under these circumstances that "Tuffier's tubes" offered some hope of saving limbs from gangrene when arterial suture was out of the question. They have been employed at the front on many occasions, and are, it is believed, well worth trying, as, although they become blocked within about twenty-four hours, they have appeared to tide a limb over this the most critical period before the establishment of the collateral circulation. In one case it was noticed that the tube itself remained unblocked although the artery below became obstructed by clot, and it may be that this distal clotting in the artery will always be a difficulty in practical as opposed to experimental surgery. It must be remembered that in actual practice the limb below the lesion has been deprived of blood for some time before the opportunity occurs of inserting a tube and re-establishing the circulation, and it may be that this period of starvation produces changes in the vessel walls that favour clotting.

There is another observation which may have a bearing on this subject. In civil practice, after the interruption of the main blood supply of a limb and the consequent occurrence of gangrene in its lower part, one looks for and sees the formation of a definite line of demarcation. But in the present campaign it has been found that after the destruction and ligation of an artery this line of demarcation fails to appear in the majority of cases, and the seat of the amputation has to be chosen by noting the place where the limb becomes cold and discoloured, on the one hand, and, on the other, where the capillary circulation is still active, as shown by the return of the skin blush after pressure. No doubt the primary loss of blood has something to do with the frequency of gangrene in the first place, and in the second it would appear that the nature of the injury so upsets the blood supply of the limb that the collateral circulation is slow in being re-established, and that sufficient blood does not reach the part to bring about the rapid and healthy reaction that is necessary for the formation of a distinct line of demarcation.

It is a fact at once curious and important that the arrest of the blood current at a point that is considered a favourable one for the application of a ligature in civil practice is often followed by gangrene when that arrest is caused by a gunshot wound. It may be that the laceration of muscle that so often accompanies such injury is the cause to a certain extent, but there must be other factors at work, as gangrene may follow even a small perforating wound. Wounds of certain arteries stand out as especially dangerous to the vitality of the limb, notably those of the popliteal and the anterior and posterior tibials.

INJURIES OF JOINTS.

A great change for the better has taken place in the results obtained in the treatment of wounded joints.

Experience was chiefly gained on the knee-joint, for it is the joint most frequently hit, most easy of inspection, and its infection is followed by disastrous consequences more often than in the case of other articulations.

In the early days two lines of treatment were followed. The small perforating wounds were left alone and allowed to heal, the progress of the joint being tested by aspirations if necessary. The larger wounds with escape of synovia or actual laying open of the synovial sac were drained, and at first the drains were often introduced into the joint cavity. The results of this treatment were undeniably bad, and all sorts of heroic measures were adopted for the arrest of the septic processes which ensued. But continuous irrigation or an acute flexion of a widely opened articulation gave equally poor results, and the patient was lucky if he escaped with a stiff leg.

The first improvement was the abandonment of the intra-articular drains. The next was the excision of the wound, the removal of any foreign body, the flushing of the joint, and in some cases the closure of the capsule and the insertion of a superficial drain. Closure was especially advocated by Colonel Gray in the year 1915.

The next step was perhaps a bold one. As soon as possible after the receipt of the injury—that is, in the casualty clearing station—the wound was excised, the joint opened, cleaned, and irrigated, and then the whole wound in the synovial sac and the superficial tissues was tightly closed. It was certainly astonishing how seldom infection followed such treatment, even when fragments of shell or pieces of clothing had been removed from the joint; but for its success it is essential that the incisions around the wound edges should be carried quite clear of all infected tissue, and that the strictest asepsis is assured.

Now, every knee-joint with such a wound is given the chance of healing by first intention, although the closure of the joint defect may entail the performance of a plastic operation to provide an adequate cover with a flap of synovial membrane or skin. Even if some infection does follow the closure of the joint, it is well not to be in too great hurry to lay the articulation open, for a certain number of such joints do settle down and provide a better limb than if submitted to more active treatment.

When the joint wound is complicated with fracture of bone it may still be possible in some cases to close it with success. In cases of compound fracture of the patella with loss of substance, partial or complete

LIBRARY U. OF I. URBANA-CHAMPAIGN

removal of the fragments, and the provision of a skin flap, will often be followed by primary healing.

When the tibia or femur are involved the case becomes more serious. Of the two fractures that of the tibia is the most to be feared.

In cases of only partial loss of the articular surface of either the tibia or femur, and also in linear oblique fractures of both bones running up into the joint, it is often worth while to try to close the joint and to obtain primary union.

Where there is much comminution of bone, however, and a dirty wound it is better to abandon all hope of saving the joint and perform a limited primary excision. After such an operation the joint surfaces are usually kept apart by extension on a suitable splint, and Carrel's treatment adopted until the wound cleans, when the bone surfaces may be allowed to come into contact.

The knee is the only joint in the body in which penetration of the synovial sac is at all commonly seen without damage to the bony constituents of the articulation. It is therefore not common to have the opportunity of closing other joints, but the opportunity should be taken when it is offered.

More often the surgeon has to treat a greatly disorganized articulation, and in such cases a primary excision is most probably the best course, especially in the case of the shoulder and the elbow.

The primary treatment of wounded joints may be summarized as follows:

1. Fixation on a suitable splint. In the case of the knee this splint should be one of the varieties of the "Thomas" as used for fractured thigh.
2. Beyond this treatment nothing more is required in simple perforating wounds.
3. The taking of an *x*-ray picture in cases where there is a possibility of the retention of a missile or of fracture of the bones.
4. The excision and cleansing of the damaged tissues and the exploration and lavage of the joint.
5. The closure, if possible, of the joint cavity.

HEAD INJURIES.

At the beginning of the war surgeons called upon to treat head injuries applied the ordinary rules of civil practice and operated on them at once. They were confirmed in their opinion that operation was right, since, apart from the mere physical defects, many patients seemed to be suffering from compression.

These operations were done both at casualty clearing stations and field ambulances, but the best method of operative treatment was as yet undeveloped, and the result was that many septic complications were seen at the base. Next, it was noticed at the base that cases which, from force of circumstances, arrived there unoperated upon, did better than those operated on at the front. This was attributed at first to faulty technique, and within limits this criticism was just, as the right operation was as yet undeveloped, both at the base and the front.

The observation was next made that if patients were kept quiet at the place where they were operated upon they did well, while cases operated on and apparently doing well were reported to have arrived in bad condition at the base when evacuated early.

It thus became obvious that there were two reasons for head cases doing badly: (1) The want of a good operation, (2) early evacuation of cases well operated on.

There were then two alternatives: The cases must be either operated on at the front and kept, or else evacuated as soon as possible to the base before operation; a patient must not be operated upon and evacuated forthwith. Two procedures were therefore adopted. In times of pressure head cases were cleaned up and sent to the base at once, provided they were fit to travel, and in quiet times they were operated on and kept at rest at a casualty clearing station for a week or ten days. Even this period of rest after operation proved too short, though the results were better than in earlier evacuation.

The next step was the establishment of special hospitals for head cases at the front. Advantage was taken of the fact that a head case before operation travelled well, and the special hospitals were placed in the back part of an army area. These hospitals were never subjected to the sudden pressure that may fall on an advanced casualty station, and consequently the cases could remain there for a long time. By this means patients experienced the advantages both of early operation and prolonged rest. The actual method of evacuation is as follows: The patients are brought from the trenches to the casualty clearing station as rapidly as possible. Here they are examined and dressed. If the pulse is slow they are sent on to the special hospital. If the pulse is rapid they are put to bed and evacuated later, should they improve. No special attention is paid to the type of wound—reliance is placed on the slow pulse as a sign that the patient will bear the journey.

The type of operation that has eventually been found most beneficial has been arrived at after many changes. Workers, comparatively far apart and not in direct communication, have evolved very much the same operation. At the front a small conservative operation was formerly practised which experience has shown to have been a little too limited in scope. At the base there were two schools—one favoured an extensive removal of bone and a scalp flap, the other an enlargement of the scalp wound and a limited removal of bone. Gradually the types of operations have approximated. It has been found that the removal of bone sufficient to expose half an inch square (1.27 cm.) of uninjured dura is best suited to most cases. Opinions still differ, perhaps, as to the comparative merits of making a flap or enlarging the scalp wound. On the whole, the flap is the best as a routine, unless the wound, as in the case of a horizontal one, is so situated as to compel the use of a very large one.

The recognition of the fact that a slow pulse is not necessarily a symptom of compression (for it may occur with a wide exposure of the brain), and that the symptoms, paralytic and otherwise, are not due to depression of fragments but to a destruction or commotion of the brain matter which is not remediable by operation, has also had an effect upon procedure. In the first place, a slow pulse is welcomed as a sign that recovery may follow, and it is not taken as a sign that operation is urgently needed, but rather that it is worth doing. The recognition that depression of fragments is not the usual cause of the symptoms has also done away with the notion that their removal must be immediately undertaken.

It is true that the sooner a dirty wound is cleaned up the better, but immediate operation is in many head cases followed by a great drop in blood pressure, so that some delay may be actually beneficial on this account, and Colonel Sargent has pointed out that for at least twenty-four hours after injury the brain is liable to be oedematous, and to extrude unduly if operated on while in this condition. A moderate delay has also been said to do good in that it allows adhesions to form between the dura and the pia mater, thus lessening the chance of a spread of infection over the brain surface.

At the same time that the best type of operation as regards the scalp and bony defect was being evolved many other points were in the process of settlement.

1. Excision of the wound was soon decided on.
2. There was at first considerable discussion as to how far the brain should be explored for bone fragments on the one hand and the projectile on the other. Every one was agreed that an *x*-ray picture had become a necessity, and the opinion was gradually formed that a limited and intelligent search for bony fragments and other foreign bodies was beneficial, but that attempts to reach a missile which was deeply embedded in the brain was not justifiable. Results seem to have proved the correctness of this line of treatment, for fragments of shell are reported to have caused little trouble provided their weight was not enough to cause pressure on the surrounding brain during movements of the patient.
3. The fact that many patients with head wounds suffered from septic complications, and the general demand for the drainage of all wounds, led at first to the employment of drainage in most cases of cranial surgery, not only of the scalp but of the brain also. The results of drainage of the brain were not satisfactory, and gradually it was abandoned, at any rate as a primary measure. The introduction of tubes was first omitted, and subsequently, systematic attempts were made to cover in the exposed brain, the scalp being brought together over the defect in the bone and dura, either by simple suture, pericranial flaps, or relieving incisions formed by undercutting the scalp. A drain introduced under the scalp is still generally

employed. This covering up of the brain seems to have been a decided success, and, although septic complications are still too often met with, they are less frequent than in former times. There has consequently been a great decrease in the number of cases of hernia cerebri.

4. There is still some difference of opinion as to whether small cranial depressions and linear fractures with slight inequality of surface, uncomplicated by symptoms, should be operated on in the first instance.

5. Most surgeons have accepted the recommendation of Sargent and Gordon Holmes that depressed fractures over the longitudinal sinuses should be left alone in the first instance.

6. Most operators are of the opinion that the dura mater should not be opened if found intact. The recognition that true compression of the brain is seldom seen has helped the formation of this opinion.

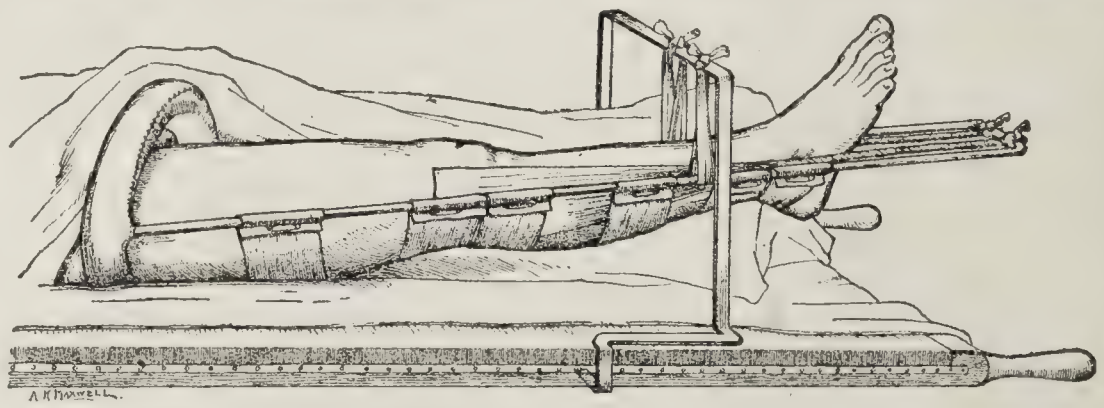
7. A general anaesthetic may with advantage be replaced by the local use of novocain and adrenalin. If this method is adopted the patient is given either hyoscine and morphine or omnopon and scopolamine an hour before the operation.

Thus, by careful individual observation, and by the comparison of results, a method of treatment has been evolved which is applicable to all cranial wounds, and capable of modification in individual cases. It may be summarized as follows:

A primary cleansing of the wound. The transmission of the patient as soon as possible to the hospital where he will convalesce. The taking of *x*-ray pictures. The excision of the scalp and bone wound. A limited and careful removal of foreign bodies. The covering of the exposed brain. The closure of the wound, with superficial drainage, and a prolonged rest in bed.

FRACTURES.

The tendency throughout the war has been to abandon all constricting splints and to trust to extension for fixation of fragments. In the first place, a bandage round a limb, which might from swelling or movement cause constriction, was found to favour the onset of gas gangrene, and in the second, the various forms of Thomas's splint, in which the limb lies on a cradle, gained more and more reputation as a means of efficient splintage. Few other splints are now used on the lower extremity. It is curious that while plaster splints, both as emergency contrivances and as a means of permanent fixation, have steadily increased in use in the French army, in our own they have as steadily fallen into disuse.



Fractured femur, with Thomas's splint and stretcher suspension bar.

The treatment of a compound fracture must be divided into two parts: (*a*) The cleansing of the wound; (*b*) the setting or reduction of the fracture, followed by its maintenance in good position. In the early stages the first is by far the most important, and on its attainment depends, within limits, the success of the second.

Total immediate reduction is good and to be aimed at, provided it can be carried out without prejudice to the cleansing of the wound, but an incomplete reduction, or even no reduction at all, may be advantageous by aiding the disinfection of the wound. Surgeons working at the front are therefore mainly concerned with the primary cleaning of the wound and with the means to transport a patient to the base with comfort and without detriment to the wounded limb.

The organisms that infect a compound fracture may be roughly divided into two classes: (*a*) Anaërobic or gas gangrene producing infection; (*b*) infection due to pus-producing organisms.

Anaërobic or gas gangrene producing infection affects chiefly the muscles, is sudden in onset and development, but tends to die out if not fatal in the early stages.

Infection by pus-producing organisms affects all the structures of a limb, is generally of slower development, and fatal at a considerably later period. The first (*a*) is the chief cause of death at the front, the second (*b*) of death at the base.

From the fact that it affects muscles, the first is more amenable to treatment by mechanical means—the excision of the affected part or part likely to be infected; but the second, giving little indication of its presence, cannot be so easily removed by such means.

At the beginning of the war fractures were treated very much as they were in South Africa. It is true that fragments of projectiles and clothing were removed, but more attention was paid to the solution of continuity of the bones than to the cleansing of the wound.

The occurrence of gas gangrene quickly called for a remedy, which was found in amputation or incisions into the limb. Then came the demand from the base for free drainage. At first small tubes were used; as these proved inefficacious, large tubes were substituted. At the same time came a more systematic search for foreign bodies. This produced an improvement, and it was reported that the cases that came down with adequate drainage, especially those with dependent drainage, stood a far better chance than those in whom such measures were not taken.

About this time attention was drawn to the fact that many flesh wounds, if freely excised, could be sutured with success. The application of this principle, though it could not be applied *in toto* to fractures, led to more extensive opening up and to better mechanical cleaning by the excision of all dead tissue and the more efficient removal of foreign bodies. These measures greatly reduced the occurrence of gas gangrene and produced an improvement in the suppurative infections. At the same time as these improvements were taking place in operative technique the adoption of the Thomas splint for the lower extremity in one of its many forms was steadily working its own good. The stretcher in the ambulance car and the cot in the train presented a difficulty—there was nothing on which to rest the splint. This difficulty was overcome by two methods. (1) A form of Thomas's splint (devised by Captain Max Page) provided with an attached foot-piece or prop was used so that the splint was raised off the stretcher and the limb lay slung, as it should, in the splint. (2) Two forms of iron bracket (devised respectively by Lieutenant-Colonel Frankau and Captain Richards), attached to the foot of the stretcher, allowed the Thomas splint to be suspended above the canvas of the stretcher.

Patients thus travelled easily in the motor ambulances, and the difficulty of the cot in the train was easily surmounted by sending the patient down on the stretcher. This latter expedient has been of great benefit to the wounded, as once placed on his stretcher at the casualty clearing station he can remain undisturbed until he reaches his bed at the base.

The fixation in a Thomas splint depends upon the extension. An efficient extension is therefore of prime importance. Sinclair's glue has provided the means. It is easily and quickly applied, and has the additional advantage that it produces no constriction of the limb. It has another advantage, it can be used when only a short portion of the leg is available, a very great gain when dealing with limbs covered with multiple wounds.

There are, of course, a few fractures of the femur that cannot be treated with Thomas's splint—namely, those in which a wound has been received on the part covered by the ring. For these the old Liston splint is used, or in some cases the abduction frame of Jones, though the bulk of the latter makes it unsuitable for work at the front.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Below the knee the Thomas splint can nearly always be used, except in those cases in which the fracture is near the ankle. Even here it is often possible to use it by the aid of the sole extension as devised by Sinclair.

In the case of fractures of the upper extremity the Thomas splint has not proved so satisfactory, but only for the reason that the straight posture of the arm is unsuited to transport except under special circumstances, as in transit by barge. The form of Thomas splint for the bent arm has not proved a success. For transport the form of internal angular splint, with a hinged back piece for the upper arm as devised by Captain Colin Clarke, is probably the best.

The development of the operative side of the casualty clearing station and the provision of *x* rays has been of inestimable benefit to the patient. There can be no doubt that the chance of the patient recovering with a good limb and of escaping a long period of suppuration depends on the attention that can be paid to his wound in the first instance. No amount of after-care can ever make up for the want of it at the first moment. A thorough and deliberate operation is all-important. There must be a free opening; the cavity must be explored by the eye, and not only by the finger, otherwise dead tissue and possibly foreign bodies will be passed over.

When first received, the wound is dirty, but the number of pus-producing bacteria is comparatively few. In a few days it is probable, no matter what treatment is adopted, that they will have greatly increased in number. If the first operation has been incomplete, a second may be necessary at the very time that the wound is in the worst possible state, and the procedure necessary to supplement the primary operation may be disastrous in exposing fascial planes to infection from a wound teeming with bacteria.

The early, deliberate and efficient cleansing of the wound is the basis of success, no matter what chemicals are used after it is completed.

REFERENCE.
BRITISH MEDICAL JOURNAL, August 7th, 1915.

PENETRATING WOUNDS OF THE CHEST AT THE CASUALTY CLEARING STATIONS.

BY

COLONEL SIR WILMOT HERRINGHAM, C.B.,
CONSULTING PHYSICIAN.

THE number of chest wounds admitted to the clearing stations is about 2 per cent. of the whole number of wounds admitted. The most favourable cases are those in which a bullet has gone right through the chest; the least favourable, those made by a piece of shell which is retained within the chest.

In cases where the missile has involved both the chest and the abdomen the prognosis is very unfavourable. Occasionally the whole stomach, or part of the intestine, is drawn up into the pleura through a wound of the diaphragm. In other cases the abdominal viscera are so injured as to prevent recovery. In any case the addition of a wound of these organs to the temporary loss of the use of one lung, which is the usual result of a wound of the chest, produces a condition from which very few recover. Injury to the spinal cord is a still more fatal complication.

The following notes are chiefly drawn from a consecutive series of 211 cases, of which careful observations were made and recorded at the time.

The patients are often much collapsed at time of admission, so that in many cases the heart cannot be felt, and in some cannot even be heard for the first twenty-four hours. With warmth, rest, and morphine, they improve greatly by the second day.

Few cases bleed dangerously from the external wound. When this occurs, it can usually be stopped by plugging the wound. There is often much distress if the external wound admits the free entry and exit of air in respiration. It is almost at once relieved if the wound be made air-tight with strapping over the dressing. For these large openings into the pleura, in which sometimes three or four ribs are smashed, and infection from the open air would be almost inevitable, a form of procedure has recently been adopted which promises well. After careful paring of the wound, removal of loose bone, and blunting of sharp edges, the skin and, where possible, the muscles are drawn together and stitched over the aperture, leaving either only a small hole for a drainage tube or none. If a tube is left in, the cavity is then filled with an antiseptic. One surgeon is using emerald green, 1 part to 1,000 of solution of gum tragacanth, for this purpose.

In all but fourteen of the series there were signs of haemothorax. It is rare for the effusion to increase in extent under observation. The chief safeguard against continued haemorrhage is collapse of the lung. In one case which died from repeated external haemorrhage the lung was found adherent to the pleura throughout. Collapse had not in consequence taken place. In another (not in this series) that died with an increase of the haemothorax, by repeated internal haemorrhage, a piece of metal was found lodged in a large pulmonary vessel which it had partially but not completely severed. The retraction of the vessel was thus prevented.

When the effusion is moderate in size, reaching not above the middle of the scapula, nor further forward than the mid-axillary line, it does not cause serious distress. These cases form the great majority. In them by the third day the pulse falls to 84, the respirations to 28, and the temperature will be falling also. Since the observations of Bradford have shown that fresh haemorrhage hardly ever occurs after the lapse of seventy-two hours from the wound, such cases were, as a rule, evacuated at the end of that time. Information from the base showed that this policy was not attended by any bad results.

When the effusion is greater than this, specially if it is complicated by pneumothorax, the patient usually shows distress. The heart is displaced, the pulse is above 100 and the respiration is over 32. Such cases are not fit to travel. They should be aspirated, and about a pint of blood and as much air as possible should be withdrawn. Some were rendered comfortable by this procedure and were able to travel without damage on the fourth or fifth day. It must be noted that the hospital was close to the train, and that though the journey might last even to thirty hours the conditions were comfortable.

It was not thought desirable at so early a stage to remove the fluid completely with the aid of oxygen replacement; that procedure was therefore left for the base hospitals.

In the latter part of the year 1916 a new method of treatment was adopted in a limited number of cases, especially in patients in whom a missile was found by *x* rays to be retained in the chest. On the second day after the injury, ribs were resected or a costal flap turned back, the pleura opened, and the missile removed. The pleura was then thoroughly washed out, and the whole wound carefully closed. The number of cases so treated is as yet insufficient to enable definite conclusions to be drawn, but experience is so far favourable.

The complications, other than mere size of the haemothorax, which prevented early evacuation, were either septic infection of the effusion on the wounded side, or some disease of the lung on the opposite or unwounded side. In many cases a missile rakes the chest and enters both pleurae. Neither lung can then be called unwounded. The term is confined to cases where one pleura alone has been injured. These complications will now be considered.

In some cases the patient may be comfortable while at rest and have no fever, but on examination there may be the signs of consolidation of the unwounded lung, and movement may produce shortness of breath and some cyanosis. In such cases the condition is that of massive collapse of part, usually at the base, of the unwounded lung. The side is often contracted, the heart is drawn over, and the *x* rays, if available, show the diaphragm raised and motionless. This condition, familiar after abdominal operations in civil life, was found by Bradford to be a frequent complication of chest wounds. It clears up in about a week.

In other cases there may be an increasing cyanosis and distress, even at rest, for which the condition of the wounded side does not account. On the unwounded side there may be the signs of bronchopneumonia. Some of these are true cases of that disease. But more of them are due to engorgement of the unwounded lung which affects the back and the lower lobe chiefly. The whole of the affected part is solid with blood, and on section presents a glistening surface of dark crimson colour. Its

causation is not clear, but the situation argues failure of the pulmonary circulation.

Unquestionably, however, if the cases be followed through, the most common complication of chest wounds is infection of the haemothorax. When cases are sent down on the fourth day not many infected cases are seen at the clearing station. It is, however, important that the medical officer should be quick to mark its symptoms. The face is pale, though there may be a local flush, the expression anxious, the tongue dry, the appetite bad, and there may be vomiting. The pulse and respiration usually quicken and the temperature rises. In many cases gas formation within the thorax is shown by the alteration of the physical signs and the displacement of the heart. But this does not always occur, nor are any of the other symptoms constant.

Briefly speaking, whenever the medical officer is dissatisfied with the progress of the patient and cannot otherwise explain it, he should always suspect septic infection. If suspicion is aroused, aspiration should be performed at once. Sometimes the fluid will be found to stink, or it may be seen to contain pus, or the froth may remain permanently crimson from haemolysis. Any of these signs is sufficient to indicate that a free opening should immediately be made. If doubt remains, it is well, after drawing off a pint of the effusion, to leave the patient for a day, and, unless he has by then obviously improved, to operate. Bacteriological evidence, when forthcoming, is valuable as a confirmation, but it is on the one hand uncertain, for the infection may be confined to a certain part only of the pleura, and on the other, may cause considerable delay. Clinical evidence should always be trusted, and action taken upon it without hesitation.

Five cases of septic infection occurred before the fifth day after the wound in the present series of cases. In all a free opening was made at the clearing station, and all these patients, though some of them were very ill for a time, recovered sufficiently to be evacuated.

In the whole series there were twenty-two deaths, of which two were due to wounds of the heart, ten to conditions of the pleura and lungs, and ten to wounds of the spine or abdomen. The remainder were evacuated.

THE ADMINISTRATION OF ANAESTHETICS AT THE FRONT.

BY

CAPTAIN GEOFFREY MARSHALL, R.A.M.C.(S.R.).

FROM the point of view of the anaesthetist, wounded men may be divided into three main classes:

1. The lightly wounded.
2. Those suffering from serious wounds with more or less shock and haemorrhage, the two factors being commonly associated.
3. Those suffering from a severe degree of sepsis, especially anaërobic infection.

The choice of anaesthetic depends on which of these classes the patient belongs to, as well as on the region of the body injured.

1. THE LIGHTLY WOUNDED.

These patients are good subjects for anaesthesia, so that the chief desiderata are safety, speed, and convenience. The ideal anaesthetic is one with which induction is rapid, and recovery complete a few minutes after operation, so that the patient is in fit condition for early evacuation by ambulance train.

Gas and oxygen anaesthesia meets these requirements best. With its help a greater number of these cases can be dealt with satisfactorily in a limited time than with any other anaesthetic. When this method is not available, ether should be used. The ether is best administered as a warm vapour by "Shipway's apparatus," as both induction and recovery are more rapid than with the open method.

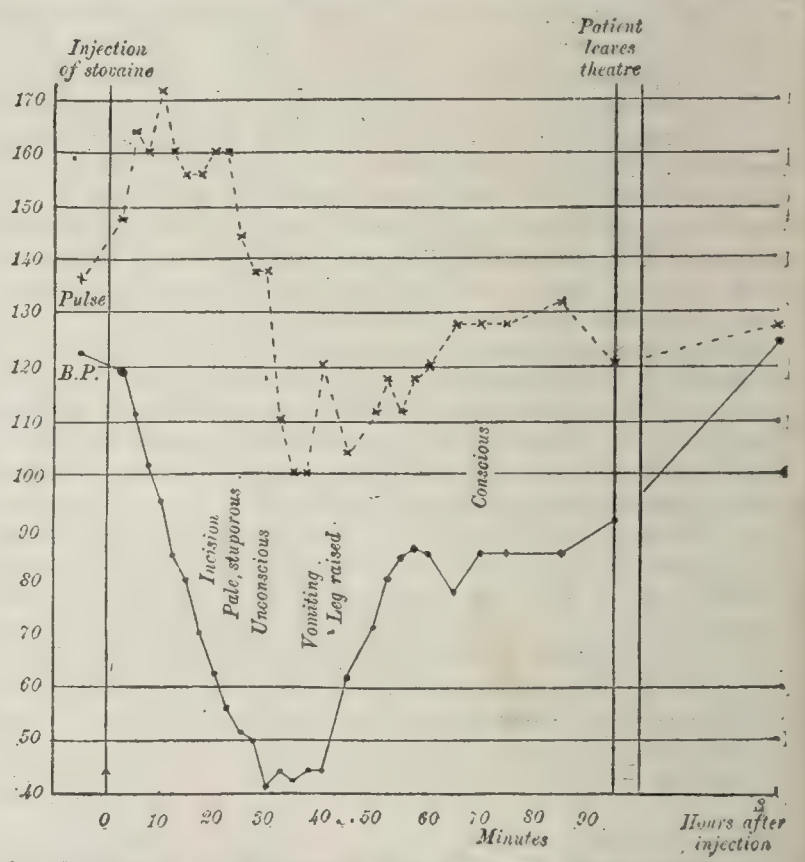
Local anaesthesia can only be employed in a small number of cases, on account of the multiplicity of wounds and their lacerated and soiled condition.

II. THE SERIOUSLY WOUNDED.

In the more serious cases the one consideration is safety. In other words, we require an anaesthetic which will not be harmful to a patient who is still suffering from the shock of injury, and one which will minimize the shock of operation.

Spinal Anaesthesia.

It has been urged that spinal anaesthesia would meet these requirements, especially in wounds of the legs and thighs, and would therefore be of great value in military surgery. In practice, however, it is found that the intrathecal administration of stovaine has dangers of its own when applied to men whose wounds are recent. In a large



In the charts the continuous line represents blood pressure in millimetres of mercury. The dotted line represents pulse rate per minute.

CHART I.—Spinal anaesthesia. Group A. Stovaine 0.075 gram. Wounds of leg and buttock twenty-one hours. Haemoglobin 85 per cent. Operation conservative. Death twenty-four hours later from gas gangrene.

proportion of these cases the administration is followed by a great fall of blood pressure and symptoms of cerebral anaemia, that is, pallor, vomiting, loss of consciousness, and occasionally convulsions. The syncope is sometimes fatal. It is in the man who has lost blood, and whose wounds are less than forty hours old, that spinal anaesthesia is

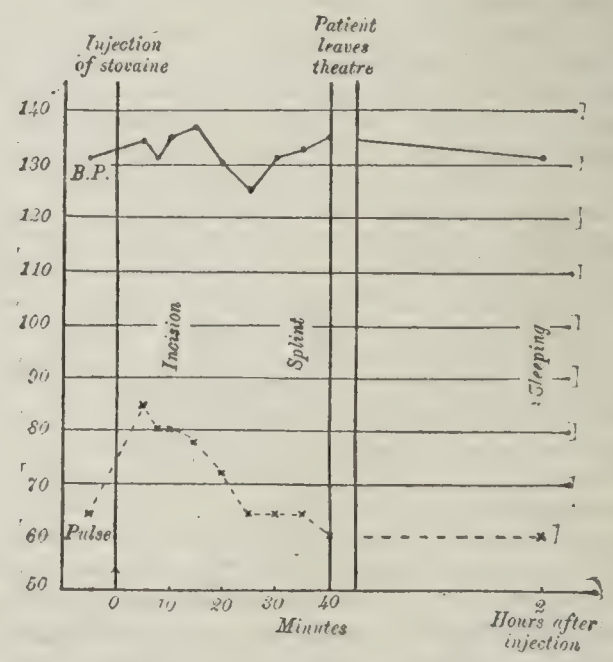


CHART II.—Spinal anaesthesia. Group B. Stovaine 0.1 gram with glucose. Wounds of thigh sixteen hours. Haemoglobin 102 per cent. Operation conservative. Recovered.

dangerous. This is shown by an analysis of fifty consecutive cases operated on at a clearing station under stovaine spinal anaesthesia.

LIBRARY U. OF I. URBANA-CHAMPAIGN

All the patients had wounds of the lower extremities. In each case the percentage of haemoglobin in the patient's blood was estimated before operation; a low percentage of haemoglobin in a man whose wounds are recent may be taken to indicate that the patient has bled. The fifty cases fall into three groups:

Group A.—Men operated on within forty hours of receiving their wounds, and whose blood was dilute (indicating haemorrhage).

Group B.—Men operated on within forty hours of receiving their wounds, whose blood was *not* dilute.

Group C.—All cases in which a greater interval than forty hours had elapsed between wounding and operation.

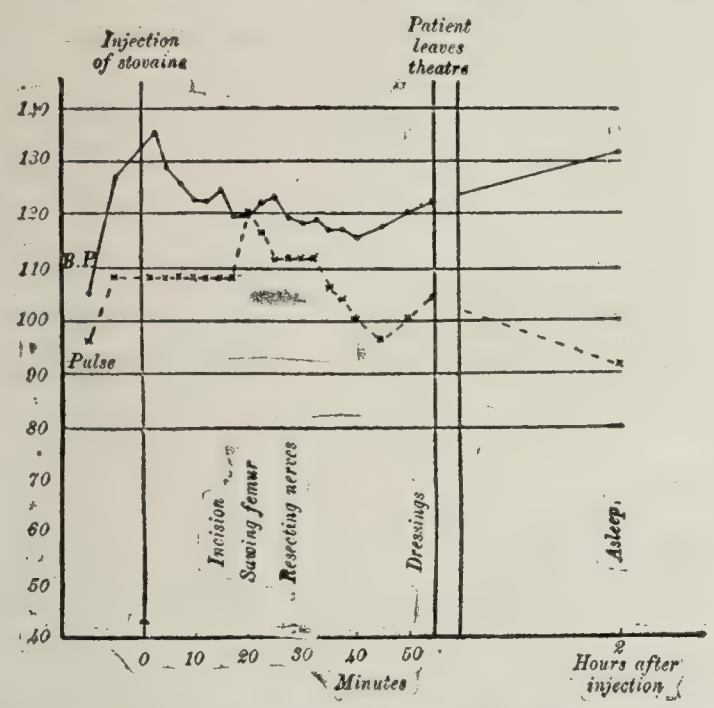


CHART III.—Spinal anaesthesia. Group C. Stovaine 0.1 gram with glucose. Wound of thigh and femoral artery twenty-three days. Haemoglobin 45 per cent. Gangrene of leg. Amputation lower third thigh. Recovered.

In Group A there were twenty-two cases. Of these, nineteen showed symptoms of collapse after injection of the anaesthetic. The average fall of blood pressure was 57 mm. of mercury; in only three cases was the fall of pressure less than 35 mm., the greatest fall was 99 mm.

In Group B there were sixteen cases. Of these, only three developed any untoward symptoms after injection, and these were trivial—in one case nausea and in the other two pallor only. The average fall of blood pressure was 17 mm., the greatest 33 mm.

In Group C there were six cases. None showed any symptoms of collapse. The average fall of blood pressure was 19.7 mm. and the greatest 35 mm.

For the prevention or combating of the collapse the most important factor was found to be the position of the patient; the symptoms are alleviated by raising the legs and lowering the head. It is safe to lower the head fifteen minutes after injection. Neither strychnine nor pituitrin were of any use in combating the collapse, nor did preliminary injection of strychnine prevent it. The dose of stovaine given varied from 0.05 to 0.1 gram, and within these limits the fall of blood pressure was not proportional to the dose of the drug. Some of the greatest falls of pressure were associated with the smallest doses of stovaine and vice versa. With doses smaller than 0.05 gram, the anaesthetic effects were so slow and uncertain as to make the method impracticable at a clearing station.

Wounds of the Limbs Necessitating Amputation.

There are few more unfavourable subjects for anaesthesia than the man who is suffering from the shock of a recently shattered limb, and who has to undergo the further shock of amputation. The mortality of these cases can be greatly reduced if correct procedure be followed.

In the first place, the patient must be put to bed and surrounded with hot bottles or a hot-air bath. However urgent operation may be surgically, it is useless to perform it before the patient has been thoroughly warmed up.

In the second place, morphine should be withheld before operation or given only in small doses.

In the third place, gas and oxygen should be the anaesthetic used for operation. Results are so much better with this mixture that no other anaesthetic is justifiable.

If chloroform be used, the patient's condition will deteriorate during the administration, and he will not rally afterwards. With inhalation ether the condition may improve and the blood pressure rise during operation, but there will be a collapse during the next two hours. With intravenous ether the temporary improvement is more striking and the after-collapse more profound and more often fatal.

Shock.

Shock is a condition which still evades precise definition, although seen so commonly in wounded men. The injuries which cause it are almost invariably severe in themselves, that is, they involve important structures or extensive areas of tissue. In a typical case there is dusky pallor of the face, the radial pulse is flickering or imperceptible, and the surface temperature low. There is repeated vomiting, but the patient shows remarkably little mental disturbance, and may be fully conscious and intelligent within a few minutes of death. The arterial blood pressure is often higher than might be expected from the character of the pulse, and shock is usually profound if associated with a systolic pressure lower than 80 mm. of mercury; we refer to readings taken by means of a Riva-Rocci sphygmomanometer with auscultation over the brachial artery. The blood in the capillaries of the extremities is dark and cyanotic. In cases of shock unassociated with haemorrhage we have found the blood to be more concentrated than normal.

Treatment of Shock before Operation.

We have stated that, however urgent it may be, operation should not be performed on a patient suffering from shock until means have been taken to mitigate this condition.

The one measure which commonly produces definite improvement is the application of external warmth. Excellent results have been obtained by the application of heat from electric light lamps or by the use of an improvised hot-air bath, and if such a patient as we have described be put to bed and treated by these methods, or surrounded with hot bottles, his surface temperature rises, his colour improves, and his arterial blood pressure will as a rule go up steadily for several hours. He will then be much less likely to succumb if subjected to a severe operation.

Fluids are best given either by mouth or rectum. Subcutaneous infusion produces no measurable effect in this type of case; and if death occurs as late as thirty hours after infusion, the bulk of the fluid will still be found in the subcutaneous tissues. The intravenous administration of saline is of little use before operation. It causes a temporary rise of blood pressure and slowing of the pulse rate, but does not render the patient less susceptible to further shock. The blood pressure falls again as soon as operation is begun. Transfusion is best done towards the end of operation; it will then often cause a lasting improvement in the patient's condition. We have found that hypertonic saline produces a more lasting elevation of blood pressure, slowing of the pulse, and dilution of the blood than does the normal solution. Transfusion with blood gives still better results. The use of artificial viscous fluids is still under trial.

The Limitation of Shock during Operation.

The recently injured patient is particularly susceptible to further shock, and this susceptibility is increased by certain drugs used in the production of anaesthesia, for example, chloroform, ether, and morphine in large doses. These drugs should therefore be avoided in dealing with a patient who is suffering from recent wounds and who has to undergo a severe operation such as amputation through the thigh. Chart IV shows the serious fall of blood pressure which occurred an hour after amputation under ether vapour anaesthesia. Charts V and VI illustrate the

still greater collapse after intravenous ether. Chart VII shows how trivial is the effect on pulse rate and blood pressure when the operation is done under gas and oxygen.

We have already indicated that amputation is a much

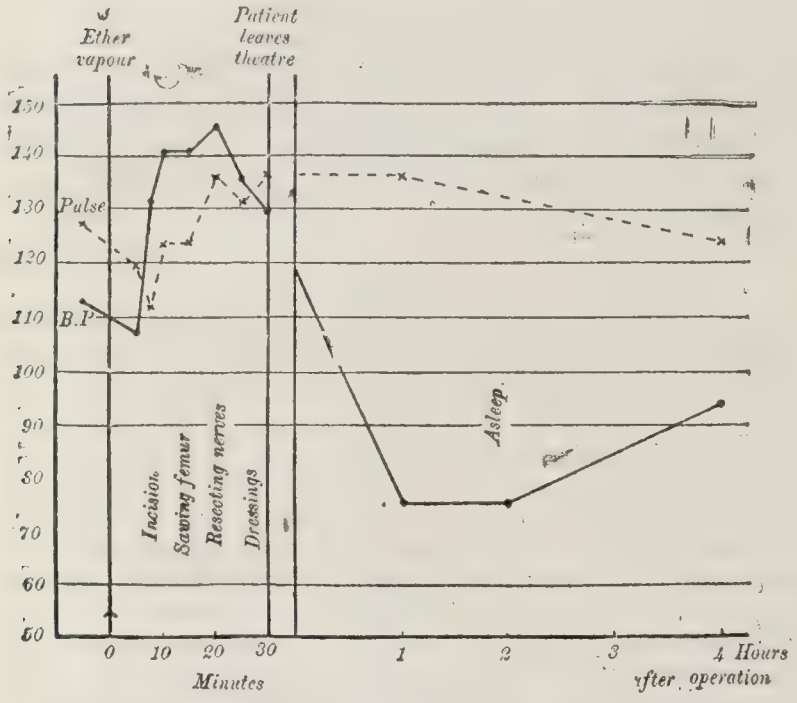


CHART IV.—Anaesthesia by ether vapour. Wound of leg thirty-six hours; tibia shattered. Haemoglobin 62 per cent. Amputation lower third thigh. Recovered.

less dangerous procedure to a patient who is not already suffering from shock or haemorrhage. Chart III was an example of amputation under spinal anaesthesia, and Chart VIII under intravenous ether, both in cases of severe sepsis but in which the initial shock of injury had passed off. Chloroform is dangerous even in this type of case; Chart IX illustrates a fatal example.

Wounds of the Head.

Operations on the head may be performed under local anaesthesia. All tissues of the scalp are infiltrated in a circle surrounding the site of operation with a solution of

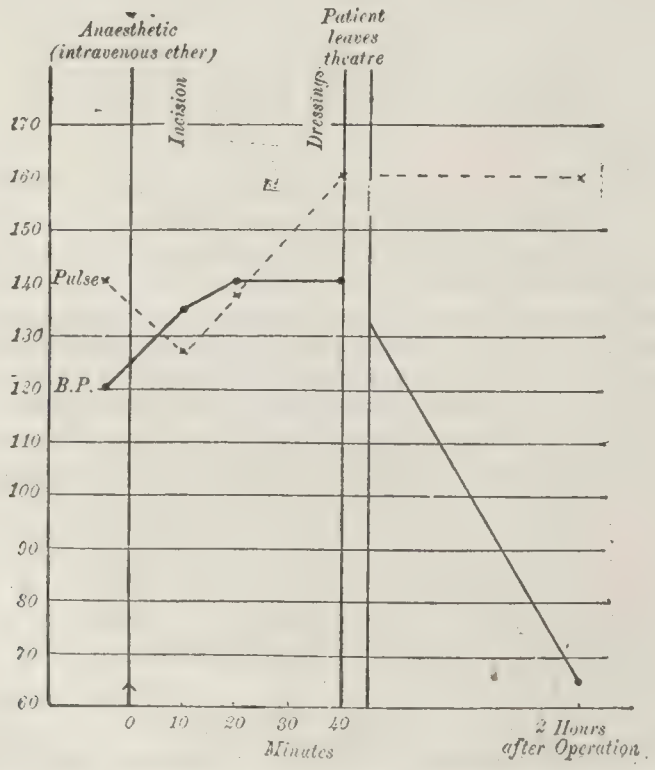


CHART V.—Anaesthesia by intravenous ether. Wound of thigh twenty-two hours; femur fractured. Haemoglobin 84 per cent. Operation conservative. Recovered.

novocain and adrenalin. No pain is felt even when bone and dura are dealt with. On the other hand, the forcible cutting of bone is disturbing to the patient, so that where mentality is unimpaired, hyoscine and morphine should be given an hour before operation. If general anaesthesia is preferred, this may be obtained safely and conveniently with Shipway's apparatus. A warmed mixture of ether and oxygen is administered through a catheter passed down the more patent of the two nostrils.

Wounds of the Chest.

Ether should not be administered to a patient with a perforating wound of the chest, as it usually provokes fresh intrathoracic haemorrhage. For small operations,

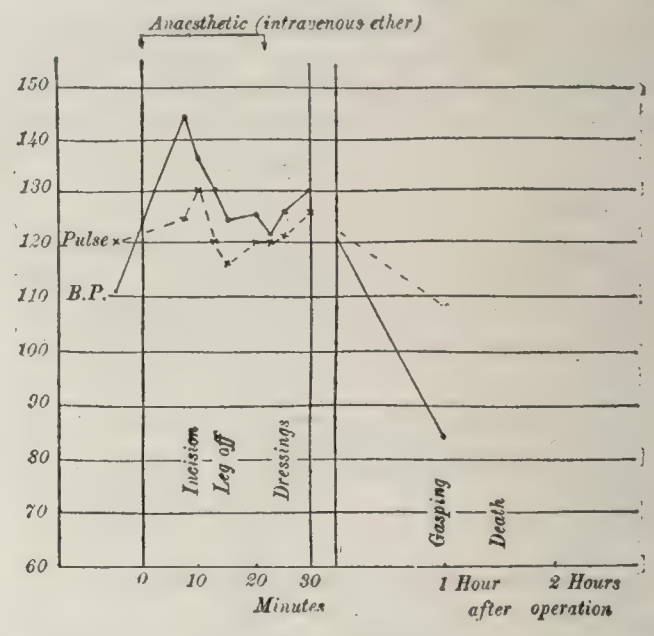


CHART VI.—Anaesthesia by intravenous ether. Wound of leg six days. Secondary haemorrhage seven hours before operation. Amputation mid-thigh; collapse and death eighty minutes after.

such as the resection of a rib, local anaesthesia should be employed. The intercostal nerves of the rib to be resected and the rib above are blocked by injection of a solution of novocain and adrenalin into the subcostal grooves close to the angles of the ribs. For more extensive operations, requiring general anaesthesia, we give a preliminary injection of morphine gr. $\frac{1}{6}$, hyoscine gr. $\frac{1}{100}$, and atropine gr. $\frac{1}{1000}$, and follow this with a minimal amount of warm chloroform vapour with oxygen.

Wounds of the Abdomen.

For these cases we have found the most satisfactory anaesthetic to be a warmed mixture of ether vapour and oxygen. Compared with "open ether," we find that the warm vapour gives a more rapid and quiet induction, easier breathing, and diminished heat loss during operation and less vomiting afterwards.

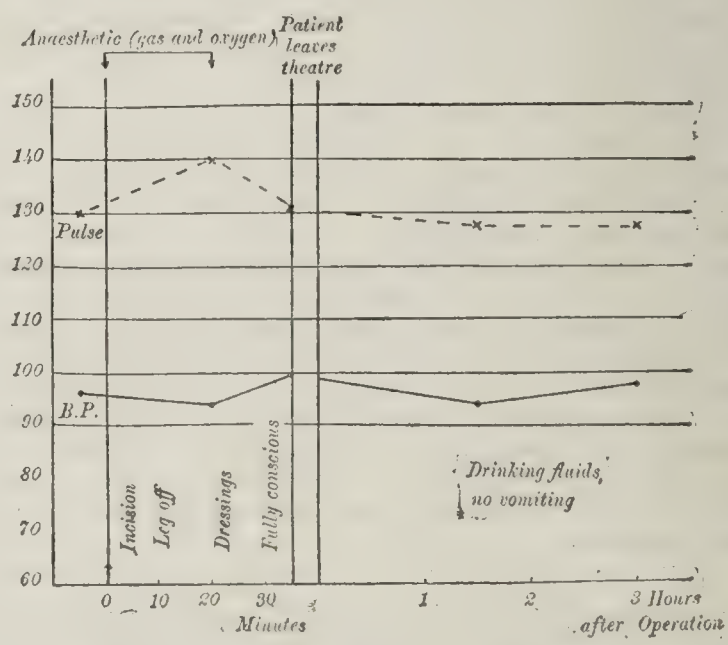


CHART VII.—Anaesthesia by gas and oxygen. Wound of thigh twenty-one hours; femur shattered. Patient pale and vomiting. Haemoglobin 82 per cent. Amputation mid-thigh. Recovered.

Men wounded in the abdomen are especially liable to develop bronchitis, perhaps owing to deficient movement of the lower part of the chest. In a series of these cases anaesthetized with open ether, 54 per cent. developed bronchitis after operation. In a comparable series anaesthetized with warm ether-vapour, the percentage of bronchitis was only 14.7.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Blood Pressure during Operations on the Wounded Abdomen.

During the course of an ether vapour anaesthetic the blood pressure shows a tendency to rise, but if there is much manipulation of gut and mesentery, it will gradually fall. The process may be continued for hours without the pressure falling to a dangerous level. Exposure of gut

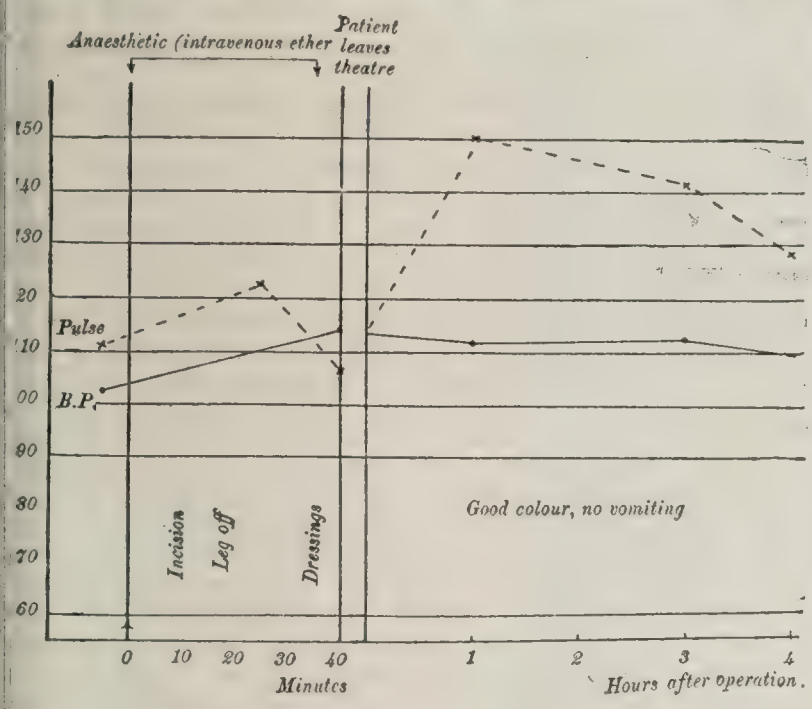


CHART VIII.—Anaesthesia by intravenous ether. Wounds of both thighs fifteen days. Left thigh amputated thirteen days. Severe sepsis, persistent hiccough and vomiting. Amputation lower third right thigh. Recovered.

outside the abdominal cavity produces a much more serious effect. If more than two or three feet are exposed, the blood pressure will commence to fall after a few minutes, and will continue to fall rapidly until the gut is replaced. This effect is seen when stomach and omentum are exposed, and even with great omentum alone. The indication is that surgeons should make big incisions, and work as far as possible with the gut lying inside the abdomen. Covering the exposed gut with pads wrung out in hot saline does not prevent the fall of blood pressure.

Exposure of gut produces far less effect if the patient is not under an anaesthetic. We have seen men arrive from

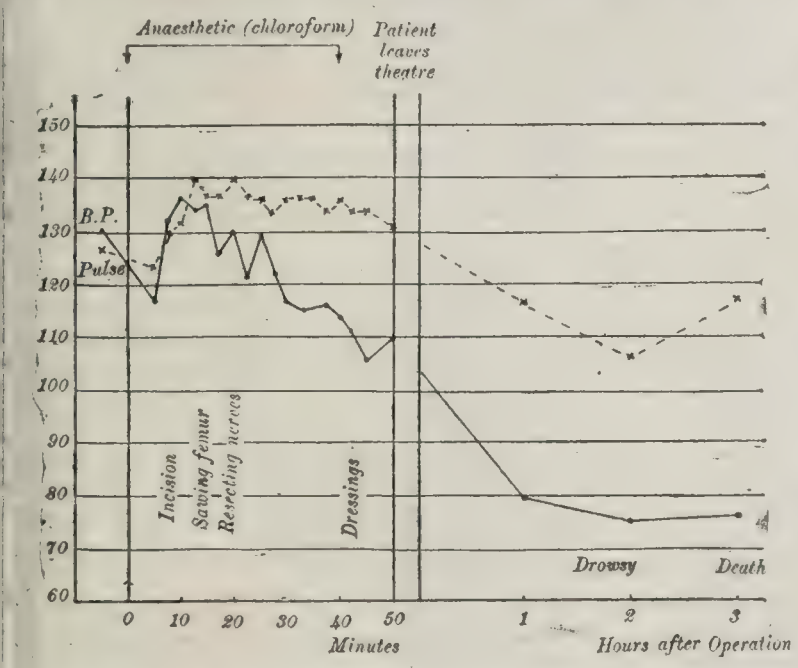


CHART IX.—Anaesthesia by chloroform vapour. Wound of leg seven days. Secondary amputation lower third thigh. Death ten hours after operation.

the line with several feet of intestine prolapsed through a wound, yet their blood pressure was within normal limits. In one case more than two-thirds of the small gut had been outside the abdominal cavity for at least four hours, and this man's blood pressure was 142 mm. of mercury, and his pulse rate only 108. The patient recovered.

Apart from copious haemorrhage, there is one other procedure which causes rapid fall of blood pressure in abdominal operations. This is turning the patient on his side. The effect is only seen if the patient has been under the anaesthetic for a considerable time before being turned. At the end of an abdominal operation the patient may be in good condition. He is then turned on the right or left side so that the surgeon may excise a wound in the back. In a few minutes there is a great fall of blood pressure, and the radial pulse disappears. It may be hours before the patient recovers this lost ground. If possible, wounds of the back should be dealt with before laparotomy, as turning the patient has no ill effect during the first half-hour of an ether anaesthesia.

If chloroform be used in these abdominal operations, the blood pressure will fall during administration and for some hours afterwards. This drug is therefore to be avoided except where ether is contraindicated, as in cases in which projectiles have penetrated the chest as well as the abdomen.

The intrathecal administration of stovaine is unsafe, and should not be employed.

III. PATIENTS WITH SEPSIS.

The patient whose condition is rendered grave by sepsis will stand an amputation far better than the man who is suffering from shock. In the septic case, gas and oxygen again gives excellent results, but spinal anaesthesia, warm ether vapour, and intravenous ether are also comparatively safe. Chloroform, however, is to be avoided, as it is often followed by a slow fall of blood pressure which ends in death during the twelve hours succeeding operation.

THE COLOUR CHANGES SEEN IN SKIN AND MUSCLE IN GAS GANGRENE.

[WITH COLOURED PLATES.]

BY

COLONEL CUTHBERT WALLACE, C.M.G., A.M.S.,

CONSULTING SURGEON, BRITISH ARMIES IN FRANCE.

A SHORT time ago[1] I ventured to support Kenneth Taylor's statement that gas gangrene was primarily and mainly a disease of muscle. Further work and observation have only strengthened this belief. It is the object of this paper to describe the naked-eye alterations in the appearances of the skin and muscle in the sequence in which they occur.

Through the kindness of the Medical Research Committee I am able to illustrate some of the changes by the reproduction of coloured drawings made by Sergeant A. K. Maxwell, R.A.M.C. I should like to take the opportunity of congratulating him on the skill he has displayed in catching the delicate tints in the colour changes.

Colour Changes in the Skin.

The changes in the skin of an affected limb may share in the general icteric tint that affects the whole body in some cases. This has been well portrayed elsewhere,[2] and need not detain us here. Coming to the more local lesions, it is first necessary to state that the skin of an affected limb may appear, and usually is, perfectly normal in the early stages; even under a normal skin, however, the disease in the muscles may be so far advanced as to necessitate amputation. The first essential change in the colour of the skin is due simply to the swelling of the limb. At this stage the skin looks somewhat tense, just as it does over any deep-seated swelling, and is paler than normal, owing to the blood being driven out of it by pressure. Resonance to percussion, and even crepitations, may be perceptible at this stage. Simple pallor of the skin is succeeded by a dirty cream tint, which may be taken to indicate that gangrene is certainly established. Up to this stage examination through an incision may reveal only partial or complete involvement of a single muscle, or of a limited group of muscles, so that the condition may be suitable for treatment by local excision.

The subsequent changes in the skin are quicker and more dramatic. Areas of purple staining appear, which enlarge and coalesce. The margins of these are fairly distinct but irregular, and the intervening skin is greyish-white in colour. Soon there appear blebs filled with fluid

which is stained by altered blood; removal of the cuticle from these exposes a shiny purple-red area of dermis. When this condition of the skin is reached it may safely be inferred that the gangrenous process is so far advanced as to necessitate amputation.

In the last stage to which reference need be made, the purple is succeeded by a dark yellow-green tint. It will be seen that these later changes are identical with what may occur in any limb after death, and are essentially *post-mortem* phenomena due to bacterial action. The late colour changes may be influenced according to the relative parts played by bacterial action on the one hand and by arrest of blood supply on the other. Thus, near an infected wound the yellow-green tint may develop early, whereas in a segment of limb infected only after its blood supply has been cut off, the stage of purple discoloration may still predominate at operation.

Figure I is a drawing made from a forearm which was amputated on account of gas gangrene. The projectile passed across the flexor aspect of the forearm, causing great laceration of the muscles. The whole of the muscles on the flexor aspect were gangrenous, the change being most advanced in the deep flexors and the supinator brevis, which were diffluent. There was in this case ample opportunity for direct infection of the different muscles. The main arteries were intact, so that the gangrenous process was entirely due to infection; in other words, it was not a case of infection after arterial death, but of infection producing total destruction of the muscles and consequently of the skin and subcutaneous tissues. The drawing speaks for itself and requires but little explanation. It shows the purple mottling of the skin, and the contrast between the infected flexor muscles seen through the wound and the normal-coloured muscle by the side of the cut humerus.

There is another change in the skin—namely, "bronzing," to which allusion must be made because it has attracted considerable notice. It is regretted that no example of this could be obtained while the artist was present, but a coloured drawing of the condition has been published elsewhere.[3] The plate was merely described as "multiple shell wounds," but the bronzed area can be well seen over the hollow part of the man's back. This colour change is not common, in my experience, on the limbs, but is seen more often on the body, especially in connexion with wounds of the extraperitoneal part of the colon. Sometimes it is accompanied by crepitations of the subcutaneous tissue, but is often found without this manifestation. The tissue beneath is sometimes normal, or only slightly oedematous, sometimes distinctly oedematous, sometimes yellow-green in colour. At one time this discoloration is the herald of a violent infection which cannot be controlled by incisions, at another time it will disappear without treatment. The causal agent is, so far as I am aware, unknown.

Colour Changes in the Muscles.

Figure II represents a dissection of the thigh of a man who died from multiple injuries and gas gangrene of the thigh. A wound is present over the vastus externus, part of which has been carried away. The resulting dirty cavity can be seen, as can also the infected subcutaneous tissue, which is of a dirty yellowish-green hue. The vastus externus, although wounded, did not become gas-gangrenous; this may be attributed, perhaps, to the open nature of the wound. The missile passed behind the rectus tendon, and was found lodged against the fibres of the vastus internus. The point of interest lies in the condition of the latter muscle, which was gas-gangrenous throughout. The change in the colour of the muscle is a subtle one, but can be easily seen. Although not so apparent in the reproduction, the same change was present in the outer edge of the lower part of the sartorius, just where it lay in apposition to the vastus externus. The colour of the vastus externus is altered from the normal red-purple to a brick-red. The whole muscle was dead and non-contractile, and some bubbles of gas were visible between the fasciculi. It is to this stage that I have given the name "red death." The other muscles of the thigh were not affected. Death occurred in this case fifty-six hours after the wound was received, and the condition of the thigh was found at the *post-mortem* examination.

The intermuscular connective tissue showed but little alteration in this specimen. This is often the case, but at other times there are distinct alterations. Gas may be found abundantly along the great vessels, and also commonly in the subcutaneous tissues. It is important to note that cultures from such gaseous tissues may prove sterile. At other times the connective tissue is oedematous without being discoloured, and occasionally the appearance is distinctly gelatinous. Later, the oedematous tissue takes on a yellow or yellowish-green colour, but still remains transparent.

Figure III exhibits the changes in the subcutaneous tissues in a striking degree.

In this case there was a compound fracture of the humerus just above the elbow-joint, and, in addition, a penetrating wound of the chest. The patient's condition was so precarious that amputation was considered the best course, especially as there was no radial pulse.

The case is a beautiful example of the involvement of a single wounded muscle, and would have been an ideal one for a local excision had not the arm been shattered and the man's condition dangerous. The supinator longus is seen in the diffluent stage of gas gangrene. The muscle was yellowish-green in colour, and quite devoid of form or tone. It was so soft that it could be moulded or dented with the finger. The greenish-yellow coloration and oedematous state of the subcutaneous tissue are well seen, although before the skin was reflected the external appearances were not marked. The other muscles of the forearm, as can be seen in the drawing, were normal and still readily contractile when examined.

In the small segments of muscle shown in Figures IV, V, VI, and VII it is possible to trace the colour changes in greater detail. All the pieces shown were taken from the gluteus maximus muscle, except one (Fig. VII), which is a portion of a tibialis anticus muscle.

Figure IV is drawn to represent the normal colour of gluteus maximus muscle, the actual specimen being taken soon after death from a patient who died of acute peritonitis. The normal colour, sharpness of outline, and general appearance of the fasciculi, show that the muscle was healthy.

Figure V shows a piece of muscle which was dead, non-contractile, crepitant to the touch, and brick-red in colour. The bubbles of gas, or rather the spaces once occupied by them, are distinctly seen. In this stage the muscle is very friable, and the gas can, by gentle stroking, be pushed about from place to place between the fibres.

Between the normal contractile muscle, as represented in Figure IV, and the condition of "red death" seen in Figure V, there occurs a zone of demarcation which it has not been possible to portray. Here, at the limit of the advancing gangrene, the muscle is simply lighter in colour than normal, but not definitely red. It is firmer in consistence than the normal, and no crepitation can be made out. This advancing edge is more fully discussed in the paper by Captain J. W. McNee and Captain J. Shaw Dunn.

Figure VI shows a piece of muscle from the tibialis anticus at a further stage in the gangrenous process. The colour is now passing gradually from brick-red to an olive-green. The tissue has become more friable, and the consistence may almost be described as "putty-like."

Figure VII exhibits an end-stage, which is not often seen at operation. The colour of the muscle is a greenish-black, and the surface is glistening. Such a piece of muscle is so soft that it tends to flatten out and spread over the surface on which it is placed.

In Figure III the condition of the supinator longus is intermediate between the stages depicted in Figure VI and Figure VII respectively.

I must thank Captain J. W. McNee and Captain J. Shaw Dunn for the care and trouble they have taken to prepare the specimens from which the drawings were made.

Lieutenant-Colonel Frankau and Captains Neligan and Drummond in their paper demonstrate the clinical use that can be made of the pathological fact—namely, the involvement of single muscles in early cases of gas gangrene.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, September 16th, 1916. [2] *British Journal of Surgery*, vol. iii, No. 9. [3] Ibid., vol. iv, No. 13, p. 57.

LIBRARY U. OF I. URBANA-CHAMPAIGN



Fig. 1

LIBRARY U. OF I. URBANA-CHAMPAIGN



FIG. II.



FIG. III.



Fig. IV



Fig. V.



Fig. VI.



Fig. VII.

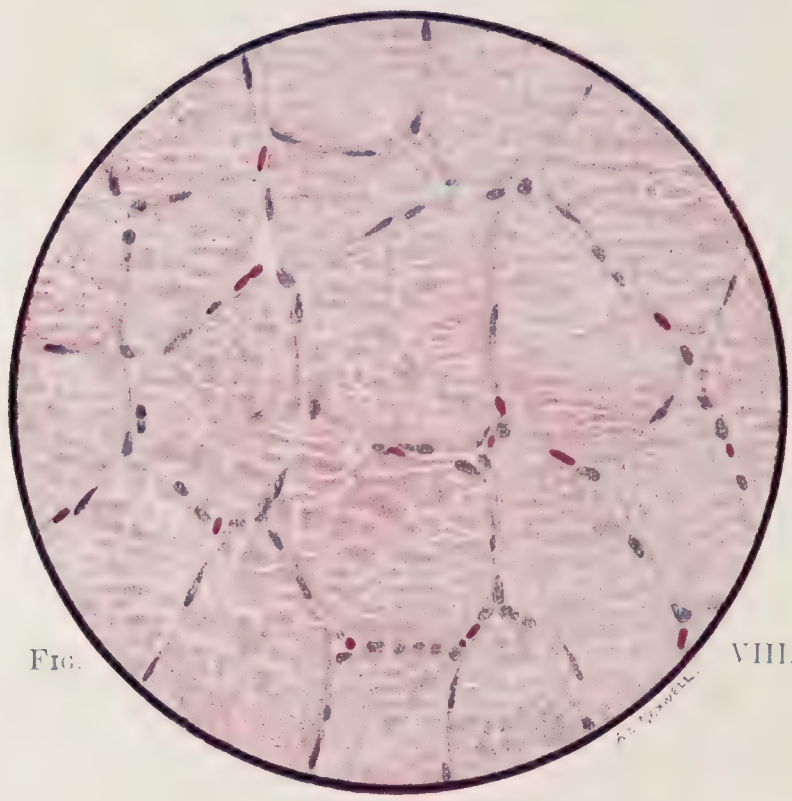


FIG. VIII.



FIG.

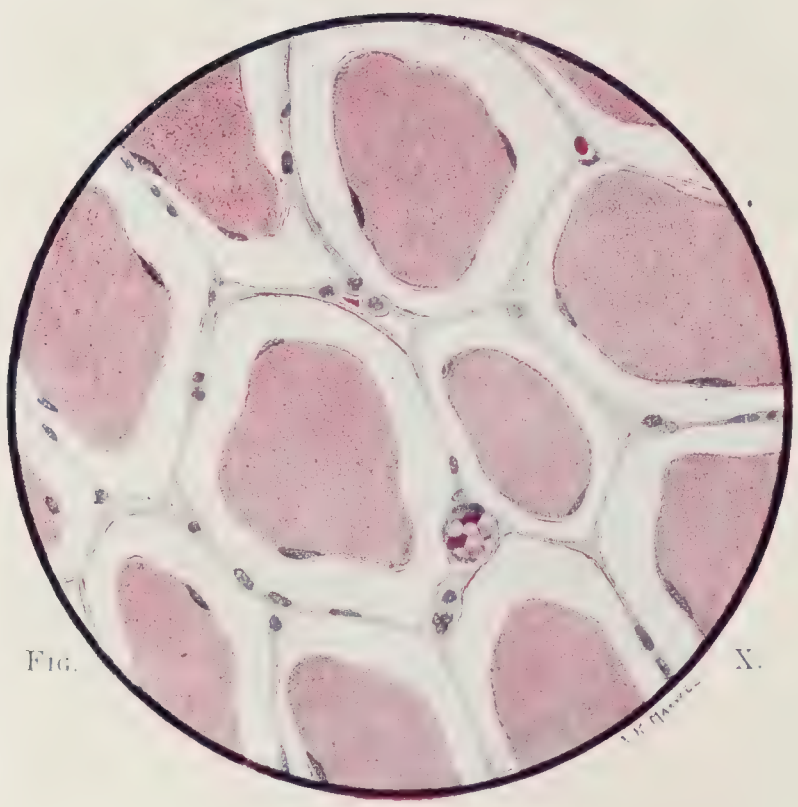
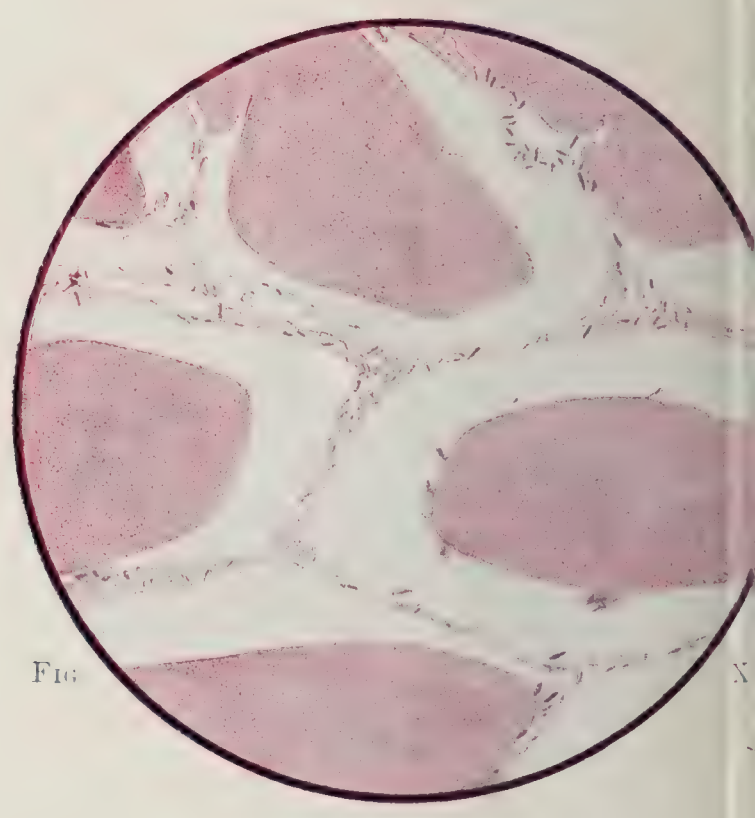


FIG. X.



FIG

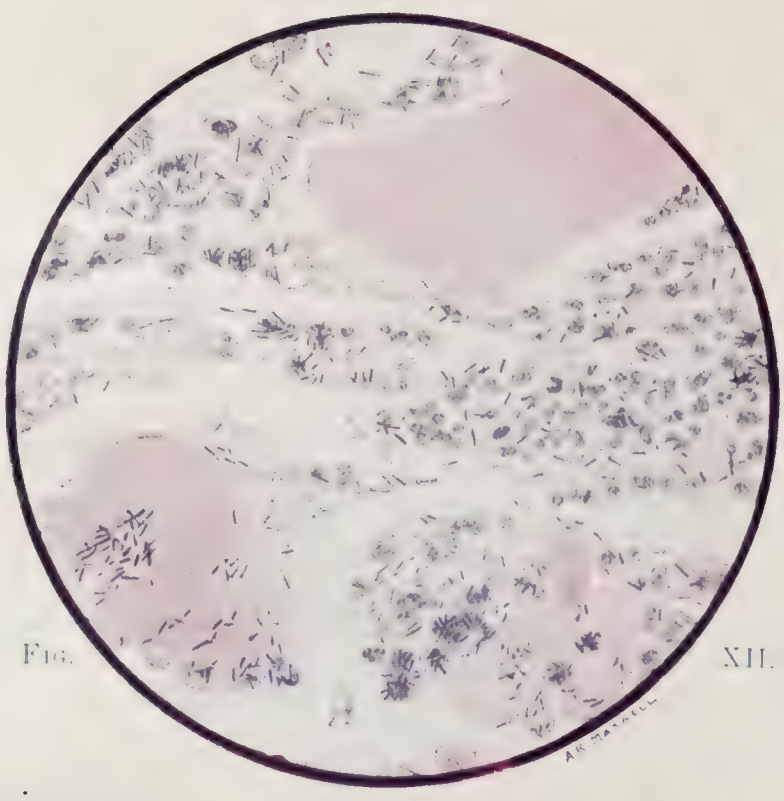


FIG. XII.

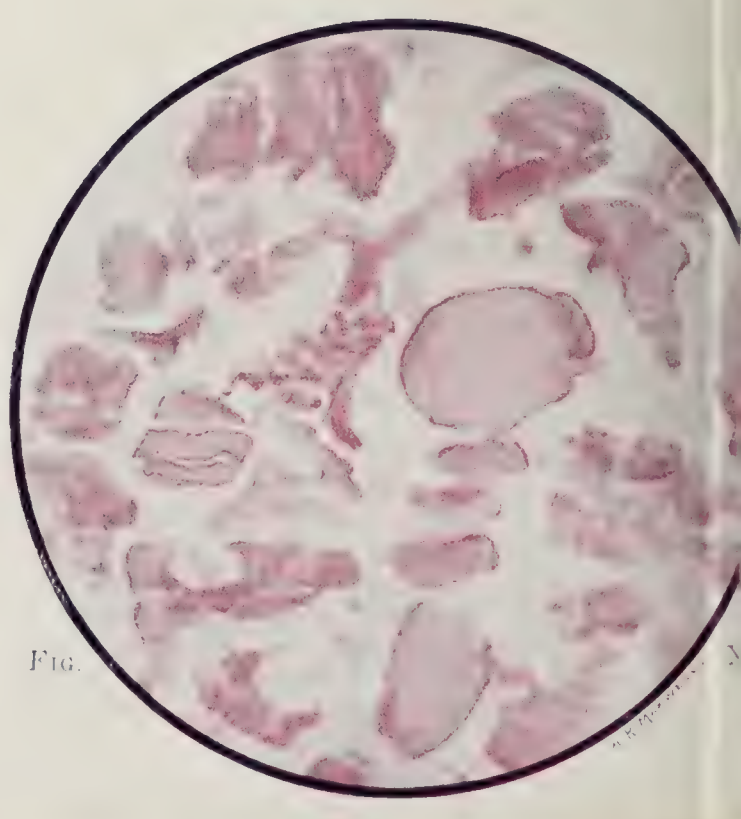


FIG.

LIBRARY U. OF I. URBANA-CHAMPAIGN

THE METHOD OF SPREAD OF GAS GANGRENE INTO LIVING MUSCLE.

[WITH COLOURED PLATE.]

BY

CAPTAIN J. W. McNEE, M.D., R.A.M.C.,

AND

CAPTAIN J. SHAW DUNN, M.A., M.D., R.A.M.C.

(A Report to the Medical Research Committee from a Mobile Laboratory in France.)

THIS contribution to the pathology of gas gangrene deals primarily with the method of spread of the acute disease into living muscle.

In our experience gas gangrene is essentially a muscle disease, and we have never seen it commence where injury of muscle could be excluded. The somewhat rare cases of "metastatic" gas gangrene, such as those described by Mullally and McNee,[1] Kenneth Taylor,[2] etc., come into the same category, the primary focus in every instance being in damaged muscular tissue. No example of gas gangrene beginning in, and remaining localized to, the subcutaneous tissue has been met with, and a condition spreading below the skin which is met with in base hospitals would appear to merit some special investigation before a relationship to the general type of gas gangrene can be established.

Clinically, the rapidity of spread of gas gangrene into living muscle, once the disease has begun, is so remarkable as to demand some definite explanation such as has been sought for by histological methods and is suggested here.

The varieties of the acute disease investigated in this way are sufficiently indicated in the articles published by Cuthbert Wallace, and by Frankau, Drummond, and Neligan. Part of our histological material, indeed, was obtained from the actual cases described by these writers.

The disease may commence in a wounded limb within an extraordinarily short time after the injury. The earliest case of gas gangrene examined histologically showed the condition already established three and a half hours after the wound was received, and we have seen massive gas gangrene of a limb lead to a fatal issue twelve hours after a wound of the thigh.

A point worth notice is that death may occur quickly, following a comparatively slight wound, when examination *post mortem* shows gas gangrene involving only a small bulk of actual muscle tissue. The material elaborated by the bacilli, therefore, whether it be a true toxin or not, is at any rate a powerful systemic poison. Sir Anthony Bowlby has pointed out to us that cases of this kind may very readily be mistaken for death from shock alone.

Wounds involving main blood vessels—for example, the popliteal artery—are notorious for the frequency with which gas gangrene develops in the distal segment of the limb, and it is necessary to point out here that there are differences between the spread of gas gangrene following such an injury and the invasion of living muscle. Where the main artery is cut, massive or "group" gangrene generally occurs, whole groups of muscles being involved from end to end simultaneously by the growth of organisms throughout the muscles from which the blood supply has been cut off.

The spread of gas gangrene into living and healthy muscle, with an intact blood supply, is a different and less easy problem, with the solution of which this paper is mainly concerned. With regard to this, two facts must here be briefly brought to mind. One of these is the clinical observation, now well established and borne out by the microscope, that gas gangrene tends to spread in the longitudinal axis of muscles, so that single muscles are involved from end to end while neighbouring ones are untouched. It must also be remembered that individual muscle fibres stretch without interruption from one tendinous attachment to the other.

It is essential, in investigating the spread into muscle, to work on material which is absolutely fresh. Most of the examinations have been made on limbs amputated for gas gangrene, and brought at once to the laboratory while the healthy muscles were still contractile. Other tissues examined were either from single muscles removed by operation or from *post-mortem* examinations carried out within an hour or two at most after death. Unless fresh material is used, quite fallacious conclusions may be drawn, since, especially in summer time, the organisms proliferate and produce gas with extreme rapidity in the warm body after death.

In amputated limbs, and in the stumps left at operations, we have had ample opportunity of proving that the anaërobic organisms are present in the healthy muscle at a considerable distance from the actual seat of the gangrene. Thus the presence of the organisms in the muscles, even though abundant, does not constitute gas gangrene, and, indeed, such infected muscles may never become gangrenous. This is well seen in amputation stumps, known to be infected, but in which no recrudescence of the gangrene occurs after the operation, in a majority of cases.

DESCRIPTION OF COLOURED PLATE.

Figures VIII, IX, and X represent the conditions found at different levels in a single block of tissue from the advancing margin of gas gangrene. Between Figure VIII and Figure IX there is an interval of 2·5 mm. of length, and the same distance between Figures IX and X.

Fig. VIII.—Normal muscle in transverse section, just beyond the edge of the spreading gangrene. (Haemalum and eosin.)

Fig. IX.—Muscle from as nearly as possible the visible advancing edge. Note the marked contrast between the dead coagulated fibres, which are separated off from their sheaths, and the paler normal fibres. (Haemalum and eosin.)

Fig. X.—All the fibres are here degenerated, but their sarcolemmal nuclei still appear intact. Separation of the fibres from their sheaths is everywhere complete. (Haemalum and eosin.)

Fig. XI.—This shows the distribution of organisms at a comparatively early stage. There are large numbers of bacilli in the reticulum, but they have not yet invaded the fibres. This stage is slightly more advanced than that depicted in Fig. X, and the nuclei of the sarcolemma have disappeared. (Leishman's stain.)

Fig. XII.—Phagocytosis of anaërobic bacilli in a zone where the process of gas gangrene has been arrested. The leucocytic reaction is in remarkable contrast with the previous figures. (Leishman's stain.)

Fig. XIII.—A late stage of gas gangrene, showing complete disintegration of muscular fibres and reticulum. In this material organisms were present in large numbers, and frequently in the substance of the fibres. (Haemalum and eosin.)

BACTERIOLOGY.

The bacteriology of the acute disease will be referred to only briefly, as so much has already been published on the varieties of anaërobic bacilli to be found. It is enough to say that all our work has been done on acute and often fulminating cases, such as are seen in casualty clearing stations on the front. In these cases mixed anaërobic infections are the rule, but sufficient work has been done in isolating the different organisms to incriminate the *Bacillus aërogenes capsulatus* (*B. perfringens*) as the commonest and most abundant organism present. It appears often to be the only organism which is isolated from the spreading margin of the gangrene at a distance from the wound. The biology of this organism, with its powerful fermentative action on sugars and resulting evolution of gas, fits in very well with the extraordinary rapidity of spread of acute gas gangrene.

A number of experiments to reproduce a spreading gas gangrene have been carried out in animals to amplify and confirm the findings in human tissues. These will be referred to again later on.

HISTOLOGICAL CHANGES.

The material examined histologically was almost always embedded in paraffin, after fixation in 10 per cent. formalin, or in corrosive sublimate; frozen sections and tissue fixed by boiling were also used for the investigation of certain important points. Muscle taken for examination must be handled with great care or fallacies from artificial separation of the fibres may arise. The histology of single muscles, removed at operation and necessarily pulled on in the act, required, therefore, careful consideration before conclusions could be drawn from the sections. The best material was obtained from amputated limbs, in which the individual muscles could be carefully dissected, and pieces cut out with a sharp knife or razor, all pulling being avoided.

In a few cases only we have had the good fortune to

obtain a muscle with fairly long fibres, in which the advancing edge of a spreading gas gangrene could be clearly recognized. It is from these fortunate instances, however, by the examination of serial sections, that most of the information has been obtained of the method of spread. Macroscopically the appearance of this spreading margin is interesting. It is sometimes fairly sharp, but in other instances is irregular, from the process having spread further along some fibres than others. The muscle fibres at the margin are paler and duller than the normal, but the colour change is little more than might be accounted for by total absence of blood in the part involved. The outer limit of the process, while indefinite, can be mapped out fairly closely if the healthy muscle beyond is still contractile (in tissues examined very soon after amputation), as contractility is lost in the part becoming gangrenous. At the advancing edge also the muscle tissue is very much firmer to touch than the healthy fibres beyond, and this firmness passes back into the obviously gangrenous muscle behind.

When the whole of the advancing edge is cut out, along with a margin of tissue on either side of it, and examined in serial transverse sections, the appearances presented are very striking, and are shown in the first three microscopic drawings (Figs. VIII, IX, and X).

Figure VIII represents the muscle in transverse section just beyond the furthest limit of the advancing gangrene; the muscle here was still healthy and contractile. The muscle fibres appear normal, and are seen to be made up of fibrils which show as dots in the transverse section. The cracks in the fibres are artefacts produced in the cutting of the paraffin sections. They occur so constantly in transverse sections of normal fibres that they can almost be taken as characteristic of healthy muscle. The flattened nuclei of the sarcolemma are well seen, and also the interstitial tissue between the fibres, which carries the blood vessels, lymphatics, etc.

Figure IX is from a section taken from as nearly as possible the advancing edge, as seen by the naked eye. The muscle here had lost its contractility. Various normal fibres are seen, with characters as above, while others exhibit a very striking change. The staining reaction is different, being an almost uniform eosin tint, while the dots indicating the individual fibrils are lost. These fibres are not shrunken, but on measurement are often found to be somewhat swollen. In spite of this, however, these fibres are well separated off from the interstitial connective tissue, to leave what appears in the section as a clear space. Occasionally the separation of reticulum from fibre is partial, and confined to a sector only; but even in such instances the fibre still shows the uniform eosin tint indicative of degeneration. The sarcolemmal nuclei of the separated fibres still stain brightly. The contents of the spaces between the altered fibres and the interstitial meshwork will be discussed later, and it may simply be noted here that such fibres are obviously cut off from their blood supply in the interstitial tissue.

Figure X is from a section taken from the tissue 2½ mm. behind the one just mentioned, and in it all the fibres have undergone the degenerative change described above. The fibres are all separated off completely from the interstitial tissue, which forms a regular network between them. The regularity of the network is in no way exaggerated in the drawing, and no difference would be observed in a colour photograph of many of our sections. The nuclei of the sarcolemma are at this stage stained as in the normal fibres.

In longitudinal sections of tissue taken to include the advancing edge, the process is less striking to the eye, as it is impossible to get complete lengths of fibres in any one longitudinal section. The appearances are quite easy to follow, however, having in mind the information obtained from the transverse sections. A fibre which stains normally can often be traced to a point where, quite suddenly and with a very definite edge, the colour change to the strong uniform eosin tint is met with, and the normal striation disappears. Practically coinciding with the colour change, which no doubt represents the margin of death of the fibre, the interstitial tissue is seen to separate off and leave the clear space which is so obvious and striking in the transverse sections.

The significance of these observations may now be briefly dealt with.

In transverse sections stained for organisms these are found far beyond the edge of the gangrene in the interstitial tissue between the healthy fibres. What, then, determines the advancing death of the individual fibres? The whole question seems to us to be bound up in the contents of the spaces left between the degenerated fibres and the meshwork of interstitial tissue. The altered fibres are not shrunken, and the muscle at the spreading margin is tumid and increased in bulk. This swelling is evidently due to the extra room taken up by the spaces described. It was a tempting view to take, that these spaces might be filled by gas alone, which, by the mechanical effect of pressure and by cutting off the fibres from their blood supply in the interstitial tissue, might lead to their speedy death. Attempts were made to prove this view correct by cutting thick frozen sections of fresh unfixed tissues, and looking for evidence of gas under the microscope, but none could be detected. On the other hand, in tissues fixed in corrosive sublimate, and more especially in material fixed by boiling before being embedded in paraffin, evidences of amorphous deposit in the spaces were found, which seemed to point to the contents being a fluid. In tissues fixed in formalin, from which the drawings were made, the spaces almost invariably appeared quite empty, and free from anything which stained. We therefore are of opinion that a toxic fluid, perhaps similar in constitution to the oedema which always accompanies gas gangrene to a greater or less extent, spreads along between the interstitial tissue and the fibres, killing off the latter as it advances. Once the fibres are killed, the anaërobic bacilli live on them practically as saprophytes, breaking down the sugars and producing abundant gas. This process is in strong contrast to what occurs in healthy muscle, where the presence of the organisms is without effect on the living fibres.

The rapid spread of the disease into living muscle can, we think, be explained on these lines. Fibres, each of which stretch without interruption for a considerable distance, are killed in the manner which has been described, and the dead tissue is then rapidly broken down and gas formed. The circle is a vicious one, for the toxic fluid which spreads between the fibres is no doubt formed in the gangrenous tissue behind, and so the condition spreads until the ends of the fibres are reached. This view also gives a satisfactory explanation of how single muscles may be found gangrenous, no spread having occurred to others close at hand. No opinion can yet be given as to the nature of the toxic fluid, which may either be a true bacterial toxin or something dependent on the breaking down of tissues.

Other points brought out by histological examination may now be referred to. With regard to the route followed by the organisms, these are, at the spreading edge, never found in the muscle fibres themselves, but are practically confined to the reticulum (Fig. XI). When the fibres are dead and being broken down, the bacilli invade the disintegrating fibres in numbers. At a later stage (Fig. XIII) all definite muscular structure becomes lost and gas is present abundantly between the remnants of the fibres. It is interesting to note that in muscle at this advanced stage of the disease the number of organisms appears much less than in the spreading zone. This is evidently partly due to many organisms staining badly, so that ghost forms are numerous. It seems probable that this stage, once reached, is inimical to the life of the bacilli, so that many are destroyed and disappear.

In rapidly spreading gas gangrene leucocytes are generally conspicuous by their absence in the muscular tissue involved (although they may be present in some number in the interfascicular planes). The mere speed of progression of the process in muscle may probably account for this, as a leucocytic reaction takes some time to develop. Where the spread of gas gangrene is being arrested in muscle, great leucocytic invasion is present. This is well shown in Fig. XII, taken from a muscle in an amputation stump. Here a recrudescence occurred in the stump, but was arrested after spreading a few inches only. Macroscopically a very definite pale zone was visible, and in section abundant phagocytosis of bacilli by polymorphonuclear leucocytes was found.

Control Experiments on Animals.

A considerable number of experiments have been carried out in animals to control the conclusions arrived at by the study of human tissues. Large rabbits were used, because

LIBRARY U. OF I. URBANA-CHAMPAIGN

of their long hind legs, in which the spread of the disease could be watched at different stages. Gas gangrene being a disease of muscle, all the inoculations were made intramuscularly into the gastrocnemius or soleus. Several facts of considerable interest were brought out:

1. A spreading gas gangrene of the limb, quite comparable with the same disease in man, could be produced in rabbits, sometimes leading to a fatal result.

2. The surest method of inducing this result was by the injection of about one cubic centimetre of the fluid expressed from a human muscle showing fairly advanced gas gangrene. This fluid contained abundant bacilli, and all the products of tissue disintegration.

3. When the fluid obtained in this way was first passed through a Berkefeld V filter to remove the organisms, intramuscular injection led to marked local necrosis of muscle fibres, accompanied by considerable leucocytic reaction. No spreading oedema or separation of muscle fibres at all comparable with that described in human tissues could be brought about.

4. A rapidly spreading fatal gas gangrene was produced in one instance only by the injection of a pure culture of *B. perfringens* isolated in culture from a fulminating human case. In this experiment a haematoma of considerable size had been caused in the muscle at the site of inoculation, and this may have provided the dead tissue necessary to start the spreading disease. In tissues from this animal all the changes noted in the spreading margin of the disease in man were perfectly and completely reproduced. In some sections normal fibres were seen lying side by side with others of a deep eosin tint and separated off from the reticulum. At another place the appearances corresponded exactly with those shown in Fig. X, the sharpness and regularity of the interstitial network being very striking.

5. Other experiments carried out with pure cultures of *B. perfringens*, isolated from human cases, led only to a local gangrene at the seat of inoculation, round which a zone of granulation tissue quickly formed, completely walling off the damaged tissue.

CONCLUSIONS.

1. The rapidity of spread of gas gangrene into living voluntary muscle is so remarkable as to require explanation by a different process from that which governs ordinary septic invasion of tissues.

2. It is suggested that the facts are accounted for by the peculiar anatomical structure of muscular tissue. The sheaths enclosing the long individual fibres are so easily detachable as to form potential spaces into which toxic material can readily pass, causing necrosis of the fibres.

3. The early selective invasion of single muscles is consistent with the above view.

We wish to thank Colonel Cuthbert Wallace, C.M.G., consulting surgeon, for his help and interest in this work. The drawings from microscopic sections were made by Sergeant A. K. Maxwell, R.A.M.C., working under the auspices of the Medical Research Committee.

REFERENCES.

[1] Mullally and McNee, BRITISH MEDICAL JOURNAL, April 1st, 1916.
Kenneth Taylor, *Lancet*, December 23rd, 1916.

THE SUCCESSFUL CONSERVATIVE TREATMENT OF EARLY GAS GANGRENE IN LIMBS BY THE RESECTION OF INFECTED MUSCLES.

BY

C. H. S. FRANKAU, LIEUT.-COL. R.A.M.C.(T.F.),
HAMILTON DRUMMOND, CAPTAIN R.A.M.C.(T.F.),
AND
G. E. NELIGAN, CAPTAIN R.A.M.C.(T.C.).

Among the points brought forward by Colonel Cuthbert Wallace in an article on gas gangrene[1] published in this JOURNAL some months ago were the following:

1. It is rare to meet gas gangrene without muscle injury.

2. It is chiefly a disease of muscles, and is rarely dangerous unless muscle is involved.

3. The lesion in its early stages may be described as a longitudinal one, running up and down the wounded muscles from the seat of the lesion. Muscles, or groups of muscles, are involved, while others escape.

4. It is rare to find all the muscles of a segment of a limb involved, save in a segment distal to one in which the main blood supply has been cut off. Thus the whole leg dies and becomes gaseous when the femoral artery has been blocked in the thigh.

5. There is little tendency for the infection to pass from one muscle to another. This is well shown in amputation stumps, where one muscle dies and becomes gaseous, while the rest of the cut muscles remain healthy.

From our own observations in clearing stations over a period ranging up to twenty-one months it is abundantly clear that these points cannot be controverted. In no case have we seen gas gangrene commencing as a subcutaneous infection; injured muscle is in all cases the initial focus, the appearance of crackling in the subcutaneous tissues being a secondary phenomenon, due to extravasation of gas from the infected muscles below.

RESECTION.

In view of this, it has been our aim to model our treatment on the following lines as soon as the condition is diagnosed: To explore the primary focus with a view to attempting to arrest the infection in the muscle, or group of muscles, involved by resection of the infected areas. Such resection may, as will be seen from the cases, involve a part or the whole of single muscles, or groups of muscles.

Resection should be limited to cases in which the main vessel of the limb is intact, and should be replaced by amputation where the operation must be so extensive as to be likely to give a limb which would be of less value than an artificial limb. Extensive resections, however, may be performed regardless of the ultimate utility of the limb as a life-saving operation, it having been quite clear in some of the cases recorded below that an amputation, as in Case XIII, or a further amputation, in Cases VII and IX, could not have been carried out without very grave risk to life. Resection should extend until muscle is reached which has the following characteristics:

1. The colour is unchanged.
2. The contractility is normal.
3. A good blood supply is present, as indicated by free bleeding from the cut surface.

Experience has shown that even if such muscles are, as they may be, slightly infected, free drainage and an open wound will arrest further development of the condition.

After-Treatment.

The treatment of cases after resection is carried out on the following lines: (1) The dressings are reduced to the absolute minimum—that is, one or two layers of gauze only are placed over the wound so as to allow free access of air and, if possible, sunshine to the wound region; (2) constant or intermittent irrigation of the wound by some modification of the Carrel method—eusol, saline, or hydrogen peroxide being used as the irrigating fluid.

In connexion with the cases described below, the point must be specially emphasized that gas gangrene had already developed in some patients, though they were admitted a very short time after being wounded. In fact, in units at the front established gas gangrene has to be treated *ab initio*, in addition to gas gangrene developing at a later stage.

We are indebted to Colonel Cuthbert Wallace, consulting surgeon to this army, for advice and assistance in the treatment of these cases, and to Captain J. W. McNee and Lieutenant J. S. Dunn, of No. 3 Mobile Laboratory, R.A.M.C., for the bacteriological and pathological investigations they have made in the cases.

CASE I.

Lieut. F., wounded 4 p.m. on November 2nd, 1916, by rifle grenade fragment; admitted at 7.15 p.m. the same day, that is, three and a quarter hours after being wounded.

When admitted he was clearly very ill, although he arrived as a walking case; his pulse was 120, of poor quality and irregular, his tongue was furred, and his features pinched and worn. There was an irregular wound the size of a threepenny-piece (that is, about 1.6 cm. in diameter) on the posterior aspect of the right arm just above the internal condyle of the humerus; there was no exit. The whole upper arm appeared

swollen; it was crepitant to the touch, and gave a tympanitic note on percussion. The crackling was most marked on the inner aspect of the arm, and extended as high as the anterior axillary fold above in front, but to not quite so high a level behind.

He was given a general anaesthetic at 8 p.m. The wound of entry was first excised; much damage to the triceps was found locally, and the projectile could be felt to the inner side of the vessels in the front of the arm at the junction of the lower and middle thirds; a second incision was made over this, when the subcutaneous tissues were found to be oedematous, and the biceps muscle showed evidence of gas infection. A further incision was accordingly made along the whole length of the biceps muscle from its origin to attachment; this showed the following conditions: some bruising of the inner border of the muscle at the situation of the projectile; discoloration of the inner half of the muscle, varying from a dull red colour at either end to a deep plum colour in the centre. Over the discoloured area bubbles of gas were present under the fascia covering the muscle. This half of the muscle did not react to tap stimulation, whereas the outer half was normal in colour, and contracted sharply on stimulation. As this appeared to be an infection localized to the inner half of the muscle, the latter portion was resected in its entirety.

A tube drain was inserted into the posterior wound; the anterior wounds were left open, small tubes being inserted for continuous eusol irrigation, which was commenced immediately after the operation was completed. The pulse dropped to 88 six hours afterwards and never rose above this again. The wounds remained clean without pus formation, and on November 9th were closed by secondary suture and the eusol irrigation discontinued. The wounds remained healthy and were practically healed when he was evacuated to the base on November 17th. He had already very fair power in his arm and the remaining portion of the biceps could be felt contracting.

Pathological Report.—An anaërobic gas-forming organism was grown from the excised muscle, which, on histological examination, showed hyaline degeneration of groups of fibres with separation. This condition represents a very early stage in the process of gangrene. Long bacilli could be recognized between the muscle fibres, but they were very scanty.

The extreme rapidity of the infection in this case is remarkable, occurring as it did within three and a quarter hours of the time of injury. It was, in fact, the earliest case we have ever seen. There is no doubt that if any delay had occurred in the treatment the consequences would have been disastrous owing to the virulence of the infection; the patient would have lost his limb if not his life. The treatment by resection of half of the muscle rather than the whole, which at first sight would seem to have been the better course, was due to the fact that the infection is known to spread longitudinally along the length of the fibres and that transverse spread is a late phenomenon occurring in the more advanced stages. The differentiation between living and dead portions of the muscle was made from the presence or absence of contractility, it being well established that heavily infected muscle is non-contractile. (C. H. S. F.)

CASE II.

Lance-Corpl. D., wounded by shell fragment on July 2nd, 1916, was admitted twenty-four hours later, when the following condition was found. Temperature 102.6°, pulse 118; there was a through-and-through wound in the middle of the left upper arm; the arm was greatly swollen in the neighbourhood, and tender on palpation. Subcutaneous crepitation was present.

At the operation, which was performed at once, the biceps muscle at the site of the wound was found to be in a state of "black death," and was full of gas; for two inches above and below this the muscle was non-contractile and in the "red death" stage. A long incision was made over the whole length of the biceps and the entire muscular portion was excised. The wound was dressed with gauze soaked in peroxide until all oozing had ceased, and then was left exposed to the air and sun under a single layer of gauze.

The patient vomited a good deal for two days after the operation, but on the third day this ceased, and his temperature and pulse dropped to normal, and remained so. No other muscle was affected, and the resection was entirely curative, and conserved his limb. He was sent to the base on July 11th with a healthy granulating wound, and a satisfactory report on his condition was received from England on July 26th. (G. E. N.)

CASE III.

Pte. O. was admitted at 7.30 p.m. on October 29th, 1916, suffering from multiple shell wounds received the same afternoon. His general condition was good; there was a penetrating wound of the right chest, an in-and-out wound of the right calf, and a penetrating wound of the right biceps muscle.

The next day he was given a spinal anaesthetic, and the wound in the leg was incised and drained. On the following day his condition was not so good, and he complained of pain in the right arm; pulse 106, temperature 101.8°. The wound in his arm was the size of a sixpence (1.9 cm.), and was situated over the centre of the biceps muscle. The arm was swollen, and the skin was tense and slightly discoloured in the region of the wound. On gentle pressure a small amount of dirty serum with gas bubbles in it escaped from the wound. A general anaesthetic was given, and the biceps muscle exposed by a long incision. In the middle third of the muscle, deeply situated, there was a small cavity containing a fragment of shell; above and below this for a distance of two inches was an area of dead crepitant muscle. The whole necrotic area was excised until healthy muscle was reached, which bled on section. The wound was left freely open, and dressed with eusol gauze.

He made a straightforward recovery, and was evacuated to the base on November 12th. The wound in his arm was then healthy and ready for secondary suture.

In this case immediate improvement followed resection of the infected muscle. (H. D.)

CASE IV.

Pte. G., wounded on July 24th, 1916, was admitted the same day with shell wounds of the right buttock, right calf, and skull.

Immediate operation by trephining; wounds of buttock and calf drained and a piece of metal removed from the soleus muscle.

Twenty-four hours later the calf was very swollen and tender and gas bubbled from the wound on pressure; the temperature was 102° and the pulse 112. An anaesthetic was again given and the calf opened up from the lower part of the popliteal space to 3 in. from the ankle. The gastrocnemius was split down the mid-line and found to be healthy and contractile; the soleus beneath along the track of the projectile was found to be in the "black death" stage of gangrene; it was crepitant and no part of the muscle was contractile. As much as possible of the muscle was cut away and the wound was flushed out with peroxide and left open to the air, the limb being slung in a cradle for this purpose. The patient was given 100 c.cm. of 5 per cent. eusol solution intravenously at the end of the operation.

Rapid improvement followed; the temperature and pulse dropped to normal on the next day, and he was evacuated to the base on July 30th, with normal temperature and pulse. The head wound had healed and the other wounds were clean.

A note from the base hospital stated that he was sent to England on August 5th, 1916, having made an uninterrupted recovery. (G. E. N.)

CASE V.

Second Lieut. G., wounded in the left leg by a rifle bullet at close range at 2.30 a.m. on October 11th, 1916; he was admitted at 9 a.m. and operated on immediately.

There was a through-and-through wound in the upper and outer part of the left calf, the wounds of entry and exit being of about the same size and just large enough to admit the tip of the finger. The wounds were excised and freely drained by means of two large tubes after irrigation with eusol; the wound appeared to be a comparatively trivial one.

Eighteen hours later the pulse, which had been previously normal, ran up to 120, and he showed signs of profound toxaemia; the upper part of the leg was swollen and tender and the skin was glazed; there was no subcutaneous crackling. An anaesthetic was again given and the entire track of the wound, which was about three inches long, was laid open by division of skin and intervening muscles. The peroneus longus and brevis muscles were found to be considerably lacerated; they were altered in colour, crepitant, and non-contractile. The dead portions were cut away until healthy bleeding muscle was reached, which contracted on stimulation. The wound was left open and treated with continuous eusol drip irrigation.

Immediate improvement followed, the pulse dropping to normal within a few hours. He was evacuated to the base nine days later with a healthy granulating wound.

Anaërobic gas-forming organisms were found on culture in the dead muscle removed.

This case is of interest, as the infection commenced in spite of free and early drainage. Resection of the infected area cut the process completely short. (C. H. S. F.)

CASE VI.

Corpl. E. was admitted at 5.30 p.m. on August 27th, 1916, having been wounded by a shell fragment at 7 p.m. the previous day. On admission he looked flushed, the tongue was dry, the pulse 126, and the temperature 103°. There was a wound of entry the size of a shilling (2.3 cm.) over the anterior tibial group of muscles at the junction of the middle and lower thirds of the leg; the wound of exit was 2 in. above the ankle-joint on the posterior aspect of the limb in the middle line. The missile had passed between the two bones of the leg. The limb was very swollen in its lower half and the skin had a white, tense, glazed appearance; there was considerable pain on palpation. No subcutaneous crackling was elicited.

On raising the limb under the anaesthetic, gas bubbles escaped from the anterior wound with some foul stinking serum. The skin wound was excised and the anterior tibial group of muscles were explored through a 6 in. incision. The extensor longus digitorum muscle was exposed, this had been divided across by the missile; the retracted ends showed an opaque sheath with underlying dead non-contractile muscle for an inch on either side of the wound. The dead portions were cut away until normal vascular muscle was reached at either

LIBRARY U. OF I. URBANA-CHAMPAIGN

end. About two and a half inches in all were cut away from either end; the anterior tibial artery was exposed at the bottom of the wound, but was uninjured. The extensor longus hallucis looked healthy and contracted well. The posterior muscles were not markedly damaged and were not interfered with. The wound was drained and drip irrigation with eusol commenced.

The patient made an uninterrupted recovery, and was evacuated to the base on September 3rd; his pulse was then 90 and his temperature 99°. The wounds were granulating.

An anaërobic gas-forming organism was isolated from the removed muscle, which, on section, showed necrosis and irregular fragmentation of muscle fibres; there was oedematous thickening and leucocytic infiltration of the interstitial connective tissue. Large bacilli were present in considerable numbers between the dead fibres.

This case clearly shows the longitudinal spread of the infection in the muscles and how free resection of the diseased muscle arrests any further spread of the infection. (H. D.)

CASE VII.

Pte. C. was wounded at 4 p.m. on July 29th, 1916, by a shell fragment in the region of the left knee. On admission five hours later his condition was very bad owing to loss of blood; the pulse was 150.

Six hours later after warmth and stimulation he was fit for operation, and the wound was explored. There were two lacerated wounds on each side of the popliteal space which had evidently been traversed from within outwards; examination showed an extensive fracture of the head of the tibia involving the knee-joint. The pulsations of the main vessel could not be felt; the gastrocnemius and soleus muscles were extensively lacerated. The wound was freely drained after irrigation with eusol.

The next day his condition was satisfactory until 8 p.m., when his pulse was 120 and his temperature 102.4°. The region of the wound was more swollen and the skin over the calf had the appearance of a bruise which was fading; percussion gave a tympanitic note over this area; there was no subcutaneous crackling. The knee-joint was also resonant from the presence of gas. The lower third of the leg was cold, and there were several light purple patches over the dorsum of the foot.

The leg was removed by disarticulation at the knee-joint; examination showed occlusion of the popliteal artery from a bruise wound and a large hole in the popliteal vein—the gastrocnemius and soleus muscles showed marked gas gangrene.

He was much improved the next day, but on the following day his pulse was 120, and his temperature 101.4°; the lower third of the thigh was swollen, tender to the touch and resonant to percussion; it was evident that the infection was spreading up the muscles of his thigh. Under chloroform an incision was made up the back of the thigh and the semimembranosus muscle was found to be gaseous and stinking. It was followed up to the middle of the thigh and resected at this point as the fibres were found to be healthy there. The anterior aspect of the thigh was then explored and the sartorius muscle found to be similarly infected in its lower part; the distal four inches were resected through healthy muscle.

The wounds were left exposed to the air, being covered by one layer of gauze only; the wound was kept irrigated by a constant eusol drip. The thigh was slung so as to take the weight off the muscles of the back of the limb; suspension was effected by means of a gauze band attached to the exposed condyles of the femur. From this time on he commenced to improve; on the following day his pulse was 96 and temperature 101°. On August 3rd the stump of the popliteal artery, which was lying in a bed of sloughing muscle, commenced to ooze; in order to avoid a secondary haemorrhage the femoral artery was ligated in Hunter's canal under local anaesthesia. After this he continued to improve, and was evacuated to the base on August 15th.

The muscles were infected with a pure culture of *B. perfringens*.

It was impossible even to attempt to save the limb in this case by resection of muscle in the first instance owing to the occlusion of the popliteal artery. When the secondary spread of infection occurred into the thigh muscles after the amputation his general condition became rapidly so bad that a further amputation would have been inevitably fatal. Resection of the infected muscles was the only satisfactory course to adopt, as proved to be the case. (H. D.)

CASE VIII.

Pte. P., wounded August 28th, 1916, was admitted the same day. There was a through-and-through wound of the left thigh, with compound fracture of the femur in the upper third. He had had much haemorrhage before admission, and was very collapsed on admission; pulse 140, temperature subnormal.

Twelve hours later he had improved sufficiently for operation; both wounds were freely opened up, lacerated muscle, fragments of bone, and the case of a bullet being removed. The outer wound was kept open with a silver retractor, and both were lightly packed with eusol gauze. The limb was immobilized on a Wallace-Maybury splint, and the wounds were syringed every two hours with eusol.

The patient had a good night, but next morning his temperature and pulse began to rise; he complained of pain in the limb and of great thirst, and the tongue became dry and brown. The limb was found to be swollen and tense, and had a characteristic odour. There was no skin crepitation and no gas bubbles from the wound. An immediate "chaff-cutter" amputation just below the trochanters was performed; as the adductor muscles were found to be in the red stage of gas gangrene, they were completely excised from the stump. The wound was dressed for twenty-four hours in gauze soaked in peroxide, and then left exposed to the air under one layer of gauze.

Within two days the temperature dropped to normal and the pulse to 90; none of the other muscles in the stump showed any sign of being infected, and he was evacuated to the base on September 15th with a granulating wound.

A laboratory report confirmed the diagnosis of gas gangrene.

This method of removing a group of infected muscles was also carried out in another case five days after amputation, the adductors here being also removed. No spread occurred in the other muscles. (G. E. N.)

CASE IX.

Lieut. B., wounded at 1 a.m. on September 13th, 1916, by shell; the right leg was shattered in the lower third. He was admitted at 3.30 a.m. the same day.

Primary amputation by equal lateral flaps at the middle of the leg was performed at 4 a.m. It was noticed at the operation that the anterior tibial artery was occluded; there was no change in the muscles, which were contractile and apparently healthy. The wound was freely irrigated with eusol, and the flaps which were free were united loosely with three sutures. Free drainage was provided by means of two tubes, which also served for constant eusol irrigation, which was started at once. The pulse before the operation was 90; at the end it was 88.

Twenty-six hours later the pulse ran to 120, the tongue became furred and dry, and the patient was drowsy and obviously very ill. Examination of the wound showed mottling of the skin over the front of the leg, together with a tympanitic note on percussion over the same area; there was no crackling of the subcutaneous tissues. The wound was at once opened up, when it was found that the entire anterior tibial group of muscles were a brick-red colour, non-contractile, and quite dead. They were removed *en masse* and the wound was left open under constant eusol drip irrigation.

The general condition remained bad for twenty-four hours, with rapid pulse, drowsiness, and persistent vomiting. Steady improvement then followed, and the patient was sent to the base on September 22nd with a healthy granulating wound.

The removed muscles were found on culture to be heavily infected with gas-forming organisms.

The only other alternative in this case would have been a further amputation through the thigh, which it is doubtful if the patient would have survived. Resection of the muscles avoided this additional danger and gave the patient a much more serviceable stump, as the knee-joint was saved. (C. H. S. F.)

CASE X.

Pte. P. was wounded by shell fragment on July 23rd, 1916. When admitted on July 24th the temperature was 103.6°, and the pulse 120. There was a through-and-through wound of the left thigh, the entry being on the inner side, 3 in. above the patella, and the exit 2 in. higher up on the outer side. The exit wound was swollen, tense, and tender, but did not crepitate.

Both wounds were excised and united by incising the skin. There was some laceration of the edge of the vastus internus; this was cut away; the muscle looked normal, and was contractile. The rectus femoris was grooved on its under surface, but appeared otherwise normal. The exposed inner edge of the vastus externus was brick-red and non-contractile, and smelt strongly of gas gangrene. An area of 4 in. by 2 in. of the muscle showed signs of recent death; the parts beyond were normal and contractile. A free skin incision was made, and a piece of muscle 8 in. by 3 in. enclosing the affected area was excised. The wound was dressed in gauze soaked in peroxide, and later exposed to sun and air.

The temperature and pulse steadily fell, and by July 30th were 99° and 76 respectively. He was sent to the base on that day; the wound was then healthy and granulating, and there was no sign of further gas infection.

A report from the mobile laboratory stated that the infection was due to an anaërobic gas-forming organism. (G. E. N.)

CASE XI.

Pte. M., wounded on August 29th, 1915, by shell fragment in the left groin. There had been much haemorrhage at first, necessitating saline infusion in the field ambulance, where he was retained until midday on August 31st.

On admission his condition was grave; tongue brown and dry, pulse 130. There was a ragged wound of entry the size of a shilling (2.3 cm.) an inch and a half below Poupart's ligament and just to the inner side of the femoral vessels; the skin over the upper third of the thigh and for a handbreadth above Poupart's ligament was mottled and discoloured, and showed marked subcutaneous crackling.

An anaesthetic was immediately given, and the wound opened up; it was found to extend upwards and outwards towards the anterior superior spine, where a fragment of metal and khaki

was found in the sartorius muscle. The muscle in this situation was dead, and the upper third was cut away. The discoloured and crepitant areas were incised down to deep fascia, and freely injected with hydrogen peroxide. No dressing was applied, and the wound was kept constantly irrigated with hydrogen peroxide and left exposed to the air and sun.

Rapid improvement took place, and the man was evacuated to the base with a granulating wound twelve days later. No bacteriological examination was made, but there was no doubt about the condition.

At the time when this case came under treatment the significance of the muscle resection was not realized, but it seems at least probable that it cut short the process by removing the main focus of infection. (C. H. S. F.)

CASE XII.

Lance-Corpl. C., wounded in the left thigh by a shell fragment at 3 p.m. on March 13th, 1916, was admitted into hospital at 2.30 p.m. the following day.

On admission he looked flushed, the temperature was 102°, and the pulse 120. There was a jagged wound two inches long on the outer aspect of the lower third of the left thigh. There was no exit wound. The lower part of the left thigh was swollen and tense, and the overlying skin shiny. There was tenderness on palpation, and a tympanitic note was obtained on percussion; there was no subcutaneous crackling.

At 5.30 p.m. on the same day a long incision down the outer aspect of the thigh exposed the vastus externus muscle, of which the lower half was markedly affected with gas gangrene. A portion of the muscle near the wound of entry was black in colour and the muscle fibres were diffluent. The lower part of the muscle was resected up to the middle of the thigh, where healthy contractile muscle was found. As the muscle planes were separated by gas up to the level of the great trochanter, the skin incision was carried up to this level. The whole wound was left wide open and dressed with eusol gauze. At 9 p.m. the same evening he was given an intravenous injection of eusol 100 c.cm.

The pulse dropped the next day, and he showed great improvement; this was maintained, and he was evacuated to the base six days later. Information was received from England a week later that he was progressing well.

An anaërobic gas-forming organism was obtained on cultivation from the muscle removed. (H. D.)

CASE XIII.

Pte. B. was wounded by shell fragment on September 1st, 1916, and admitted the same day. There was a through-and-through wound of the thigh, the entrance being on the inner side two inches below Poupart's ligament and the exit at a corresponding point on the outer side.

Under an anaesthetic the skin wounds were excised and the track syringed with eusol and drained.

Fifteen hours later the patient complained of great pain in his thigh and of great thirst; the temperature was 101° and the pulse 110. The wound was found to be tender, crepitant, and gassy.

An anaesthetic was again given, and the whole track of the missile laid open; the sartorius, rectus femoris, and the inner edge of the vastus externus were found to be in the "black death" stage of gas gangrene. An incision was made from the anterior superior iliac spine to the knee and another along the inside of the thigh; these were stitched back to healthy skin so as to expose the wound fully. All three muscles showed the "black death" stage of gangrene at the site of the wound, toning down through the "red death" stage to normal muscle as the muscles were traced down the thigh. The muscular part of the rectus femoris was removed, and also the sartorius from its origin to just above the knee. A strip of the vastus externus for nearly its entire length and for a width of 3 in. was also excised. No other muscles appeared to be affected; the wound was dressed with gauze soaked in peroxide, and afterwards exposed to the sun and air.

For three days he was very ill, with rapid, feeble pulse, constant hiccough, and persistent vomiting; he however slowly improved, and on September 5th his pulse was 88 and temperature 100°; the hiccough still persisted. Two days later a part of the skin flap sloughed, after which he improved steadily, and was evacuated on September 11th with a healthy granulating wound, which was skin-grafted at the base hospital.

The diagnosis of gas gangrene was confirmed by the mobile laboratory. (G. E. N.)

CASE XIV.

Corpl. V., wounded in the left thigh by a shell fragment at 5.30 p.m. on September 19th, 1916, was admitted five hours later.

His general condition was good; pulse 100, temperature 99°. There was an entry wound the size of half a crown on the inner and posterior aspect of the thigh at the junction of the middle and upper thirds. The exit wound was at the outer side of the thigh in the middle third; it was very large, admitting the whole hand; the muscles were greatly lacerated. He was operated on immediately after admission; the missile had passed through the vastus externus and biceps muscles close to the femur, and had partially divided the sciatic nerve. The wound was freely drained after irrigation with eusol.

He continued to do well for two days, when the evening pulse rose from 104 to 132, and the temperature to 102°. The skin over the exit wound was now a dirty-brown colour, and the area in the neighbourhood was swollen and tender; there was no subcutaneous crackling. The skin discoloration extended to the popliteal space. A further anaesthetic was given, and the large exit wound was laid freely open. In the lower part of the wound the vastus externus muscle was found to be gangrenous; it was non-contractile and gaseous. The infected portion of the muscle was resected until healthy muscle was exposed. In the upper part of the wound the vastus externus was pale and contracted feebly; with clean instruments a piece was removed for examination, and the skin was laid freely open over the muscle. Eusol dressings were used.

Immediate improvement followed, and he was evacuated to the base on September 26th, with a normal temperature and pulse.

Anaërobic gas-forming organisms were cultivated from the dead muscle, and were also obtained on culture from the portion of muscle removed from the upper part of the wound.

This case shows the immediate improvement after resection of the infecting focus, and also that muscle may look healthy and be contractile, and yet be infected. (H. D.)

REFERENCE.

[1] Gas Gangrene as Seen at the Clearing Stations, BRITISH MEDICAL JOURNAL, September 16th, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PNEUMONIA AND TOXAEMIA.

IN the JOURNAL of May 5th, 1917, Captain Drew emphasized the distinctions between the local lesion of pneumonia and its toxaemia; and suggested lumbar puncture in highly toxic cases. The following case, recently in this hospital under the care of Professor Sir Clifford Allbutt, illustrated with almost singular clearness the distinction in question, and the doctrine then insisted upon by the Regius Professor that, speaking within limits, the toxic symptoms of pneumonia do not correspond in degree with the extent of local lesion, and that a small, almost a latent, patch of pneumonia may be attended by severe and even mortal toxic symptoms.

The case to be related illustrates the contrary side of the comparison; a very severe and extensive local lesion was attended by no toxic symptoms whatever.

M. H., female, aged 22, was admitted on March 14th, 1917. She had never before had a severe illness. Her temperature after the first few hours was 103°, the pulse 104, and the respirations 36. The attack began three days before, with vomiting; but she had, till admission, gone on with her duties as a V.A.D. nurse. She was sent into the hospital because of her temperature. Two days later crisis occurred sharply; the temperature, respirations and pulse falling to the normal in the course of a day or two. Pneumococci were found in the sputum. So far there was nothing unusual about the case. The remarkable thing was that during all this time the young woman seemed fairly well. Her face was a little flushed, but she betrayed no sign whatever of distress. There was no sense of dyspnoea, she sat upright in bed, and moved easily into any attitude. There was no loss of appetite, no debility, no nervous disorder, but good comfortable sleep. She was quite cheerful and chatty, and it was difficult to persuade her she was really ill.

Yet on physical examination the left lung was dull throughout and typical fine crepitation heard over the whole of it, front and back, but especially over the lower half behind. So startling was the contrast between symptoms and signs that until the crisis came the fear of acute tuberculosis could not be dismissed. The extent and severity of the lesion was proved by the slow disappearance of the signs of consolidation and the long persistence of crepitatio redux. However in about three weeks the pneumonia had disappeared, though during convalescence, on account of a mild attack of tonsillitis, then prevalent in the ward, her discharge was delayed. She went out quite well, and returned to her duties, scarcely having been "ill in herself" throughout.

S. RIDDIOUGH,
Acting House-Physician to Addenbrooke's Hospital, Cambridge.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Reports of Societies.

ETIOLOGY OF TYPHUS FEVER.

a meeting of the Section of Epidemiology and State licine of the Royal Society of Medicine, on May 25th, nel J. LANE NOTTER, Vice-President, in the chair, s MURIEL ROBERTSON (Lister Institute) read a paper on nt researches into the etiology of typhus. After a f historical sketch, Miss Robertson considered in detail experimental work initiated by the investigations of lle in 1909. She called attention to the numerous radictory assertions made by competent investigators, pointed out that one of the sources of these dis-ancies had been failure to allow for the fact that a iderable proportion of monkeys, the experimental ials mostly employed, possess at least a transient unity, and that among monkeys kept in captivity ll variations of temperature are quite common, so that, out careful preliminary investigation, erroneous in-ices may be drawn from temperature charts. The t of Nicolle, Conor, and Conseil, and that of Anderson Goldberger and of Ricketts and Wilder was described. conclusion was drawn that no satisfactory proof had provided of a monkey exhibiting a typical typhus ion after the injection of filtered serum from a typhus nt, and that the present state of knowledge authorizes belief that the virus of typhus will not pass a sound efeld filter. Passing to the supposed bacterial causes he disease, the opinion was expressed that the nism isolated by Plotz in 1915 from guinea-pigs ted with Anderson and Goldberger's strain of the , and subsequently incriminated by Popoff, who in-gated an epidemic in Macedonia, by Olitzky, and by er and Husk in Mexico, had better claims to be regarded ne causative agent than any other organism so far ibed. It was, however, pointed out that there were links in the chain. Thus, cultures isolated did not ice a convincing form of the disease in inoculated als, while the development of specific agglutinins ne organism during the natural disease, as observed opoff, was not a conclusive proof. Reference was made to the description by Prowazek of intraleuco-bodies staining intensely by Giemsa's method, which red about the third day of the disease, and were also in experimentally infected monkeys. The work of le and his colleagues on transmission by body lice in eys was described, as were the generally confirma-esults of Ricketts and Wilder, and of Anderson and erger. One curious point emerged from these experi-—namely, that while a full dose of virulent blood ot immunize unless it produced a febrile reaction, nsmission by lice the monkey was apparently im-ed without the production of a febrile reaction. lood of such a monkey, if injected into another y, failed to produce infection. Finally, reference ade to the recent work of Sergent, Foley, Violatta, ocha-Lima. Their results appeared to confirm the gs of Prowazek, so far as the existence of bodies g intensely by Giemsa's method was concerned, ocha-Lima believed them to be bacterial; more ly, however, he had provisionally classified them lamydozoa, and introduced the name *Rickettsia ekei*. Rocha-Lima's louse transmission experi-were positive, but, so far as the optimum tem-re at which the lice should be kept was concerned, sults were in direct conflict with those of Nicolle is colleagues, Ricketts and Wilder, Anderson and erger.

pening the discussion, Dr. JOHN BROWNLEE com-upon the fact that some confusion still apparently as to the differentiation of typhus, particularly egard to critical phenomena. His experience at w led him to support the hypothesis of transmission . In his opinion, little importance attached to ents in the older literature respecting the variable of the disease. There had been in some cases on with cerebro-spinal fever and in others with g fever. The results of a considerable number of experiments he had performed were not con-. He had also found in the blood intraleucocytic appearances somewhat suggestive of Prowazek's bodies. His experience of serum therapy had not been satisfactory.

Lieutenant-Colonel E. W. GOODALL agreed with Miss Robertson and Dr. Brownlee as to the need for caution in interpreting temperature charts. Only one case of typhus had occurred in his ward staff, and it was, in his opinion, difficult to attribute that case to lice; he thought that the head louse was a much less probable source of infection than the body louse.

Captain A. G. R. FOULERTON thought that the case against the body louse was proved; all evidence collected since the date of Nicolle's first papers tended in the one direction. He did not think that Plotz's bacillus was the causative agent of typhus, immunizing experiments having failed.

Mr. A. W. BACOT thought that what was now known respecting the life history of the louse was quite consistent with its being a transmitting agent. The question of the degree of infestation was important. It was well known that men or animals weakened by fatigue or hunger rapidly ceased to attempt to free themselves from the parasites.

Captain GREENWOOD observed that the literature contained several suggestive cases consistent with the louse theory, although not conclusive. The special incidence of typhus as well as dysentery upon the English troops before Dundalk in 1689 as contrasted with the immunity of the Dutch soldiers was interesting. The Dutch were seasoned troops, well hutted, while the English were described by a contemporary as negligent and dirty, "many of them, when they were dead, were incredibly lousy." There was also a case in the Irish epidemic of 1817–18, when the inhabitants of the island of Rathlin, although equally famine-stricken, did not share in the epidemic which ravaged Antrim.

Lieutenant BARRIE remarked that his experience in Serbia absolutely confirmed the louse theory of transmission. Measures leading to the mitigation of lousiness had an immediate effect. Clinically, among other features of interest was the occurrence of ambulant cases. With regard to the fatality, some experienced Balkan observers did not agree with the view that relapsing fever was much less fatal.

The CHAIRMAN, in closing the discussion, while recognizing the great importance of the louse problem, expressed the opinion that other parasites also demanded attention, particularly bugs.

Reviews.

GYNAECOLOGY.

THE *New System of Gynaecology*,[1] edited by Dr. T. W. EDEN and Dr. CUTHBERT LOCKYER, is an imposing work in three volumes quarto, with over 2,500 pages, freely illustrated, and containing articles by numerous authors. In the preface to this important work the editors state that its design originated in the belief that the time had come to put into concrete form the great changes through which gynaecology in this country has passed in becoming a special branch of surgery "during the last ten years." We think this statement is not historically accurate. Gynaecology has always been a special branch of surgery, and there is perhaps no gynaecological operation now performed which was not performed by gynaecologists long before ten years ago. Again, the editors state that "the old view that the gynaecologist is a physician, not a surgeon, is no longer tenable." We doubt whether any thoughtful person ever held this view. Gynaecologists have always done work which may partly be called physician's work and partly surgeon's, and still do such work. The old title by which the teachers of gynaecology were known, obstetric physicians, is no doubt unsuitable; but it has never meant that they only practised as physicians; in the nature of things they cannot do so, but we note that both the editors and many of the contributors of surgical articles are called obstetric physicians in the list of authors.

[1] *The New System of Gynaecology*. Edited by Thomas Watts Eden, M.D., F.R.C.S.E., F.R.C.P.; and Cuthbert Lockyer, M.D., B.S., F.R.C.S., F.R.C.P. London: Macmillan and Co., Ltd. 1917. (Cr. 4to, Vol. I, pp. xv + 761; Vol. II, pp. vi + 875; Vol. III, pp. viii + 871. Numerous illustrations in colour and in black and white. £6 6s. three volumes.)

The editors rightly point out that it is incumbent on a gynaecologist to familiarize himself with the technique of certain problems of general surgery which often have to be solved in gynaecological work, and they do well to emphasize the importance of a practical knowledge of obstetrics in the training of a gynaecologist, and rightly state that gynaecology has suffered in the past (and they might have added still suffers) from the incursions of those who are not qualified by this training to understand its clinical problems aright.

The editors have thought well to bring general surgical conditions (of the kidney, bladder, rectum, vermiform appendix, intestinal complications, and female breast) into this *System of Gynaecology*. The articles on these purely surgical subjects have been written by general surgeons, and they unduly increase the size of the work without adding anything which is not available in the general surgical textbooks. In our opinion, the space would have been more usefully employed had the editors arranged for a full bibliography at the end of all the gynaecological articles, which constitutes one of the great advantages of Veit's *Handbook of Gynaecology*, with which this new *System* may be, in many respects not unfavourably, compared.

Volume I.

The article on the anatomy of the female pelvic organs is written by Professor Elliot Smith and Dr. J. S. B. Stopford. It gives a good but, for a gynaecological work, somewhat brief account of the subject, illustrated by figures of very unequal merit. Fig. 18 is a photograph of a poor specimen of the uterus and broad ligaments, and Fig. 23 is a very rough drawing showing the hydatid of Morgagni attached to the upper wall of the Fallopian tube and the vertical tubes of the epoöphoron converging to the middle third of the ovarian hilum, positions which those structures are rarely found to occupy. Dr. Louise McIlroy gives an excellent account of the physiology of the female reproductive organs. Micro-organisms in the female genito-urinary tract are dealt with by Dr. Ernest H. Shaw in a good and beautifully illustrated chapter. Dr. Beckwith Whitehouse writes on methods of examination. The text is good and many of the illustrations are excellent, but Fig. 78 gives an inaccurate representation of the lower hand in bimanual examination; although the illustrations are good, we think it was hardly necessary in a work of this kind to give six large figures representing the use of the Sims speculum and sound. At the end of the chapter a reference is given to Volume II (it should be Volume III) for a description of dilatation of the cervix by tents, but in the chapter referred to nothing is stated about this valuable method. A short but clear account is given by Dr. Topley of the examination of the blood, including the Wassermann and Abderhalden reactions. In a chapter of 70 pages Dr. Ballantyne gives an admirable account of malformation of the female generative organs. Dr. Blair Bell has written a full and excellent chapter on function, and Dr. Blacker a very complete account of ectopic gestation, in which the methods of treatment are judicially considered. Other chapters in this volume, all attaining to a high degree of merit, are on septic infections, by Dr. C. Oldfield; gonorrhoea, by Dr. T. G. Stevens; tuberculosis, by Dr. Clifford White; inflammatory affections of the Fallopian tubes, by Professor Munro Kerr; pelvic cellulitis, by Dr. Fairbairn; and syphilis, by Mr. Arthur Shillitoe. Two articles on streptothrix infections and echinococcal invasions of the pelvis and pelvic viscera, by Dr. Taylor Young and Professor D. A. Welsh, of Sydney, form an addition of great value to our knowledge of these rare affections. The volume ends with a very brief chapter on nervous diseases associated with morbid conditions of the pelvic organs by Dr. Purves Stewart.

Volume II.

Dr. Berkeley writes a good account of the diseases of the vulva and vagina. No mention is made of the so-called hidradenoma nor of fibroma of the hymen; these chapters are clearly written and well illustrated, but would be improved by a bibliography. Chronic endometritis and erosion are dealt with by Professor B. P. Watson of Toronto. Chronic metritis and allied conditions, by Dr. Fletcher Shaw—a chapter with beautiful illustrations—deals especially with the microscopic appearances met with in those conditions. Professor McKer writes on morbid involution. Professor Hastings Twe gives a short but excellent account of lacerations the cervix. Dr. Lockyer's chapters on myoma a adenomyomata are of very high merit and add grea to the value of these volumes. Both text and illust tions are admirable. No British author has dealt thoroughly with myomata and the changes which oc in them. The chapter on adenomyomata is also excell and contains a very complete account of adenomyo of the recto-genital space, on the origin of which note that the writer's views have changed. Dr. R. Johnstone gives a very good description of sarcoma a endothelioma of the uterus. He alludes briefly to carcino sarcomatodes, but we have noticed no reference to carci sarcoma either in the text or index. Professor Thom Wilson's article on cancer of the uterus claims attenti on account of the wide experience of the author. T clinical portion of the article is excellent, but we thi some of the pathological part is revolutionary. Profes Wilson wishes to drop the term squamous epitheliom and speak instead of alveolar carcinoma. He says t examination of the growing edges gives no indication the evolution of tumours from the natural epithelium, b on the contrary, supports the view that the cancer gr by multiplication of its own elements. We do not ag with this view. Whence come "its own elements Examination of the growing edge of early cases we th clearly demonstrates the origin from the surface squam epithelium, and the editors, who regard all cases of can of the cervix as of the squamous-cell type, must have r this portion of the article with some surprise. The wh article is written in a judicial spirit and with an engag frankness and an independence based on personal resea which will cause gynaecologists to give it their close c sideration. Professor Teacher writes an excellent cha on chorion-epithelioma, or, as he calls it, chorion-epitheli malignum. It is a valuable summary of our knowledg this interesting disease and contains important suggest on the difficult subject of diagnosis. The chapter backward displacements of the uterus is by Profe Chipman of Montreal, who writes in a broad spirit on importance of general treatment and, in certain case treatment by pessaries. The operations he recomme for the cure of these displacements are the "Gilliam," "Baldy-Webster," the "Olshausen," ventrisuspens and ventrifixation. He alludes to some of the disad tages, but does not lay sufficient stress on the danger intestinal obstruction, which has caused fatal results large number of cases after the operations he descri Dr. Fothergill writes the chapter on prolapse. The t ment by colporrhaphy and perineorrhaphy is well descr and illustrated, but we find no mention of colpohy ectomy, which is a valuable means of treating severe c of procidentia. Professor Swayne gives a full accou chronic inversion of the uterus and the various metho treatment. The excellence of Aveling's repositor does appear to be appreciated by the author, though, prop used, the repositor will undoubtedly cure nearly ever not every, case of chronic puerperal inversion. Of c and tumours of the Fallopian tubes an admirable and account is given by Dr. Lockyer. Dr. Herbert Willia and Dr. Barris give an excellent description of tumou the ovary.

Volume III.

This volume contains chapters on diseases of the br by Mr. C. C. Choyce; on the vermiform appendix, by Herbert Paterson; on methods of examination of urethra and bladder, by Mr. Thomson Walker; on dise of the rectum, by Mr. Lockhart-Mummery, and on i tinal complications, by Mr. Scott Carmichael. All t articles are written by general surgeons, and, though attain a high degree of merit, we think they might been considerably curtailed in a work on gynaec which might quite as justifiably have contained ar on the stomach, duodenum, gall bladder, liver, spleen, pancreas. Hernia in women is dealt with by Dr. Ea Holland. Dr. Eden writes a very clear and comprehe article on operative technique. Dr. Felix Rood contri a short but excellent chapter on anaesthesia; we d however, find in it any mention of the most recent f of gynaecological local anaesthesia, namely, the vertebral and sacral. Professor Donald gives the res

LIBRARY U. OF I. URBANA-CHAMPAIGN

his large experience in a short but very good article on ovariotomy. Dr. Giles writes an excellent article on hysterectomy, the interest of which is greatly enhanced by the statistics he has obtained from twelve of the principal London hospitals of the mortality for operations for myoma and cancer. The broad results of these twelve hospitals (namely, 2.11 per cent. mortality for myoma, 3.76 per cent. for cancer of the body, and 13.1 (or 17.6) per cent. for Wertheim's operation for cancer) are gratifying evidence of the excellence of British gynaecological surgery. But the tables afford an illustration of the fallacy of statistics; for by comparing the number of operations and the results obtained by abdominal hysterectomy for cancer of the body (almost all cases of which are operable and operated on) with the operations for myoma and for cancer of the cervix (in which the operability rate varies with the operator), the conclusion is forced upon the reader that gynaecologists in some institutions treat by abdominal hysterectomy many early and simple cases of myoma which others would either not operate upon or treat by myomectomy or vaginal hysterectomy, and that some gynaecologists show little enthusiasm for extending the beneficial effects of the extended abdominal hysterectomy for cancer of the cervix to any but a very small proportion of the cases seen. The difference in the mortality statistics is thus in part explained. Thus, for the twelve hospitals, the mortality for abdominal hysterectomy for cancer of the cervix varies between 0 and 31.4 per cent., but whereas the ratio of operations for cancer of the cervix to those for cancer of the body is 86 to 7 in the institution with the high mortality, the ratio in the institution with 0 mortality is 12 to 16, and this is the only institution in which fewer cases of cancer of the cervix than of cancer of the body are operated on by abdominal hysterectomy. In regard to prognosis, the writer makes two assertions which we cannot accept: one, that the fate of the cervical stump after supravaginal hysterectomy "need cause no apprehension"; the other, that the permanent cures of carcinoma of the body "even after many years may be put down at 95 per cent." Professor Wilson, in the second volume, shows that his own rate of absolute curability is 24 per cent., and Wertheim's 31.2 per cent. We believe the average rate of cure by experienced operators will be found somewhere between these two figures. Professor Munro Kerr writes an excellent article on operations on the gravid uterus. On page 631 we notice a misprint of Tait for Gow. Professor Howard Taylor's article on vaginal coeliotomy is good, but the operation is unnecessary for such a small submucous myoma as that shown in Fig. 244, which could be enucleated with ease and safety after dilatation of the cervix. A description of the "interposition" operation of Schauta-Wertheim is given, but the danger of embolism, which has occurred in several cases, is not mentioned. Fistula in the female genital tract is dealt with by Professor Hellier. The articles on minor operations by Dr. Bonney, after-treatment by Professor Franklin Martin, and general therapeutics by Dr. Amand Routh, are good. The volume ends with short chapters on radio-therapeutics in gynaecological practice by Mr. Lionel Provis and Dr. Robert Knox. We have nowhere found mention of the important fact that some of the German clinics have for several years practically ceased operating for cancer of the cervix, which is treated by radium, mesothorium, and Roentgen rays.

The *New System of Gynaecology* is highly creditable to British gynaecology. The printing, paper, and illustrations are admirable. The work would, in our opinion, be improved by curtailing the chapters dealing with general surgery, by the addition of bibliographies at the end of the chapters, and by the provision of a full general index, the absence of which will be found a constant source of irritation. The indices at the end of each volume are not complete; for instance, none of them contains the Schauta-Wertheim or "interposition" operation for prolapse, which is described under vaginal coeliotomy, but only briefly mentioned in the article on prolapse. The *New System of Gynaecology* suffers from certain omissions, repetitions, even contradictions, inseparable from a work written by many authors; but in general excellence we have no hesitation in stating that it is the best work on gynaecology published up to the present time.

NOTES ON BOOKS.

A NEW volume of Methuen's Health Series has appeared from the pen of the general editor, Mr. BISHOP HARMAN, under the title *Staying the Plague*.[2] It is an attempt to show the public what venereal disease really is, how it poisons our social life, and what means are being taken and should be taken to remedy the mischief. On the principle that to understand aright the causes of an evil one must first know what is good, the author devotes his early chapters to a clean, sane, and pithy account of the relation of sex to the race, to the individual, and to human ideals. This leads on to a discussion of the causes and conditions of prostitution, which is the abasement of sex; and so to the main purpose of the book. Mr. Bishop Harman knows his subject thoroughly, and speaks his mind in good, stalwart English, which all can understand. He gives a clear story of the work of the Royal Commission on Venereal Diseases, with illustrations drawn from his own experience in London blind schools of the toll levied by these diseases upon the eyes of innocent children. He takes a wide view of future reform, believing that the true remedy lies in the cleansing and simplification of life, the better training of the young, and the encouragement of early marriage. In conclusion, he utters a word of warning against the danger that the fastidious apathy of the past may give place to an even worse folly—the folly of exaggeration.

A very complete *System for Case Taking*[3] suitable for medical cases has been compiled by Drs. ROSS and LOUDON for use in the Faculty of Medicine at the University of Toronto. It covers the ground satisfactorily, and, if the clinical clerks for whom it is intended carried it out properly, they would acquire a great deal of the knowledge they are striving to obtain. But, like so many schemes for the benefit of learners, it has the fault of being too good, too complete, too thorough, with the result that it is barely practicable, although it may hold up a worthy ideal to the student. To strike the happy medium in the fullness of the clinical notes taken is an art that can only be acquired after years of study. The system, if rigidly applied, would burden the notes with a great deal of irrelevant information in most cases.

[2] *Staying the Plague.* By N. Bishop Harman, M.A., M.B Cantab., F.R C S.Eng. Methuen's Health Series. London: Methuen and Co., Limited. 1917. (Cr. 8vo, pp. 128. 1s. net.)

[3] *A System for Case Taking, with Explanatory Notes.* By G. W. Ross, M.A., M.B.Tor., M.R.C.P.Lond., and J. Loudon, B.A., M.A.Tor., M.R.C.S.Eng., L.R.C.P.Lond. Toronto: The Macmillan Company of Canada, Ltd. 1916. (Cr. 8vo, pp. 69. 2s. net.)

PHYSICAL WELFARE OF MOTHERS AND CHILDREN.

REPORTS TO THE CARNEGIE UNITED KINGDOM TRUST.

ENGLAND AND WALES.

THE blue books giving the reports of the medical officers of the Local Government Board and the medical officer of the Board of Education for the past several years have been filled with information as to the work now being undertaken for the care of mothers and infants, and the reports of the medical officers of health for the several local authorities of the country have given particulars of the work undertaken in these districts, but hitherto there has been no comprehensive account of this many-sided work. The reports of the Carnegie United Kingdom Trust on the "Physical welfare of mothers and children"[1] fill this need in a most conspicuous fashion, and the two magnificent volumes issued will prove of the greatest service to all those engaged in this most essential work of national importance.

The reports aim at assisting in the solution of the various difficult problems involved by setting out the facts in relation to one another, and by placing on record the views of accepted medical authorities on the subject. In a prefatory note Sir Arthur Newsholme states that the number of mothers who died in England and Wales week by week as the result of pregnancy and parturition

[1] Report on the Physical Welfare of Mothers and Children (England and Wales), Vol. I, by E. W. Hope, M.D., M.O.H. Liverpool; Vol. II, by Janet M. Campbell, M.D., one of the Senior Medical Officers, Board of Education; Vol. IV, by Dr. E. Coey Bigger, Medical Commissioner for the Local Government Board for Ireland. Carnegie United Kingdom Trust. East Port, Dunfermline.

is on the average sixty-seven, of which number twenty-four are due to puerperal infections.

Dr. Hope's Report.

Volume I, written by Dr. Hope, is divided into three parts. The first contains general observations on ante-natal and post-natal care, and indications of what can be suggested as an ideal plan for the relations of the various parts of such schemes to the general administration of preventive medicine in an area. The second part gives a good summary of the existing legislative enactments which enable sanitary authorities to take action, and includes suggestions as to the directions in which such legislation might advantageously be strengthened. Lastly, there are a number of reports from medical officers of local authorities, all set out on the same plan, so that the various activities of the several authorities, the conditions of maternal and child life in the area, and the results of measures now in operation may be compared. Also, there are specific statements from the officers indicating their experience of the manner in which the work may best be improved. These statements are of great interest, and it is to be regretted that the like reports are not available for each and every area in the country.

The widening recognition of the supreme importance of maternal and child welfare has received additional stimulus from the unprecedented circumstances of the war; the steady decline of the birth-rate still further enhances the value of the infant, and is an additional incentive to guard and preserve it. A simple calculation shows that had the annual wastage of male infant life during the last fifty years been no greater than it is at present, at least 500,000 more men would have been available for the defence of the country to-day. Even now, 90,000 of the infants born each year in England and Wales fail to survive the first twelve months of life, and at each one of the succeeding four years of age a large, though rapidly diminishing, proportion succumbs.

We have heard a good deal lately about the saving of child life attendant on the smaller birth-rate, and that fewer births mean more and better children in the end. The report before us does not support this generalization. Statistics show that the number of infants surviving at the age of one year per 100,000 of the population is higher, both actually and relatively, when the birth-rates and infant mortality-rates are both high, than when the figures are low; in other words, under existing conditions it is the high birth-rate, notwithstanding its accompanying waste, rather than the low birth-rate and the greater saving associated with it, which dominates the increase of population. Comparing the Welsh urban districts, which have a birth-rate of 29.1 per 1,000, with the English southern rural districts, which have a birth-rate of 18.8 per 1,000, it is found that the number of survivors at the age of 5 years in the Welsh urban districts is 707 per 100,000 of the population greater than in the southern districts, although the infant death-rate of the Welsh districts is 113, as compared with 66 in the southern districts.

Dr. Janet M. Campbell's Report.

Volume II, by Dr. Janet M. Campbell, is also divided into three parts. The first is an admirable and most interesting account of the development of English midwifery from the earliest to the present time, in which our practice is compared with that of other countries. There are suggestions for the raising of the standard of midwifery in the country, and particularly for the needed provision in rural areas. Part 2 deals with schools for mothers, the feeding of expectant mothers, day nurseries, and nursery schools; Part 3 with play centres for children and playgrounds.

It should be added that not only is the matter of these two volumes of the greatest interest to the social worker, but they are written in such a fashion that they are eminently readable, and contain most attractive illustrations.

IRELAND.

Volume IV, by E. Coey Bigger, M.D., Medical Commissioner for the Local Government Board for Ireland, is a very human document, and Dr. Bigger is to be congratulated on his work. It contains much more than the ordinary collections of statistics. It is full of interesting comments on the lives of Irish people, and in many parts throws sidelights which go far to explain differences between the Irish and English mentality. Indeed, it is evident that the author loves human nature better than figures; figures he gives, but, so far as possible, they are kept to a place by themselves in the appendix.

Hitherto little special work has been done in Ireland for the benefit of mother and child. So far, Dr. Bigger writes,

> Ireland has relied too much on her natural advantages, and has done little beyond what her medical and nursing services have effected.

Those natural advantages rest in the peculiar temperament of the Irish woman.

> The Irish mother is celebrated throughout the world for the affection she has for her offspring. It is only amongst the most drunken and debased in the towns that there is any wilful neglect of or cruelty to children. But affection, unfortunately, is not sufficient. Love teaches much, but it does not teach all that it behoves a mother to know in cities and towns to-day. The truth is that, although she loves her child, she is not fitted for motherhood. The fault is not hers, but is that of the system of education in the country. All that she knows about her functions, childbearing, and child nurture is what she has learned from her mother; it has been handed down from generation to generation, and is a blend of good and bad, a mingling of useful knowledge and harmful tradition. . . . She knows, however, just one thing, and that, perhaps, is the most valuable of all, that she was intended to suckle her children herself, and, doing this, she saves her children from many dangers surrounding the use of the bottle. The practice of breast feeding is almost universal among the poorer mothers in the country, and is still very common in town.

Dr. Prudence E. Gaffkin, who contributes a section of the report, adds a further comment on the psychology of the Irish mother, which is not so greatly to her credit. Dr. Gaffkin writes:

> Their devotion to the newborn and helpless infant is remarkable. Nevertheless, I have not found them such devoted and careful mothers once extreme infancy is passed, and in dealing with the child they are guided merely by instinct and inherited tradition. In many parts of Ireland families are very large, and yet the coming of another baby is not resented. If a woman bears eighteen or twenty children and twelve of them die from sheer inanition—well, life here is but a prelude to the world to come, and if the prelude for the baby is short and sharp it has at least gained the boon of everlasting life. Neo-Malthusian and even eugenic doctrines are considered wrong and the breaking of the sixth commandment by bringing life into the world *only* to die has not yet been brought home either to man or woman.

Late marriage is reported as a cause of reduction in childbirth in some parts of Ireland. Women go to America to earn a dowry, marry late, and have few children. An even more curious custom is reported:

> It is generally the custom in most rural districts in Ireland for the eldest son, when he marries, to bring his wife to live on his father's farm, of which she becomes mistress, displacing the mother. But he cannot bring his wife till all his sisters are settled, and that is impossible without a dowry for them. All the savings of the household go towards these dowries, and it follows that as the sisters become older their dowry grows larger, and consequently their chances of marriage are decreased. . . . Frequently a man must "marry off" a sister fifteen years younger than himself before he can think of matrimony. The medical officer of a western district states that the most common age for the marriage of men in his district is 40 to 50, and gives his opinion that the late marriage at a time when the parties have lost much of that vitality of youth on which racial strength depends, is a cause of lack of vitality in the children which has its effect on both the mental and physical natures, and which in his opinion is tending towards a serious racial degeneration.

Dr. Bigger makes some specific recommendations which we hope to refer on some future occasion.

THE forty-sixth annual report of the State Board of Health of Massachusetts, a board that has now become a department, contains a full and interesting account of the multifarious activities of that body during the year 19[illegible]. Most of the volume deals with problems and work done in connexion with the water supply and sewerage, but many pages are devoted to the work of the inspectors of foods, drugs, cold storage, slaughterhouses, and dairies.

LIBRARY U. OF I. URBANA-CHAMPAIGN

British Medical Journal.

SATURDAY, JUNE 2ND, 1917.

BRITISH SURGERY AT THE FRONT.

FEW weeks ago we published a group of papers ring an account of the response of British medi- ne, as represented by the Royal Naval Medical rvice, to the new phases of clinical, pathological, d administrative medical practice which have sen during the war at sea. This conspectus of edicine, surgery, hygiene, and sick transport in the vy under war conditions gave some idea of the mirable work carried out during years of prepara- n and perfected under the test of active service. our present issue we publish a set of articles ustrating the progress of surgery during the land mpaign on the Western front, from the pens of con- ftants and specialists serving with the British nies in France who have identified themselves with e subjects of which they treat.

Surgeon-General Sir Anthony Bowlby and Colonel thbert Wallace, in their summary of the present sition, record the leading facts which experience s established and describe the trend of surgical inion and practice, more particularly in the treat- nt of abdominal wounds, head injuries, wounds of od vessels, fractures, and joint injuries. They nt out the indispensability of the motor ambulance, und which one might safely say the whole surgical stem from front to base has been organized. Motor nsport of the wounded and the casualty clearing tion together form the keystones of the system, l the saving of lives, limbs, and suffering due to ir development since the early months of the war been immense.

n the JOURNAL of December 4th, 1915, we e a sketch of the evolution of the casualty aring station, which even then had firmly taken place as the pivot surgical unit between the ecting and evacuating areas. Situated near the al end of a line of communication, this unit is in ence an advanced base hospital, equipped and ffed for the immediate operative treatment of bad es, while still performing the functions associated h its name. An important point made by Sir hony Bowlby and Colonel Wallace is that surgery he front is a special branch of practice which all e to learn by direct experience, and a sound nion on wound treatment comes to no one, how- r gifted, by the light of Nature. This seems to be cially true of the decision when and where to putate. Among other things the war has lished the old formal amputation dear to the hers of operative surgery and examiners of former s. Another development in technique has been early routine excision of damaged tissue, and the of moist dressings containing such antiseptics as l, Dakin's solution or its outcome chloramine-T, ch have been devised to meet the special conditions round infection at the front.

n abdominal surgery progress was at first hindered he school of thought which held to the expectant of treatment. After a few months it was onstrated beyond doubt that under the conditions his war early evacuation from the front line and ediate operation gave the only hope of success. For some time past the rule has been to operate, unless there is some special reason to the contrary; not to await special indications but to open the abdomen and make a rapid, methodical examination of the intestine, suturing rents in the gut, and resecting only where this is inevitable. The modern practice —aided by a special service of cars for hurrying abdominal cases to the clearing station or small advanced operating centre—has resulted in a lowering of the death-rate estimated at between 15 and 20 per cent., although the mortality from these wounds is still distressingly high.

In the surgery of joints gratifying improvement has followed modern lines of treatment. In head surgery effort has been directed towards devising the best operation and standardizing a general line of treatment adaptable to all varieties of cranial wounds. It was found that head cases travel badly after operation, although, provided the pulse is slow, they travel well as a rule between injury and operation. Early operation and prolonged rest after it is, therefore, the ideal, and this has been attained to some extent, as we learn, by the establishment of special hospitals neither too near nor too far from the line. With regard to fractures of the limbs the most important generalization seems to be that no amount of skilled after-care can make up for improper early treatment. Thorough deliberate operation is needed, and, as would be expected, the operating facilities of clearing stations, combined with the *x*-ray plants which have sprung up in connexion with them, have brought about great improvement, while the almost universal use of the Thomas splint and its progeny is an important factor.

In this article are brought to a focus also the latest views on the causation and treatment of gas gangrene, the dreadful infection which has proved one of the greatest horrors of the present war. Colonel Wallace, in a further contribution to our knowledge of this subject, describes—with coloured illustrations made from drawings by Mr. A. K. Maxwell, the artist employed by the Department for the Medical History of the War—the naked-eye changes in skin and muscle produced by gas gangrene; Captain McNee and Captain Shaw Dunn furnish a report on their researches into its mode of spread within muscular tissue; and Lieutenant-Colonel Frankau, Captain Drummond, and Captain Neligan, in their article on conservative treatment, emphasize the importance of arresting infection in muscle by early resection of the infecting focus. Sir Wilmot Herringham gives an interesting account of thoracic wounds. Unlike those of other regions referred to, chest wounds have generally done better under expectant treatment, actual sepsis alone calling for surgical intervention. Penetrating wounds of the chest have thus remained, to some extent, the province of the physician. Captain Marshall describes the administration of anaesthetics at the front. It will be noted that he is a strong advocate of warmed ether, and of gas and oxygen, and is convinced that not even the most urgent operation should be done while the patient is in a state of shock; the combined shock of anaesthesia and operation superimposed on the shock of the wound and the journey is too much for the patient.

Looking at the articles as a whole, and reviewing the large number which have already appeared, the thought which comes uppermost in the mind is one of admiration for the adaptability, ingenuity, and perseverance of the British surgeon in face of difficulties undreamt of in any previous campaign. As the story unfolds itself one sees in epitome the resourceful spirit of our race. A great and smooth-running organization

has been built up during the war for the treatment and disposal of the wounded and sick. For the success which has been achieved the Army Medical Department deserves the highest praise, and not least for the use it has made of the consultants since the early months of the war. These civilian surgeons and physicians passing from unit to unit, guiding and encouraging scattered workers, watching experimental lines of treatment and collating results, formulating rules and principles, and discussing with administrative officers the practical application of the lessons of experience, have played a great part in the development of military medicine and surgery.

DYSENTERY AT GALLIPOLI.

THE acute dysentery of war has generally been regarded as in the main bacillary, and this was certainly true in the South African war (1899–1902), though in the Spanish-American war the American troops in Manilla, where amoebic dysentery is endemic, suffered from both forms, and, as Strong proved, mixed infections occurred. When cases of dysentery contracted in Gallipoli by the Mediterranean Expeditionary Force began to arrive in this country during the autumn of 1915 difficulty in deciding as to their nature, and therefore on the appropriate treatment, arose. For whereas at the front, and especially in the base hospitals at Alexandria and Cairo where amoebic dysentery is common, the prevailing opinion was in favour of the amoebic origin, in this country evidence in support of this view was commonly wanting. This divergence of opinion may reasonably be explained, at least in part, by the convalescent state of the patients, who had nearly all received routine treatment by emetine before their arrival here. Subsequently the question was apparently settled by the compromise that both forms occurred, that each was predominant at different periods, and that mixed infections were frequent.

Among the valuable reports now being made on the subject of dysentery to the Medical Research Committee special interest attaches to that of Dr. Bartlett "On dysentery in the Mediterranean Expeditionary Force,"[1] based on the experience of some eight months' work as pathologist to No. 21 General Hospital in Egypt, where he examined 1,129 stools and observed 61 necropsies on cases of dysenteric ulceration, the microscopic examination of the material being completed at the London Hospital. This careful and elaborate research, illustrated by thirty-four figures and summarized in thirty conclusions, confirms the opinion that the dysentery was primarily amoebic. Secondary bacterial infection, however, was very frequent, and in some cases so intense as to obscure the amoebic lesions by a diphtheroid inflammation resembling that of bacillary dysentery. Out of the 61 necropsies, 56 (92 per cent.) showed amoebic lesions, and out of the 5 remaining cases, tentatively called pure bacillary dysentery, evidence of a specific infection by organisms of the dysenteric group was forthcoming in one only. Examination of 477 dysenteric stools showed that 379 (79.4 per cent.) contained vegetative amoebae of pathogenic type. From these results it is obvious that specific treatment should be adopted as soon as possible so as to arrest amoebic ulceration before the colon has become more vulnerable to bacterial invasion. Thus Sir Ronald Ross's advice in August, 1915, that emetine should be given early to all cases of dysentery was fully justified, and was considered to have prevented a much higher mortality among the forces. But as secondary bacterial invasion may prove fatal from purulent diarrhoea after amoebiasis has been removed by emetine, measures to combat it are necessary, and for this purpose saline purgatives to flush out the colon and bismuth mixture by the mouth were employed. A powerful multivalent anti-dysenteric serum, prepared at Alexandria, was also used in such cases, but opinions as to its value varied widely.

The cases referred to by Dr. Bartlett received injections of emetine hydrochloride ½ grain until 6 or 10 grains had been given, and after an interval one or two further short courses. Usually this was successful, but it is frankly admitted that in some instances a thorough course of treatment failed to eliminate amoebiasis. The high reputation of emetin injections in *Entamoeba histolytica* carriers has been gravely impugned by Mr. Clifford Dobell,[2] who states that full courses (10 to 12 grains or more) are successful in about one-third only of the cases treated, and that subsequent courses offer little hope of cure. He advocates the oral administration of emetine bismuth iodide in daily doses of 3 to 4 grains until 36 to 40 grains have been given. By this means the vast majority (90 per cent.) of carriers are cured even when emetine injections have previously failed. Dr. G. C. Low,[3] in a further report to the Medical Research Committee, mentions that vomiting caused by the administration of emetine bismuth iodide can be eliminated or reduced to trivial proportions by giving the double iodide in pills coated with salol, as recommended by Dr. H. H. Dale.

[1] G. B. Bartlett, *Quart. Journ. Med.*, Oxford, 1917, x, 185–244.

MEDICAL MEN IN PUBLIC LIFE.

THE failure of members of the medical profession to take their fair share in the work of public authorities throughout the country has been the subject of standing criticism both within and without the profession for many years-since, at any rate, the remarkable address on the political powerlessness of the profession given in 1883 by Sir Walter Foster (afterwards Lord Ilkeston). Many reasons are given for the fact, which can hardly be disputed, although a considerable number of medical men serve on the councils of boroughs and county boroughs. There are however, we believe, very few medical members of county councils, and we are glad to know that the number has been increased by the election of Dr. W. W. Robb to be the representative of the Irthlingborough Division on the Northampton County Council. Dr. Robb had been M.O.H. for the Irthlingborough Urban District for fourteen years, until his resignation at the end of 1915, and he is a J.P. for the county. It is, we are told, many years since the medical profession was represented on the Northampton County Council, and Dr. Robb is now the only medical member of it. Many reasons are given for the disinclination which medical men apparently feel in seeking to become members of local councils; one is the difficulty a man in busy practice finds in giving the amount of time which membership of a county council entails, and another is the dislike of entering upon a contested election. But county councils themselves have the power to obtain the services of medical members by nominating them to be aldermen, as has been done in certain cases. However

[2] Medical Research Committee. Reports upon Investigations in the United Kingdom of Dysentery Cases received from the Eastern Mediterranean. 1. Amoebic Dysentery and the Protozoological Investigation of Cases and Carriers, pp. 69–83, 1916. BRITISH MEDICAL JOURNAL, January 27th, 1917, p. 127, and March 24th, 1917, p. 400. See also Mr. Dobell's paper, BRITISH MEDICAL JOURNAL, November 4th, 1916, p. 612.

[3] *Lancet*, 1917, i, 483.

LIBRARY U. OF I. URBANA-CHAMPAIGN

s may be, we are quite clear that it would be to the antage of the profession and the public itself if county ncils had more medical members.

FRAGILITAS OSSIUM, BLUE SCLEROTICS, AND OTOSCLEROSIS.

an interesting paper, published in the *Edinburgh dical Journal* (April, 1917), Dr. E. Bronson gave a very ar picture of two families in which a rare abnormality, sisting in what he terms fragilitas ossium, was asso- ed with other abnormalities. In addition to the two ilies, which illustrate its hereditary characteristics, he mentioned a few cases in which no such hereditary uence was discoverable. The outstanding feature in h case was the extreme degree of brittleness of the es, so that numerous fractures occurred without ence; there was also hypotonicity of the joints. The ociated peculiarities are a blue sclerotic, progressive fness, shortness of stature, and bulging of the frontal occipital regions of the skull. The earliest record of ciation of the blue sclerotic with fragility of the bones made by Eddowes in 1900. In one family it was d that the depth of colour of the sclerotic corre- ded to the degree of fragility of the bones. In r instances blue sclerotics were observed apart from association. Fractures occurred in children whose nts had not had fractures, but had hypotonicity of the ts (one case) or blue sclerotics (one case). The earlier fe the fractures commenced the greater the subsequent ility; this was specially marked in the pre-natal cases. fractures generally occurred without causing pain at time; there was rapid reunion, sometimes without nation of callus. Shortness of stature was the more ked the earlier the onset of signs of the defect. The ral health of the adults was good. Radiography ved that the bones were frequently much reduced in kness, especially in the shafts, and there was rarefaction; iderable deformity often resulted from the numerous tures. Chemical and histological examination of the adic cases failed to throw much light on the etiology ne condition, but in several cases there was no true llar formation; the Haversian canals were absent, the oblasts were abnormal in structure—and presumably nction also—and the cells of the articular cartilage rwent direct calcification. No histological examina- of the hereditary cases has been made. As regards ment, several plans were tried, but without benefit. heoretical grounds no benefit would be anticipated any drug or hormone, for probably the condition is arily due to the presence of some substance ("factor") fering with normal metabolism. The defect is ited as a Mendelian dominant, and a dominant, ding to present theory (and high probability), is due e presence of the controlling factor. It is difficult to ow drugs could rid the system of something inherited the parent. The paper concludes with a very full ography. The author makes a mistake in discussing tiology when he says, "The inheritance, when present, ect transmission—*what Bateson calls 'knight's move'* nely, the characteristic fragility is a dominant one." true that the inheritance is direct, and that the mality behaves as a Mendelian dominant; but it is nherited like a knight's move. His statement would rrect if the words placed in italics were omitted. r blindness and haemophilia both show the so-called t's move, which means that an affected male trans- his defect to a male grandchild through a daughter does not show the defect—that is, a generation is ed; but in the family described by Dr. Bronson there such skipping.

INTRACRANIAL ANEURYSM.

GH the presence of an aneurysm on one of the basal al arteries has rarely been diagnosed correctly during ve the discovery of such an aneurysm at autopsy is far from uncommon, and these cases have for long attracted the attention of clinicians and pathologists alike. A full account of the subject, together with records and an analysis of forty-four new instances, has recently been published by Dr. E. G. Fearnsides.[1] Speaking generally, these aneurysms have been attributed in the past to arterial syphilis, to arterial degeneration, whether local only or generalized, to congenital defect of the arterial wall, or, fourthly, to the local action of infective emboli, in varying proportions of the cases recorded by various authors. Dr. Fearnsides, adopting Turnbull's classification[2] of arterial diseases, notes that in none of his new cases of intracranial aneurysm was syphilitic infection the cause of the vascular disease, although such instances are not rare in the literature, particularly in the case of the relatively large basilar artery. His new pathological material is based on the records of the Pathological Institute of the London Hospital. Here, during the years 1907 to 1913, nearly eight thousand *post-mortem* examinations were made, in 5,432 of which the cranial contents were investigated. Among these, 184 true and 7 dissecting aneurysms of the aorta were found, 175 of them due to syphilitic inflammation; 43 true aneurysms of other large elastic arteries were discovered, all due to syphilitic inflammation; there were 44 examples of true aneurysm of muscular and small elastic arteries, excluding those of the brain, only 6 of which were syphilitic in origin; and, finally, there were 51 true aneurysms of cerebral arteries, 15 due to infective embolism and 36 caused by medial degeneration, occurring respectively in 13 patients with ages between 5 and 44 and 31 patients aged from 19 to 86. In 35 of these 44 persons death had been caused by rupture of a cerebral aneurysm; 26 were males, 18 females. Discussing the clinical manifestations associated with intracranial aneurysms of non-embolic origin, Dr. Fearnsides remarks that in only one of his thirty-one patients did an unruptured aneurysm at the time of its development appear to have caused acute intracranial symptoms, although a shrewd guess as to the causative factor was made before autopsy in a considerable proportion of them. Details and discussions of many of the 44 cases are given, and it appears that of the 13 instances of aneurysms on the cerebral arteries due to infective embolism, 10 were associated with progressive ulcerative endocarditis; in 2 patients it was the onset of nervous manifestations that brought them to the hospital. Numerous interesting points emerge from the clinical study of the 31 new examples of non-inflammatory cerebral aneurysm. In 15 of them the heart was not hypertrophied. In 25 of them clinical manifestations pointing to cerebral haemorrhage occurred, in 5 an unsuspected and unruptured aneurysm was found, and in one an unruptured aneurysm was discovered at the junction of the right carotid and middle cerebral arteries in a patient who for some time had suffered from right frontal headache and had been deaf in his right ear. Multiple leakages of blood due to partial ruptures of the aneurysmal sac occurred in 13 instances, together with a history of multiple seizures of an apoplectic type. The first rupture of the sac of a cerebral aneurysm was often brought about by a violent muscular effort or emotion; signs of increased intracranial pressure were rare before rupture, but frequent after it had taken place, 10 patients before death showing changes in the fundus. In many instances the cranial nerves, particularly the third pair, were involved in blood-clot after the rupture. After rupture of aneurysms of the posterior fossa a complaint of stiffness in the neck is said by Dr. Fearnsides to be a sign valuable in diagnosis; an involvement of the facial nerve after its exit from the pons is also common. It may be added that the finding of blood cells and blood pigment in the cerebro-spinal fluid obtained by lumbar puncture is the

[1] *Brain*, London, 1916, xxxix. 224–296.
[2] *Quart. Journ. Medicine*, Oxford, 1915, viii. 201.

only clinical evidence of cerebral haemorrhage that can be obtained; in the case of ruptured intracranial aneurysms staining of the cerebro-spinal fluid occurs early. The localizing signs in cases of embolic intracranial aneurysms are usually scanty; but the headaches associated with those of non embolic origin may have some localizing value.

TUBERCULOSIS IN THE UNITED STATES ARMY.

A LARGE general hospital at Fort Bayard, New Mexico, is devoted to the treatment of tuberculosis in soldiers of the United States Army, a limited number of civilians of both sexes being also received. A report is issued every year, presenting the results of the year's working and an analysis of so-called completed cases. The completion, however, only relates to results as far as the hospital is concerned, and no evidence is afforded as to the ultimate success or failure, as shown by capacity for work on return to military duty. The proportion of men so returned during the year 1915 is not very high, and this fact may be accounted for by the large numbers admitted in the later stages of disease. Although the mortality does not exceed the average for chest hospitals in general, the number of patients who are only to be classed as "improved" by treatment goes to prove that treatment has been too long deferred. The frequent occurrence of tuberculous laryngitis as a complication points in the same direction. The climatic advantages of the south-western portion of the State of New Mexico would seem to offer ideal conditions for arrest of incipient disease by open-air methods, but only a small proportion of the total admissions to the hospital appear to have been in the early stage. The experience of all chest hospitals has shown that a certain amount of improvement may be expected even in town hospitals. Where improvement only can be hoped for it would seem to be a misuse of advantages to utilize sanatoriums in the most favourable climatic conditions for any but incipient cases, capable of permanent recovery. Details are given in the report of a very large number of individual cases, and it may be noted that only about 17 per cent. of the whole presented febrile conditions, or a maximum temperature of 100° or more. In an unusually large proportion also it is recorded that there was no impairment of digestion. The percentage of general success as regards actual arrest of disease would doubtless be far higher if the admissions were restricted to cases in the incipient stage.

A NEW PHYSICIAN-POET.

AMERICA has not so far produced a great number of doctor poets, but in point of quality she has no reason to fear comparison with the Old World. The names of Oliver Wendell Holmes and Weir Mitchell are a host in themselves. To these must now be added another of equal brilliancy. Quite recently a new medico-poetic planet has swum into the ken of lovers of literature in the person of Dr. Frederick Peterson, of New York, whose name is well known to the profession by his work in neurology and morbid psychology and his pioneer efforts to promote the treatment of cases of incipient insanity in psychopathic hospitals. He contributed an article on the hospital treatment of insanity to the tenth edition of the *Encyclopaedia Britannica*. He was for many years professor of psychiatry in Columbia University, and he is the author of a work on nervous and mental disease, written in conjunction with Dr. Church, of the *American Textbook of Legal Medicine*, produced in collaboration with Professor Haines, and of many contributions on subjects within his special province to medical periodicals, notably to the *New York Medical Journal*, of which he was assistant editor for several years. It is in the issue of that journal for March 31st that the announcement of Dr. Peterson's appearance in his new avatar as a poet is made. He had, it is true, published a volume of verse and translations from the Swedish as far back as 1883. But he has now spread his wings in a greater flight. During the past two years, as we learn from our New York contemporar many lyrics dealing with natural phenomena and lan scapes in their relation to mankind, favourite themes wi Chinese artists, have appeared in American litera magazines under the signature "Pai Tu-Shan." The have been collected in a volume printed in luxurious sty by Kelly and Walsh of Shanghai (New York: Scribner a Sons), illustrated with collotype reproductions of ancie Chinese paintings, and bound in Chinese silk. The e amples given in the *New York Medical Journal* seem show that Dr. Peterson has rendered in graceful verse t dainty touch of the Chinese artist.

THE PSYCHOPATHIC LABORATORY.

THE city of Chicago has a population of over two and half million souls. Its Municipal Law Court has an ev increasing amount of business to deal with, and every ye sees more and more civil cases—misdemeanour, felo and criminal cases—filed in its books. In 1908 the numb of offences for which persons were arrested was ov 75,000; in 1915 this number had grown to 137,000. recent volume [1] of the *Annual Reports* of the Municip Court of Chicago gives some account of the leg machinery that has been developed for dealing with t mass of ill-doing. Many pages of the *Reports* are occup by an account of a new piece of mechanism for maki the punishment fit the crime in the cases of juven depravity and chronic offenders. This mechanism is scribed as the Psychopathic Laboratory. It has long b recognized that there is in many instances a close c nexion between mental and physical defectiveness on one hand and criminal conduct on the other, these ter being used in their widest senses. In other wor very many offenders break the law and come to bar consequence of mental defect or disease. It is the busin of the Psychopathic Laboratory to investigate the physi and mental development of offenders in all instances which the evidence or the prisoner's behaviour in co give rise to suspicions of his soundness in either mind body. The Laboratory employs a great variety of te and relies upon no single method of examination. I found that the ordinary physical examination frequen yields convincing results, and that the reactions to neu logical tests explain other cases of delinquency. T tests of psychiatry often disclose latent dementia of vari kinds. The purely psychological tests—many of them the Binet-Simon type—reveal instances of feeble-mind ness in varying degrees. Reliance is not placed on th laboratory examinations alone. With the offender co a history of the case, throwing light on the environm and characteristics of the delinquent. Confirmation the conclusions already reached is often furnished b study of his heredity. Great emphasis is laid upon the portance of reaching a correct diagnosis for the follow reason. The offender who is normal in mind and body re to punishment in such a way as to justify the view t punishment is an effective deterrent. Not so, howe the defective. The victim of imperfect mental equipm the slave of narcotic habit, the child or adult with seri organic disease of one sort or another—these all req special treatment. The institutions and methods wh have been evolved all the world over for the discour ment of crime practically all predicate mental compete and responsibility in their subjects. This fact expl the frequent failure of correctional and institutional tr ment to prevent relapse into crime, and accounts for existence, in the State of Illinois, of an offender who been sentenced two hundred times, to quote a gla example. What is to be done with the defective de quents once they have been identified and labelled in Psychopathic Laboratory? Punishment is useless. Th who are feeble-minded can get along very well out institutions if they are placed and kept in a sir

[1] Eighth and Ninth Annual Reports of the Municipal Cou Chicago, December 1st, 1913, to December 5th, 1915, inclu Chicago: Cameron, Amberg and Co.

LIBRARY U. OF I. URBANA-CHAMPAIGN

but protected environment. No fewer than two hundred instances of dementia praecox were detected among 2,700 delinquents investigated in the Chicago Laboratory; these are more dangerous cases, and it is suggested that they should be confined in farm colonies under proper supervision. One of these delinquents—a case of high-grade mental defectiveness combined with dementia praecox—had been in court on thirty-seven previous occasions. It is thought that such defective delinquents as these might be employed in road-making and other public work of the kind. The *Reports* give a full account of the many-sided work put upon the psychopathic expert who is placed in charge of such a laboratory as that described. He must be an expert in surgery, medicine, venereal disease, obstetrics, neurology, psychology, and psychiatry; but where such accomplished paragons as his are to be found is not indicated. It is clear that the Psychopathic Laboratory is based upon the most scientific and logical foundations, and that it should, in theory at any rate, be of the greatest service to judges and justices called on to pronounce sentence on criminals and offenders of the relapsing or mentally defective types. How far the bench would feel inclined to put itself at the disposal of the laboratory and take its orders, and how far the astute criminal might succeed in imposing on the psychopathic expert, are questions that only practical experience can settle.

RHUBARB AND RED TAPE.

OUR contemporary, *Nature*, published on May 24th an interesting and timely article on rhubarb, intended by its author for the *Kew Bulletin*, the publication of which the Government in its wisdom has decided to suspend. The official explanation given for this paltry piece of economy is "that it has been ruled that the *Kew Bulletin* is not essential, and its publication has therefore been suspended" owing to the shortage of paper. The small amount of paper needed to secure the continued publication of so useful a periodical, which serves as a link between scientific and economic botany, could well be spared by a trifling reduction in the waste of paper in a single Government department. Lop-sided actions of this sort bring our Government into contempt, and indicate a narrowness of outlook threatening the future of the country. With these remarks we pass to the smaller topic of rhubarb. The article in *Nature* traces the history of *Rheum rhaponticum* as an article of diet. The author's researches bring to light the fact that poisoning by rhubarb leaves, of which several cases have been reported lately, is no new thing. Seventy years ago the case was recorded of a Chelsea woman who boiled rhubarb leaves as a substitute for spinach, and all three of those who ate of the dish were attacked with sickness; the *Gardener's Chronicle* of the day recommended the subject to serious chemical inquiry, deeming it quite conceivable that the leaves contained some principle which the stalks lacked, and warned the public against employing for food any part of the rhubarb except that shown by experience to be wholesome. It was suggested at that time that the chemical composition of rhubarb varied to some extent according to the variety, and also according to the soil on which it was grown. Solly, in the *Transactions of the Horticultural Society*, 1848, showed, as the result of experiments, that considerably less water was present in the leaves than in the stalks, but nearly twice the amount of organic and inorganic matter. It would therefore not be surprising if salts of oxalic acid were present in greater abundance in the leaf blade than in the leaf stalk. At the assumed inquest held this week on the Enfield clergyman who died after eating cooked rhubarb leaves, the assistant analyst to the Home Office stated as the result of analysis that oxalic acid in the form of potassium and calcium salts was present in the proportion of 10 grains of each to the pound. Dr. Spilsbury from chemical analysis of the organs stated that death was due to poisoning by oxalic acid and soluble oxalates, and went on to say that 20 grains to the pound in the ordinary way would not be sufficient to cause death, but such an amount was on the border line, and while it would affect some people, others would escape. He considered the use of rhubarb leaves as a vegetable inadvisable, but agreed with the coroner that there was no harm in the stalk provided soda was not used in the process of cooking. For more than 100 years the stalks of rhubarb have been used on an enormous scale in this country as a substitute for fruit, and except in rare cases of idiosyncrasy this part of the plant appears to be a harmless dish. It is quite clear, however, that the leaves should not be eaten.

SPECIALIZATION IN MILITARY MEDICINE.

SPECIALIZATION in applied science is one of the characteristics of the day, and we have seen its rapid development in medicine during the last two generations. It is not surprising, therefore, that it has been found advisable to apply the principle to military surgery and medicine. Thus the British military medical authorities have found it proper to establish special hospitals or centres for the treatment of disorders of the heart, skin diseases, venereal diseases, for severe compound fractures of the thigh, and for the treatment of disabled men in orthopaedic hospitals and curative workshops. Professor Strauss, in a recent paper in the *Deutsche medizinische Wochenschrift*, suggests that special hospitals, or departments of hospitals, should be set apart for cases requiring special diets, such cases as those of gastric disorder and chronic dysentery. He also wishes to see special wards for men suffering from trench nephritis, and, indeed, asks for two sets of wards for war nephritis, one for severe and the other for light cases, to facilitate the satisfactory dietetic treatment of such patients.

Medical Notes in Parliament.

The Venereal Diseases Bill Passed into Law.—In the House of Lords, on May 25th, Lord Rhondda moved that the amendments to the Venereal Diseases Bill made in the Commons should be accepted. No further objection was offered, and the bill afterwards received the Royal Assent. The changes have already been stated in this column.

Medical Examinations.—In the Commons Mr. Needham asked what course was open to a man called up for military service under the new Act who was dissatisfied with his medical classification. Mr. Macpherson said an application to be examined by a special medical board was submitted for the consideration of the War Office by the military representative in a case in which such examination was recommended by a military service tribunal before which the man concerned had laid his case. Mr. Pringle: Are we to understand that he cannot get an appeal to a special medical board except through a tribunal? Mr. Macpherson: That is so. On May 25th Mr. Macpherson informed Mr. Hogge that a man to whom a notice under the Review of Exceptions Act was sent was deemed to be enlisted, and was transferred to the reserves as from the appointed date. The appointed date was the thirtieth day after the date of the notice. Any time before the appointed date a man had the right of appeal to a tribunal for exemption, and that right was independent of the date of the medical re-examination of the man. The application might be made whether or not the medical examination had already taken place. In reply to Mr. Theodore Taylor, Mr. Macpherson said that he was not aware, as suggested, that examination of recruits by medical boards had frequently been made at the rate of thirty per hour. Express instructions had been issued that examinations under the Review of Exceptions Act should be most careful. The classification certificate was signed by the president of the board.

The Medical Treatment of Naval Officers.—Mr. Mooney asked the Secretary to the Admiralty whether an officer or warrant officer sent to a hospital or to a sanatorium suffering from tuberculosis was allowed full pay during the period he was off duty; whether out of this allowance he had to meet all doctors' bills and expenses of treatment in a sanatorium or hospital; whether officers suffering from other diseases, no matter what the cause, were treated at the expense of the State; whether he was aware that this treatment of tuberculous disease caused hardship. Dr. Macnamara said the facts were generally as stated. Arrangements were, however, provided for the reception of all such cases, after invaliding, into sanatoriums at the public expense. It was recognized, nevertheless, that the treatment so given was not what should be supplied for officers, and steps were being taken to remedy this defect.

THE WAR.

THE ORGANIZATION OF THE AMERICAN BASE HOSPITAL UNITS.

THE six medical units from the United States which are to take over base hospitals in France will, it is expected, all have arrived before the end of this week. The unit from the Western Reserve University, Cleveland, some particulars of which were given in the last issue, was followed quickly by units from Harvard (Boston) and Columbia (New York), both of which have already left London for the Continent, and these by units from St. Louis, Philadelphia, and Chicago. The Harvard unit, whose official title is United States Army Base Hospital No. 5, was organized under the American Red Cross by Professor Harvey Cushing. It consists, like the others, of three members of the administrative staff taken from the medical corps of the regular army—namely, Major Robert U. Patterson, commanding, Captain D. W. Harmon, adjutant, and Captain Charles Rund, quartermaster. The professional staff, in addition to Major Harvey Cushing, includes Major Robert I. Lee, professor of hygiene at Harvard, and Major Robert B. Osgood, professor of orthopaedics, together with five officers holding the rank of captain and sixteen that of first lieutenant. Among the latter is Dr. W. B. Cannon, professor of physiology at Harvard. The staff includes an anaesthetist, a radiologist, two dental surgeons, and other specialists, including a dietist. The hospital company consists of 16 orderlies from the medical department of the regular army and 132 specially enlisted men, 65 per cent. of whom are Harvard students. The nurses number 64, and there are three secretaries. All have "signed on" for the duration of the war.

The Columbia unit, whose official title is United States Army Base Hospital No. 2, is commanded by Major L. L. Hopwood, with Captain Edward Wells as adjutant, and Captain D. F. Hopkins as quartermaster. The director of the professional staff is Major George E. Brewer, professor of surgery at Columbia and surgeon-in-chief of the Presbyterian Hospital, New York City. The chief of the surgical service is Major William Darrach, and of the medical Major Homer Swift, and the number and assignments of the unit are virtually the same as in the case of Harvard and the others.

The fourth and fifth contingents to arrive were the Washington University unit (Base Hospital No. 21) from St. Louis, and the Pennsylvania Hospital unit (Base Hospital No. 10) from Philadelphia. The sixth and last contingent, from Chicago, was expected at the end of this week. In all these cases the organization is practically the same as in the Western Reserve, Harvard, and Columbia units already described, save that the St. Louis unit has a feature which, so far as our information goes, is peculiar to itself. Arrangements have been made for those of the enlisted men from St. Louis who are medical students to continue their studies while serving with the unit. There are thirteen of these at present, but the number is expected to reach thirty-five by next January. Washington University has recognized the professional staff as a teaching faculty, and has arranged to substitute the work with the unit for the fourth year in the medical school; the university teaching, both in medicine and surgery, will be carried out in France. This unit is commanded administratively by Major James D. Fife, with Captain Thomas C. Austin as adjutant and Captain G. S. Kopple as quartermaster. The director of the professional staff is Major F. T. Murphy, professor of surgery at Washington University, and the assistant directors are Major Walter Fischel, associate professor of medicine, and Major Malvern B. Clopton, associate professor of surgery. The assistant director of the laboratory service is Captain Eugene L. Opie, who is professor of physiology, and the staff includes Captain Allison, Captain Veeder, and Captain Sidney Schwarb, associate professors respectively of clinical orthopaedic surgery, pediatrics, and neurology. All the members of the professional staff are attached to the Barnes Hospital and the Children's Hospital, St. Louis, both of which are integral parts of Washington University. The commissioned officers number twenty-eight in all. The chief of the sixty-five nurses is a lady well known among the social workers and educationalists of America—namely, Miss J. C. Stimson, niece of a distinguished American surgeon. The enlisted staff embodies about 160 men.

The Pennsylvania unit is the only one of the six which is not attached to a university; its members are part of the staff of Pennsylvania Hospital in Philadelphia. Major De Laney is the commanding officer and Major Richard Harte the professional director. Like the Harvard and Washington units, this group includes a chaplain.

The unit from Pennsylvania Hospital, Philadelphia—the oldest hospital in the United States—is commanded by Major M. A. De Laney, with Captain N. L. McDiarmid as adjutant and Captain H. L. Kidwell as quartermaster, all of the medical corps of the United States army. The director is Major Richard H. Harte, surgeon to the Pennsylvania and Orthopaedic Hospitals, Philadelphia; with Major H. Gibbon as chief of the surgical service and Major George W. Norris as chief of the medical service. All the professional staff are graduates of the University of Pennsylvania, with the exception of Major Gibbon. The hospital company includes 156 men and 64 trained nurses.

Another unit of medical men to arrive this week consists of twenty orthopaedic surgeons, in charge of Major Joel E. Gouldthwaite. These surgeons are from various parts of the United States and have come over at the request of Colonel Robert Jones for work at present in the British Isles.

Major Brewer gave a representative of the BRITISH MEDICAL JOURNAL some details of the origin and standing of these units, and these were supplemented by Major Patterson, of the Harvard unit, who has been first assistant to Colonel Jefferson R. Kean, of the medical corps of the United States army, to whom the development of the organization of these base hospitals by the Red Cross is due. The idea was originated by Dr. George W. Crile, now the director of the Western Reserve unit, as a result of his experiences in the Spanish-American war, and was brought to fruition by Colonel Kean. The United States Government has no authority to organize military medical units in time of peace, but by a presidential proclamation in 1911 the Red Cross was authorized to act as a Government agent to prepare in advance certain hospital units composed of medical men and nurses and, as far as possible, of orderlies, laboratory assistants, and administrative staff who had been working together in similar relative capacities in some large hospital. These were organized under the Red Cross, and each member signed a pledge to hold himself or herself in readiness to respond to any call by the Government on a declaration of hostilities. During hostilities, or when these are imminent, the units can be enlisted as regular military organizations under the sole control of the War Department, and each of the medical officers of the unit must be a member of the medical reserve corps. This arrangement was designed to make well-organized hospital units immediately available for service in the base hospitals in time of war, and to avoid the necessity of calling together men from different parts of the country who had had no previous association. Major Brewer stated that the units, most of which are organized from hospitals attached to university medical schools, now number thirty-eight, and during the past year each of these units has been supplied with a full hospital equipment, including beds, bedding, linen, instruments, hospital furniture, *x*-ray and laboratory apparatus, and a supply of surgical appliances and dressings enough to last for two months' active service. When these units are called out the War Department furnishes three officers from the regular army to take charge of the administration of each of them, while the professional personnel remains under the director who has been at the head of the unit from the first, and with him are two sub-directors, one to superintend the surgical, and the other the medical, service. The staff includes a chief of laboratory service, a competent pathologist, a bacteriologist, and a number of laboratory technicians; each group has also an orthopaedic surgeon, a neurologist, an ear, nose, and throat specialist, and a radiologist, all of them as far as possible from the teaching staff of the university medical school. By thus putting into active service a "team" of men who have already been accustomed to work together it is believed that the best technical results can be obtained. The Columbia unit, for example, consists of doctors and nurses who have been working together at the Presbyterian Hospital in New York in the same capacities as those to which they are now assigned.

At the request of the British Commission which recently visited Washington, six of these thirty-eight hospital units have been lent to the British Government with a view to releasing the staffs already at the base hospitals. As originally organized, the unit, when called out, intended to carry its own complete equipment, but as these six units were requested to take over six general hospitals already in being, only some special instruments and not the full equipment have been brought across the

LIBRARY U. OF I. URBANA-CHAMPAIGN

Atlantic. Major Brewer also indicated an interesting development of the immediate future. For some time it has been planned by the National Red Cross of America to provide each of these units with a complete set of hospital buildings of the portable house type. The plans were formulated by Dr. Sidney A. Burnap, a member of the Columbia unit, and have been approved by the Council of National Defence. Through the generosity of a New York philanthropist orders have been given for the construction of a set of hospital buildings capable of accommodating 500 patients, staff, and administrative personnel, and including operating theatre, kitchen, laundry, heating, lighting, and disinfecting plant, sewerage system, and all labour-saving devices on the most up-to-date lines. Between forty and fifty buildings (forming one set) are now being constructed on this portable plan, capable of being erected and made ready for use within two or three weeks, so as to form a base hospital; when this model building is completed it will be placed on exhibition, either in one of the parks of New York or at one of the military concentration camps, and if it proves as satisfactory as expected the Government will probably order ten or more of these groups of buildings to be constructed for base hospital use with the first expeditionary force to Europe.

In the official summary, issued on May 29th, of what the United States has accomplished during the seven weeks which have elapsed since it entered the war, it is stated that ten thousand doctors, in addition to many nurses, have been ordered to England and France. As the bill which is to be put into force forthwith will provide an army of 2,000,000 men, this is at the rate of one doctor to 200 men. It is, however, anticipated that not more than 100,000 Americans all told will be available in France at an early date, and it is to be assumed that all the ten thousand doctors will not come to Europe before the main American forces reach this country.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

TEMPORARY SURGEON A. McK. RUSSELL, R.N.

Temporary Surgeon Archibald McKerrow Russell, R.N., who was reported as missing in the casualty list published on May 19th (BRITISH MEDICAL JOURNAL, May 26th), is reported as killed in that of May 26th. He was educated at Glasgow University, where he graduated as M.B. and Ch.B. in 1914, and was a resident of Newmains, Lanarkshire.

ARMY.

Killed in Action.

Captain William Gordon Cummings, R.A.M.C.(T.F.).

CAPTAIN F. HUNTON, R.A.M.C.(T.F.).

Captain Frederick Hunton was killed in action on May 6th, near Gaza, in Palestine, and a brief summary of his professional career was printed in the JOURNAL of May 19th, 1917. A medical colleague sends us an appreciation of his life and character, from which we take the following extract: "Frederick Hunton was the ideal country practitioner, and by his cheery courage, professional skill, and sterling character he wielded a wide influence for good. He loved the life of the country, and his favourite holiday was a ride on horseback alone with nature. He was devoted to hunting and outdoor exercise, and his physical courage brought him many accidents. This fearlessness was characteristic throughout his life and in his death. After seeing the wounded come in from action near Gaza, and on one occasion working amongst them for eighty-four hours with only four hours' sleep, Hunton was killed by a piece of bomb whilst running to succour the wounded who fell during a bombing raid."

Lost at Sea.

The casualty list published on May 28th contained the names of twenty-two officers reported as "missing, believed drowned," including four of the R.A.M.C.—Captains A. W. Pope and A. Tilbury, Lieutenant J. E. B. Smith, and Lieutenant and Quartermaster A. T. Hasler, M.C. Two more R.A.M.C. officers were reported as drowned in the casualty list of May 29th—Captain H. H. Robinson, D.S.O., and Lieutenant J. T. Brown. Obituary notices of Lieutenants Smith and Brown have already been given (BRITISH MEDICAL JOURNAL, May 12th and 26th). Lieutenant Smith appears to have been lost in the *Arcadian* on April 15th. Captain Tilbury, and probably the others, were lost in the transport *Transylvania*, 14,000 tons, formerly an Anchor liner, torpedoed and sunk in the Mediterranean on May 4th.

CAPTAIN C. A. W. POPE, R.A.M.C.

Captain Charles Alfred Whiting Pope was educated at St. Bartholomew's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1903, and at Cambridge, where he graduated as M.A. and B.C. in 1904, and as M.B. in 1907. After filling the posts of assistant house-surgeon of the South Devon and East Cornwall Hospital, and of house-physician of the Somerset Hospital at Capetown, he went into practice at St. Leonards-on-Sea. He took a temporary commission as lieutenant in the R.A.M.C. on April 12th, 1915, and was promoted to captain after a year's service. He had been for some time in medical charge of military families at Aldershot.

CAPTAIN H. H. ROBINSON, D.S.O., R.A.M.C.

Captain Henry Harold Robinson, D.S.O., was educated at Owens College, Manchester, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1899. After serving as house-surgeon of Burton-on-Trent Infirmary, as senior house-surgeon of Southport Infirmary, and as house-surgeon of Birkenhead Children's Hospital, he went into practice at Birkenhead, where he was honorary medical officer of the children's hospital. He took a temporary commission as lieutenant in the R.A.M.C. on April 10th, 1915, and was promoted to captain after a year's service. He received the D.S.O. on August 25th, 1916, and the Military Cross on November 14th, 1916.

CAPTAIN A. TILBURY, R.A.M.C.

Captain Arthur Tilbury, youngest son of Mr. John Tilbury of Oakley, Hants, was educated at Guy's Hospital, and took the diplomas of M.R.C.S., L.R.C.P.Lond. in 1913. He then joined his brother in partnership at Queen's Road, S.E., and continued to hold clinical appointments at Guy's Hospital. On the outbreak of war he was called up as a reservist in London University O.T.C., and was given a commission in the R.A.M.C. He served at Canterbury for a year, and on obtaining his captaincy was sent to Egypt in September, 1915. On March 17th he came to England on special duty, and on his return journey the *Transylvania*, on which he was on duty, was torpedoed and sunk on May 4th, and he was reported missing and believed drowned. His loss is keenly felt by his relatives, patients, and many friends at Guy's.

LIEUTENANT AND QUARTERMASTER A. T. HASLER, M.C., R.A.M.C.

Lieutenant and Quartermaster Arthur Thomas Hasler, M.C., R.A.M.C., was born on March 11th, 1875, and, after serving in the ranks for nearly eighteen years and as a warrant officer for two and a half years, received his commission on February 6th, 1915. He gained the Military Cross as a sergeant-major on January 1st, 1915, being one of the first recipients of that order on its institution.

Died of Wounds.

CAPTAIN H. A. WILSON, R.A.M.C.

Captain Robert Henry Wilson was reported as having died of wounds, in the casualty list published on May 29th. He resided at Straid, Ballyclare, County Antrim, and was educated at the University of Belfast, where he graduated as M.B., B.Ch., and B.A.O. in 1915. After qualifying he entered the R.A.M.C. as a temporary lieutenant, and was promoted to captain after a year's service.

Died on Service.

CAPTAIN R. F. RUSSELL, R.A.M.C.

Captain Robert Fergusson Russell, R.A.M.C., was reported as having died on service, in the casualty list published on May 28th. He was educated at Aberdeen University, where he graduated M.B. and Ch.B. in 1905, and was in practice in Jamaica, until he took a temporary commission in the R.A.M.C.

Wounded.

Lieutenant-Colonel J. J. Fraser, Canadian A.M.C.
Captain J. F. Bourke, R.A.M.C. (temporary).
Captain J. C. Ferguson, R.A.M.C. (temporary).
Captain J. A. Gilfillan, R.A.M.C. (temporary).
Lieutenant J. W. Mackie, R.A.M.C., S.R.
Captain H. N. Stafford, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Ardagh, Arthur Holford, Captain Canadian Infantry, only son of Dr. Edward Ardagh, of Orillia, Ontario, Canada, killed on May 10th, aged 23.

Codner, Christopher Cardew, acting Captain Prince Albert's Somerset Light Infantry, younger son of Dr. J. Codner, of Corfe, Taunton, reported wounded and missing on May 3rd, now reported killed, aged 22. He got his commission in July, 1915, and reached the rank of captain in November.

Dunwoody, John Myles, Second Lieutenant Royal Dublin Fusiliers, reported missing, believed drowned, on May 4th, on troopship *Transylvania* on his way back to Salonica after leave, only son of Dr. W. G. Dunwoody of Ramsgate.

Henson, Gordon Reed, Private, Canadian Forces, second son of the late Dr. J. R. Henson, of Hornsea, Yorkshire, died on May 17th of wounds received on May 8th.

Irvine, Gerard Byrom Currie, Major Indian Infantry, elder son of the late Inspector-General G. J. Irvine, R.N., died on May 15th of wounds received on April 21st. He was born on February 18th, 1881, and served with the Devon Militia during the South African war, in 1900-2, in the Transvaal, Orange River Colony, and Cape Colony, receiving the King's medal with three clasps and the Queen's medal with two clasps. He received a commission in the Leinster Regiment from May 4th, 1901, joined the Indian Army on March 18th, 1906, became captain on February 14th, 1909, and had recently been promoted to major. He had served for the last eleven years in the 9th Bhopal Infantry, and was with his regiment in France in 1914-15, being severely wounded in October, 1914.

Poole, B. R., Captain Canadian Forces, youngest son of Surgeon-Major Poole, of Norwood, killed on May 3rd.

Pye-Smith, Philip Howson Guy, Lieutenant Liverpool Regiment, only child of the late Dr. P. H. Pye-Smith, killed May 15th, aged 21. He was educated at Eton and entered Magdalen College, Oxford, in October, 1914, but took a commission on December 22nd, 1914. He went to the front in May, 1915, was wounded on Good Friday, 1916, and returned to the front last Christmas.

Sandoe, M. W. A., Second Lieutenant Devonshire Regiment, eldest son of Dr. Sandoe, of Broadclyst, Devonshire, killed May 7th, aged 21.

Wright, William Richard, Lieutenant Canadian Infantry, third son of the late Dr. Henry P. Wright, of Ottawa, killed May 13th, aged 19.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SUPPLEMENT to the *London Gazette* of May 26th contains a further list of honours and decorations conferred upon officers for gallantry and devotion to duty. Among the recipients are the following medical officers:

Bar to Military Cross.

Temporary Captain Reginald Peter Nutcombe Buckland Bluett, M.C., R.A.M.C., attached Highland Light Infantry.

For conspicuous gallantry and devotion to duty. He displayed great judgement and endurance in organizing the stretcher-bearers in the attack. He worked continuously throughout the day, exposed for many hours to very heavy hostile fire. (M.C. gazetted March 30th, 1916.)

Military Cross.

Temporary Captain Thomas Dowzer, F.R.C.S.I., R.A.M.C., attached Manchester Regiment.

For conspicuous gallantry and devotion to duty. He showed great personal bravery in moving about in the open under heavy fire, organizing his bearers, and assisting in the search for the wounded.

Captain Francis Heygate Ellis, M.O. Rhodesian Regiment.

For conspicuous gallantry and devotion to duty on many occasions. He has at all times displayed a total disregard of personal safety, and has set a fine example to all ranks.

Captain Thomas Graham, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He rendered invaluable assistance in evacuating the wounded under very heavy fire. He has at all times set a splendid example of courage and determination.

Captain Thomas Whittle Martin, M.B., R.A.M.C.(S.R.), attached Royal Scots.

For conspicuous gallantry and devotion to duty. He was of the greatest assistance in organizing the evacuation of the wounded across "No Man's Land" during the operation. He has on many previous occasions done fine work.

Temporary Captain Francis Lorne McKinnon, M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty. He personally led a search party up to the enemy wire in front of the village, under very close rifle and machine-gun fire. He succeeded in recovering two wounded men.

Temporary Captain Charles O'Brien, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. Although wounded, he insisted on remaining in command of the bearer division of his field ambulance, and in so doing materially expedited the removal of the wounded from the field.

Captain Bertrand Cecil Owens Sheridan, M.B., R.A.M.C., Special Reserve, attached Worcester Regiment.

For conspicuous gallantry and devotion to duty. He tended the wounded continuously for twelve hours under very heavy fire. He set a splendid example of courage and determination throughout.

Captain George Charles Willcocks, Australian A.M.C.

For conspicuous gallantry and devotion to duty. He worked continuously for about sixteen hours in the open under heavy fire, and successfully evacuated a large number of wounded men. He set a splendid example of courage and determination.

The Distinguished Conduct Medal for acts of gallantry and devotion to duty has been awarded to two non-commissioned officers of the South African M.C., the Military Medal to two staff nurses of Queen Alexandra's Imperial Military Nursing Service Reserve, eight non-commissioned officers and privates of the R.A.M.C., to six of the Australian A.M.C., and to one temporary sergeant of the New Zealand Field Ambulance. The Meritorious Service Medal for valuable services rendered in the field has been bestowed upon two sergeants of the R.A.M.C.

MENTIONED IN DISPATCHES.

The following officers and men of the Army Medical Service and Royal Army Medical Corps are included in the list of names submitted by Sir Douglas Haig in his dispatch of April 9th as deserving of special mention:

ARMY MEDICAL SERVICE.

Head Quarters Staff.

Lieutenant-General Sir A. T. Sloggett, K.C.B., C.M.G.

Surgeon-Generals: W. G. Macpherson, C.B., C.M.G., M.B. M. W. O'Keefe, C.B., M.D., R. Porter, C.B., M.B., R. H. S Sawyer, C.M.G., M.B., F.R.C.S.I., T. P. Woodhouse, C.B.

Colonels (temporary Surgeon-Generals): J. M. Irwin, W. W Pike, C.M.G., D.S.O., F.R.C.S.I., B. M. Skinner, C.M.G. M.V.O.

Colonels: A. W. Bewley, E. G. Browne, C.B., C. H Burtchaell, C.M.G., M.B., H. Carr, C.B., M.B., J. J. Gerrard M.B., R. Jackson, M.B., R. Kirkpatrick, C.M.G., M.B., Si W. B. Leishman, C.B., F.R.S., M.B., F.R.C.P., D. M O'Callaghan, J. J. Russell, C.B., M.B., S. Westcott, C.B., C.M.G

Temporary Colonel C. C. Fleming, D.S.O., M.B., ret. pa (Res. of Off.).

Lieutenant-Colonel and Brevet Colonel H. Ensor, D.S.O M.B.

Lieutenant-Colonels (temporary Colonels): J. D. Alexander M.B., H. P. W. Barrow, C.M.G., W. C. Beever, C.B., C.M.G., M.B ret. pay, R. J. Blackham, C.I.E., D.S.O., E. W. Bliss, D.S.O A. W. N. Bowen, G. W. Brazier-Creagh, C.M.G., ret. pay J. Grech, D.S.O., F. J. Greig, ret. pay (Res. of Off.), H. A Hinge, C.M.G., A. W. Hooper, C.M.G., D.S.O., S. de C O'Grady, M.B., J. Poe, D.S.O., M.B., C. E. Pollock, D.S.O M. McG. Rattray, M.B., D. D. Shanahan, D.S.O., F. A Symons, C.M.G., D.S.O., M.B., H. S. Thurston, C.M.G.

Lieutenant-Colonels (acting Colonels): J. G. Gill, H. Herrick

Lieutenant-Colonels: W. W. O. Beveridge, C.B., D.S.O M.B., W. R. Blackwell, S. L. Cummins, C.M.G., M.D., H. F Fawcus, C.M.G., M.B., L. N. Lloyd, C.M.G., D.S.O., C. F Morgan, C.M.G., M.B.

Majors: H. St. M. Carter, D.S.O., J. A. Hartigan, D.S.O M.B., N. Low, D.S.O., A. H. MacN. Mitchell, J. D. Richmond M.B., M. B. H. Ritchie, D.S.O., M.B., G. F. Sheehan, S. F Smith, M.D., J. A. Turnbull.

Captains: D. C. G. Ballingall, M.C., M.B., J. J. H. Beckton F. Casement, M.B., K. K. Drury, M.C., A. J. Gibson, M.B F. A. McCammon, M.C., M.B., H. F. Panton, M.C., M.B G. S. Parkinson, G. P. Taylor, M.C., M.B., H. F. Wilkin, M.C F.R.C.S.E.

Temporary Captains: G. J. D. Hindley, M.B., E. Marshall.

Lieutenant (temporary Captain) J. H. Pendered, M.B F.R.C.S.

Consultants.

Temporary Surgeon-General Sir G. H. Makins, K.C.M.G C.B., F.R.C.S. (Lieutenant-Colonel 2nd London General Hospital, R.A.M.C.).

Temporary Colonels: Sir J. R. Bradford, K.C.M.G., C.B F.R.S., M.D. (Major 3rd London General Hospital, R.A.M.C F. M. Caird, M.B., F.R.C.S.E. (Lieutenant-Colonel 2nd Scottish General Hospital, R.A.M.C.), Sir B. E. Dawson, K.C.V.O., C.B M.D. (Captain 2nd London General Hospital, R.A.M.C.), W. Lister, C.M.G., M.B., F.R.C.S., C. S. Wallace, C.M.G.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonels: S. A. Archer, C. R. Evans, D.S.O T. Fraser, M.B., G. H. Goddard, F. W. Higgs, M.D., C. Howkins, W. E. Hume, M.B., D. D. Logan, M.D., E. W. P. Marriott, A. H. Waring, E. A. Wraith.

Temporary Lieutenant-Colonel R. H. M. Roberts, C.M.G T.D., F.R.C.S.E.

Majors (temporary Lieutenant-Colonels): D. Ahern, Coffey, J. F. Crombie, B. H. V. Dunbar, M.B., G. H. L. Hamerton, H. C. Hildreth, F.R.C.S.E., A. B. Hinde (Res. of Off. G. J. Houghton, T. Kay, M.B., W. D. C. Kelly, M.B., C. Lindsay, C.M.G., M.D., J. E. Powell, T. P. Puddicombe, M.B.

LIBRARY U. OF I. URBANA-CHAMPAIGN

J. Rahilly, M.B., H. Rogers, M.B., D. Rorie, M.D., W. M. B. Sparkes, D.S.O., H. Stewart, M.C., M.B., R. J. C. Thompson, D.S.O., R. M. West, M.D., T. J. Wright.

Major (acting Lieutenant-Colonel): A. J. Hull, F.R.C.S.

Majors: G. E. Gask, F.R.C.S., J. M. Gover, M.B., W. B. Milbanke, M.B., G. W. Miller, M.B., J. S. Pascoe.

Temporary Majors (temporary Lieutenant-Colonels): W. B. Edwards, E. L. Gowland, M.B.

Captains (Acting Lieutenant-Colonels): J. D. Bowie, M.B., E. D. Caddell, M.C., M.B., H. K. Dawson, M.D., W. H. Forsyth, M.B., A. D. Fraser, M.C., M.B. (S.R.), A. S. Littlejohns, D. F. Mackenzie, D.S.O., M.B., G. Mackie, R. Magill, M.B. (S.R.), C. R. M. Morris, M.B., K. D. Murchison (S.R.), R. T. C. Robertson, M.B. (S.R.), M. R. Taylor, M.B. (late Captain A. Med. Res.), A. G. Wells, A. J. Williamson, M.D.

Captains (temporary Majors): E. Alderson, M.D., R. S. Taylor, M.B., F.R.C.S.E.

Captains: W. W. Adamson, M.B., F. J. Allen, M.B., G. N. Anderson, M.B., R. P. Ballard, M.B. (S.R.), T. W. Browne, C. F. Burton (S.R.), A. Campbell, M.B., T. F. Corkhill, M.B., (S.R.), N. A. Coward, M.D., E. M. Cowell, M.D., F.R.C.S., R. S. Cumming, M.B., A. M. Deane, M.B., A. E. Delgado, M.B., W. J. Dowling (S.R.), S. R. O. Dudfield, M.B., P. W. Edwards (S.R.), H. Foxton, M.B., A. F. Girvan, J. Golding, C. M. Gozney, M.B., J. M. Hamill, W. H. P. Hey, M.B., F.R.C.S., A. M. Hughes, C. Jacobs (S.R.), D. W. John (S.R.), H. W. Lance, M.B., H. Lightstone, M.C., P. McCallum (S.R.), H. E. McCready, M.D., H. W. Maltby (S.R.), D. M. Marr (S.R.), R. P. S. Mason (S.R.), E. R. Matthews, G. L. Matthews, W. T. P. Meade-King, E. J. Messent, F. R. H. Mollan (S.R.), B. B. Morgan, M.D., W. F. Munro, M.B., T. S. Nelson (S.R.), J. A. Nixon, O. G. Parry-Jones, S.R. (died of wounds), L. T. Poole, M.B., A. D. Ramsbottom, M.D. (S.R.), A. E. Rayner, D. G. Rice-Oxley, M.B., J. C. Rowe, M.B., A. A. Rutherford, J. A. C. Scott, M.C., M.B., T. G. Shand, A. H. Spicer, M.B., W. C. Stewart, M.B., A. P. Thomson, G. T. van der Vyver, M.B. (S.R.), H. Vickers, J. S. Wallace, W. J. Webster (S.R.), L. T. Whelan, F.R.C.S.I., C. S. E. Wright, M.B., S. K. Young, M.D. (S.R.).

Temporary Captains (acting Lieutenant-Colonels): R. E. Drake-Brockman, F. F. Muecke, M.B., F.R.C.S.

Temporary Captains: T. E. Amyot, M.B., W. A. Anderson, M.B., B. W. Armstrong, V. E. Badcock, M.D., S. Batchelor, J. Biggam, M.B., A. G. Bisset, M.B., J. C. Boyd, M.D., C. A. Brisco, M.B., D. S. Brough, M.B., W. T. Brown, M.B., C. W. G. Bryan, F.R.C.S., F. Carson, M.B., H. Carson, M.B., C. N. Coad, M.B., H. M. Cockcroft, R. C. Cook, E. W. Craig, M.B., J. Crawford, M.C., J. Davidson, M.B., C. F. Dillon-Kelly, C. O. Donovon, D.S.O., M.B., C. G. Douglas, M.C., M.D., J. J. Dwyer, H. D. Eccles, C. M. G. Elliott, J. H. Elliott, M.D., C. C. Finlator, M.D., S. J. C. Fraser, M.D., H. B. German (late Surgeon, R.N.), R. S. Gibson, M.B., N. F. Graham, M.B., N. Grellier, J. D. Hart, M.B., W. S. B. Hay, M.B., G. W. Huggins, D. M. Hunter, M.B., A. H. Huycke, M.D., G. W. B. James, M.D., D. S. Jones, D. W. F. Jones, M.B., J. Kirker, J. Kirton, M.B., J. St. P. Knight, M.B., H. A. Lake, F. J. Lidderdale, M.B., W. H. R. McCarter, M.B., W. McCready, M.B., F.R.C.S.I., N. MacDonald, M.D. (Lieut. C.A.M.C.), J. W. McKinney, M.B., J. W. McLeod, M.B., M. T. McMahon, M.B., R. J. B. Madden, M.B., J. R. Marrack, M.C., M.B., H. C. D. Miller, M.B., W. Millerick, R. S. Morshead, K. M. Nelson, H. B. Owens, W. H. Parry, M. P. Paton, M.B., D. H. Pennant, D.S.O., S. E. Picken, M.B., J. H. Porter, M.B., K. Pretty, M.B., M. Ramsay, M.B., G. A. Renwick, M.D., J. F. Robertson, W. Rogerson, M.B., H. B. G. Russell, W. Russell, A. P. Saint, A. D. Sharp, M.D., T. Sheehan, G. R. Spence, A. V. Stocks, M.B., R. Tindall, M.B., R. W. L. Todd, M.B., W. A. Troup, M.B., R. B. Wallace, M.B., G. R. C. Wilson, J. A. Wilson, M.B., H. Young.

Lieutenants (temporary Captains): R. Ellis, M.B., D. N. Macleod, M.B.

Lieutenant E. S. Bissell (since relinquished his commission).

Temporary Lieutenants: G. E. Chissell, A. A. Halliday, M.B., K. M. Walker, M.B., F.R.C.S.

Quartermasters and Honorary Majors: J. Green, W. M. Moreton, H. Spackman.

Quartermasters and Honorary Lieutenants: G. S. Annett, R. J. Fleming, M.C., J. Jackson, J. King, J. W. Osborne, A. G. Powell, W. J. Rice, G. Sellex.

Temporary Quartermasters and Honorary Lieutenants: A. H. Addey-Jibb, C. O. Elliot, J. R. Kenshole, A. Morrison, G. R. Spring, J. Tewkesbury.

The list also includes 97 non-commissioned officers and men of the R.A.M.C., 11 members of Queen Alexandra's Imperial Military Nursing Service, 6 of Queen Alexandra's Imperial Military Nursing Service Reserve, 11 of the Territorial Force Nursing Service, 14 of the Civil Hospital Reserve, 28 of the Women's Voluntary Aid Detachment, 3 of the First Aid Nursing Yeomanry, 2 special military probationers, 14 of the British Red Cross Society, 4 of the Voluntary Aid Detachment, 13 lady helpers, and one representative of the American Nursing Service.

NOTES.

HOSPITAL FOR DISABLED OFFICERS.

THE Sir John Ellerman Hospital, primarily intended for disabled officers discharged or about to be discharged from the service, is situated in beautiful grounds, the leading idea being to make it as homelike as possible. The authorities desire such officers to feel that when they have been there some time and wish for a change they can go away and return later. Any beds not required at the moment for disabled officers are being utilized by the War Office for convalescent patients from abroad. Medical officers in charge of hospitals are asked to remember when discharging disabled officers that the Sir John Ellerman Hospital was fitted up for their benefit. It has an *x*-ray room and appliances for electric treatment and massage. On application to the secretary at Walkhurst Lodge, Benenden, Cranbrook, Kent, forms of admission for officers will be sent.

FOLKESTONE AIR RAID.

The following notes show the help given during the raid on May 25th, 1917, to the civilian population by the Canadian Army Medical Corps at present on duty in this neighbourhood:

As soon as the raid was announced a dispatch rider was sent to the ambulance dépôt with a message to send ambulances forward. The first on the scene was one stationed permanently at West Cliff Military Eye and Ear Hospital, Folkestone. First aid was given locally, and the cases were collected to a first aid post at the West Cliff Eye and Ear Hospital, which is in the town, and will be known to many as the West Cliff Hotel. The first case reached the hospital ten minutes after the raid, and in thirty or forty minutes all the cases had been admitted. From it the cases were distributed to the civilian hospital, or, if requiring serious surgical operations, to Moore Barracks Hospital, Shorncliffe. The staff at Victoria Civilian Hospital was reinforced by four Canadian surgeons.

The Town Commandant has expressed his great satisfaction with the service rendered.

The offices of the Wounded Allies Relief Committee have been removed to Bank Chambers, 329, High Holborn, W.C.1.

England and Wales.

THE WELSH NATIONAL LIBRARY.

IT was announced at a meeting of the court of governors of the National Library of Wales on May 25th that the whole of the building contracts had been completed, and that the total expenditure had been £110,563, leaving a small balance in hand. The library owes more to Sir John Williams than to any other man, and in particular, that it already possesses a collection of Welsh books and manuscripts which make it the foremost library of Celtic literature in the world. Everyone will be glad to know that he has lived to see the fine building on the commanding site on Grogythan Hill, overlooking the bay of Aberystwyth, in which the treasures he has presented to his country are worthily housed. The beautiful reproduction of the Black Book of Carmarthen, edited by Dr. Gwengvryn Evans in 1906, is dedicated to Sir John Williams as "the first President of the Welsh National Library, the first in personal effort for its establishment, the first in personal sacrifice for its good, and the first in the importance of his contributions to its treasures." In reporting the meeting last week the *Western Mail* states that Sir Herbert Lewis, M.P., who presided, said that Wales could do nothing better at the present time than help forward that orderly, progressive, national development typified by the Welsh National Library. One development of the library may here be mentioned: it is that it keeps in circulation duplicate copies of books for the use of lecturers and tutorial classes held throughout the principality.

NOTIFICATION OF BIRTHS IN SALFORD.

At a recent meeting of the practitioners of Salford a resolution of a previous meeting was confirmed to the effect that "as notification of births by the practitioner in attendance is a breach of that professional secrecy which we are bound to observe, we refuse to notify." The feeling was strongly expressed that the confidential relationship between doctor and patient is being insidiously undermined by the legislation of the last few years, the Notification of Births Act being a glaring example of this. At first the doctor in attendance at a confinement was made jointly responsible with the parents for the notification, but as the Act was optional, and as many local authorities did not adopt it, the first protest of the profession soon became

broken and feeble. In areas where the Act was adopted many practitioners simply ignored it, or took refuge in the provision which excuses the doctor if he can prove that he had reasonable grounds for believing that notice had been duly given by some other person. Even this involved the doctor in the necessity of instructing the parents in their legal duty. But, to a great extent, the Act was a failure, partly because most of the well organized local authorities had other means of getting all the information about births that could be of any practical advantage without imposing on the doctor a task which is repugnant to his better nature. A further step was then taken of withdrawing the optional character of the Act and compelling local authorities to adopt it. But it still met with passive resistance, and the Government has recently taken a step which quite clearly foreshadows an attempt to compel medical practitioners to notify births, and local authorities have recently issued a circular to practitioners which is nothing less than a threat if they fail to notify. The effect of this at a time when the profession is giving so freely of its services to the country cannot fail to be disastrous. Side by side with this is placed the reduction of the ordinary notification fees for infectious diseases. There is no use in hiding the fact that the profession generally both in Manchester and Salford have the conviction that things might have been much more satisfactory if the British Medical Association had shown a firmer attitude in dealing with the Local Government Board, which appears to be constantly on the look-out for means to make the position of general practitioners more and more intolerable.

The Hygiene of Mercantile Ships.

The Liverpool Port Sanitary Authority has issued *A Report on Marine Hygiene*, by Dr. William Hanna, assistant medical officer of health for the Port of Liverpool, based on an essay which gained the Henry Saxon Snell prize and medal of the Royal Sanitary Institute. The report consists of practical suggestions for improvements in the sanitary arrangements and appliances on shipboard. The author points out that much progress in the building of ships on hygienic lines has recently taken place, but the evolution of marine hygiene has not kept pace with the advance of sanitation on land. Whatever steps are being taken to speed up construction of merchant ships, in view of the present crisis, it is to be hoped that the health and comfort of the seamen will not be neglected. Dr. Hanna's report is therefore timely, since the health of the mercantile marine is only second in importance to that of the personnel of the Royal Navy. Fleet Surgeon Munday's article on naval hygiene, which we printed on April 28th, showed the importance attached by the Naval Medical Department to sanitation afloat, so that the war instead of lowering the standard has raised it, with the result that the physical efficiency of all ratings in the navy is higher now than at any previous time. Ventilation on board ship has been the subject of continual inquiry and experiment in the navy, and Dr. Hanna dwells especially on the need for improvement in this matter in mercantile vessels. He points out that the situation of crew spaces and their ventilation are perhaps the two most important problems in marine hygiene. Owing to the great variety in shape, size, and purpose of trade vessels he has had to treat the subject on broad lines only. Other cognate matters which he discusses are the heating, lighting, and drainage of crew's quarters, water supply, filters, and lavatories; the disposition of berths, bunks, and mess rooms; and the provision of hospital accommodation. The last-named point he regards as especially important in view of the occurrence of infectious disease on board. "It seems very strange," he says, "how thoughtlessly the plans of ships are drawn up by naval architects when so important a point is frequently overlooked." The report ends with a number of clear diagrams illustrating the author's suggestions.

Scheme for Venereal Treatment in Brighton and Sussex.

The board of management of the Royal Sussex County Hospital, Brighton, has entered into an agreement with the Brighton Town Council and the County Councils of East and West Sussex for the establishment of a centre for the treatment of venereal diseases, which agreement has been submitted to the Local Government Board for approval.

The scheme provides for an out-patient department for the diagnosis and treatment of venereal diseases in both sexes, where patients are to be treated free of charge, provided they are not willing to be treated privately, or cannot be treated satisfactorily by their own doctor. As far as possible the treatment will be carried out in consultation with the patient's own doctor. No distinctive name, indicating venereal treatment, is to be given to the clinic. Medical officers who have special experience in venereal diseases and a knowledge of modern methods of diagnosis and treatment are to be appointed. These medical officers will undertake the following duties:

1. Attendance at the clinic and the examination and treatment of patients, both out and in.
2. The keeping of records of the patients' progress and treatment.
3. Consultation with medical practitioners in cases sent by them.
4. Taking of specimens for pathological examination and consultations, when necessary, with the pathologist.
5. Supply of salvarsan or its substitutes to medical practitioners.
6. Transmission of reports to medical officers of health. The medical officers will also give demonstrations at the clinic to registered medical practitioners as to the methods of taking and transmitting material for laboratory diagnosis, and as to the best known methods for the systematic diagnosis and treatment of venereal diseases.

Two beds are to be reserved for in-patients requiring salvarsan or other drugs given by intravenous injection, and for the temporary treatment of certain acutely contagious cases of gonorrhoea. Two additional beds are to be available if necessary. Cases requiring prolonged treatment are to be treated at the hospital only in exceptional cases.

Arrangements are made in the agreement for the adequate remuneration of the medical officers to the clinic. The scheme has met with the approval of the Executive Committee of the local Division of the British Medical Association.

Scotland.

Meat from Tuberculous Cattle.

A PARAGRAPH in the *Glasgow Herald* of May 16th reported that the Paisley Public Health Committee had recently interviewed Major G. R. Leighton, veterinary medical inspector to the Local Government Board for Scotland, on the subject of economy in meat consumption. The Scottish Local Government Board is stated to have come to the conclusion that those portions of the meat of tuberculous cattle which were not visibly affected might be used for food if sterilized, and the Public Health Committee was asked whether it would support the sale of such meat, as the health authorities of Dundee, Aberdeen, and Hamilton were already doing. The Paisley Town Council, after a discussion of the report, decided to defer action for a month. The question of what should be done with the flesh of animals affected with tuberculosis has long exercised the minds of hygienists and veterinary surgeons attached to Continental slaughter-houses. In Germany, as Dr. T. M. Legge has stated,[1] a ministerial decree issued in 1892 allowed considerable latitude in the sale for human consumption of the meat of tuberculous cattle: and the flesh of animals with tuberculosis confined to one organ, or to several organs lying in the same cavity and not connected with one another by lymph channels or by blood vessels belonging to the systemic circulation, was permitted to be sold for food. Dr. Legge points out that the result of this was that large quantities of meat which formerly would have been condemned came upon the market. For the sterilization of the meat of animals affected with tuberculosis not sufficiently extensive to demand total seizure, nor so slight as to allow its sale without restriction, large steam disinfectors were erected at the Berlin abattoir. This meat is cut into pieces, and sterilized by contact with steam under pressure, and sold at greatly reduced prices in a special corner

[1] *Public Health in European Capitals.* London: Sonnenschein and Co.

LIBRARY U. OF I. URBANA-CHAMPAIGN

of the abattoir, labelled, "Sale of the cooked meat of tuberculous animals," where it finds a ready market among the poor.

Dr. David Newman, in a letter which we have not space to print in full, criticizes severely the action of the Scottish Local Government Board in suggesting to local authorities that they should follow the German practice of reclaiming condemned meat by sterilization. Our correspondent admits that the flesh of tuberculous animals may possibly be rendered harmless by sterilization, but he doubts whether the food problem is so serious as to call for this infringement of legal provisions for the protection of the public from diseased meat. He quotes from the Public Health Scotland Act, 1891, in order to prove that the Local Government Board has no power to allow the sale of tuberculous flesh, and that meat which is diseased is forbidden by law to be exposed for sale. As a final point, Dr. Newman claims that the meat provisions of this Act have had a great influence in reducing the number of cases of bovine tuberculosis among the poor in Scottish hospital practice.

Canada.

THE PROPOSED SIX-YEAR COURSE IN MEDICINE.

THE decision of the universities of Toronto and McGill to extend the medical curriculum to six in place of five years, beginning with 1918, has met with serious objection on the part of the Senate of Queen's University, Kingston. The proposed change has been under consideration by the universities of McGill and Toronto for some time, and at the Conference of Canadian Universities held in Toronto in May, 1915, a Committee on Medical Education was appointed to report to the next conference. The report of this committee was presented to the third conference in May, 1916, and its recommendation that the conference should express approval of the adoption by Canadian medical schools of a six years' medical course as a minimum was unanimously accepted, and transmitted to the several provincial medical boards throughout the dominion. Approval of the suggested change was signified by Western University, London, Ontario, and on its own initiative, in May, 1916, the University of Manitoba announced that it would introduce a six years' course in medicine.

It is proposed that a pre-medical year shall be added to the five-year course, to be taken after matriculation and devoted to physics, chemistry, biology, and one literary subject (French or German), the course of instruction to include three lectures and six hours of laboratory work a week in physics, chemistry, and biology, and four lectures in French or German, taken at any college, university, or collegiate institute whose equipment and staff is sufficient. To this it is objected by Queen's University that the pre-medical year proposed could not be taken at any institution other than a university, since the laboratory equipment would be insufficient, and it is asked, Why not raise the standards in such a way as would harmonize with the present work of the secondary schools? In reply to this, the University of Toronto agrees that it is impossible at present for the collegiate institutes or secondary schools of the Province of Ontario to undertake the work, but expresses the hope that the action of the university will furnish a stimulus, and that before long it will become possible for the work to be done at these schools.

The proposal to give the degree of B.Sc. in medical sciences at the end of the second year of the regular medical course to students who, in addition to the regular work of the first and second years in medicine, have done special work in anatomy, physiology, or biological chemistry, meets with particular objection from Queen's University on the ground that its degree of Bachelor of Science now requires honour work in mathematics, followed by four years' work, and that such a degree would almost certainly replace the B.A., M.D. course of seven years, which is now taken by about 20 per cent. of the medical students of the university. The answer to this, made by the University of Toronto, is that the outline as set forth in the Queen's memorandum is so far only a proposal of the Faculty of Medicine, and has not yet been adopted by the Senate of the University of Toronto, and that, furthermore, there is no common policy of the universities in regard to the degree of Bachelor of Science.

Other objections raised by Queen's University are that, were a graduate obliged to do six years' academic work in order to obtain the degree of M.D., he would be disinclined to spend another year as hospital interne, and that the proposal to extend the medical course is inopportune, since the demand for doctors is unusually great at the present time. The University of Toronto replies to the first that, in its opinion, this will not be borne out by facts, and that the chief purpose of the change is to increase the hospital experience under direct clinical instruction. As to the demand for doctors, it is pointed out that any decrease in the supply of graduates in medicine will not come into effect until 1922, and that of recent years the medical schools of the province of Ontario have been providing more graduates in medicine than the province could absorb; that the western provinces are developing rapidly, and that there is no reason to suppose that for a few years after the war there will be any greater dearth of medical men in the west than there has been in the past.

It is contended also that the proposed change follows the development of medical education in the United States, which is based upon the German rather than the British methods, and that such changes should not be instituted while the whole subject of medical education is under investigation by the Medical Council of Canada and the Royal Commission appointed by the Ontario Government. Reply is made by the University of Toronto that the best universities in the United States are in line with the best British and Continental practice, and reference is made to the Educational Number of the BRITISH MEDICAL JOURNAL of September 9th, 1916, p. 348, where the normal course of study for medical students in Britain is outlined.

Lastly, the financial aspect of the matter is considered. It is pointed out by Queen's University that the expenses incurred by a medical student have increased already from 1,321 dollars in 1894 to 2,500 dollars at Queen's, and are proportionately heavier at Toronto and McGill, as living expenses are higher in either Montreal or Toronto than at Kingston, and that the addition of a sixth year will make it impossible for the son of an average working man to enter the profession. Answer to this objection is made by the University of Toronto by reference to the fact that the expense of a medical education in the University of Toronto is less than in Britain or in the leading schools of the United States, and that in all probability the governors of the university will impose a smaller fee for the pre-medical year than for the regular years in medicine. Emphasis is laid also upon the necessity of providing Canadian students with an opportunity of procuring the best medical education in their own country, so that they will not find it necessary to study elsewhere.

Correspondence.

FUTURE MEDICAL POLICY.

SIR,—I was pleased to read the letter of Dr. W. Gordon in the JOURNAL of May 19th, and I sincerely hope the moderate manner in which he has drawn attention to a future medical policy will stimulate all members of the profession to realize the nature of the crisis in the practice of medicine. I would also ask those members of the profession who have always prided themselves on having nothing to do with medical politics because they are not affected by any legislation, are not interested in the Insurance Act, and have no panel patients, to consider seriously the rapid developments taking place in medical legislation affecting medical practice from the highest consultant to the humblest general practitioner. I have no desire to open any new controversial questions, the more so as the Representative Meeting of the Association is to be held in July; but I have no hesitation in stating my personal opinion, which is in accord with Dr. Gordon's, that a part-time State service is the solution of the problem which has now arisen. In this connexion the profession must realize the present position of voluntary hospitals, and recognize the change in social and economic conditions since their foundation.

Every one knows the extraordinary good work which our profession has so long gratuitously given to the poor

and to charity through the voluntary hospital system, but we also know that these hospitals do not supply one-third of the requisite needs of the sick poor. Further, the interference of the State in the treatment of certain specific diseases and the Employers' Liability Act with the Medical State Insurance justify assertions in speeches of Labour members that working men accept hospital treatment not in the form of charity but as their just rights.

These facts cannot be too fully appreciated by our profession, and I have always agreed with the late Sir Victor Horsley that State medical work should not be muddled up with charity.

The complete abolition of panel lists with a thorough reformation and reorganization in the working of the State Insurance Act should afford the means for every one to help the scheme to be a success and to command the confidence of the public.

The Ministry of Health must give gratuitous medical treatment to the necessitous poor without the stigma of pauperism. It should be so organized by the formation of proper clinical surgeries, to which specialists would attend, that the service would attract our best men, keen and interested in their work, to apply for the appointments. There should be a part-time service, allowing for proper co-ordination and co-operation between domiciliary and institutional treatment. Undoubtedly there should be State control of medical education. We know in England there are eleven universities and three medical corporations, in Scotland four universities and three medical corporations, and in Ireland four universities and three corporations, all of which grant degrees and diplomas. The whole business is disjointed without central organization. We have long agitated in the Association that there should be one State examination before any one is allowed to practise.

Finally, I again ask members of the profession to give these questions their earnest and unbiassed consideration, free from any sentimental feeling which they may retain for old traditions. War has loosened the roots of many conservative institutions. Medicine has progressed with education and knowledge; let us progress further against the enemy of disease, to secure a healthy nation.—I am, etc.,

G. E. HASLIP.

London, S.W., May 29th.

SIR,—The question of State Medical Service is well above the horizon. In discussing it, one side rhapsodizes over security of income, the beauties of work for work's and knowledge's sake, and a nicely ordered hierarchy for the medical officers and their satellites. The other side points out that in a salaried medical service no supervision could keep the lazy ones up to the mark (and none of us are always perfect); that promotion would be apt to be due to mere seniority or wire-pulling; that without the daily and hourly financial stimulus work would often be slovenly, and the patient would not have an easy means of defence against minor wrongs if our books were in order.

In fact, it is not the pros and cons of State but salaried service that are usually the bone of contention.

But must a public service be salaried? The exponents of "scientific management" point out that in the industrial world the best result is generally obtained by a combination of piece and time work rates of pay, or a minimum wage for a minimum amount of work, with a bonus for an increase in quality or quantity. Such systems of remuneration are successfully at work in large industrial organizations.

Is not this worth looking into by both the State and the profession? There are very few of us who are such hard-and-fast individualists as to regret having to work for the State if the advantages of the old system are retained whilst some of its disadvantages are removed.—I am, etc.,

C. M. STEVENSON.

Cambridge, May 27th.

SIR,—I am glad to see that at last the Association is recognizing that it should advocate a part-time State service, instead of waiting until an inadequately paid whole-time service is thrust upon the profession, and most of the best men are therefore left standing outside.

The Association should fearlessly acknowledge that the attendance under the National Insurance Acts, which is itself a part-time State service, is an absolute failure, and amounts to little more than first aid carried on at an enormous cost. No adequate return can be made for the money expended until there is a proper linking up with consultant, specialist, and hospital treatment, and all members of the profession must be paid for the work they do. The system of voluntary hospitals is not consistent with a State service, nor under it is the general practitioner able to obtain a continuous knowledge of his patients, who must of necessity return to him for subsequent attendance, although they may have passed through the hands of specialists or surgeons.

There appears, however, to be a failure to recognize that all out-patient attendance can and should be given at central surgeries and not at the private houses of practitioners, where the waiting rooms are small, and one already hears of serious complaints in this respect. Individual surgeries are not suitable for proper attendance. There is no need for any hospital to have an out-patient department in its own building. The central out-patient dispensary should be completely equipped, and should be attended by not only general practitioners, but by specialists and consultants in all branches. Minor dressings would be attended to by nurses or dressers and the time of practitioners not wasted thereon; some qualified medical man would be continuously in attendance, and a second opinion always be obtainable on any case during dispensary consultations.

It must be recognized that the supply of drugs and dressings should be entirely done from the central dispensary and not from a number of little shops with no waiting room accommodation. The present system for insurance patients is inadequate and costly, and when special drugs are required they cannot be obtained. Every conceivable appliance and requisite—bed-rests, water-beds, splints of every description—should be kept for loaning out and returned. Both *x*-ray and pathological departments might properly exist at each dispensary; there would be no necessity to have separate dispensaries for tuberculosis or other diseases.

On such a system only can honest scientific attendance be provided for the bulk of the population, and the medical profession itself be satisfied that it is providing such. However, it must be recognized that in small country villages a difficulty would arise to bring the standard of attendance up to such an ideal.—I am, etc.,

HAROLD S. BEADLES,
Secretary Stratford Division and West Ham Panel Committee.

London, E. 16. May 26th.

ANAESTHESIA BY WARMED ETHER.

SIR,—Captain McCardie's contribution to your issue of April 21st (p. 508) raises many points of interest to the anaesthetist. The administration of C_1E_{15} with a bag was first suggested to me by an anaesthetist of London—I think Mr. Carter Braine—in April, 1904, but I have never ventured to give it by any closed method.

During two years' practice at the West End Hospital I commonly gave C_1E_7 to the children, for orthopaedic operations, from a Hewitt's A.C.E. inhaler, and found that the amount of each drug used was about half what one would expect to use of either alone.

As regards ether for soldiers, I fully agree with Dr. McCardie as to the value of small quantities of chloroform in mitigating the cough-provoking action of ether.

During the last six months, however, I have found that the mere addition of steam to the ether vapour has an equally good effect, and have now practically discarded both chloroform and morphine as accessory anaesthetics to ether. A little very hot water in the gasbag and a whiff or two of oxygen is sufficient to secure an easy induction in nearly every case, the anaesthetization being continued by means of a "draw over" ether apparatus,[1] with an arrangement to take up steam from a jug of hot water, without any rebreathing. The ether is inhaled constantly at a temperature of 85° to 95° F., fully moistened, and suffices for all kinds of operations except of course some on the chest and throat. The anaesthetist has both hands free for holding the jaw, as a rule, there being no bellows to work, and all adjustments of the

[1] Figured in the *Lancet*, September 2nd, 1916.

LIBRARY U. OF I. URBANA-CHAMPAIGN

apparatus can be effected by one hand. The arrangements for regulating the strength of the ether vapour approximately are quite simple. My own work has become so much easier now that I think this method may be of use to others.

I hope to publish details of this steam ether method before long.—I am, etc.,

BERESFORD KINGSFORD, M.D.,
Anaesthetist, University College Hospital and Military Orthopaedic Hospital.

London, W., May 9th.

TREATMENT OF ASTHMA BY PEPTONE INJECTIONS.

SIR,—May I ask the indulgence of your columns in order to set at rest, if possible, certain doubts which have been expressed in a number of letters I have received from medical practitioners? The main question refers to sterilization of the peptone. The process of manufacture should ensure sterilization, involving as it does, amongst other things, evaporation to dryness *in vacuo*. If, however, any subsequent contamination be suspected, there ought to be no objection to heating the aqueous solution to 100° C., although up to the present I have not had any occasion to do so. Some correspondents suggest that sterilization by heating may destroy the activity of the peptone. That it does not do so, however, seems proved from the experiments of Vaughan and Wheeler, who, in their quest for the anaphylactic poison, split proteins, such as egg white, by boiling in absolute alcohol containing 2 per cent. of NaHO, and obtained an alcohol-soluble fraction which produced typical anaphylaxis in guinea-pigs. In like manner as regards serum, Besredka showed that its sensitizing properties were not lost even when heated to 120° C.

Other questions refer to the method of using the peptone. Dissolve the powder as formerly described for each injection. A stock solution should not be made. When pure, the peptone froths and evolves heat on being added to the water. Inject *deeply* into a suitable region of subcutaneous tissue poor in fat.

I have to thank Dr. Morton for his reference, but I fear he has not looked up my lecture to which allusion was made, in which the sentence occurs: "It will now be seen that this view of asthma is essentially that propounded by Bree," and was published by that physician over a hundred years ago.—I am, etc.,

London, W., May 25th. A. G. AULD.

REFRESHMENT HOUSE EXPERIMENT IN CARLISLE.

SIR,—The report in the BRITISH MEDICAL JOURNAL of May 19th, p. 663, under the above heading, would suggest that the experiment of State purchase and disinterested management of the liquor trade in the Carlisle district was proving an unqualified success; unfortunately, such is far from being the case.

There are two points in that report with which I wish to deal. The first has reference to the figures quoted regarding the number of convictions for drunkenness in April, May, and June, 1916 (the period immediately preceding the commencement of the operations of the Control Board), when they totalled 315, as compared with January, February, and March, 1917, for which period he gives the total as 159. It would be fairer to compare the first three months of 1916 with the corresponding period of 1917. They were as follows:

	January.	February.	March.	Total.
1916 ...	51	73	89	213
1917 ...	53	63	48	164

Here we have a difference of only 49; one would have been thankful for this small improvement, if it could be proved that the restrictive measures had played any important part in producing it; as a matter of fact, the operations of the Control Board had little or nothing to do in bringing it about, as at that period there were other factors at work which played an important part in its production. The first was a remarkable change in the character of the population occurring about the time the Control Board began its work; previous to this there was a tremendous influx of navvies into the locality—men who are known to be heavy drinkers. As these men completed their work they were replaced by munition girls. I submit that this fact would account for a considerable amount of the decrease in drunkenness at that time. Further, it was in March, 1917, that prohibition of the sale of spirits on Saturdays came into operation in the district, and was immediately followed by a remarkable fall in the number of convictions.

Your correspondent also infers that a further result of the experiment is that the people are eating more food and consuming less drink, and quotes the Gretna Tavern, where he tells us that the sales of food amount to 75 per cent. of the total takings. I would point out that the Gretna Tavern is primarily a restaurant and only secondarily a drinking saloon; also in many of the houses in the district no food is provided, sold, or obtainable, so that any comparison of figures on these lines can only be of value when we compare the relative quantities of food and drink sold in the whole of the houses in the area; such figures, if given, will disprove the theory advanced by your correspondent.

Judged from the standpoint of a temperance movement, the Carlisle experiment has been a colossal failure, as the following extract from the *Carlisle Journal* of January 2nd, 1917, goes to prove: "The convictions for drunkenness in Carlisle . . . in 1914 numbered 273, last year the total was 953, or three and a half times as many. . . . The Control Board's regulations have not yet produced any appreciable diminution in the number of convictions."

This and similar experiments go to prove that the liquor traffic is impossible of regulation and can only be effectually dealt with by means of total prohibition.—I am, etc.,

Plymouth, May 23rd. ROBERT SIMPSON.

MEDICAL BOARDS.

SIR,—Your space being limited, I would not have requested you to publish this letter if it only emphasized the complaint that we members of medical boards have received no thanks from the authorities for our very hard, onerous, and trying work.

No, Sir, its object is of far greater importance to us and to the State—namely, to bring to the notice of the profession several distinct grievances from which we suffer, with the desire of having them remedied.

To begin with, we have no status whatsoever, very few regulations—apart from the instructions regarding the method of examination of recruits—and so on. The only regulations concerning ourselves personally of which I am aware are (1) that we can resign or be dismissed by either party giving twenty-four hours' notice to that effect; (2) that if a member be ill for more than forty-eight hours he is obliged to send a medical certificate to the president of the board, stating the nature of the illness. If this be of brief duration and the member resume his duties within eight or ten days, he receives full pay (24s. a day) for the period of his absence. But, if the sickness be of longer duration—pneumonia, for example—and can be certified as such from the commencement, the examiner will receive at most three or four days' pay and be placed on the waiting list.

Next comes the question of leave. Up till now we have had only two or three days at Christmas and at Easter—no summer or bank holidays, whereas we ought to have, in addition, at least a fortnight in the summer, half a day in the week to attend to our private affairs, and bank holidays.

Then comes the question of the rate of pay, which is, as I have said, 24s. a day, and which is quite inadequate according to the present cost of living. Besides, I am given to understand that at Manchester and Liverpool the members are paid £2 a day. If this be a fact, the members of the London boards are very unjustly treated.

These grievances are important, but not so important as that concerning the number of recruits to be examined per day. With regard to this, the writer, having acted as an examiner for the past twenty-seven months in several districts and with many colleagues, is perfectly convinced that no man should be required to examine more than twenty five recruits a day. The latest instructions issued in this connexion state that each board of four members are expected to examine 130 recruits a day, that is, about thirty-two men for each examiner.

Well, Sir, I am fully convinced that no examiner can do

justice either to the recruits, the State, or to himself, if he should continue to examine such a number day after day. No one, unless he has acted as an examiner, can form an idea how fatiguing such work is both mentally and physically. The result is that before the end of the day we are almost completely done up.

In conclusion, we, like the rest of the profession, do not appear to be desirous of uniting together to obtain just treatment from the authorities. If I err in this, I would suggest that the members of the various medical boards in the London districts should hold a meeting on the earliest Sunday possible, to discuss and decide upon the necessary steps to be taken, in order to ameliorate and improve our present unenviable position. I suggest Sunday, for it is the only day we have free during the week. On Saturday we work the normal number of hours.—I am, etc.,

May 27th. A BELIEVER IN ACTION.

A WAY TO HELP ABSENT DOCTORS.

SIR,—The present and future financial needs of doctors on service must be great, but the contributions available are small. It seems to me that one proper source is neglected. Many doctors at home are doing war work gratis for the sake of their country, either from patriotism pure and simple, or partly for the sake of gaining credit, or even sometimes from laziness in face of the effort required to obtain remuneration due.

I think that where the medical man does not himself want this money—which he has as a rule more than earned—it is due to his profession, and should be devoted to those who have suffered financially by their patriotism, and that every man entitled to remuneration should make a point of using every effort to obtain money for his war services at home for the sake of those at the front when he does not need it himself.

I understand that many doctors have foregone fees for examining recruits, attending to soldiers on furlough or quartered locally (Army Forms O. 1666 and 1667), or doing V.A.D. hospital work. In many cases a great deal of persistence in application is required, and even then I know from personal experience payments that are due are often impossible to obtain. I have not yet been able to obtain payment for contract attendance on troops quartered locally, or payment for attendance on single soldiers (Army Forms O. 1666 and 1667) in many cases years old by now, or even for examining recruits under the Derby scheme, December, 1915; but I am now trying to obtain all that I can, and feel sure that if the plan were generally adopted much money might be obtained for the most needy and deserving of the profession, and perhaps if the British Medical Association itself gave a hand, or the secretary of one of the benevolent funds were authorized to collect for it, even more might be obtained.—I am, etc.,

May 16th. AN OVERWORKED PROFITEER.

THE GRIEVANCES OF TERRITORIAL MEDICAL OFFICERS.

SIR,—It would go a long way towards removing these grievances and be a very simple method if Mr. Churchill's Committee were to recommend that each year of continuous mobilized service of these officers should count two towards promotion and gratuity. The effect of this would be, if the war ends this year, that captains would obtain their majorities at the end of nine years' service and majors be promoted lieutenant-colonels at the end of twelve years' total service. It would double the gratuity to be paid at the end of the war and thus reduce the discrepancy between the remuneration of the Territorial and temporary officer. Further, accelerated promotion, I think, will induce men to remain in the Territorial Force after the war, but without some such inducements very few men will wish to retain their Territorial commissions, but prefer to bargain with the War Office for their services should occasion arise.—I am, etc.,

May 25th. O.C.

SIR VICTOR HORSLEY.

SIR,—Last July came the news of Sir Victor Horsley's death in Mesopotamia. We ought to have some record of his life and of his work; we cannot afford to forget him and what he did for medicine and surgery. I am collecting notes for a book; I hope that it will plainly show what we lost when we lost him. I ask for help in this venture from his friends and colleagues, and from the many patients, in hospital practice or in private practice, who have reason to be thankful for his skill and his kindness. I want all that they can tell me of him, and any letters of his which they will let me use. Without their help nothing that I can write of him will be of much service to anybody. Great care will be taken to return all letters.—I am, etc.,

STEPHEN PAGET.

21, Ladbroke Square,
London, W. 11,
May 24th.

The Services.

EXCHANGES.

M.O., attached to an infantry battalion in France, desires to exchange with a M.O. in an ambulance train, Red Cross barge, motor ambulance convoy, or fever hospital.—Address, No. 1549, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Would an officer on Home Service care to exchange with an officer holding appointment on Lines of Communications? Easy exchange from this to Front Line could be arranged if desired. Territorial Officer preferred.—Address, No. 1650, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE Secretary of the College has issued to the Fellows the annual official circular, informing them that a meeting of the Fellows will be held at the College on Thursday, July 5th, at 3 p.m., for the election of three Fellows into the Council in the vacancies occasioned by the retirement in rotation of Mr. W. Harrison Cripps and Mr. V. Warren Low, C.B., and by the death of Sir Frederic Eve. Blank forms of the requisite notice from a candidate and of his nomination may be obtained on application to the secretary, and the same must be received by him duly filled up within ten days from this date—that is, not later than on Friday, June 8th. A voting paper will be sent by post to each Fellow whose address in the United Kingdom is registered at the college on Tuesday, June 19th.

SOCIETY OF APOTHECARIES OF LONDON.

THE diploma of the Society has been granted to Messrs. J. Y. Dent, S. G. K. Kastelianski, R. H. Pettersson, F. A. Unwin, and L. J. Vincent.

Obituary.

FLEET SURGEON FLEETWOOD BUCKLE, R.N. (retired), died at Southsea on April 9th, aged 76. He was educated at St. Bartholomew's Hospital, and took the diplomas of L.S.A., L.R.C.P.Lond. and the degree of M.D.St.Andrews in 1862, and the M.R.C.S. in 1863. He entered the navy shortly afterwards; he attained the rank of fleet surgeon on May 26th, 1886. He had a long list of war service. He served as assistant surgeon of H.M.S. *Bristol*, flagship of Commodore G. T. P. Hornby, on the West Coast of Africa, taking part in various boat expeditions, when he was wounded in the hip, and went through a severe epidemic of yellow fever, for his services in which he received the thanks of the Admiralty. He was surgeon of H.M.S. *Alexandra*, flagship of Admiral Sir Geoffrey Hornby, at the passage of the Dardanelles in 1877. He was deputed to inspect the field hospitals and field ambulances in the Shipka Pass during the Russo-Turkish war of 1877–78, for which he received the Turkish war medal, and the thanks of the Stafford House Committee. In 1880 he was staff surgeon of H.M.S. *Kingfisher* on the West Coast of South America, and received the thanks of the Chilian Government for his services to the wounded in the battles round Lima in the war between Chili and Peru in 1880. In 1881 he was entertained at a public banquet and presented with a valuable ring by the staff of the Panama Canal Company in recognition of his services in an epidemic of yellow fever at Panama. In 1884–85 he served with the Royal Marines at Suakin and in the operations in the Eastern Sudan, being present at the battle of March 24th, 1885, and receiving the Egyptian medal with a clasp and the Khedive's bronze star. On September 13th, 1891, he was awarded a Greenwich Hospital pension.

LIBRARY U. OF I. URBANA-CHAMPAIGN

ALTHOUGH Dr. WILLIAM BOOTH of Edinburgh retired from active practice some ten years ago, he was until quite recently often to be seen in the south side of Edinburgh, and he continued to minister to the needs of a small number of his former patients who were his personal friends. He was the fourth son of the late Rev. Patrick Booth, M.A., minister of Innerleithen. In his early years he spent some time at sea, and he was consequently a little more senior than most students when he took the L.R.C.P. and F.R.C.S.Edin. in 1886. He acted for a time as demonstrator in anatomy at the College of Surgeons and as medical officer at the Provident Dispensary, Marshall Street, Edinburgh. He built up, and until his retirement he carried on, a large private practice. He became a member of the Edinburgh Medico-Chirurgical Society in 1888, and a Fellow of the Edinburgh Obstetrical Society in 1891. He died at his house, 2, Minto Street, on May 7th, and was buried in the Grange Cemetery on May 10th. He was in his 63rd year, and he leaves a widow.

DEPUTY SURGEON-GENERAL JAMES FAIRWEATHER, Bengal Medical Service (retired), died at Forest Hill, Beaumont, Jersey, on April 29th, aged 88. He was born on October 19th, 1828, the son of James Fairweather of Brechin, and was educated at Edinburgh University, where he graduated M.D. in 1851, taking the L.R.C.S.Edin. in the same year. He entered the I.M.S. as assistant surgeon on August 4th, 1855; became surgeon on August 4th, 1867; surgeon-major on July 1st, 1873; brigade-surgeon, when that rank was first instituted, on November 27th, 1879; and retired with a step of honorary rank on October 19th, 1886; also receiving one of the extra compensation pensions in the first year when these pensions were given. He served on the North-West Frontier of India in the Bozdar campaign in the early part of 1857, receiving the frontier medal with a clasp; and in the Indian Mutiny in 1857–58, when he took part in most of the big fighting, including the siege and capture of Delhi; the actions of Bulandshahr, Aligarh, and Agra; the relief of Lucknow; the defeat of the Gwalior contingent at Cawnpore; the action at Shamshabad; the siege and capture of Lucknow; the action at Aliganj, and capture of Bareilly, receiving the Mutiny medal with three clasps.

DR. JOHN KEARSLEY MITCHELL of Philadelphia, son of Dr. Weir Mitchell, died on April 10th, at the age of 57. He graduated in arts at Harvard in 1880, and in medicine at the University of Pennsylvania in 1883. He was at one time lecturer on medicine in the medical school of that university, and for many years he was physician to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases. He collaborated with his father in the well-known work entitled *Fat and Blood*. In 1895 he published a monograph on the remote consequences of injuries of nerves, and in 1904 one on mechano-therapy, massage, and physical education.

PROFESSOR DOMENICO DI SANDRO, lecturer on pathology and clinical medicine in the University of Naples, was killed recently in a railway accident near Padua while on his way home from the front for a short period of leave. He held the rank of captain in the medical service of the Italian army. He was the author of many writings, among which may be mentioned researches on micro-organisms in the faeces of the subjects of oxaluria which transform carbohydrates into oxalic acid.

DIOSCORIDE VITALI, formerly professor of pharmaceutical chemistry in the University of Bologna, has died at Venice at the age of 85. He began life as a pharmacist at Piacenza, his native place; in 1859 he fought under Garibaldi and Bixio. After the peace of Villafranca he became director of the dispensary of the Piacenza Hospital, and on the death of Francesco Selmi was appointed professor of pharmaceutical chemistry at Bologna. He was greatly appreciated as a teacher by generations of pupils and gained a high reputation as an investigator. He was the author of more than two hundred publications embodying the results of original research. Among them are studies on the crystals of the blood, on blood stains, on bile acids and pigments in the urine, and on acetone.

Medical News.

MR. S. W. WOOLLEY has succeeded Mr. Peter MacEwan as editor of the *Chemist and Druggist*.

DR. J. B. MENNELL, who is in charge of the massage department of the Military Orthopaedic Hospital, Shepherd's Bush, has written a book on massage which will shortly be published by Messrs. J. and A. Churchill.

THE Marquis of Crewe, as chairman of the London County Council, appeals on behalf of the Children's Country Holidays Fund, 18, Buckingham Street, Strand, W.C. Reports show that there are many children for whom nothing but a country holiday can be prescribed, and who, lacking this, will suffer in health throughout the year.

AT the Brighton Grove Military Hospital, Newcastle-upon-Tyne, Lieutenant-Colonel R. A. Bolam, R.A.M.C. (T.F.), concluded on May 20th a course of six lectures and clinical demonstrations on venereal diseases to medical practitioners. Dr. Hudson subsequently presented a silver salver to Colonel Bolam in the name of fifty-five subscribers and spoke of the appreciation of those present of the value of such lectures and demonstrations, especially when given by a teacher of so much experience and power.

THE Association of Municipal Corporations has considered the proposal to form a Ministry of Health, and at the next meeting of the Council of the Association on June 14th a resolution will be proposed to the effect that inasmuch as the care of the public health calls for the exercise of wide powers of local government touching the lives of the people at many points, and involving questions not only of public medicine, but also of engineering, economics, and finance, any further consolidation, or expansion, of public health powers should be obtained by development of the present organization, and the recognition of the Local Government Board as the central public health department.

THE twenty-first annual meeting of the Asylum Workers' Association was held on May 14th at the Mansion House, with the Lord Mayor in the chair. The Lord Mayor laid stress upon the claim to public sympathy and appreciation of those ministering in asylums, a point further enlarged on by Cardinal Bourne, by Bishop Ryle, and by Sir G. Wyatt Truscott. In proposing the re-election as President of Sir John Jardine, Bt., M.P., Sir J. Crichton-Browne referred to the better realization by the nation of the value of its hospital nurses, and trusted that this appreciation might be extended also to mental nurses, whose work for the community, if less in evidence, was equally valuable and often more trying. Sir R. Armstrong-Jones spoke of the improvements in asylum nursing arrangements within his own experience, and Sir George Savage of the improved status of the asylum nurse. Sir Frederick Needham emphasized the present call for food economy in asylums, and Dr. Hubert Bond supported the claim to recognition of duly trained mental nurses in any scheme for the State registration of nurses generally. Owing to Dr. Farquharson Powell's absence on active service, Dr. G. E. Shuttleworth is again acting as honorary secretary of the association.

THE Ivory Cross is the name now adopted by the National Dental Aid Fund. Thanks to the patriotism of the dental profession, who gave their services on a hospital basis and have consented again to do the same, 15,000 men were treated, and two thousand sets of artificial teeth were supplied by the Soldiers' and Sailors' Dental Aid Fund, at a cost of £6,000, the office expenses being less than 4½ per cent. The War Office and the Admiralty having now made their own arrangements for the overseas armies and the Royal Navy, the National Dental Aid Fund, under its new name, intends to carry on similar work for men discharged from the services, for the home army, the mercantile marine, and the necessitous poor, including mothers and children. A public meeting will be held at the Mansion House, London, on Tuesday next at 3 p.m., under the presidency of the Lord Mayor, to help the development of this new work. Among the speakers announced are Lieutenant-General Sir Francis Lloyd, K.C.B., General Officer Commanding the London District; Sir Arthur Newsholme, Medical Officer to the Local Government Board; Sir StClair Thomson, Miss Lilian Braithwaite, and Miss Irene Vanbrugh.

THE third part of the first volume of a review of current Japanese medical literature by the staff of the research department of the Severance Union Medical College, Seoul, Korea, issued by the director, Dr. Ralph G. Mills, contains an abstract of a paper by R. Inada, Ito, Hogie, Ido, and

Oagika on a preventive serum for *Spirochaeta icterohaemorrhagiae* which appeared in *Saikin Gaku Zasshi*, the Japanese journal of bacteriology (No. 247, 1916). Milk containing spirochaetes in the proportion of ten organisms to the field was treated with carbolic acid to make a 0.5 per cent. solution, and the supernatant fluid, after centrifugalization, was injected into marmots. For injection into the human subject the amount was thirty times as great, and doses of 0.5, 1.0, and 2.0 c.cm. were injected within five days. The serum was found to have a weak immunizing action after ten days. Serum from marmots immunized with a mixture of highly immune horse serum 0.01 c.cm. and milk culutre (ten organisms to the field) 1.0 c.cm. was used for treatment at intervals of five to six hours until a total of 60 c.cm. had been injected. In the first 35 cases the serum from convalescent patients was found to be very effective in sterilizing the blood early in the disease. This work may be regarded as an extension of the researches of certain other Japanese investigators to which reference was made in the BRITISH MEDICAL JOURNAL of February 17th last, on page 230. In a paper on rat-bite disease (*Ji Kwa Zasshi*, the Japanese journal of paediatrics, No. 191, 1916), D. Koshira states that the cause was found to be a spirochaete to which the rabbit is particularly susceptible and which gradually loses its virulence by frequent passage through animals. As the result of clinical observation and animal experiment he has found that the Wassermann reaction is usually present and that the ulceration is curable by neo-salvarsan.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY. *Medisecra, Westrand London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

SPHAGNUM MOSS DRESSINGS.

IN reply to a question by "Commandant" as to the mode of use of sphagnum moss dressings, Lieutenant-Colonel Charles W. Cathcart, F.R.C.S., R.A.M.C.(T.), writes from the Edinburgh War Dressings Supply, 37, Palmerston Place, Edinburgh: These dressings are specially useful for wounds which suppurate freely. In such wounds the best results will be obtained when the moss is applied damp. A thin layer of gauze is wrung out of a warm antiseptic lotion and laid on the wound; over this, and overlapping it freely, are placed the damp bags of moss, in number as required. After each bag has been wrung out of the warm lotion the contained moss must be lightly opened out with the fingers; this is done easily owing to the elasticity of the material. Lastly, the bags are held comfortably in position with a bandage. This treatment of the moss bags is recommended whether the dressings are in the loose or compressed form, and whether they have been sublimated or sterilized by steam. The method has given great satisfaction at the Edinburgh War Hospital, Bangour.

LETTERS, NOTES, ETC.

STIGMATIZATION AND SUGGESTION.

DR. JOHN REID (London, W.C.) writes, with reference to the paragraph under this head, published May 26th, p. 691: As no doubt St. Francis's mind was ever dwelling on the wounds on His hands and side, it requires no great stretch of the imagination to place the so-called stigmata to unconscious acts during sleep or reverie.

RHUBARB LEAVES.

DR. WILLIAM BRAMWELL (Liverpool) points out that a very slight knowledge of the processes of assimilation and metastasis in plant life would show that the chemical constituents of root, stem, or leaf may so differ that the public should be warned against making experiments in their diet with any parts of vegetables which are not recognized foodstuffs. He endorses Dr. Tebb's reference in the JOURNAL for May 19th, p. 668, to the possibility of washing soda rendering oxalates soluble in the process of cooking. In view of this chemical action it would, perhaps, be unsafe to eat rhubarb or tomatoes at a meal which included cabbages or peas boiled with soda. Dr. Bramwell recalls that in the JOURNAL of November 22nd, 1902, and May 20th, 1916, he drew attention to the toxic effects of spring rhubarb.

GLYCERIN OF BORIC ACID, *B.P.*

MR. GEORGE LUNAN, F.C.S., pharmaceutical chemist (Edinburgh) writes: This is not a glycerin of boric acid but a glycerin of glyceryl borate. In view of the proposal to eliminate it from the *B.P.* on account of the want of added antiseptic power from the glycerin solvent property, it would be well to bear in mind its chemical composition and its consequent therapeutic properties when applied to mucous surfaces. Glycerine of glyceryl borate is decomposed into glycerin and nascent boric acid, which from concentration is precipitated, and in contact with albuminous surfaces yields the at least partial colloidal activity of the antiseptic. By no other solvent means can this be attained when exhibited in a throat paint. While not disputing the relative potency of boric acid as an antiseptic when dissolved in comparatively weak solutions of water or glycerin, it should be borne in mind that the formula for glycerin of boric acid in the *B.P.* is constructed for the special purpose of the reaction, and this entirely nullifies theoretic antiseptic values for germicidal purposes.

MEDICAL ECONOMIES.

A RESPECTED correspondent alleges that the following lines were recently rediscovered in a Mesopotamian *tel*. The date, he admits, is uncertain, but the analogies are sufficiently modern to make us doubt the strict accuracy of his covering letter.

Simples Simplified.

(Report by the —— Hospital Staff on War Emergency.)

Surgeon:
To save a limb, to save a life,
Needs no elaborate machine;
I'll manage nicely with a knife
And Iodine.

Physician:
'Twixt life and death to bridge the gulf
Were many drugs, but if you mean
To cut them down, leave me Mag. Sulph.
And some Strychnine.

Obstetrician:
I'll sally forth without a fuss
At dawn or dusk or in between
If only I've my forceps *plus*
Pituitrin.

Anaesthetist:
This latest plan of war reform
Brings me a chance quite unforeseen,
I'll toddle round with chloroform
And Tab. Morphin.

Ophthalmologist:
An ophthalmologist can cope
With eyesores of the great and mean
When armed with an ophthalmoscope
And atropin.

Rhinyngotologist:
I'll manage ears and throats and noses
More deft than I have ever been,
With forceps, speculum, and doses
Of cocain.

Dermatologist:
I'm not at all ashamed to state
My only drugs have always been
Just Ung. Hydrarg. Ammoniat.
And paraffin.

Omnes:
And should the last of drugs and grub
Find bottom through the submarine,
Is there aught else? Ay, there's the rub,
And Nicotin.

T. P. B.

Mesopotamia Expeditionary Force.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

LIBRARY U. OF I. URBANA-CHAMPAIGN

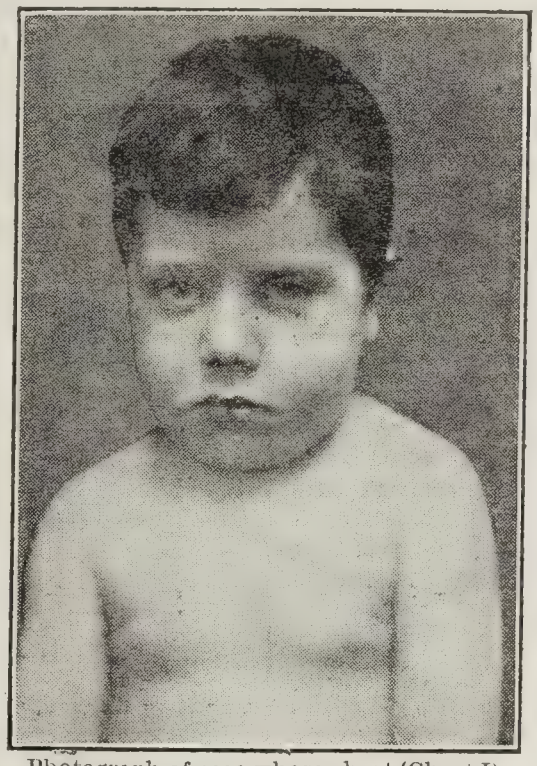
STATUS LYMPHATICUS FROM THE CLINICAL STANDPOINT.

By H. C. CAMERON, M.D., F.R.C.P.,
PHYSICIAN TO THE DEPARTMENT FOR DISEASES OF CHILDREN, GUY'S HOSPITAL.

I SHALL not spend time in describing the condition of status lymphaticus as displayed in the *post-mortem* room. The appearances are familiar to all; their interpretation alone is in dispute. Two contrary opinions appear to have their adherents. I believe that neither sufficiently explains the known facts, and desire to suggest a third.

The condition has generally been regarded as a peculiar and somewhat rare inborn anomaly, and its existence has been frequently advanced in the coroners' courts and elsewhere as an explanation for the sudden death of a child or young person which otherwise appeared inexplicable. The condition, however, at least among the faulty children of our London poor, is no rarity. In children dying suddenly, whether, for example, as the result of street accidents or of some virulent and rapidly fatal infection—in children, that is to say, whose bodies have not been emaciated and dehydrated by prolonged illness—it is found in the *post-mortem* room of Guy's Hospital in a proportion of more than 40 per cent. It is possible and probably right to argue that in the case of the virulent and fatal infections the undue rapidity of death has been determined by the lowered resistance of these anomalous children, but the high proportion in which death is due to accident permits of no doubt as to the frequency of its occurrence during life.

Other observers, impressed by the frequency of the condition in the *post-mortem* room, and noting how plump and rounded the bodies of such children appear, have maintained that the large glands and the prominent lymphoid follicles represent the normal condition of health. It is said at Guy's Hospital that this was the teaching of Sir Samuel Wilks. If so, we must be prepared to accept the view that adenoid vegetations, enlarged tonsils, and enlarged cervical glands also come within the category of the normal, for with hardly an exception the overgrowth of the deep-seated lymphatic apparatus is accompanied by the enlargement of these more superficial structures.



Photograph of case whose chart (Chart I) appears below.

I suggest that no matter where the lymphatic glandular tissue is hypertrophied the explanation is the same, and that the hypertrophy may be regarded as the evidence, persisting after death, of chronic irritation in the corresponding mucous membranes by persistent, though perhaps quiescent, catarrhal infection. After death the mucous membranes themselves may show no trace of catarrhal reaction; the enlarged glands remain as evidence of its presence during life.

It is not difficult, I think, to recognize during life a very common condition to which we may give the name of the "status catarrhalis,"* and which is the clinical analogue of the *post-mortem* condition status lymphaticus. Children who show this condition suffer almost continuously from a succession of catarrhs. Skin, conjunctiva, the mucous membranes of ear, nose, nasopharynx, bronchi, intestine, are alike involved in chronic catarrhal processes, which from time to time show exacerbations, with the result that hardly a week passes without a pyrexial attack. In typical examples of this condition the children are fat and watery, with rounded, exaggeratedly infantile bodies. The feet and hands are cold and blue. The hair is sparse, dry, and irregular in its growth, so that the margin of the hairy scalp lacks definition. The skin on the cheeks and on the point of the chin is reddened and infiltrated with papular eczema. There is often intertrigo behind the ear or in the limb flexures. The upper lip is red and sore from the irritation of the chronic nasal discharge. Mouth breathing is the rule, because of the large tonsils and adenoid vegetations, with large everted open lips, which often show cracks and fissures. The chest, for the same reason, is narrow and contracted, and contrasts with the swollen and often pigmented abdomen. The bowels are apt to be loose and often contain mucus. The conjunctiva is reddened and injected. In boys preputial irritation is common, in girls vaginal catarrh. Otitis media is very frequent. The teeth decay early and show circular caries. Urticaria papulata is often a constant symptom. Tempers are usually violent, the intelligence below the normal, so that some have been sent to me as cretins, and the appetite very large.

The symptom, however, upon which I lay most stress is the extreme wateriness of the tissues in these children. Although they present, because of their plump aspect, a fictitious appearance of health, which commonly entirely deceives their parents as to their well-being, they are in reality atrophic children who have retained an undue amount of fluid in the water dépôts of the body. The nutrition of the skin, teeth, hair, and all the mucous membranes, and their resistance to infection, has been profoundly lowered. If, however, a period of higher pyrexia supervenes, from exacerbation of the catarrh in one or more situations, the water is rapidly turned out of the body, and the true atrophy of the child is unmasked. Chart I shows the weight of a boy upon thirty-one successive days. I admitted him for observation, when in his usual state of health, and on the thirty-first day his father removed him because he said there was nothing the matter with the child, and that I was experimenting on him. He had as a rule a huge appetite, but on admission he was homesick and would not eat. In the first twenty-four hours his weight fell nearly 40 oz. as a result of relative starvation, a fall due not, of course, to tissue loss but to loss of water. After one week his appetite returned; he began to eat 8, 10, and 12 ounces of bread in the day, and in addition took one pint of milk. In the second week he regained the water, and his weight rose 3 lb. in seven days. Thereafter it remained on the higher level, with considerable daily fluctuations. The temperature curve is placed above, showing its persistent slight irregularity even in health. I published these observations in a clinical lecture in the *Guy's Hospital Gazette* in December, 1916. Two months later the boy was admitted to Guy's Hospital moribund, and died apparently on the second day of an attack of diphtheria. *Post mortem* a very extreme degree of status lymphaticus was seen. I had under observation at the same time his younger brother, whose condition was very similar. I do not know what became of this younger brother, but the mortality among such children from diphtheria, measles, and whooping-cough is very large.

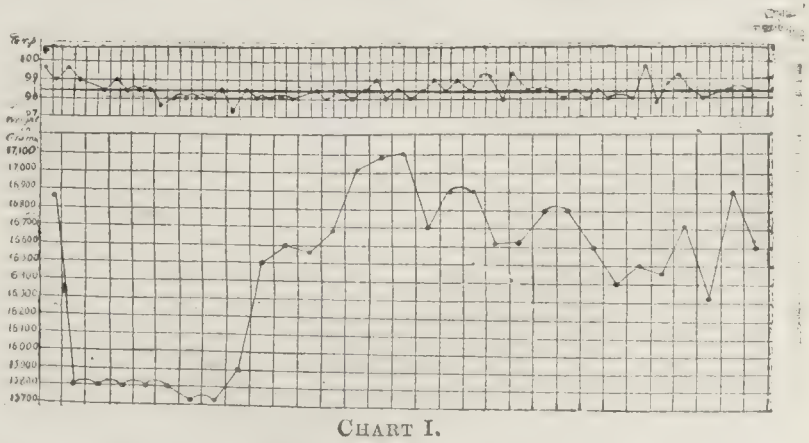


CHART I.

*The condition has been frequently described under different names. Czerny has called it the exudative diathesis, a name which perhaps lays too great stress on heredity as an etiological factor. Our forefathers called it struma or scrophula, names which in the course of time came to apply only to the comparatively numerous cases in which a secondary infection with tubercle had manifested itself.

Clinically we meet with examples of the status catarrhalis both before and after dehydration; in the former case the children are active and lusty enough, in the latter prostrate and complaining. Persistent dehydration is, however, ultimately accompanied by disappearance of the overgrown lymphoid tissue and by a decline in the severity of the catarrhal symptoms. So that, in a sense perhaps, we may regard the higher pyrexial reaction which destroys appetite and produces dehydration as a reaction in the interests of the child. We are familiar with the fact that an acute and spreading eczema is seldom to be seen but in a fat and watery child. If eczema persists in a thin child, it is dry, chronic, and of little intensity. Mothers have observed how rapidly pyrexia clears the skin of eczema. The eczema has struck inwards, they say, as usual observing well, but interpreting faultily. Evidence is not wanting that catarrhs of the mucous membranes behave in the same way as the catarrh of the skin. I recall a little boy of six, admitted with a pyrexial illness which the autopsy six weeks later showed to be infective endocarditis. He showed nearly all the signs of what I have called the status catarrhalis. Yet day by day, as his body became emaciated and dehydrated by prolonged pyrexia, one could watch the nasal discharge cease, the succulent mucous membrane become dry, the tonsils and cervical glands steadily diminish, until at death no trace of enlargement could be distinguished.

In the treatment of the status catarrhalis I feel sure that we must direct our efforts towards achieving a less watery habit of body. The condition is dependent, no doubt, upon hereditary factors to some extent; but it develops unchecked only when hygiene is faulty, and when the diet is excessive and unsuitable.

It is the last point that I wish to deal with more precisely. As a result of the economic policy of the last fifty years, which has been directed towards maintaining a cheap loaf and cheap sugar, the children of our poor are fed almost entirely upon bread and sugar. Of these some eat enormously and almost continuously. A mother and six children, for example, habitually consumed 10 lb. of bread a day. Children of six years of age will sometimes eat 16 or 18 oz. of bread in the day. I have verified this by careful weighing in the ward. I believe that the condition which I describe is very closely dependent upon this enormous consumption of carbohydrate, so vastly in excess of the requirements of the body.

To illustrate this I reproduce four charts.

Chart II is taken from a normal child aged 15 months, suffering from a slight and transient nasal catarrh. Note (1) that the fall in weight during pyrexia is slight; (2) that after recovery the temperature adheres closely to the normal line; (3) that the

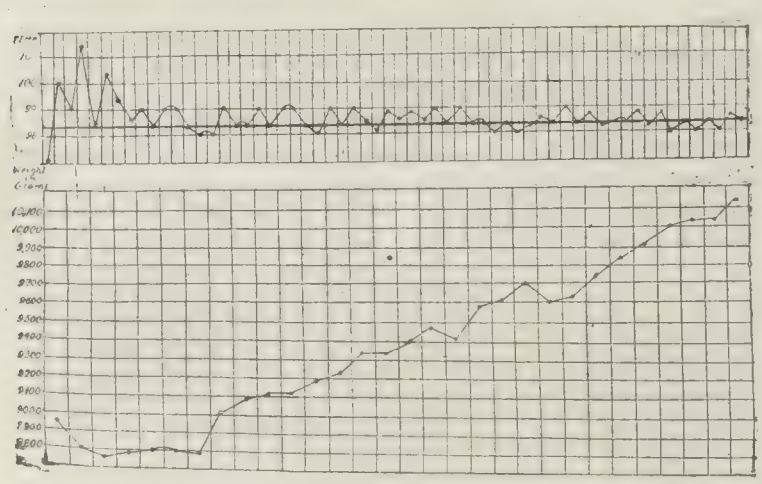


CHART II.

curve of the daily weighing shows a complete absence of large fluctuations.

Chart III shows similar curves, from a child, aged 3, with status catarrhalis, fat and watery, with a huge appetite. The average daily consumption of bread was 15 oz. In addition one pint of milk was given.

Note in contrast to Chart I (1) the irregular temperature curve, (2) the fluctuation in the line of the weight curve. On one occasion there was a sudden gain of 24 oz. in the day.

Chart IV is a curve from a child, aged 2, so watery that the dorsum of hands and feet pitted on pressure. For the first three weeks a milk diet was given, in the last week large quantities of bread in addition. Note (1) the unstable temperature, (2) the rapid fall in weight from excretion of fluid with the loss of œdema (the fall was equal to one-tenth of the body weight), (3) the slight genuine gain in weight in the next two weeks, (4) the rapid fictitious rise in the last week due to retention of water.

Chart V is a curve from a child, aged 4, with status catarrhalis. Till the point marked A he was given as much bread as he would eat. For the first few days he was homesick and had

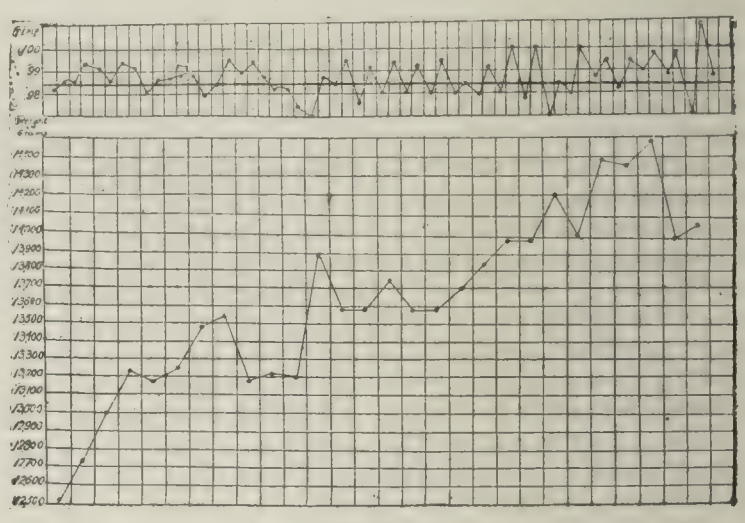


CHART III.

no appetite. Later he ate very largely. At A he was given a spare diet of milk, fish, eggs, green vegetables, and fruit. Note (1) the unstable temperature, (2) the rapid rise in weight while bread was taken freely, and (3) the initial fall in weight after the change of diet.

In suitable cases I believe that the greatest good can be achieved by persisting for many months in a carefully controlled diet in which the starches and sugars are

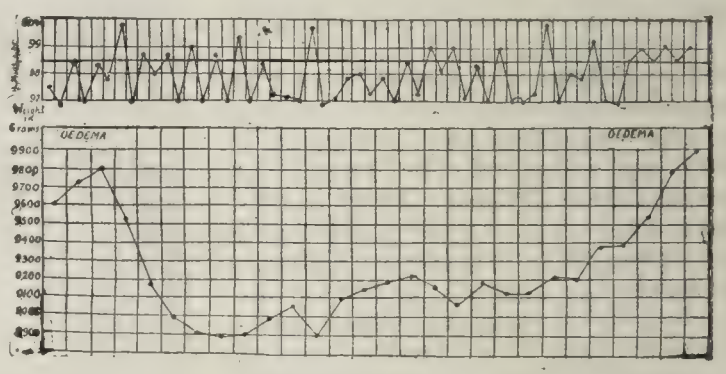


CHART IV.

reduced to a minimum. I have had most success with a diet of skim milk, meat, fish, eggs, green vegetables, and fruit, calculated so as just to cover the physiological needs of the child and controlled by its effect upon the visible catarrhs and palpable glands.

My next point is that if, in this class of case, the vulnerability of the mucous membranes is due to a faul

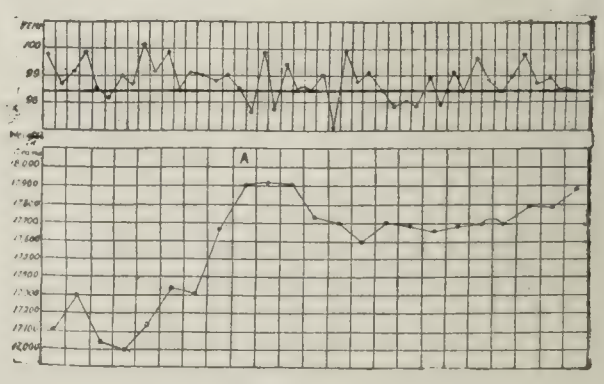


CHART V.

of nutrition such as I suggest, it follows that local treatment alone is little likely to be efficacious. I have collected a considerable number of cases in which local measures have been steadily pursued for a long time, sometimes for years, without improvement, which have yielded within a few months to dietetic measures on the lines indicated.

In conclusion, I wish to bring forward for criticism one further suggestion. I believe that the status catarrhalis has a very intimate relation to that somewhat indefinite disorder of later childhood which we call rheumatism; watching many of the children from year to year I find it

LIBRARY U. OF I. URBANA-CHAMPAIGN

impossible to avoid the conclusion that the rheumatic symptoms are added at the moment when the catarrhal non-pyogenic organisms pass the barrier of the hypertrophied lymphoid tissue and infect the blood stream. Then the child, losing suddenly his watery infantile aspect and taking on a longer and slimmer growth, is said to suffer from growing pains.

That the irritated glands are more prone to become infected with tubercle goes almost without saying. The children, as a result of faults of hygiene and of diet, suffer from a lowered resistance to infections of all degrees of severity. Prone to chronic and mild catarrhal processes, they also fall a prey more readily to more severe infections, amongst which rheumatism and tubercle occupy the first place, while measles, diphtheria, and pneumococcal infections often produce a fatal result at the very onset of the disorder, sometimes before the usual *post-mortem* appearances have had time to develop. Of sudden death from pressure of an enlarged thymus, the so-called mors thymica, I have not spoken. I have no knowledge of the condition, and I am in doubt whether it exists at all.

CONCLUSIONS.

To sum up I suggest—

1. That the lymphoid overgrowth so commonly found *post mortem* in children is no more than an enlargement from the irritation of chronic catarrh in the corresponding mucous membranes.

2. That such children during life show evidence of faulty nutrition or infection of all epithelial structures, hair, skin, teeth, conjunctiva, and the mucous membranes of respiratory and intestinal tracts.

3. That there is usually present a characteristic wateriness of the tissues, which is dependent to some extent upon excessive carbohydrate feeding, and which is the main cause of the vulnerability to infection.

4. That local treatment of the catarrhs alone is likely to be inefficacious, and must be accompanied by a systematic attempt to achieve dehydration and improve the nutrition of the tissues.

5. That the status catarrhalis in the sense defined is a predisposing cause of rheumatism and tubercle, and carries with it a liability to sudden death at the onset of virulent infections, such as pneumococcal infections, measles, or diphtheria.

OBSTRUCTION OF THE URETER BY AN ABNORMAL RENAL VESSEL.

BY

R. P. ROWLANDS, M.S., F.R.C.S.,

SURGEON TO GUY'S HOSPITAL; CAPTAIN R.A.M.C.(T.).

THE object of this paper is to draw attention to the importance of kinking of the ureter over an abnormal vessel as a cause of hydronephrosis and stone in the kidney. I have met this condition eight times in the last eight years. Congenital stricture at the junction of the ureter and pelvis of the kidney is another important and more frequent cause, which will be more fully considered, with illustrative cases, in another article.

These abnormalities will be found to be not uncommon if the pelvis and ureter are carefully examined as a routine and essential part of every operation on the kidney. Nephropexy should never be performed until obstruction of the ureter as a cause of the symptoms has been definitely excluded. Many failures of nephropexy, like Case VI, are undoubtedly due to mistaken diagnosis. Similarly nephrolithotomy is not likely to be permanently successful if the stone has been caused by an obstruction of the ureter which is not discovered and relieved at the operation. In two cases illustrating this paper—Cases III and VII—stones had formed behind the obstruction caused by an abnormal renal vessel. The early recognition and treatment of this condition relieves the patient from frequent and disabling attacks of pain, and the kidney from gradual destruction.

Pathology.

The main renal vessels and their branches pass in front of the renal pelvis to reach the hilus of the kidney, but one of the four or five branches of the renal artery usually passes behind the pelvis, as a rule at too high a level to obstruct the outlet into the ureter.

Occasionally, however, an abnormal renal vessel crosses the origin of the ureter on its way to the lower pole of the kidney. This is usually an abnormal posterior branch of the renal artery. Sometimes a similar tributary of the renal vein and sometimes a vein and an artery run together. Rarely an additional renal artery runs from the aorta to the lower end of the kidney. As a rule, the offending vessel lies behind, and hitches up the origin of the ureter.

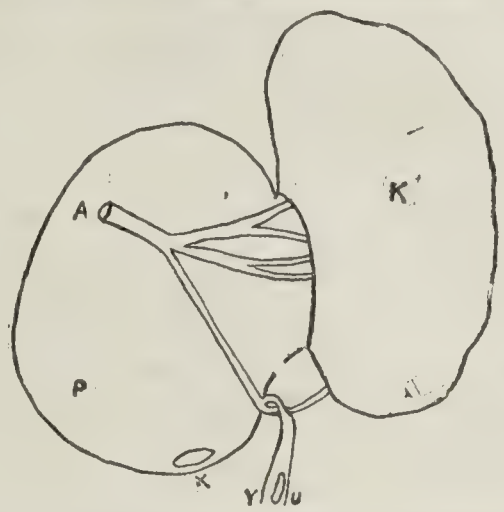


Diagram of obstruction of a ureter by an abnormal vessel. K, Anterior view of left kidney; P, distended pelvis; A, renal artery, a branch of which hitches up the ureter, U, at its origin. The division of the abnormal vessel is sufficient in mild cases, but a plastic operation or a short circuit at X and Y is necessary in severe cases.

The abnormality is a little more common on the left side; in five out of my eight cases the left ureter was affected. In some the abnormal vessel crosses the ureter without obstructing it, but when the kidney is unusually movable some obstruction is likely when the trunk is in the vertical position. This leads to gradual dilatation of the pelvis. Any dilatation and pouching of the pelvis is likely to increase the tension upon the artery, and therefore to increase the obstruction. In the course of time, as the pelvis becomes more and more distended and the heavier kidney descends more, the tense blood vessel exerts more and more pressure on the ureter, inflaming it, and at last causes a real stricture at the site of constriction (Cases III, IV, V, VI, and VIII). Many years ago three good specimens were placed in Guy's Hospital Museum—Nos. 1693, 1694, and 1695. Sir Henry Morris figures two of them in his classical work.[1]

Symptoms.

These consist of:

1. Attacks of renal colic of increasing frequency and severity, which may go on for years before the condition is recognized. As a rule, the patients are over 25 before an operation is considered. Exercise is apt to bring on these attacks of sudden, characteristic, spasmodic, and severe pain, which run from the loin downwards and inwards into the groin, and often into the testicle, which may be retracted. In some cases the pain runs down the front of the thigh; in a few it does not extend to the groin, but is a semi-girdle pain about the level of the umbilicus. As a rule, the pain is intolerable, the patient cannot sleep or lie still, nausea or vomiting are often associated with it, and there may be faintness, pallor, or even shivering. Generally there is some abnormality of micturition, usually increased frequency, irritability, and, perhaps, strangury. At first the urine during and after an attack is normal; later it may be albuminous or even contain blood or pus. Usually there is deep tenderness in the loin, and sometimes a swelling can be felt descending below the costal margin on deep respiration. Early attacks are often far less severe. Sometimes there is shivering and, in late cases, a rise of temperature.

2. In the interval between the attacks there are at times a dull ache, a sense of fullness or dragging pain in the loin.

3. In time the general health deteriorates and the kidney becomes chronically enlarged and tender.

Diagnosis.

A. *Renal colic has to be distinguished from other severe pains in this region*, especially appendicular, biliary, intestinal, and pancreatic colic. Appendicular is

rarely so severe as renal colic, and is not often associated with urinary symptoms, except when the appendix is low down near the bladder or is lying close to the ureter. As a rule, there is tenderness over the appendix and more intestinal symptoms, such as chronic indigestion and, perhaps, a slight elevation of temperature, which is rare with renal colic. Still, it is not uncommon to remove the appendix without relief when the pain is really due to one of the rarer causes of right renal colic. Intestinal colic due to lead is characterized by the lead line and constipation, and is mostly located about the umbilicus. In one of my patients the abdomen had been opened on the assumption that he had an ileal kink (Case VIII). The spasmodic attacks of pain, with tenderness in the loin, sometimes caused by posterior duodenal ulcer, have led to an erroneous diagnosis of renal colic, with exploration of the loin. In one instance I felt the duodenal ulcer adherent to the front of the right kidney. In another the exploration was blank, but melaena later drew attention to the duodenum, and gastro-jejunostomy cured a severe posterior pain in the right loin, which had been mysterious for years. Biliary colic is higher in position, and chiefly located in the right hypochondriac and epigastric regions. Tenderness is just below the ninth costal cartilages, except when the gall bladder is unusually low. It is a common mistake to expect jaundice with biliary colic; really it is exceptional, for a stone more usually obstructs the cystic than the common bile duct. Pancreatic colic is very rare, and is epigastric in position. The renal crises of locomotor ataxy are always to be remembered, but fortunately they are not very common. Intercostal neuralgia due to growth or spinal caries or aneurysm is also to be borne in mind, and an *x*-ray examination is often valuable in distinguishing these. These pains are rarely unilateral. The preliminary pains of herpes zoster have been mistaken for renal colic.

B. *The Various Causes of Renal Colic have to be distinguished from each other.*—Therefore attention may be drawn to some of the most important causes of obstruction of the ureter. No exhaustive list is attempted.

1. *Foreign Bodies Inside the Ureter.*—Stone or gravel; blood clot, as from injury, growth, or tuberculous disease of the kidney; tuberculous débris blocking the narrow channel of a tuberculous ureter; small hydatid cysts passing down the ureter.

2. *Changes in Ureteral Wall.*—Stricture, congenital or acquired; valve formation at junction of pelvis and ureter; myoma or other growths of the ureter.

3. *Pressure upon the ureter* by abnormal blood vessels, especially when the kidney is unduly movable; growth, especially of the uterus; and abscess. I have known an abscess in the lower end of the kidney completely obstruct the only ureter.

Of all these, stone gives the most severe pain and is most frequently associated with bleeding and abnormal crystals in the urine. Severe bleeding is quite rare with the other causes of renal colic except tuberculosis and growth of the kidney. Severe bleeding giving rise to colic is only occasional in tubercle, and then the ureter is somewhat narrowed, and blood or débris cannot pass through the strictured tube. A similar stricture of the ureter is sometimes due to bilharzia.

An *x*-ray examination should always be made, but a *negative report as regards stone in the ureter is not conclusive for many reasons.* A stone obstructing the ureter is usually small except when it is merely projecting into the ureter from the pelvis. The patients are often over middle age and somewhat stout. The stone may be composed of urates, which cast but little shadow. The writer has operated on a number of cases, and removed one or more stones from the ureter when the *x*-ray report was negative. In one instance the patient had been radiographed five times at different hospitals, and I removed a stone the size of a filbert from the upper part of his ureter. In these cases cystoscopy is of the greatest value. Two grains of indigo-carmine are injected into the thigh, and twenty minutes later coloured urine ought to be issuing from both ureters. The absence or diminution of the stream from one ureter is of the greatest significance, and the loin should be explored. In one instance the writer removed a stone half the size of a grain of wheat from the lower part of the left ureter. This had caused attacks of severe colic with occasional and slight haematuria. In some cases a stone is seen projecting into the bladder from the lower end of the ureter. In others it can be felt just above the bladder through the anterior wall of the vagina.

A positive x-ray report more rarely misleads, but I remember two instances where I was led to perform blank explorations. In one there were three phleboliths in the branches of the internal iliac vein which closely simulated stones in the lower ureter. In another a calcareous gland in the line of the ureter just above the crest of the ilium simulated a ureteral stone. In several others the size, position, or transverse disposition of the longest diameter of the shadow has prevented an exploration from the loin. Pyelography is of value in the diagnosis of early hydronephrosis, and may help in localizing the cause. Diminution of urine during the pain, with increase afterwards, is suggestive of hydronephrosis. In a few of these cases some swelling can be felt on careful examination during an attack, and the kidney is too tender on palpation. Cystoscopy with the aid of indigo-carmine is also invaluable during an attack. In some later cases the pelvis can be felt independently from and internal to the lower part of the kidney.

It is almost impossible to distinguish between an abnormal artery, a stricture or valve formation, and a small stone in the ureter as a cause of early hydronephrosis, and exploration is the only certain way of ascertaining the cause and treating the condition. Occasionally a movable kidney may give rise to pains which are indistinguishable from those of obstruction of the ureter, and yet the pelvis when examined is found to be normal. Bacilluria as a cause of renal pain is a common pitfall, for it is easy to be satisfied with the diagnosis of bacilluria when there is a real mechanical cause of obstruction, which indirectly causes bacilluria. In the early and hopeful stages of hydronephrosis, however, the urine is sterile, and it may remain normal in every respect for years, but slight albuminuria sometimes accompanies or follows an attack of colic. Later secondary and destructive infections may occur. In the early stages the absence of pathological products in the urine misleads, for it is difficult to realize that any serious changes are going on in the kidney, and in many instances the attacks have been thought to be neurotic, gastric, or even intestinal in origin.

Treatment.

Our aim should be to recognize and treat this interesting condition before the kidney, pelvis and ureter are seriously damaged. Secondary changes in the kidney unfortunately called for nephrectomy in Case III, as it probably has done in many other cases of hydronephrosis and pyonephrosis due to an abnormal vessel which was not discovered at the operation. Moreover, the changes in the pelvis and ureter demanded a plastic operation to ensure efficient drainage in five of my eight cases. How much simpler it is when division of the abnormal vessel is sufficient. When severe or long-continued obstruction has caused a stricture to form at the origin of the ureter or extreme dilatation of the pelvis with relative elevation with valvulation of the ureteral orifice, a plastic operation is imperative. At first I performed an operation after Finney's method of gastro-duodenostomy, but this is more difficult and not so satisfactory as making a short circuit between the lower part of the pelvic pouch and the ureter at the same level or a little lower down. With a shorter incision this ensures better drainage from the lowest part of the pool, especially when the hydronephrosis is of large size. If the opening in the pelvis is round, and also a little larger than the one in the ureter, a more patent channel is established. Nephrectomy should be reserved for extreme cases where the renal cortex is thin or white, or otherwise hopelessly damaged, for the regenerative powers of the kidney are wonderful under good conditions of drainage and asepsis.

Fairly full notes of my cases are appended, especially as the abnormality is apparently unknown to many. Several mistakes in diagnosis are illustrated by these cases.

CASE I.—*Left Hydronephrosis.*

F., aged 35; Guy's Hospital (1909). Recurrent obscure colicky pains in left flank and along the ureter. Urine normal. Radiography for stone negative. Cystoscopy with indigo carmine indicated nearly complete obstruction of left ureter. Exploration of left loin revealed hydronephrosis due to abnormal renal vessels passing behind origin of ureter to lower pole of kidney. These were divided and the obstruction

LIBRARY U. OF I. URBANA-CHAMPAIGN

relieved. The patient died four days later from perforation of a chronic solitary ulcer of the lower end of the ileum. Microscopic examination showed no definite evidence of tuberculosis.

CASE II.—*Left Hydronephrosis.*

Miss H., aged 36, sent by Dr. Halstead of Ramsgate for a large swelling in the left side of the abdomen. For five or six years had had attacks of pain in the left loin, shooting down towards the groin, sometimes very severe and only relieved by morphine. No blood, pus, or small stone had ever been noticed in the urine. About two years ago a distinguished surgeon diagnosed movable kidney and ordered a kidney support, which had been worn ever since without much relief. During the pain a swelling appeared in the left loin, but usually disappeared when the patient lay down. About a month ago a very severe attack occurred and a very large swelling appeared in the left flank, which hardly moved upon respiration and had not since diminished. The urine was normal. The swelling was mostly resonant in front and was thought to be a distended pelvis. An *x*-ray examination had failed to show any stone.

Operation (September 16th, 1911).—Before the anaesthetic an injection of 2 grains of indigo-carmine was made into the muscles of the right thigh and the cytoscope passed; the bladder containing three hours and a half urine, only amounting to about 4 oz. The two ureters were then watched. Nothing issued from the left ureter, but in about eight minutes pigment came away from the right. At the end of twenty minutes nothing came from the left. The pigment did not come very rapidly from the right. After the bladder had been emptied the patient was anaesthetized and turned on the right side over a large kidney pillow. The usual incision in the loin was made, the kidney was enormously enlarged, with some difficulty shelled from its surroundings and delivered into the wound; it was then noticed that the obstruction to the ureter was due to the hooking of an artery extending from the aorta into the lower pole of the kidney in front of the beginning of the ureter, the pelvis having descended in front of this abnormal vessel. The obstruction was complete. The ureter itself was natural. On ligaturing and dividing the vessel the junction of the ureter and pelvis was seen to be natural and not narrowed, although there were some adhesions. With a little difficulty the urine was squeezed from the kidney to the bladder without incising the kidney or pelvis. The urine seemed clear as seen from the hugely distended pelvis. When the kidney had been quite emptied nephrorrhaphy was performed with four catgut sutures in the usual way. The kidney tissues seemed fairly good, although greatly expanded, and in view of the mobility and imperfection of the right kidney it was deemed inadvisable to remove a fairly good left. The wound was sewn up with mass salmon-gut sutures except at the hinder pole corner, where a tube was left. The patient was turned over, a catheter was passed, and 16 oz. of clear, slightly blue-stained urine were withdrawn, most of which had been expressed from the left pelvis. The patient stood the operation well and made a good recovery, although there was some suppuration in the wound.

CASE III.—*Right Hydronephrosis.*

Mrs. B., aged 30, in April, 1913, at Guy's Hospital, sent by Dr. Hollings. Attacks of pain in right flank, running to the groin, without pyrexia. Mr. Shenton saw a shadow on the *x*-ray screen, probably a small stone in lower pole of kidney. Later two examinations revealed no stone. I therefore returned to my original diagnosis of appendical colic and removed the appendix, but the attacks recurred. Six months later another radiographic examination suggested a stone at the lower pole of the kidney. The kidney was explored and the renal pelvis was found moderately dilated, due to an abnormal renal artery, which passed behind the junction of the ureter and pelvis and constricted the channel; in fact, when the kidney descended, a considerable pouch came down behind the abnormal artery. On dividing the artery a marked constriction was still present at the junction of the ureter and pelvis, and the opening of the ureter was about two inches above the lower pole of the pelvis. Therefore, the opening was enlarged after Finney's method of gastro-duodenostomy, and through the opening thus made the kidney was examined, but without finding any stone, except a collection of grit in an abscess the size of a filbert at the lower pole of the kidney, connected with the lower calyx. This was scraped away and the cavity drained. As the kidney was somewhat movable, nephropexy was performed. The patient made a good though slow recovery, but about a year later began to have attacks of colic again; she was *x*-rayed several times with a negative result, and it was thought a stricture of the ureter had probably formed again. About a month ago she was radiographed again and a stone was shown just above the crest of the ilium. I explored the kidney and found it intimately adherent to the right flank in a good position. It was impossible to get at the ureter from behind. Therefore the peritoneum was peeled off the front of the pelvis, which was still somewhat dilated, a vertical incision was made on its anterior surface, and a catheter was passed down into the bladder without any difficulty. The finger inside the pelvis discovered the small opening of the upper calyx, and on stretching this and passing the finger up a round stone the size of a small filbert was felt, and removed with some difficulty. The patient did well.

The original cause of trouble in this case was the abnormal renal artery kinking the ureter when the slightly movable kidney descended, and the stone was secondary to the obstruction. It is more than likely that the stone which was removed at the last operation was there at the original one, and probably at the moment lying at the upper pole of the kidney. Since the last operation, about eighteen months ago, she has had occasional attacks of colic. These have not been very severe, and I have had her *x*-rayed once or twice with a negative result. On February 15th, 1917, she came to the hospital with difficulty suffering very severely from colic and looking very ill. She was admitted at once; she had rigors and a temperature of 103°. The temperature kept up the next day, and the loin, which was at first very full, later became slacker, and the water, which was at first clear, became blood-stained.

Operation (February 16th, 1917).—I explored the right loin and found the kidney cortex to be shrivelled, whitish from chronic nephritis, and also loose within its capsule, with some fluid within the latter. The pelvis was still dilated, and contained a very large number of smooth dark pieces of altered blood. These looked like beans of various sizes and shapes. There was no stone. The kidney was so disorganized that I thought it wise to remove it. The patient is doing well.

CASE IV.—*Left Hydronephrosis.*

A man, aged 45. Admitted into Guy's Hospital in 1912 for repeated attacks of colic in the left side for eighteen months. He was skiagraphed with a negative result. The urine was normal on repeated examinations. The lower pole of the left kidney could be felt. A belt was tried without any relief. The attacks became more and more frequent, and at one time laid the patient up for three months. As soon as he got work he had to give it up on account of the pain. He at last begged for an operation. He never had any haematuria; the pain was typical of renal colic, and sometimes very severe, but he never had any retraction of the testicle or noticed any variation in the amount of urine passed. He was again examined with the *x* rays with a negative result.

The kidney was explored, and a dilated pelvis was seen. An abnormal renal vessel was also seen, and a condition generally very similar to that described in Case III was found, and similar treatment was adopted. A catheter was passed from the pelvis of the kidney through the sutured part and down the ureter for three days, and then withdrawn. The patient had a good deal of extravasation of urine along the course of the ureter, and pain and distension of the abdomen for a few days, but he made a good recovery.

It is far better not to leave a catheter in the ureter, but to aim for a free passage with a watertight junction. The convalescence is thereby made safer, easier, and shorter.

CASE V.—*Right Hydronephrosis.*

Man, aged about 50; in Guy's Hospital; patient of Dr. Lacey. History of several attacks of right renal colic. *X*-ray examinations for stone negative. Definite swelling in the right loin when the patient came to the out-patient department. Therefore exploration of the kidney was strongly advised.

Operation (June 16th, 1913).—The kidney was exposed through the usual oblique incision, and there was found to be moderate hydronephrosis, due to an abnormal artery and vein apparently running from the renal vessels downwards and outwards to the lower pole of the kidney and passing *in front* of the ureter at its origin, hitching it up and completely obstructing it. The vessels were tied and divided, and then with some difficulty some of the urine could be squeezed out of the pelvis into the ureter. This made it apparent that there was a little stricture of the ureter at the site of constriction, probably due to the constriction and inflammation resulting from it. Therefore a plastic operation was performed after Finney's method of gastro-duodenostomy, a large opening one inch long being made. A continuous fine catgut suture was used. The kidney was returned and a tube was placed behind it. The wound was closed with mass salmon-gut sutures. The patient did well.

CASE VI.—*Right Pyonephrosis: Abnormal Vessel: Nephropexy had Failed.*

Soldier, aged 25; in the 2nd London General Hospital. Before the war he had had several attacks of colic in his right side. He had several more while at Malta, where he was seen by several surgeons and was examined by the *x* rays, and they ultimately came to the conclusion that his attacks of violent colic were due to a movable kidney with hydronephrosis. Nephropexy was performed, but the patient had two attacks ofter the operation. He says that he had no pus in the urine before the operation, but in the two attacks he has had since then—one at Malta and one after coming home to Engand—there was pus in the urine.

He had a third attack, and was admitted into the 2nd London General Hospital, where I saw him, and felt a large tender right kidney. There was no pus in the urine. The temperature kept up for two or three days; an enema was then given, and was followed by sudden relief with the passage of large quantities of pus in the urine. Apparently the enema relieved a kinked ureter. He was then better for a week, but still had pus with bacilluria. A pure cultivation of *Bacillus coli* was found. He did not wish for an operation, but he had another attack on September 26th, 1915; this again was relieved by an enema. He then wished to have an operation. The diagnosis was a kinked ureter possibly due to an abnormal vessel, or possibly obstruction due to a small calculus, but repeated *x*-ray examinations had not revealed any calculus.

Operation (September 27th, 1915).—I found the scar of rather a small incision in the loin high up close to the last rib. I made a much longer one below the original and found the old stitches. The kidney was tethered by them still, but considerably enlarged and very vascular. It was difficult to mobilize

without decapsulation, which I had to do, and then found it could not be delivered owing to adhesions about the pelvis. The ureter was natural in size and feel, and was followed up through a constriction in the surrounding tissues to a dilated part in these tissues occupied by a distended pelvis. The sudden transition was very marked. The posterior part of the ring was divided and found to be of fibrous tissue. Only the anterior limit was formed by two large blood vessels and they clearly formed the main obstruction and corresponded to the junction of the pelvis and ureter. The two vessels were clamped, tied, and divided. They entered the lower pole of the kidney and apparently came from the main renal vessels. Owing to the length of the ureter, size of the pelvis, and the adhesions around them, the division of the vessels did not entirely obliterate the kink. As the kidney was returned into its bed the kink became quite marked. I therefore tried to straighten out the ureter by sewing it to the lower part of the kidney, but as this did not seem satisfactory I performed an anastomosis after Finney's method of gastro-duodenostomy, and this proved very satisfactory. A large quantity of pus was evacuated. It was interesting to see the pus find its way down into the ureter directly the constriction formed by the blood vessels was divided and the ureter was straightened out. The wound was sewn up with mass salmon-gut sutures and a tube was placed at the posterior angle of the wound. The kidney capsule was still fixed in good position at the end of the operation, and this maintained the decapsulated organ also in a good position. It was considerably inflamed, and it showed white spots in the cortex, probably indicating small foci of suppuration.

The patient made an uninterrupted recovery, the wound healing primarily in spite of the pus evacuated at the operation.

CASE VII.—*Abnormal Artery Causing Obstructed Ureter and Stone in Left Kidney.*

G. L., aged 12 (in Guy's Hospital), had had haematuria and pain on and off in the left loin and flank for two years. X-ray examination revealed a stone in the pelvis of the left kidney.

Operation (February 4th, 1916).—The usual oblique incision was made in the loin. The kidney was difficult to bring up owing to an abnormal artery entering the lower pole. It clearly constricted the ureter just below the pelvis, and was divided. The pelvis was dilated and inflamed, with adhesion of the fat to it. I incised it and removed a stone the size of a filbert. It was a very spiky and heavy oxalate calculus. The incision in the pelvis was accurately closed with fine catgut, and the fatty connective tissues behind the pelvis were sewn over the incision. A tube was left at the posterior angle of the parietal wound for two days, but no urine escaped, and the patient made a rapid recovery.

CASE VIII.—*Left Hydronephrosis: Abnormal Renal Artery.*

Lieut. H., C.A.M.C. (Sussex Lodge Hospital for Officers), had had repeated attacks of colic in the left flank for the last ten years or more. He was in Sussex Lodge Hospital about eighteen months ago. X-ray examination revealed no stone; there was no tenderness over the kidney and no colic developed. Therefore an operation was not advised. The patient went to a convalescent home. The doctor there thought he had an ileal kink, and sent him to another surgeon, who made a very long incision in the abdomen, found the appendix normal, and said he released an ileal kink. The attacks continued. The patient was sent to Sussex Lodge again for observation, and one day, when I happened to be there, he had the pain; the left kidney was palpable, and he was very tender both in front and behind. Therefore I advised operation, having diagnosed an obstructed ureter, possibly due to an abnormal artery, a small calculus, or a valve.

Operation (January 8th, 1917).—The usual oblique incision was made. I found a large hydronephrosis (the pelvis being the size of an orange), caused by an abnormal renal vein passing from the main renal vein downwards behind the ureter at its origin, and then forwards to the lower pole of the kidney. On dividing this it was noticed that the ureter was narrowed at its origin. Therefore, to make quite sure of effecting a cure, an anastomosis was made between the back of the pelvis and the ureter an inch down. A catheter had previously been passed along the ureter into the bladder without any difficulty, and a finger had been introduced into the pelvis and calyces without finding any stone. The exploratory opening in the back of the pelvis was used for the anastomosis. Fine catgut was used. It was noticed that the ureter in its upper two inches was inflamed and dilated, and it appeared probable that under certain conditions the artery constricted the ureter below this dilated part, but that it slipped up as the pelvis became more distended. The patient made a good and rapid recovery.

REFERENCE.

[1] *Surgical Diseases of the Kidney and Ureter*, vol. ii, p. 297, Figs. 141 and 142.

HARVARD UNIVERSITY has accepted an offer of £4,000 a year for three years from the American National Canners' Association to be applied to the investigation of food poisoning with special reference to canned goods. The university has made it a condition that the investigation, which will be under the direction of Dr. M. J. Rosenau, professor of preventive medicine and hygiene, shall be conducted with entire academic freedom and the results published.

THREE CASES OF URETERAL OBSTRUCTION.*

BY

CAPTAIN G. S. GORDON, C.A.M.C.

I HAVE the honour to present three cases of obstruction to the flow of urine through the ureter. As Moore Barracks Canadian Military Hospital, which accommodates only 1,000 patients, supplied all three of them at one time and from material which had been passed as "fit," this condition can hardly be ranked as a surgical curiosity—it is really one of general interest. In many instances the difficulties in the way of making a diagnosis sufficiently complete to warrant operation are insuperable without instrumentation of a special order, and I venture to put forward a plea for full professional recognition of such special means.

Case 1, Pte. McC., aged 21, was sent to me by Captain Wickham, with full notes. He complained that at times, for seven years, he had had pain in the left side of the abdomen and in the left loin, usually associated with exertion or cold weather. The pain was disabling, and the attack would last from four hours to three days. It was sometimes accompanied by vomiting, but not by urinary symptoms, sweating, or diarrhoea. As the attack subsided, however, urination became abnormally frequent. There was difficulty in starting the flow, and pain in the glans penis till it did start; the urine at these times was noticed to be "muddy."

Amongst the remedies tried before entering the army was appendectomy. Since enlisting he had carried on in spite of his intermittent handicap, till finally he had to parade sick, when he was sent from France to England as a case of acute nephritis. He spent seventy-two days in one hospital, where acute pleurisy was added to the previous diagnosis. After thirty-six days at a convalescent hospital he began light duty in his lines, but could not "stick it out." Finally, he was sent to Moore Barracks Canadian Hospital with recurrence of pain in the left side. The laboratory report was to the effect that pus and blood were present in the urine, and the *x* rays report that there was "no stone in the urinary tract." Pulse, temperature, and respirations were normal. Examination of the heart and lungs and abdomen yielded no evidence of any abnormality.

When I first saw him the bladder was normal to cystoscopy. The urine from the left kidney contained pus, and was cloudy but colourless. The urine from the right was free from pus, translucent, and of a deep amber colour. It contained eight times as much urea as the left; no information was elicited on palpation of the abdomen, or over the kidneys behind.

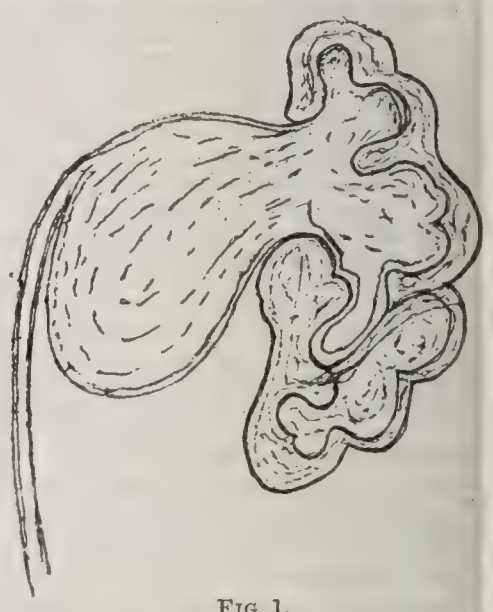


FIG. 1.

At operation the left kidney was found to be a mere shell, with an enlarged pelvis, over which the upper end of the ureter coursed, and to which it was attached for an inch and a half by fibrous tissue. An excellent semi-diagrammatic sketch by Captain F. St. John is shown in Fig. 1.

The specimen shows how obstruction of the ureter occurred and the cause of the pain. This renal pelvis filled tensely with urine at times, and acted as an external ball valve to the ureter. Tension caused the pain characteristic of parenchymatous organs put on the stretch. This man would naturally consult a physician only when pain in the side was present; this pain had not the generally recognized characteristics of renal colic; there would be a rise in temperature, and the urine would be

* Read before the Canadian Army Medical Society at Shorncliffe, England.

LIBRARY U. OF I. URBANA-CHAMPAIGN

free of pus during the attack, because all he would void would come from the unobstructed right ureter. The diagnosis was pleurisy at one time. The kidney and sac were removed, as they were worse than useless. In a case in which the kidney seemed worth saving, a plastic operation to remove obstruction would be indicated.

Case II, Pte. C., aged 22 years, had complained for only one week of undue frequency of urination with urgency almost to incontinence, night and day, and a burning sensation down the urethra for a few moments after voiding. He was suffering from a dental abscess as well, and after this was lanced the urinary symptoms diminished. The urine contained pus and staphylococci. On cystoscopy the mucous membrane of the right ureter was prolapsed, resembling a small pink oblong balloon, at one time tense and globular, at another partially collapsing, somewhat suggestive of the movement of a slug. Fig. 2 illustrates the condition.

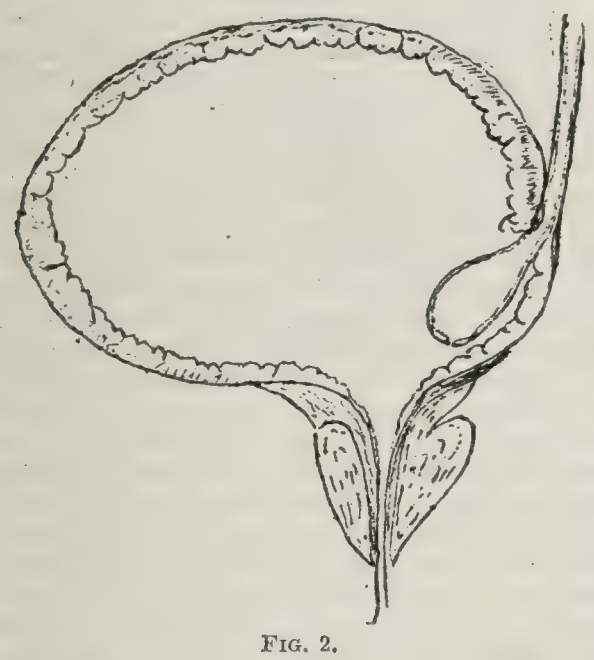


FIG. 2.

The hydraulic pressure in the ureter required to force urine through the small orifice had bulged the lining of the ureter into the bladder, carrying with it the ureteral meatus, had coincidentally dilated the ureter itself and the renal pelvis, and had caused atrophy of the medulla of the kidney and gradually stretched the renal capsule. As a symptom of this condition a woman patient of mine with prolapsed ureter had pain over the kidney, but she was older, had borne children, and the colon bacillus had got a foothold. The pain ceased after a ureteral meatotomy was done through a cystoscope. In Case II one is inclined to think that the prolapsed ureter with dilatation was present without symptoms until the dental abscess freed staphylococci into the blood stream, and then the handicapped kidney and ureter were invaded. The ureteral orifice became smaller with congestion, more prolapse occurred, and the acute condition gave rise to symptoms.

The meatus of the ureter was split up after a preliminary suprapubic cystotomy.

Case III, Pte. C., aged 22, had a dilated double ureter entering a diverticulum of the bladder. This diverticulum when contracting to force out its contents caused regurgitation up the ureter. The symptoms and signs were interpreted with difficulty. The appendix was removed six months ago. There were no urinary symptoms at that time except slight increased frequency of urination. The appendix was found acutely inflamed and adherent to the caecum.

Since then pain over the right kidney had developed, frequency of urination had increased, and to it was added an after-dribble. Another prominent symptom was pain about McBurney's point, and there was tenderness here and in the right costo-vertebral angle. The urine was normal on four examinations, especially made for surgical purposes. Cystoscopy showed, in an otherwise normal bladder, a hole which, on filling the bladder tense with boric solution, was 1 cm. across and 3 cm. deep on measurement. This hole was located at the site of the right ureteric orifice and became much smaller as the urine in the bladder was drawn off. After filling the hole with 40 per cent. argyrol solution *x*-ray examination showed a pouch at the base of the bladder about 2 in. in diameter around which coursed a dilated double ureter. Captain St. John has sketched this for me in Fig. 3.

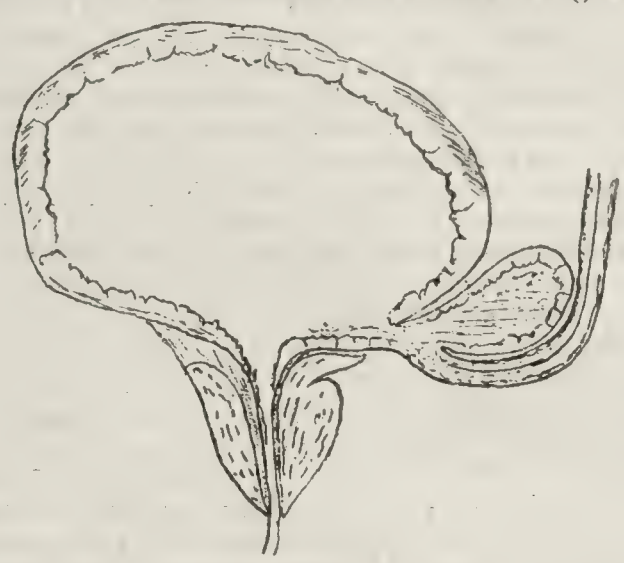


FIG. 3.

The diverticulum was removed and the double ureter was transplanted elsewhere in the bladder. The amount of relief obtained will depend on the degree of renal pelvic distortion already produced by back pressure. There is no pain now, but he has had no violent exercise since operation about three weeks ago.

A SANATORIUM ROLL OF HONOUR.

BY

NOEL DEAN BARDSWELL, M.V.O., M.D., F.R.C.P.,

MEDICAL SUPERINTENDENT KING EDWARD VII SANATORIUM.

THE place of the sanatorium in a scheme for the administrative control of pulmonary tuberculosis has been the subject of considerable discussion recently. From communications to this JOURNAL and its contemporaries, and from reports of Insurance Committees one has learnt that among experienced observers widely different opinions are held. To the evidence which has been brought forward in favour of or opposed to the value of sanatorium treatment I offer this contribution, which represents the record of war service, so far as it has been ascertained, of patients at the King Edward VII Sanatorium. For an individual with arrested disease to undertake life under active service conditions, especially with the oversea troops, is to submit himself to an exacting test as to the permanence of the benefit he has received—in other words, as to the durability of the arrest of pulmonary tuberculosis following a course of treatment in the sanatorium.

It is well, when dealing with the careers of cases of pulmonary tuberculosis, to consider separately those in which tubercle bacilli were and were not found in the sputum. It is impossible here to summarize for the latter group the evidence upon which the diagnosis was determined. These cases have to be taken on trust. On the other hand, with the record of a positive sputum the diagnosis is beyond question.

Of the patients who, on admission to the sanatorium, had tubercle bacilli in the sputum, 61 are known to have served with the forces. They were discharged from the sanatorium during the years 1907 to 1915 inclusive. Thus, in respect of many of them, the improvement resulting from sanatorium treatment has been submitted to a test of durability represented by several years of full and active work in civil life followed by a period, averaging in these 61 cases some eighteen months, under active service conditions; 24 have served in France, in several instances after some months in Gallipoli and Egypt, their length of service varying from a minimum of nine months to over two years. Three patients went to Egypt, 3 to Salonica, 1 to a staff post in the West Indies, 2 to East Africa, 2 to Gallipoli, 4 joined the navy, 2 are serving in the Flying Corps, and the remaining 20 are either on home service or are still training in this country. The experience of this group of patients down to May, 1917, is as follows:

44 are in good health, and still serving with the various forces they engaged in;
5 have been killed in action, and
12 having relapsed, have been invalided out of the service.

The highest proportion of relapses has occurred amongst the men on home service, namely, 5 out of 20. Of the 24 who went to France, where the conditions are certainly more arduous, 4 only have relapsed; of these, 1 had served throughout the Gallipoli campaign, and subsequently in Egypt, before his transfer in mid-winter from the latter country to France. In brief, of these 61 former patients, 49, or 80 per cent., successfully withstood the wear and tear of active military duty.

Of the patients in whose sputum tubercle bacilli were not demonstrated, 33 are known to have joined the forces, their proportionate distribution in the various spheres of the war being closely similar to that of the patients just considered. Their experience also has been closely comparable; 26 are in good health and still serving, 2 have been killed in action, and 5 have relapsed: 3 broke down in France, 1 at Gallipoli and 1 at home. Thus 28 of the 33, or 84 per cent., have suffered no recurrence of pulmonary tuberculosis.

The results in both groups of patients are far from unsatisfactory; they are much that would be expected by those with any considerable experience of sanatorium treatment. To practitioners, such as a recent correspondent to this JOURNAL,[1] who have yet to learn of an authentic instance of permanent arrest of pulmonary tuberculosis as the result of treatment in a sanatorium, this record may be commended.

It is essential to add that the patients treated at the King Edward VII Sanatorium are drawn from the middle classes. Though not necessitous, they are dependent upon their own exertions for a livelihood. While, on the one one hand, they cannot command the advantages enjoyed by the leisured classes in the way of prolonged treatment under the best possible circumstances, at least they enjoy social conditions infinitely more favourable than those of the great majority of the industrial classes. Herein lies the crux of the question of the value of sanatoriums. It would seem not to be generally recognized that treatment in a sanatorium is to be looked upon less as a cure for pulmonary tuberculosis than as a means of teaching the consumptive how he may hope to arrest his disease and how to prevent his spreading infection, at the same time giving him a good start on the road to recovery. To achieve permanent recovery, one must look to the patient embodying in his daily life after discharge from the sanatorium the principles of the treatment he has learnt. It is during the next twelve or eighteen months that success or failure is determined; the better the facilities for living and working under favourable conditions the more hopeful the outlook. The extreme importance of this social factor has been well shown by Elderton and Perry in one of their statistical studies of pulmonary tuberculosis.[2] They compared the mortality experienced by a number of cases of pulmonary tuberculosis during a period of some years subsequent to their discharge from several sanatoriums; considering separately those discharged from institutions for the industrial classes, and those from similar institutions for the wealthier classes. The comparison shows that in cases of early disease (Group 1) the post-discharge mortality is twice as high among the industrial classes as among the more leisured classes, and that in cases of moderately advanced disease (Group 2) it is more than three times as high. This result is striking and illuminating.

Treatment in a sanatorium is, in fact, of value in proportion to the degree of after-care that can follow it. To obtain anything like comparable ultimate results at sanatoriums for the industrial classes and sanatoriums for patients in better circumstances, there must be a levelling up of the conditions after discharge. Various suggestions have been made, such as country colonies, financial assistance after discharge allowing a consumptive to work for shorter hours or to take up a more suitable occupation which, for a time at least, must be less remunerative, and a better organized system of after-care. The following recommendation in the recent published report upon the incidence of pulmonary tuberculosis among workers in the boot and shoe industry indicates another line upon which much improvement might be effected.

Briefly, the scheme is to establish, in connexion with the ordinary form of sanatorium, a workplace for the manufacture of boots and shoes. Here consumptive operatives in an early stage of the disease, and convalescing patients, could carry on their trade under medical supervision for such hours as they are able, and earn wages in proportion.[3]

Conclusion.

I should perhaps add that in my opinion this record of war service, encouraging as it is, does not warrant the assumption that the former consumptive may undertake military duty with some degree of confidence. On the contrary, such a course strikes me as tempting Providence unduly. At the same time it would seem that it is possible te err on the side of caution. Clearly, every case of apparent cure must be judged on its own merits in respect of fitness for military duty. The extent of the original lesion and the length of period of complete immunity from all signs and symptoms of the disease are factors which help us in arriving at a decision.

Addendum.

The day after this paper was written the BRITISH MEDICAL JOURNAL issue for April 14th appeared, containing a leading article entitled, "The Uses and Abuses of Sanatorium Treatment," an interesting commentary upon the statistics of ultimate results published in the tenth annual report of King Edward VII Sanatorium. With the inferences drawn from the statistics by the writer of this article I am in full agreement. That a sanatorium is essentially for the treatment of early and curable cases, and that to fill such an institution with patients in the advanced and hopeless stages to the exclusion of the more favourable represents a most unwise and extravagant procedure, all will agree. But is it the fact that the favourable cases are thus excluded; and, if so, with whom lies the blame? So far as the Midhurst Sanatorium is concerned, I can answer the first question with some confidence, for since the opening of the institution in 1906 the selection of patients for admission has been one of my duties. The principle strictly adhered to from the commencement has been to admit the clinically most favourable among the applicants. Our experience at Midhurst is that of an average annual admission of some 240 patients carefully selected from the total number of applicants, only 25 per cent. are early cases (Group 1) as defined by the recognized methods of classification of pulmonary tuberculosis.

These cases are sufficient to fill approximately a quarter of the available beds. There is no alternative, then, but to fill the remaining 75 per cent. of the beds with the most favourable among the other applicants. Thus it is that the bulk of these beds are occupied by cases of moderately advanced disease (Group 2), and the remainder, for lack of any more favourable, with cases of much advanced disease (Group 3). The same conditions, but to a more marked degree, would seem to apply in sanatoriums for the working classes. The records at Midhurst, year by year, show little improvement in this respect. During the five years 1906 to 1910, 1,208 patients were admitted, of whom 25 per cent. were cases of early disease. During the following five years 1,112 patients were admitted, the percentage of early cases being practically identical. The only improvement shown in the second period was a diminution in the proportion of the advanced cases. The sanatorium asks for the more hopeful cases, but can obtain them only to a limited extent. It must be either that the cases of early disease do not exist in sufficient numbers fully to occupy existing sanatorium accommodation, or that such cases are not recognized and sent. The latter alternative is the more probable. Some cases, unquestionably, are never early—the disease, as soon as its discovery is possible, has already obtained a wide hold. But to judge from the histories given by patients on admission, the great majority of the more advanced cases could have been detected and treated months earlier, when the conditions were infinitely more favourable for arrest of the disease. The histories of patients admitted to the Midhurst Sanatorium show how frequently the earlier manifestations of consumption are overlooked alike by the public and the medical profession.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, January 20th, 1917. [2] *A Fourth Study of the Statistics of Pulmonary Tuberculosis: The Mortality of the Tuberculous.* By W. Palin Elderton, F.I.A., and S. J. Perry, A.I.A. London: Dulau and Co. [3] Medical Research Committee: First Report of the Special Investigation Committee upon the Incidence of Phthisis in Relation to Occupations. 1915.

LIBRARY U. OF I. URBANA-CHAMPAIGN

OBSERVATIONS ON THE PATHOLOGY OF BARCOO ROT (VELD SORE?);

WITH SUGGESTIONS AS TO TREATMENT.

BY

LIEUTENANT-COLONEL C. J. MARTIN, F.R.S., A.A.M.C.,
PATHOLOGIST, No. 3 AUSTRALIAN GENERAL HOSPITAL.

By the middle of the summer of 1916 a number of men of the Anzac Mounted Division, which had been operating in the desert east of the Suez Canal for upwards of six months, suffered from spreading superficial ulcers on the back of the hands, extensor surface of the forearms, and, to a less extent, on the back of the feet and on the shins. The ulceration resembles that met with amongst bushmen in the back-blocks of Australia, and is known locally as barcoo rot. It was recognized by the men as the same disease they had seen or experienced in Australia.

Superficial ulcers were also troublesome during the Boer war. They affected troops kept on trek on the high veld, and the disease was labelled "veld sore." A short description of veld sore and its pathology was given by Ogston (1901). Two years later Bishop Harman (1903–4) published a detailed study of veld sore, and I gather from his description that veld sore and barcoo rot are closely allied, if not identical diseases. According to Harman the disease affected Boers and British alike whilst campaigning, but natives were free from it. The Boers did not suffer whilst dwelling on their farms. Harman (loc. cit., pp. 8 and 9) is satisfied from the epidemiological data that the restricted range in diet during operations on the veld is an essential factor in bringing about the condition.

Dolbey (1901) concludes from his experience that troops were not liable to veld sore until they have been at least three months in the country. Life during the dry weather in the Australian back-blocks, and campaigning on the high veld or the Sinai desert present conditions which are not unlike. In all three cases water for washing is minimal; prolonged subsistence upon bread, biscuit, and salt or tinned meat, with lack of fresh vegetables, is the rule. Further, appropriate dressing of the sores in the early stages is difficult or impossible whilst the patient continues his occupation. Like veld sore, barcoo rot is difficult to cure in the above conditions, but readily yields to treatment when the patient comes into one of the towns. To what extent this is to be attributed to facilities for greater cleanliness, appropriate surgical dressing, or to dietetic improvements, is uncertain.

Brief Description of Barcoo Rot.

The patient may remember abrading the skin, but whether or not, the first sign is usually a bleb or blister containing thin watery pus and surrounded by an area of slightly inflamed skin. The blister may be the size of a sixpence, or even larger, but before it reaches this size it is generally broken. The denuded surface shows little tendency to heal, but slowly extends at its margins, at the same time deepening until there are no more epithelial structures left. The ulcer, however, remains shallow, and it is unusual for the fibrous layer of the skin to be destroyed unless it becomes infected with virulent staphylococci. The glands are not inflamed unless secondary infection occurs, and there are no constitutional symptoms.

When healing has occurred areas of glossy skin, more or less denuded of hairs and sweat glands, are left. Cicatrization does not occur unless the true skin is destroyed. Infection of fresh areas of skin in the neighbourhood is usual, so that the patient has several ulcers of different ages. The disease in its minor forms is extremely annoying and, when the ulcers have become large, incapacitating.

The symptoms and pathological findings have no resemblance to the slowly evolving leishmaniasis known under the names of *Bouton du Nil*, *Clou de Biskra*, *Bouton du Caire*, etc.

Observations on the Pathology of Barcoo Rot.

On a visit to an outlying field ambulance I was shown twenty men admitted for obstinate ulcers of considerable extent. The ulcers were shallow, mostly on the back of the hands and wrists—that is, in areas exposed to small injuries, and rich in hairs. The smooth surfaces were free from ulcers, and the progress of an ulcer appeared to be inhibited as soon as it extended to a hairless portion of skin.

It seemed advisable to examine the state of the hair follicles, both within and around the ulcers, and I plucked a number both from the base of the ulcer and from the reddened slightly swollen skin at the margin; many of the hairs were loose. I wrapped the hairs in paper moistened with 70 per cent. glycerine for transport. On my return to the laboratory the hairs were stained by Gram's method and counterstained very slightly with weak fuchsin, dehydrated, and examined in clove oil or balsam. In all of the hairs withdrawn from the base of the ulcers, and in many from the inflamed margin, Gram-positive microbes were present in the hair sheath. They were mostly cocci, but in the hairs from three of the cases bacilli, which at the time I took to be diphtheroids, were also present. The infection extended usually to the lower end of the hair follicle.

Some of these cases were subsequently removed to No. 3 Australian General Hospital, Cairo, for observation and study. They were placed under the care of my comrade Captain Maclure, to whom I am much indebted for his kind co-operation.

Infection of the hair follicles was confirmed by microscopical examination of fresh material, and cultures from the bases of removed hairs and from the contents of early blebs were made upon blood agar and ordinary agar. *Staphylococcus albus* was the predominating organism, but some *S. citreus* and a few *S. aureus* were also present. In one case a diphtheroid was abundant. This proved to be *B. diphtheriae*,* but I did not discover this until some time afterwards. Diphtheroids are not uncommon in lesions of the skin, such as ulcers, vaccinia pustules, impetigo, and eczema,† and I regarded it as a chance concomitant of the staphylococcal infection, and did not investigate it further at the time. The case differed in no obvious way from the others, and there were no constitutional symptoms at the time.

The microbial infection of the hair follicles appeared to be confined to the connective tissue sheaths, except in very badly affected hairs, in which the base was disorganized and the layers of the root sheaths unrecognizable.

The pus from the early blisters before they were broken afforded only growths of staphylococci. I generally found there was a hair, often a very small one, passing through them, and the follicle of the hair was invariably infected with staphylococci.

The cocci cultivated were, as mentioned above, mostly varieties of *Staphylococcus albus*, with a few *S. aureus* and *S. citreus*. Their virulence is presumably low, for in uncomplicated cases there is no tendency to invade the true skin, and no involvement of the lymph glands occurs.

A few experiments were made upon the biochemical characters and pathogenicity of some of the cocci isolated. Six white staphylococci colonies, derived from four patients, were examined as to their action on milk and gelatine and their fermentation of lactose and mannite. They all clotted milk and liquefied gelatine with varying rapidity, and fermented lactose. None fermented mannite. They were not haemolytic for human blood as tested by Eijkmann's agar plate method. They appear, therefore, to correspond to Welch's *Staphylococcus epidermidi albus*, as defined by Gordon (1906).

The cultures of *Staphylococcus aureus* and two of *S. citreus* from hair follicles which were tested in the same way, fermented mannite. I could not make a number of experiments on animals, but two rabbits injected intravenously with 2 c.cm. of a broth culture of the white cocci and one with the same quantity of the broth culture from the *aureus* colonies were not made manifestly ill.

My observations on the bacteriology of barcoo rot are in general accord with those of Ogston (1901) and Harman (1904) upon veld sore. Ogston and Harman, however, make no mention of any infection of the hair follicles. Ogston saw only Gram-positive cocci in fluid from the edge of ulcers. Harman cultivated only staphylococci from the

* Fatal for guinea-pigs in doses of 0.5 c.cm. eighteen hours' broth culture in thirty hours; 0.1 c.cm. antitoxin protected against 2.5 c.cm.

† The records of the finding of diphtheroid bacilli in skin lesions are collected by Graham Smith in Chapter IX of his book in collaboration with Nuttall, *The Bacteriology of Diphtheria*, Cambridge University Press, 1903.

unbroken vesicles. These gave the cultural characters of *Staphylococcus pyogenes aureus*, but grew rather more abundantly on culture media than a virulent strain with which they were compared. They were not virulent for rabbits. Harman was much impressed by the resistance to heat, to the effects of drying, and to the action of corrosive sublimate possessed by his cultures, but this was not, I think, greater than has been met with in some strains of staphylococci.

The epidemiology of veld sore was carefully studied by Harman, but he could find no indication that the infection spread from one to another among the troops, and barcoo rot affects men living in solitude. Neither disease seems to be associated with particular occupations. It would seem probable that barcoo rot, and possibly veld sore too, is due to the infection of the epidermal structures with staphylococci of low virulence, such as abound upon the skin. In barcoo rot the infection of hair follicles is apparently the common way in which it begins, and the usual manner in which it spreads at the margin of the ulcer.

Harman's view of the pathology of veld sore I take to be that under ordinary nutritive conditions the skin cocci of low virulence are not able to "make good" against the local defences, but that in the case of men too long upon a restricted diet the defence is weakened, and they are able to infect the epidermal structures but not the true skin. He regards it, in fact, as a minor scorbutic manifestation. This may well be, but improper dressing and neglect of the sores also play an important part, for I have seen them heal up rapidly under appropriate dressings when no improvement in diet was possible. The fact recorded by Harman that the African natives did not suffer whereas the Boers did suggests, however, that lack of washing and of simple surgical dressing is alone an inadequate explanation.

Treatment of Barcoo Rot.

In hospital the ulcers generally heal up slowly under any sort of wet antiseptic dressing, but are very difficult to deal with in the field. A wet dressing is unhandy when a man has to go about his business and it is difficult or impossible to change it sufficiently frequently. Moreover, in a hot climate it soon becomes converted into a dry dressing and adheres to the ulcer.

Harman found that if the ulcers were thoroughly cleaned up, powdered with calomel and covered with cotton-wool, the last being affixed by strapping, good results followed. This method is satisfactory for small ulcers, but the cleaning up must be very efficiently performed.

In view of the observations on the pathology of barcoo rot described above, it seemed not unlikely that the infection of the hair follicles was largely responsible for the continuance of the ulcerative process in the centre, and its progress at the margins of the ulcer. An infected hair follicle is like a foreign body, and healing will not occur until it is either sterilized or ulcerated out. Acting upon this idea I removed the hair or hairs traversing the early blebs, and found that these healed straight away. The patients soon realized the efficacy of early removal of the hair follicles in suppressing these secondary infections, and undertook this part of the treatment themselves. Next, working on the principle employed to restrict a bush fire by burning an area in front of it, I attacked the larger ulcers, removing the hairs from their base and around their margins, and was pleased to find that the ulcerative process was stayed, and healing commenced at once.

The extensive ulcers in the floors of which no epithelial structures remain, naturally take a long time to heal, but this period Captain Maclure abbreviated by the transplantation of numerous snippets of skin from the abdomen.

BIBLIOGRAPHY.

Austen (1901): Veld Sore, BRITISH MEDICAL JOURNAL, vol. i, p. 486.
Berne (1901): Veld Sore, BRITISH MEDICAL JOURNAL, vol. i, p. 1476.
Dolbey (1903): Veld Sore, BRITISH MEDICAL JOURNAL, vol. i, p. 76.
Gordon (1906): Report on Bacterial Test whereby Particles Shed from the Skin may be Detected, Report Medical Officer, Local Government Board, for 1904-5, p. 387.
Guise-Moores (1901); Veld Sore, BRITISH MEDICAL JOURNAL, vol. i, p. 1078.
Harland (1901): Veld Sore, BRITISH MEDICAL JOURNAL, vol. i, p. 952.
Harman (1903): Clinical and Pathological Character of Veld Sore Prevalent amongst Troops in South Africa (abstract), *Trans. Path. Soc. Lond.*, vol. liv, p. 196; (1904): Same title (full paper), *Journ. Path.*, vol. ix, p. 1.
Ogston (1901): Veld Sore, BRITISH MEDICAL JOURNAL, vol. i, p. 951.
Pridmore (1901): Veld Sore, BRITISH MEDICAL JOURNAL, vol. i, p. 211.

A SIMPLE DEVICE FOR THE GROWTH OF ANAËROBES ON PLATES.

BY

HERBERT HENRY, M.D., CAPTAIN R.A.M.C.

MUCH of the confusion that exists in the literature on anaërobes is due to the difficulty of growing these organisms in pure culture. In the case of most aërobic organisms a plating out process is a relatively simple operation, and but little trouble is experienced in getting pure cultures of any organism provided that the medium used be suitable for its growth. The anaërobes, on the other hand, exhibit symbiosis to an extraordinary degree, so that an apparently pure culture of one organism, which gives fixed and regular reactions through a series of subcultures, may yet prove in the end to be contaminated. The *B. enteritidis sporogenes* of Klein, for example, was ultimately found to consist of a non-motile sugar-splitting organism together with a motile proteoclast; and there are doubtless other instances of this confusion to be found in the literature on anaërobes.

All the anaërobes we have so far isolated from wounds belong to one or other of two main groups. They are either sugar fermenters or they are protein digesters, and it has been found possible by varying the constituents of a nutrient medium to encourage the development of one or other type of organisms. Thus a mixture containing *B. welchii*, when planted into a medium containing sugar fermentable by this organism, will yield a culture in which *B. welchii* preponderates, and in which the development of other organisms is at first held in abeyance. By a series of replants in such a sugar-containing medium at suitable intervals—a process, that is, of intensive culture—it becomes possible to get a relatively pure growth of *B. welchii*. This result, however, marks but the first stage in isolation, and the subsequent purification of the culture can be effected only by repeatedly picking off isolated colonies from the surface of some solid medium. Slopes in tubes are inconvenient for the purpose, and recourse must be had to plates.

There are two methods in general use for putting up anaërobic plate cultures. In the first the plates are placed in some air-tight receptacle from which oxygen is removed by absorption, by exhaustion, or by combustion with hydrogen. This method has its disadvantages in that the receptacle is as a rule bulky, and takes up much space in an incubator. It is, moreover, difficult to determine the progress of growth without opening up the whole apparatus.

The second method consists in the incubation of each culture plate separately, and the device which embraces this principle, and which is perhaps best known to British workers, is the capsule devised by McLeod. This consists of a glass plate of special design superimposed on a porcelain receptacle containing pyrogallic acid and soda. The apparatus is very efficient, but it has the disadvantage that the amount of available surface space is small, and also that it is not always easy to see the colonies against the white background of porcelain.

The device herein described is a cheap and practical application of the second principle so as to use the material that can be found in any laboratory. Drugs in powder are now exported to France in cardboard cylinders, which are provided with metal tops and bottoms. These can be found in any hospital dispensary. The metal top consists of a circular disc or lid, which when pushed down fits tightly into a supporting flange, the principle being one which is used extensively in trade for tins containing paints, enamels, glaxo, etc. The combination of supporting flange and lid (see diagram) presents a circular groove or trench on both its upper and lower aspects, and so forms a suitable coupling adjustment for the two halves of a Petri dish of suitable size.

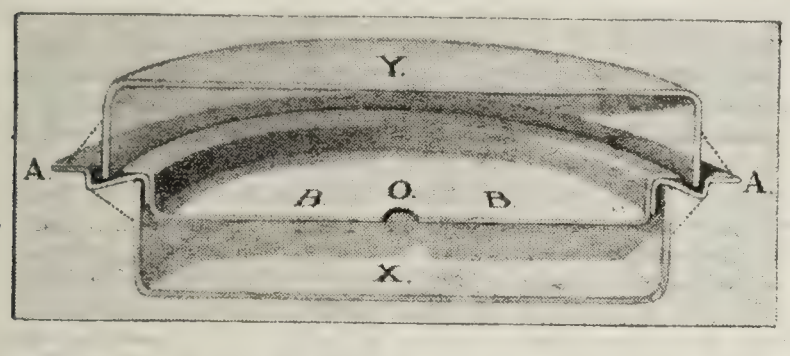
The diagram represents the apparatus in cross section, A being the flange and B the lid. The upper surface of the lid B is painted with black enamel, and its centre is occupied by a central aperture, O.

Method of Use.

1. The grooves on both the upper and the lower surfaces of the flange and lid are filled with plasticine. One or two teaspoonfuls of pyrogallic acid in powder are placed in the lower

LIBRARY U. OF I. URBANA-CHAMPAIGN

half of a Petri dish, X, and the metal plate is pressed firmly down on to it, so that the edge of the dish is securely embedded in the lower plasticine containing trench. Extra plasticine is added all round up to the level of the dotted line shown in the diagram so as to make an absolutely air-tight lute.



2. The other half of the Petri dish, Y, is sterilized in a larger Petri plate in the hot-air oven, filled up with a suitable amount of agar or agar-gelatine, and when cooled is inoculated.

3. Saturated caustic soda solution, 10 c.cm., is poured through the hole O into the plate X, and then as quickly as possible the plate Y in an inverted position is pressed firmly down into the upper trench and luted down with extra plasticine all round up to the level of the dotted line shown in the figure.

Organisms thus grow on an agar surface in an air-tight box from which most of the available oxygen is absorbed by sodium pyrogallate. The smearing of the agar surface with alkaline egg-albumen at the time of inoculation greatly facilitates growth. Where difficulty is experienced in getting growth by this method, the organism may be coaxed into giving good surface colonies by a preliminary passage through several subcultures in alkaline meat under paraffin.

The following organisms have been successfully cultured by this method—*B. welchii*, *B. von Hibler IX*, *B. aërofetidus*, *B. fallax*, *B. oedematiens*, *B. sporogenes*, *B. histolyticus*, *B. tetani*, *B. paraputrificus coli*, *V. septique*, and others not yet definitely classified.

Advantages of the Method.

1. The procedure is a simple one and requires no special skill.

2. The lid, B, serves a double purpose. It provides a black background against which colonies can be easily discerned, so that the progress of a culture can be watched from day to day. It also prevents soiling of the agar surface with pyrogallate solution.

3. The apparatus takes up very little room in the incubator. A series of cultures can be stacked one on top of the other, and each one can be taken out and examined separately.

4. It is cheap; the tin lids cost but a trifling sum. They are unbreakable, and can be used again and again.

The prepared and blackened metal plates, with or without 3½ in. Petri dishes to fit them, may be obtained from Messrs. R. B. Turner and Co., 9–11, Eagle Street, Holborn, London.

I have to thank the Medical Research Committee for placing a supply of these at my disposal.

MELAENA AND HAEMATEMESIS NEONATORUM.

BY BETHEL SOLOMONS, M.D., F.R.C.P.I.,
GYNAECOLOGIST TO MERCER'S HOSPITAL, DUBLIN.

IN this very fatal condition the details of a successful treatment are useful, and for that reason I submit the notes of a case which occurred in my practice:

The mother was a young primipara, and delivered herself of a full term female, weight 8¼ lb., length 22 in., after seven hours' labour, on March 16th, at 8 p.m. The family history was good on both paternal and maternal sides.

I saw the child on March 17th, in the morning, and everything was normal. I then left town for twenty-four hours, and did not visit the case again until the following evening. On March 17th, at 5.30 p.m., the baby vomited a little brown fluid. For the next three hours she was very restless. At 9.30 she passed a large tarry motion with streaks of blood through it; at 10.15 she vomited about 3 oz. of red blood. From 10.30 until 11.0 she was very collapsed, with lips and fingers cyanosed. At 11.30 she passed a very large bloody offensive motion. She seemed in pain, and did not sleep more than ten minutes at a time. On the morning of the 18th, as I was away, Dr. Fitzgibbon kindly saw the patient for me. At 9 a.m. she had a very large fluid motion, with blood through it. At midday, horse serum 2 c.cm. was injected into the loin. Very shortly after this there was a motion containing a large quantity of blood. Some blood was vomited. I saw her at 5.50 p.m., and soon after this there was a large tarry stool. At 10 p.m. horse serum, 4 c.cm., was injected. On this day she had four doses of a mixture containing calcium lactate, gr. 1, and adrenalin chloride 1 in 1,000, one minim to each dose. She had a restless night, waking every hour.

March 19th. At 3.15 a.m. and 4 p.m., large melaena were passed. She looked better and I decided to wait before giving any more horse serum. However, after the second tarry stool, I injected 5 c.cm. hypodermically. The adrenalin mixture was administered twelve times. She had a good night and slept well.

March 20th. Slight melaena twice—at 3 a.m. and 4 p.m. At 4.45 p.m., 5 c.cm. of horse serum hypodermically; twelve doses of the mixture in the twenty-four hours. She was very restless and evidently in great pain, which was probably due to flatus.

March 21st. In much pain. At 2 a.m. a small rubber catheter was passed per rectum and a large quantity of flatus came away. The chill was taken off the water, which until this day had been given dead cold. There was one small tarry stool.

March 22nd. At 2.20 a.m. the infant was very restless and inclined to cyanosis, and looked as though about to die. Horse serum, 5 c.cm., was given by mouth; this was repeated at 9.30 a.m. She seemed weak through the day, and I decided to give her something stronger than water. I therefore ordered albumin water (one egg to the pint of water) every two hours, which was the first "food" given. This was the sixth day of the illness and the seventh since birth. The mixture was given eight times in the day.

March 23rd. Albumin water 2 oz. every two hours. Mixture eight times. Horse serum, 5 c.cm. twice in the twenty-four hours by mouth. Two motions, improved, but still rather tarry. One pound weight lost in the week.

March 24th. Albumin water during the night. At 8.30 a.m. the first slightly yellow motion. At 11 a.m. rennet whey 2 oz. Serum 5 c.cm. by mouth twice. Two more yellow motions. Rennet whey through the day. The mixture three times.

March 25th. The mother's breasts had been kept pumped in order to continue secretion, and on this day the baby had 2 drachms of breast milk with rennet whey. Serum 5 c.cm. by mouth. Mixture three times in the day. Two motions.

March 26th. Whey and breast milk. Mixture three times daily.

March 27th. Breast feeding only.

After this the baby gradually improved, and is quite healthy to-day.

Many theories have been brought forward to account for intestinal bleeding in the newborn, and I do not intend to enter into a discussion of them here. I believe it possible that one of the unknown toxaemias of pregnancy which circulate in the mother is carried to the child, whether causing a premature gastric secretion as suggested by Dr. Crawford, or in what other way the ulceration is caused, it is impossible with our present knowledge to state. The very large *offensive* motion which was passed on the first day of the illness was strong evidence for a toxaemic theory. In necropsies on eclamptic patients, haemorrhages have been found in various intra-abdominal sites. When eclamptic fits occur in infants, when scopolamine can be demonstrated in the urine of the newborn, why should not gastro-intestinal haemorrhage be caused by a toxaemia carried from the mother to the child while still *in utero*? The starvation treatment which is so successful in cases of maternal toxaemia is extraordinarily successful in a case such as the one described.

STRANGULATION FOLLOWING REDUCTION EN MASSE (LEFT INGUINAL HERNIA): LAPAROTOMY: RECOVERY.

BY
G. A. HARRISON, B.A.CANTAB., M.R.C.S., L.R.C.P.LOND.,
HOUSE-SURGEON, KING'S COLLEGE HOSPITAL; LATE ASSISTANT HOUSE-SURGEON, ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

IN past years, when taxis was very frequently practised, a case such as the following was not regarded as uncommon. Nowadays it is rarely met with, because earlier operative measures are undertaken. The case is especially noteworthy in that the patient himself apparently performed reduction *en masse*.

C. G., aged 44, was taken ill suddenly on February 5th, 1917, with severe pain in the left iliac fossa and vomiting. The next day he felt better, and no vomiting occurred. The bowels acted properly on February 4th, and by enema on February 6th and 7th. On February 7th he vomited again, and complained

of severe pain in the same situation as on February 5th. There was no history of haematemesis, nor of melaena. The quantity of urine passed had been normal, and there was no information pointing to any disorder of micturition. On January 26th and January 28th he had experienced similar but slighter attacks of pain, which came on after snowballing. He stated that he had worn a double inguinal hernia truss for fifteen years. Three or four weeks before admission he said that he had found his left inguinal hernia down, and, after pushing it back himself, reapplied his truss.

On the evening of February 7th his pulse was 80, and the temperature 100.2° F. His tongue was thickly furred, and he looked sallow and ill. The abdomen was slightly distended. It was rigid, but the rigidity was not absolute. There was distinctly more resistance on the left than on the right. In the region of the lowest quarter of the left rectus there was a swelling the size of a tennis ball, which was extremely tender. The swelling was resonant on percussion; there was no dullness in the flanks. Small scybala could be felt in the rectum high up, and an ill defined fullness up towards the left iliac fossa.

Later in the evening of February 7th laparotomy was performed by Mr. John Everidge, F.R.C.S., through the sheath of the left rectus. The abdominal wall over the swelling was very oedematous.

Ten inches of small intestine were found strangulated in a large sac communicating with the general peritoneal cavity by a very narrow neck, which was deeply situated. The constricting ring and diaphragm of peritoneum were divided and the strangulated intestine was carefully examined. As it was found not to be viable, 14 in. of gut were resected. The upper and lower free ends of intestine being of very different sizes, a lateral anastomosis was performed. The abdomen was closed without drainage.

The sigmoid colon with its mesentery lay posterior to the swelling, which was situated immediately beneath the anterior abdominal wall and was pushing the peritoneum lining the left iliac fossa up towards the diaphragm.

The patient progressed most satisfactorily until February 13th when he passed by the rectum about a pint of dark blood containing clots. Hiccough developed but not to an alarming degree. On February 16th two severe haemorrhages from the rectum, each of about 1½ pints, occurred in the morning and evening respectively. No further operation was performed and the patient passed steadily into convalescence, and was finally discharged on March 17th.

During the after-treatment, when the bleeding occurred from the rectum, pituitrin was administered with the idea that it might stimulate the bowel to contract down on the bleeding point. There is no direct evidence that such was its action in improving the patient's condition, but the possibility of such a therapeutic use for pituitrin is worthy of note.

At a future date Mr. John Everidge hopes to perform an operation for radical cure of the patient's double hernia, when it will be easy to clinch the diagnosis of reduction *en masse*.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF HAEMATOCOLPOS IN BIFID UTERUS AND VAGINA.

ON September 5th, 1916, I was asked by Dr. Cayet, of the civil hospital at D——, to see a French girl of 18 with a pelvic tumour. A week previously Dr. Cayet had been called in, as the girl was suffering from acute retention of urine, which he relieved by passing a rubber catheter. He observed that the girl was menstruating at the time.

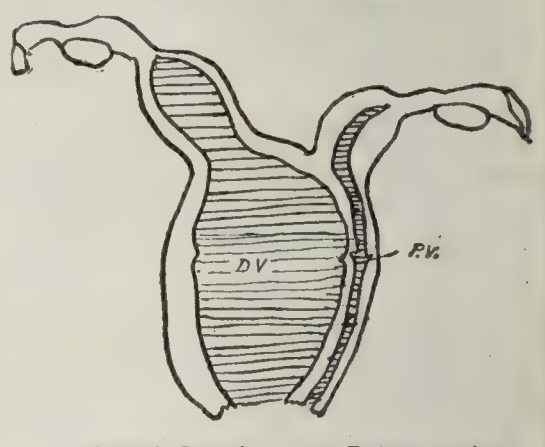
The patient told me that she had menstruated regularly for three years. Occasionally the loss was excessive—six or eight days. The retention of urine occurred for the first time during the last period. Constipation had given some little trouble.

On examining the abdomen, a hard nodular tumour could be felt rising above the pubes. It was not movable, not tender, and the abdominal wall could be made to slide over it. On rectal examination, the pelvis appeared to be almost filled by a smooth, immovable mass, rounded in outline. No uterus could be distinguished. The hymen was intact, admitting one finger. The vagina ran along the left side of the tumour, with which it seemed intimately involved. The cervix was out of reach.

Bimanually, tubes, ovaries, or uterus could not be distinguished.

Pregnancy was considered out of the question. The hard, rounded appearance suggested fibroid or semi-solid dermoid, but the inability to discover tubes or uterus was against the latter diagnosis. Operation was considered advisable.

I opened the abdomen near the mid-line (Battle's incision) and found what appeared to be a large fibroid of the uterus involving the whole of the body and cervix. The tubes and ovaries were perched on the summits of two nodules at the top of the tumour, which made it inadvisable to attempt to separate them and their blood supply from the tumour. The usual steps of separation of peritoneum and ligature of blood vessels were carried out. On cutting into the vagina, a gush of dark, sticky fluid took place, filling the pelvis. At the same time the tumour diminished considerably in size. The condition of haematocolpos was at once realized, but the operation was too far on to allow the uterus to remain. Having removed the tumour, the vagina was closed, peritoneal toilet performed, and the abdomen closed.



DV, Distended vagina. PV, Patent vagina.

The tumour, on examination, proved to be a completely bifid uterus. The right side vagina was closed at the orifice. The walls were extremely thick, almost half an inch. A small ridge marked the position of the cervix; the cervical canal and cavity of the uterus were also distended. The right tube was larger than the left, but not distended.

On the left side the vagina was narrow and the walls thin. A more distinct ridge marked the cervix. The cervical canal was narrow and elongated to about 3 in. The uterus was smaller than on the right side.

The patient made an uninterrupted recovery and returned home in three weeks.

Eight months later I examined the patient and found her general condition excellent. The patent vagina admitted a finger for 3 in., and no collection of fluid could be felt in the closed vagina. The accompanying diagram is drawn from the hardened specimen.

R. DOUGLAS LAURIE, Captain R.A.M.C.,
Honorary Surgeon, Derbyshire Hospital for Women.

CINNAMON AS A PROPHYLACTIC IN MEASLES AND GERMAN MEASLES.

CINNAMON is a drug whose therapeutic virtues are not sufficiently recognized. The essence of cinnamon in 25-drop doses is one of the most effective remedies in cases of acute coryza. It is certainly much more efficacious as well as more pleasant than the popular ammoniated tincture of quinine.

Some years ago an article was published in the JOURNAL strongly advocating cinnamon as a preventive of measles. The writer stated that it was his practice, when he met with a case of measles, to prescribe a course of cinnamon for any unprotected children in the family. He stated that in most cases the child who was treated either failed to contract the disease or took it in a very mild form. I myself have had the same experience, but I was able to try the experiment only in a few cases, as I gave up general practice.

Recently I have had an opportunity of trying a course of cinnamon as a prophylactic in German measles. One of our nurses, who has charge of the most delicate children, developed a rash one Thursday afternoon. She thought little of it, and continued her duties, which included bathing and putting to bed a considerable number of young children. On the following morning the rash was more pronounced, but she did not go off duty until she was seen by me at 10 a.m. Before that she dressed a number of the children, and was therefore in close contact with them while in an infectious stage of the disease. I diagnosed the case as a very typical example of German measles. To make quite sure I telephoned to Dr. Sydney Smith, who informed me that German measles was very prevalent in the neighbourhood, and kindly called at the institution and confirmed my diagnosis.

LIBRARY U. OF I. URBANA-CHAMPAIGN

I then ordered every child who had been exposed to infection (twenty in number) to have as much powdered cinnamon as would lie on a sixpence night and morning. The powder was administered in food, and the novel flavour seemed to be appreciated by the children. Whether *propter hoc* or merely *post hoc* it would be rash to say, but the fact remains that at the end of four weeks no second case of German measles had occurred. The cinnamon treatment was continued for slightly over three weeks.

German measles is not a serious disease, but it is certainly a great nuisance, particularly in an institution. The chief object of this note is to suggest that cinnamon ought to be fairly tried as a prophylactic not so much in German measles as in measles itself. The latter disease is responsible for such a large mortality that anything that promises to diminish either the incidence or the severity of the disease is well worth a trial.

W. B. DRUMMOND, M.B., C.M., F.R.C.P.E.,
Medical Superintendent, Baldovan Institution for the Feeble-minded.

PROPHYLAXIS OF MAMMARY ABSCESS.

FOR the past two years I have administered potassium citrate to all my patients during lactation as soon as milk engorgement shows itself. The only cases which have gone on to abscess were two who did not come under my care until engorgement had passed on to definite abscess formation, but even these patients seemed to be improved by having the citrate. The *rationale* of the treatment is to make more fluid the thick stagnating milk. The addition of ammonium carbonate helps to keep the blood alkaline; the prescription I use is: ℞ Potass. citrat. gr. xv, ammon. carb. gr. iij, aq. chloroform. ʒ ij, aq. ad ℥ j; ℥ j four-hourly.

All my cases have responded promptly to this treatment, in the way of a free milk flow; and the child does not object to the citrated milk, but rather the contrary.

Southwark, S.E. REGINALD LARKIN, M.D.Lond.

TONSILLECTOMY.

IN the discussions on tonsillectomy which occasionally appear in the BRITISH MEDICAL JOURNAL no reference has been made, so far as I have observed, to what I now look upon as by far the best method of performing this operation.

I have passed through all the stages of the old guillotine method, enucleation with the finger, enucleation with forceps, and sharp and blunt dissection, the method called in America after Dr. Sluder, but which as early was being performed in England by Sir StClair Thomson and others. I mean by the Sluder method that in which the guillotine is held reversed while the tonsil is pressed through the aperture, partly by pressure against the jaw and partly by the forefinger or thumb of the hand which does not hold the instrument, which is so blunt that it takes the line of least resistance behind rather than through the tonsil, from before backwards.

The operation which I wish to recommend is a modification by Beck of Chicago of this guillotine method. His instrument, which can be had from F. A. Hardy of Chicago, consists of a straight bar with the usual guillotine aperture, but within the ring of the aperture is a deep sulcus in which lies a hidden wire. With the patient on his back the ring is passed well behind the tonsil, the right first, while the handle is pressed down against the corner of the left side of the mouth till the instrument lies practically parallel to the table. At the same time the forefinger of the left hand, which I protect with a rubber finger for the sake of the anterior pillar, presses very firmly the tonsil through the aperture until the finger is itself inside the ring. The instrument is at the same time pulled forward in order to bring the distal side of the ring into close contact with the back of the tonsil. With the ring finger of the hand which holds the instrument, in this instance the right, or with the help of an assistant, a trigger is pushed forward with a light touch, when a catch holding the wire in position is loosened and the natural spring of the wire tightens it round the tonsil and also permits of the wire being pulled by the approximation of the right thumb and the first and second fingers which are already in rings for the purpose. When the wire has in this manner been tightly secured round the tonsil the trigger is replaced in its original position, and the tonsil, having been secured against falling into the throat by means of a pair of forceps, is cut off from behind forwards as slowly as desired by turning the ring in which the thumb has lodged during the previous steps of the operation.

After having for a couple of years done most of my cases by the Sluder method, I have recently ceased to do anything else than that here roughly described, and I feel certain that nearly every one who has once "got the hang of it" will agree with me that it is by far the most satisfactory. Its merits are that it is easy; that it is the most nearly bloodless method; that it gives the slightest reaction; that it is applicable to the worst cases of imbedded tonsil; that practically any tonsil can be removed by it except such as are held down by old firm adhesions for which no method is easy; that it is very rapid; and that if the surgeon will avoid wounding them with his finger-nail the pillars are safe. Another advantage is that it is hardly likely that a styloid process projecting into the tonsil—of which many have been seen since I first wrote about this anomaly I think some twenty years ago—could be missed before the wire is tightened. The rings are of three sizes, of which the middle is the most useful.

A. W. STIRLING, M.D., C.M.Edin., F.A.C.S.
Atlanta, Georgia, U.S.A.

THE ECONOMICAL USE OF COCAINE.

IN view of the present high price of cocaine it is important to avoid waste in its use. As usually employed for local anaesthetic purposes it is applied in solution on lint or cotton-wool, a considerable proportion remaining on the latter and being thereby wasted.

Moreover, solutions of the drug, if they have been long made, are untrustworthy, and not infrequently have to be discarded.

For some years I have used glycerin of starch (glycerinum amyli *B.P.*) as a vehicle for the local application of cocaine, and with entire satisfaction, and can recommend it as the most economical. It has the following good points:

1. It keeps indefinitely, does not evaporate nor dry up. I have by me the remains of a supply made five years ago and it is as active as ever.
2. It can be applied to skin or mucous membrane without wool or lint. Simply spread it over the surface as thickly or thinly as desired.
3. It is very absorbable.
4. It can be prepared of any strength, cocaine being soluble in glycerin of starch in practically any proportion.
5. It is as convenient to handle as an ointment, but without the latter's greasiness.

By cocaine I mean the hydrochloride. The alkaloid itself is insoluble in glycerin preparations.

Stoke Prior, Bournemouth. J. T. HALL, L.D.S.

A CASE OF SECOND INFECTION OF SYPHILIS.

A LEADING seaman, aged 32, was examined for submarine service on December 18th, 1915, and found fit. This examination is extremely thorough, and any suspicion of venereal disease automatically renders a man unfit.

In February, 1916, he contracted syphilis, a hard sore appearing five weeks afterwards on the dorsum of the penis; upon April 10th, 1916, he presented himself for treatment. The sore was a typical one, and accompanied by enlargement of the left inguinal glands. On April 17th he was given 0.4 gram of galyl intravenously. That night his temperature rose to 102.4°; he vomited once and complained of headache; the temperature was normal the next morning. On May 17th his blood gave a strong positive Wassermann reaction. On May 27th he was given his second injection of galyl, and his reaction temperature rose to 99°; there was no headache or vomiting. On July 8th a third injection of 0.4 gram of galyl was given, and there was no reaction whatever. Between the first and second injections he was given three injections of 1 grain of mercury each, intramuscularly; these were repeated between the second and third injections of galyl. On November 18th his blood gave a "faintly positive" Wassermann reaction; he was therefore given eight further injections of mercury, each 1 grain, at intervals of one week, beginning on November 22nd, 1916, and ending on January 11th, 1917. He had never shown any secondary

symptoms, and his sore with the enlarged inguinal glands vanished after the first injection of galyl.

In March, 1917, he again exposed himself to infection, and on April 14th, 1917, he came under my care. Upon admission there was on the dorsum of the prepuce a large typical hard sore. The scar of the old sore was easily visible as some of the gland tissue had been destroyed. He has been given three further injections of galyl—the first, 0.25 gram, on April 15th; the second, 0.35 gram, on April 22nd; the third, 0.35 gram, on April 30th. It is my intention to give him three more injections of 0.35 gram, making a total of 2.0 grams, spread over six weeks. His sore healed rapidly. On April 30th it was a clear scar, and there was no inguinal gland enlargement.

Each injection involves forty-eight hours' absence from full duty, after which he carries on his ordinary work until the next one falls due. I wish to put this case on record as an undoubted second infection of syphilis. The records of all naval sick are carefully made and preserved, and it is from these, and in no instance from the patient's statements, that I have given such facts and dates as have not come under my own personal observation.

L. C. DUNDAS IRVINE, B.A.Cantab., M.R.C.S.,
Surgeon R.N.V.R.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

DORSET AND WEST HANTS BRANCH.

THE annual meeting of the Dorset and West Hants Branch was held at Blandford on May 16th.

The Diagnosis of Scarlet Fever.

Dr. T. HOWARD delivered the presidential address entitled "The diagnosis of scarlatina." He said that the textbooks dealt with the differential diagnosis of scarlet fever from a negative standpoint only. The feeling of disappointment, when the textbook was consulted, was mainly due to the exalted position which the rash occupied in the mind as a factor in diagnosis. Diagnosis was often decided by the knowledge that other cases exist in the neighbourhood, or the personal factor turns the scale. Dr. Howard pointed out the danger of removing to hospital cases which were improperly diagnosed. Peeling was accepted by the great majority of medical men as a sure proof of the disease being scarlet fever; but unless desquamation was defined, it was a great source of error. The scarlatinal rash was readily imitated, and desquamation was common to many conditions, which were mentioned; but a peeled scarlatinal tongue was practically pathognomonic. The mild unsuspected cases that originated some epidemics might be left out of consideration since they were on a par with the "carrier" cases of diphtheria. In the absence of bacteriological tests, it was the more necessary to have a clinical group of symptoms to use as a criterion. The differential diagnosis from rubella (more particularly that form in which the symptoms were pseudo-scarlatinal, and the desquamation sometimes pseudo-scarlatinal, as in "Duke's fourth disease") was discussed. The difficulty of the general practitioner in making a diagnosis, when called upon to do so in a doubtful case, was emphasized. It was argued that, before he committed himself to a diagnosis, he should wait twenty-four hours in order to find out whether the fur on the tongue was being shed. Where the "white strawberry" condition persisted, the danger of attributing the persistence of furring to the septic condition of the throat was a very real one.

Mr. W. H. L. MARRINER proposed a hearty vote of thanks to the President for his paper. This was seconded by Dr. WEAVER, of Yeovil, who drew attention to the value of Leede's sign in the diagnosis of scarlatina and described shortly the method of carrying it out.

Sea-water Plasma.

Dr. MAHOMED then made some remarks on the value of sea-water plasma, which he said was brought into notoriety some years ago as a cure for summer diarrhoea in children. M. Quinton recommended the injection of sea-water diluted with sterilized water so as to make it of a valency he considered identical with that of the ocean from which the primordial protoplasm evolved the beginnings of animal life. Shortly afterwards, in 1911, Dr. Robert Simon described the technique and gave plates showing the great improvement effected in cases of very chronic skin disease, such as psoriasis nummulata, lichenoid eczema, etc., by this treatment. The sea-water used was obtained at a depth of about 50 ft. twenty miles from shore; it was diluted, sterilized by filtration, and retailed in sealed ampoules. Dr. Mahomed decided to try and sterilize water obtained in the neighbourhood. It was full of the bacteria of degeneration; but by packing a percolator with boiled cellulose wadding so that the water filtered through very slowly, the filtrate was sterile. To prevent shock it was best to warm the filtrate before putting it in the container. The latter should be of glass and graduated, tapering at the lower end to receive a rubber tube and stopcock. A platinum needle should be used, as steel needles rusted quickly when exposed to sea-water. Dr. Mahomed usually began with half an ounce, and went on to two ounces. He described three cases of neurasthenia treated with sea-water injections. The beneficial effect appeared to be different from and greater than that obtained by saline injections. There was no doubt that sea-water was slightly radio-active, presumably due to the washings from rocks, clays, and sludges from estuaries. Hence water collected near the coast should be more active than that obtained at a distance. Dr. Mahomed finally described his experiments with radio-active mud from Poole Harbour.

In the course of the subsequent discussion Dr. WEAVER suggested that ordinary saline solution was equally useful, and that the improvement in neurasthenic cases was the result of a mental effect.

Reports of Societies.

HALLUCINATIONS IN THE SANE.

AT a meeting of the Medico-Psychological Association of Great Britain and Ireland in London on May 15th, when the president, Lieutenant-Colonel DAVID G. THOMSON, M.D., R.A.M.C., was in the chair, Dr. ROBERT HUNTER STEEN, Medical Superintendent of the City of London Mental Hospital, read a paper on hallucinations in the sane. He made two main divisions of his subject: (*a*) Hallucinations the result of agencies operating upon the brain or nerves; (*b*) those of mental origin. Among the former were toxins, both exogenous and endogenous, disorders of brain circulation, disease of end-organs, after images, and brain diseases of obscure pathology, such as epilepsy and migraine. The second category consisted of cases in which, so far as present knowledge went, a physical agency was unknown. They included suggestion, hypnotism, crystal-gazing, clairvoyance, hysteria, somnambulism, multiple personality, hypnagogic visions, dreams, hallucinations in history, collective hallucinations, so-called telepathy, and hallucinations the result of a complex. De Quincey had described how the abuse of opium could produce hallucinations, and the late Sir Lauder Brunton had given a good example of sodium salicylate producing the same effect on a patient. The drugs which might produce this effect included alcohol, absinthe, ether, stramonium, belladonna, hyoscyamus, nitrous oxide, chloroform, mercury, lead, and santonin. A narrow escape from drowning might cause hallucinations, as in the case of a man who accidentally fell into the water and was almost drowned. After being rescued, he continued in a state of apparent death for twenty minutes, and after restoration described his sensations as most delightful and ecstatic, to the accompaniment of music. Apoplexy had sometimes been heralded by hallucinations. Instances from general and scientific literature and from experiences with patients were given of most of the varieties set out. The author's view was that hallucinations did occur in the sane, and cases met with in the sane should be intensively studied, as the subjects were of undimmed intelligence. This study was especially necessary in borderland or hysterical cases. There seemed no reason to think that hallucinations in the sane differed from those in the insane; and as in the sane hallucinations could be produced by toxins, probably these acted in the insane, too. They could also, however,

LIBRARY U. OF I. URBANA-CHAMPAIGN

occur independently of physical changes. He thought it probable that hallucinations in the insane could be best studied from the psychological rather than the physiological standpoint. In every case presenting hallucinations, he considered that some process of dissociation was at work, an opinion supported, he thought, by the fact that hallucinations were met with in cases of multiple personality.

PHYSICAL TREATMENT OF DISABLED SOLDIERS.

AT the annual meeting of the Section of Balneology and Climatology of the Royal Society of Medicine, held on May 24th, the Council's report for the session, 1916–17, was presented. This stated that the membership of the Section is now 238. At the meeting on November 9th, 1916, a symposium was held, at which were heard the personal experiences of Dr. Quiserne, Director of the Annexe of the Grand Palais Hospital in Paris. All the meetings were well attended.

The special committee of Council, now called the War Disablement Committee of the Section of Balneology and Climatology of the Royal Society of Medicine, was active during the session; a report by the honorary secretaries was presented at the meeting. This recorded that the Physical Clinic for the Treatment of Disabled Officers was opened at 126, Great Portland Street, W., on July 3rd, 1916. After a meeting held on July 22nd, a subcommittee was appointed to prepare a summary of the views of the committee on physical treatment for disabled soldiers, which was published. On October 2nd the Physical Clinic in Great Portland Street was taken over by the British Red Cross Society, and is now called The Red Cross Clinic for the Physical Treatment of Disabled Officers. Discussions on physical treatment for disabled soldiers were held, and on February 14th, 1917, Dr. FORTESCUE FOX described his visits to the centres of physical treatment in the British Isles and Northern France.

Reviews.

VULVO-VAGINITIS IN CHILDREN.

IN this country vulvo-vaginitis in childhood is most often sporadic. In America, however, matters are otherwise, and in schools, institutions, and hospitals for children, the infection occurs in epidemic form not rarely. An elaborate report on the occurrence, prevention, and treatment of the disease has recently been published[1] by a committee of members of the American Pediatric Society. It appears to be the case that the gonococcus is the infecting agent in perhaps three-quarters of these patients. But from the work of Pearce (1915) on the agglutination and complement-fixation reactions of the gonococcus it seems that two principal types of gonococci may be recognized, corresponding to the infantile and adult types of infection with the gonococcus seen clinically; and, for one reason or another, the infection is less dangerous to children than it is to adults. Possibly the gonococcus met with in the vulvo-vaginitis of children is less virulent than that infecting adults, or it may be that the young enjoy a higher power of resistance to the organism. Be that as it may, it appears that in 1914 sixty-four children under 10 years of age died of gonococcal infection in America, out of over sixty million of the inhabitants. It is held that most of these sixty-four deaths followed infection through the vaginal route.

The committee has discussed, and in great measure confirmed, a number of resolutions dealing with the prevention and treatment of this form of vulvo-vaginitis. It was held that cities should be required to provide adequate hospital and dispensary facilities for the care and treatment of children with the disease, and it is noted that six American hospitals now have a special ward for patients with vaginitis—that in the Philadelphia General Hospital has fifty-two beds, with a special staff, and is permanently in quarantine. It was held that all children with the disease should be excluded from school until they could obtain a medical certificate to the effect that they had been free from the discharge for a period of three weeks; the instance of a school with an epidemic of 100 cases of the infection is quoted in support of this recommendation. It was advised by the committee that matrons should be placed in charge of the girls' toilet rooms in the public schools, and further that toilet seats embodying the principle of the U-shape should be used in all schools; these are the chief measures proposed for preventing the transmission of infectious vaginal discharges. The committee states that facilities must be provided for making the necessary bacteriological examinations of smears and discharges, and sketches a campaign for the education of school teachers, school nurses, and mothers in the subject of this form of vulvo-vaginitis in children. It is proposed, too, that asylums and day nurseries for children should not be licensed unless they provide adequate facilities for the detection of the disease, and exclude all infected children. As for children's hospitals, the committee holds that separate wards should be provided for children with the disease; to treat them in general wards without danger to the other patients was thought impracticable. Indeed, the committee goes further, and would not admit any girl to a general ward in a hospital until bacteriological examination has shown that she is free from vulvo-vaginitis, and a further recommendation is made to the effect that repeated (even daily) examinations of the girl patients should be made for the presence of any discharge. Spray baths are recommended in place of tub baths in hospitals; nursing, care, and supervision are to be given to cases treated in their own homes; and all cases of the disease should be voluntarily reported to the local health officer.

In a paper on epidemic vaginitis in children, printed in the same volume of *Transactions*, Dr. B. K. RACHFORD remarks that the nurses in charge of them very rarely contract the infection from children, and that it is very rarely acquired by the children through sexual contact. The disease, he says, lasts for from six weeks to six months in children, and but rarely has severe complications or sequelae. As for treatment, a wide experience has led him to conclude that the best is local treatment, daily irrigation of the parts with two quarts of normal saline, followed by the injection of two or three ounces of a 1 per cent. solution of silver nitrate. He believes that the intractability of these cases in hospitals is due to reinfection. It is, of course, obvious that special precautions on the ordinary lines should be taken in the management of all cases of vulvo-vaginitis, wherever treated, to prevent the transmission of the infection to other children.

[1] *Transactions of the American Pediatric Society.* Twenty-eighth Session, held at Washington in 1916. Edited by Linnaeus Edford La Fétra, M.D. Vol. xxviii. (Med. 8vo, pp. xiv + 338.)

JOINT AND MUSCLE INJURIES.

CAPTAIN ROWLEY BRISTOW'S book on the *Treatment of Joint and Muscle Injuries*[2] would have been welcome at any time, but its appearance is especially appropriate at the present moment when a determined and persistent effort is being made to obtain official recognition for certain bonesetters. For Captain Bristow shows that he and other surgeons have improved on the methods of these persons and are successfully employing manipulative surgery, as it is called, guided by scientific skill and knowledge. But his book does more than this, for in it is to be found an exposition of the valuable method of treatment of weak and injured muscles by graduated contraction, which was shortly described in a paper in the *Lancet* in 1912 by Dr. Morton Smart and himself. It is a truism that the active contraction of any muscle is far more effective as a stimulant to recovery of power than any kind of massage, but in many cases of joint injury or of muscle strain voluntary effort is wanting, and electric stimulation by the ordinary faradic current, if strong enough, is too painful to be borne. The substitution for the usual induction coil of the specially wound and arranged coil which Captain Bristow describes and figures, obviates this difficulty, and by its use painless contractions resembling the normal action of the muscle can be obtained, and the restoration of muscle power and tone can be

[2] *Treatment of Joint and Muscle Injuries.* By W. Rowley Bristow, M.B., B.S.Lond., F.R.C.S., Captain R.A.M.C.(T.). London: Henry Frowde, and Hodder and Stoughton. 1917. (Demy 8vo, pp. xii + 148. 6s. net.)

encouraged. Acute sprains are not always treated seriously enough, and not always is a diagnosis made between sprain and fracture. It would be a good rule to submit every acute sprain to the *x* rays, for, as the author points out, small unsuspected fractures are often detected by this means, and the treatment suitable for sprain is unsuitable for fracture. The chapter on chronic sprains, which deals among other matters with "bonesetting," contains much that is instructive, and which, if taken to heart by the profession, would prevent the occurrence of those cases in which the bonesetter triumphs over the surgeon. It is incredible that a loose and slipping semilunar cartilage can be fixed by any manipulation by the bonesetter; but it is probable that cases in which there are small adhesions in or about the joint, following synovitis, may be thus cured. As Captain Bristow points out, such cases of internal derangement of the knee are sometimes mistaken for cases of loose cartilage, and operation advised or undertaken. He reaffirms in this connexion the importance of rotary movements, as well as those of flexion and extension when breaking down adhesions. The maxim of the bonesetter Hutton, "the twist is the thing," should be borne in mind. Chronic sprains are often accompanied or followed by wasting and loss of tone of muscles, for which the method of graduated contractions offers a valuable means of treatment, with or without massage. There is useful information and sound advice in this book on the after-treatment of peripheral nerve injuries, on fractures, dislocations, and on massage, and it is well illustrated.

Dr. Victor Hecht's guide to the after-treatment of the wounded[3] is a handbook of instruction in the non-operative treatment of contractions and disabilities following war injuries. It makes no pretence to be more than this; it is fully illustrated, and contains much that is necessary for instruction. A feature which is novel, but of doubtful value, is the demonstration of massage of various muscles on the dissected subject. In an appendix an account is given of the installation and organization of a mechanico-therapeutic station, communicated by Dr. Hecht to the meeting of the German Union for the Care of Cripples in Berlin in February, 1916.

ARTIFICIAL PNEUMOTHORAX.

Dr. Clive Riviere has written a very useful short book on the *Pneumothorax Treatment of Pulmonary Tuberculosis*.[4] The contributions on this subject scattered throughout the medical press of the world can already be counted by the hundred, and some bulky monographs have been published in Italian, Danish, and German. But in this country there has hitherto been no comprehensive review of this treatment—a serious omission, considering its striking merits. As Dr. Riviere says: "This, indeed, is the rôle of artificial pneumothorax, to rescue those formerly beyond the bounds of human aid, to restore the lost to life." And again: "It is to the 'lost' case of phthisis that pneumothorax treatment offers a chance of life and recovered health." Dr. Riviere crams a mass of useful information into small space, yet, being comparatively immune from the hackneyed jargon of the medical textbook writer, he treats his subject with a literary touch. In his anxiety to acknowledge the contributions of other workers he introduces a host of names the overwhelming majority of which will add no weight to the argument in the mind of the reader. A Norwegian surgeon, the author of a treatise on scrofulosis, once took to Vienna several copies of his book for presentation to his fellow specialists. Their first and inevitable query was: "Sind wir darein?" and their interest waxed or waned according to the answer. Judged by this test, Dr. Riviere is assured of a warm reception in the habitations of the minor prophets; they are all "darein." They jostle each other throughout the book, obscuring the true pioneers, Forlanini, Murphy, Saugman, and Brauer. Dr. Riviere may rest assured that readers will prefer his views to those of the obscure writers he so frequently quotes. The chapter on the accidents that may occur in the course of this treatment is particularly instructive and should impress the beginner with the risks of sudden death run by the victim of the careless or ignorant operator. It is a matter for congratulation, as well as reproach, that the overwhelming majority of the fatalities from this treatment could be traced to faulty technique; the author's comments on page 30 on an unpardonable blunder in technique might well have been pointed with the vigour of unparliamentary language.

[3] *Leitfaden der physikalisch-therapeutischen Nachbehandlung Kriegsverwundeter (Massage, Heilgymnastik, Apparatbehandlung, Thermo-Hydro- und Elektro-therapie).* Für Aerzte, Studierende und Aerztliches Hilfspersonal. Von Dr. Victor Hecht. Vienna and Leipsig: Wilhelm Braumüller. 1916. (Demy 8vo, pp. xvi + 260; 178 illustrations.)

[4] *Pneumothorax Treatment of Pulmonary Tuberculosis.* By Clive Riviere, M.D., F.R.C.P. Oxford Medical Publications. London: Henry Frowde, and Hodder and Stoughton. 1917. (Pp. 186; 10 illustrations, 2 plates. 6s.)

NOTES ON BOOKS.

The trustees of the Natural History Museum have recently issued three very useful and comprehensive pamphlets; one of them, by Mr. F. W. Edwards, B.A., assistant in the department of entomology, deals with *Mosquitos and Their Relation to Disease*. It contains an account of the life-history of the most important varieties, with details of those known to be concerned in the conveyance of disease, together with brief notes on identification. Another pamphlet by Mr. Stanley Hirst, assistant in the department of zoology, on *Arachnida and Myriopoda*, describes many creatures, including scorpions, spiders, mites, ticks, and centipedes, injurious to man. It ranges from such relatively harmless parasites as *Demodex folliculorum*, through the itch mite, to *Ornithodoros moubata*, the tick which transmits the relapsing fever of tropical Africa. The third pamphlet, by Mr. Bruce F. Cummings, assistant in the department of entomology, describes the anatomy, development, and habits of *The Bed-bug*, an animal which appears to possess no redeeming feature. It is ugly, it has an offensive smell, it is rapacious, it carries plague, and is shrewdly suspected of conveying also relapsing fever, kala-azar, tuberculosis, and perhaps poliomyelitis. All three pamphlets are well illustrated, and the price—that on the bed-bug, 1d. (postage ½d.); on mosquitos, 1d. (postage ½d.); on scorpions, etc., 6d. (postage 1d.)—places them within the reach of all.

The stammerer is a source of distress both to himself and to his hearers, and whoever reduces the number of the afflicted or improves in any way the treatment of the affection will indubitably gain the thanks of many. Dr. Ash has written a little book entitled *Stammering and Successful Control in Speech and Action*.[5] It is written for the layman, and "is intended to be a practical guide for the assistance of those unfortunate persons who through weakened control in speech or action suffer the tortures of stammering and the discomforts of various tricks of voice and manner." The book is very simply written and should be understood by any reasonably intelligent layman. It seems, however, unduly prolix, particularly in the earlier chapters; the disquisition on control in general takes a great deal too much room, and seems to crowd out the essential chapters on the treatment of the particular affection. The directions for self-treatment and exercise in speech are clearly and simply set out. The scheme would scarcely fit the case of a child, and it is most desirable to be able to check in children the beginnings of the disorder. With reference to the attempt to benefit the condition by psycho-analysis, not much hope of benefit is held out—in the author's words, "the optimists themselves have always pointed out that at best it inevitably takes a very long time."

In the issue of the *Western Front*[6] for June Mr. Muirhead Bone takes us back to France and shows us some of the ground over which recent fighting has taken place. We have, for instance, a distant view of Vimy Ridge, two others of Lens smoking in the distance, and one of the Loos salient. He gives also a sketch of the site of Thiepval Château, in which the most conspicuous feature is a hole in the foreground admitting to the cellars. There are several sketches of the ruins of Peronne and a striking drawing of the wrecked railway bridge over the Somme.

[5] *Stammering and Successful Control in Speech and Action.* By E. L. Ash, M.D.Lond. London: Mills and Boon, Ltd. 1916. (Post 8vo, pp. 116. 2s. 6d. net.)

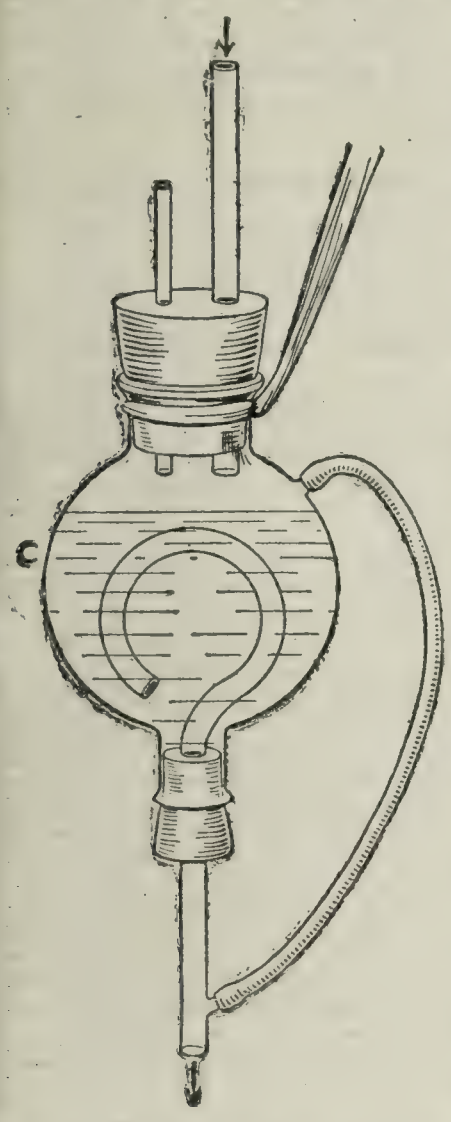
[6] *The Western Front.* Part I, volume 2. Drawings by Muirhead Bone. Published for the Government by *Country Life*, Ltd. (2s. net monthly.)

LIBRARY U. OF I. URBANA-CHAMPAIGN

MEDICAL AND SURGICAL APPLIANCES.

An Automatic Nurse for Carrel-Dakin Fluid.

IN order to secure an automatic feed of the Carrel-Dakin fluid to the tubes laid in a severe case of gunshot wound a method of siphonage has been in use for some months at Bethnal Green Military Hospital.



At first the apparatus was made of tin, but corrosion took place and the tubes became blocked; finally, a small glass bulb, having a circular siphon within, as shown in the diagram, was completed, and with it the flushing action is automatically and aseptically carried on as often as is required.

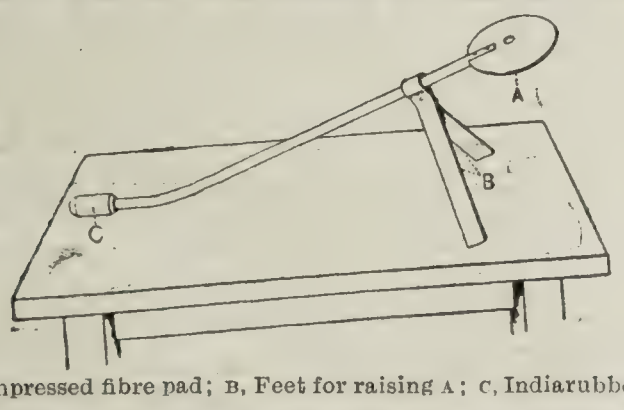
When this is used, the nurse sees that the cistern above the siphon bottle is well supplied and that the regulating clip on the feed tube to the siphon bottle is so adjusted as to only allow the fluid to enter it at a rate which will ensure its removal, say, every two hours.

The side connexion between the globe and the efflux tube is found valuable if an "air-lock" prevents the fluid being discharged. Thus, if an air bubble gets into the curve of the siphon, it may prevent automatic outflow; the fluid then rises higher in the globe and pours down the side track; as it enters the efflux tube it creates a suction, like a Sprengel-pump action, and the siphon at once empties.

The siphon bottle is valuable in saving nurse-power; it is cheap and was originally made by Bell and Croydon, 50, Wigmore Street, on a model prepared by Lieutenant-Colonel Hurry Fenwick.

A Page-turner for Armless Patients.

Dr. A. E. SHIPLEY, Master of Christ's College, Cambridge, writes: One of the great difficulties with which men who have lost both hands have to contend is turning over the leaves of books. I have, with the aid of Captain C. G. M. Hatfield, of the 18th Middlesex, and Mr. Barker, of the Engineering Laboratory, devised a small instrument, one end of which is held between the teeth and the other



A, Compressed fibre pad; B, Feet for raising A; C, Indiarubber cap.

—which is provided with an indiarubber cap—is pressed against the leaf, and with a little practice the leaf can be readily turned over. The instrument is raised on two diverging feet so that one end is lifted off the level of the table and can be easily picked up by the mouth. The metal work is aluminium and the pad for the teeth is made of compressed fibre. These instruments may be obtained of Messrs. S. Maw, Son and Sons, 7–12, Aldersgate Street, London, E.C.1, price 3s. each.

THE second medical congress of Ecuador will be held at Quito from August 1st to 15th, 1917. The first was held at Guayaquil towards the end of 1915.

MEDICAL RESEARCH COMMITTEE.

THE ANTISEPTIC "FLAVINE" (ACRIFLAVINE).

THE following has been officially communicated to the lay press:

The incomplete statements which have appeared from time to time in the press with regard to the antiseptic "flavine" have necessarily led to some misapprehension of the situation by the public. The impression has been created that flavine is a substance of magical potency which can cure infected wounds, and that there has been an unnecessary delay in making supplies of it available for general use. It should be realized that no antiseptic, even a theoretically ideal antiseptic when that is obtained, can ever be more than an adjunct to skilled and thorough surgery. Flavine must be thought of accordingly in relation to the other new antiseptics which have been brought into successful use during the course of the war.

These fall into two main classes. One depends upon the use of chlorine compounds, as in the well-known "eusol" introduced by Edinburgh workers, the similar "Dakin" solution, and the more recent chloramine-T, introduced by Dr. Dakin from the Leeds laboratories. These have wide use in our armies and are now known all over the world. The researches from which these arose and which are still in progress have all been supported from the beginning by Government help through the Medical Research Committee. The second class, to which flavine belongs, includes the elaborate compounds of which most are brilliantly coloured and are used as dyes. From the first month of war special researches have been made among these on behalf of the Research Committee for unrecognized antiseptics of high value. Work at Haslar and at the London Hospital for the Committee showed very early the value of malachite green, and this is giving valuable routine results in naval hospitals and elsewhere. When it was desired to investigate flavine, which was a little known but patented German dye, none was available in this country, and its manufacture requires highly skilled and laborious work. The Committee, however, caused a supply to be specially made in their biochemical department for investigation by Dr. Browning at the Bland-Sutton Institute. His results were first published in January, 1917.[1] Three months previously, however, as a result of the first preliminary experiments, the Committee arranged that preparation should be made for the difficult processes of commercial manufacture, and all the scientific information at their command was made freely available. As a result of this early action they were able to supplement their own supply in use for the experiments and the first clinical trials by a large number of samples, which were sent in April to a selected group of consultant surgeons to the forces, and other responsible surgeons, for the purpose of securing official reports for the guidance of the Admiralty, the War Office, and civilian institutions, whose action could not rest upon any single testimony or any small-scale supply of the antiseptic. It is already clear that the special uses of flavine for particular purposes have still to be carefully defined in relation to other antiseptics and to the operative methods of surgery, to which it can at best only be a valuable aid. While this concerted official study is in progress two or three firms are already preparing for commercial supply to the public. Under our patent law it has been necessary for them to procure licence to manufacture from the Board of Trade. The hearing of applications for licences has already taken place, and it is hoped that licences to manufacture will very shortly be issued by the Board. It is proposed that all the manufacturing firms shall use one and the same name for the substance—a condition which will restrain any firm from securing monopoly privileges by wide advertisement of a fancy name. The Medical Research Committee have proposed for important technical reasons that the substance shall be officially called "Acriflavine" in this country. This will avoid the German name, "Trypaflavin," which is registered as a trade mark, and prevent confusion with an existing vegetable dye already called "Flavine." No doubt the firms concerned will announce at the earliest moment their readiness to supply acriflavine commercially.

During the progress of this work the Committee have more recently put at Dr. Browning's disposal for study a

[1] BRITISH MEDICAL JOURNAL, January 20th, 1917, p. 73.

compound closely allied to acriflavine, which already appears to have identical or even superior properties, and if this be confirmed it will be easier to manufacture, and cheaper for the public. This substance will be officially known as "Proflavine." An early scientific publication will be made on this subject.

The degree of Government support which has been given from the beginning to the researches upon acriflavine and other antiseptics has not always been made a matter of public knowledge. It is proper that financial and scientific help given officially should not diminish in any way the credit due to individual scientific workers or scientific institutions.

BIRTHDAY HONOURS.

IN addition to the long list of nominations to, or promotions in, military orders, published at p. 780, the King on the occasion of his birthday conferred the following honours:

To be a Baronet.

Dr. Frederick Taylor, President of the Royal College of Physicians of London.

To be Knights Bachelor.

Thomas Kennedy Dalziel, Lecturer on Clinical Surgery in the University of Glasgow and Surgeon to the Western Infirmary, Glasgow.

Colonel Robert Jones, C.B., A.M.S., Inspector of Military Orthopaedics.

Herbert F. Waterhouse, F.R.C.S., Surgeon to Charing Cross Hospital and Dean of the Medical School.

Surgeon-General Eugène Fiset, M.D., C.M.G., D.S.O., Deputy Minister of Militia and Defence, Canada.

Dr. Edward Charles Stirling, C.M.G., Professor of Physiology in the University of Adelaide, for his services to science in Australia.

To be C.B.: Lieutenant-Colonel Charles Arthur Johnston, M.B., D.S.O., I.M.S.

To be C.S.I.: Colonel Hormasjee Eduljee Banatvala, I.M.S., Inspector-General of Civil Hospitals, Assam.

To be C.I.E.: Lieutenant-Colonel John Anderson, M.B., I.M.S.(ret.), member of Medical Board, India Office; Lieutenant-Colonel David Waters Sutherland, M.D., M.R.C.P., F.R.S., I.M.S., Principal, Medical College and School, Lahore, Punjab; Captain Harold Hay Thorburn, I.M.S., serving with the South Persia Rifles, Shiraz.

To be C.M.G.: Mr. Thomas Hood, Director of the Medical and Sanitary Service, Nigeria; Dr. Frederick Truby King, Medical Superintendent, Seacliff Mental Hospital, New Zealand.

To be C.V.O.—Mr. Richard Robert Cruise, F.R.C.S., Ophthalmic Surgeon to King Edward VII Hospital for Officers.

The Kaisar-i-Hind Gold Medal has been awarded to Dr. Behari Lal Dhingra, Chief Medical Officer, Jind State; Lieutenant-Colonel Kanta Prasad, I.M.S.(retired), of Rangoon; and Captain Robert Henry Bott, M.B., F.R.C.S., I.M.S., Professor of Surgery, Medical College, Lahore.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

THE annual report presented to the Society for the Relief of Widows and Orphans of Medical Men on May 18th showed that the invested capital of the society amounted to £140,000, and that £4,223 was distributed among forty-eight widows and nine orphans in receipt of grants. The fund provides on an average grants of £50 per annum for widows who also receive from the Brickwell Fund £25 and £10 per annum, if over or under 65 years of age, respectively; orphans receive £15 per annum from the same fund. The Copeland Fund further allowed a grant of £30 per annum to orphans over 16 years of age if suffering from any disability that prevented them earning a livelihood. The Brickwell Fund furnished further special grants to enable orphans to remain longer at school or to enter the medical profession or start in some other career. The working expenses amounted to about 4½ per cent. of the income. While nearly 7,000 medical men were eligible, the membership of the society was barely 300. The President, Sir Alfred Pearce Gould, in his address, urged young medical practitioners to join the society, the annual subscription to which was two guineas, and thus feel that, whatever happened, their widows would not be left penniless. As an example of the great advantages of the society, the report cited the case of the widow and five children of a member, who had paid subscriptions amounting to £16 16s., receiving grants amounting to £200 per annum. Certain alterations in the by-laws were adopted, including one by which the annual subscription will be increased in the case of medical men who join the society after reaching the age of 40. Particulars regarding membership, which is limited to medical men residing at the time of election within a twenty miles radius of Charing Cross, can be obtained from the Secretary, 11, Chandos Street, London, W.1.

ROYAL MEDICAL BENEVOLENT FUND.

AT a meeting of the Committee on May 8th twenty-five cases were considered, and £213 granted to twenty-one of the applicants. The following is a summary of a few of the cases relieved:

Wife, aged 56, of M.R.C.S.Eng. Applicant's husband has been paralysed for twenty-eight years, and the little income he has is insufficient to support them. The wife prior to the war was able to earn as a teacher of music and languages, but cannot obtain pupils at present. Voted £15, and referred to the Guild.

M.R.C.S.Eng., aged 74. Owing to ill health and insufficient means, and the increased cost of living, unable to pay his way. His wife has recently broken her leg. Only income about £100 a year from son and friends. Rent £25. Voted £18 in twelve instalments.

Widow, aged 67, of M.R.C.S.Eng. who died in 1904. Applicant lost the small capital she had through fraudulent executors. Only income now 11s. per week provided by relatives. Pays 5s. 6d. per week rent, and high price of food makes it impossible for her to manage. Voted £12 in twelve instalments.

Widow, aged 46, of M.R.C.S.Eng. who was an annuitant of the Fund. Applicant left without means, and health very much impaired by constant nursing of her husband for eight years. She hopes after a rest to find suitable employment. Voted £5.

Widow, aged 58, of L.R.C.P.Edin. who died in 1902. Applicant was left unprovided for with a young daughter, now aged 19. Both have recently obtained work through the Manchester branch of the Guild, and the prospects are brighter, but they still require a little help to straighten their affairs. Relieved four times, £40. Voted £5.

Widow, aged 41, of M.D.Glasg. who died in 1910. Left entirely without means, and has defective eyesight. In the summer she earns 15s. a week as an attendant. In the winter months has casual employment only. Health very indifferent lately. Relieved twice, £20. Voted £10 in two instalments.

Daughter, aged 62, of L.S.A.Lond. who died in 1874. Owing to ill health and advancing years unable to undertake permanent work. Friends allow her £25 a year. She earns about £5 by sewing. Relieved eleven times, £100. Voted £15 in twelve instalments.

Widow, aged 45, of L.S.A.Lond. who died in 1915. Was left entirely without means with three children. The daughter, now aged 17, is being educated by the Guild. Applicant had post as working housekeeper, but has recently had to give this up. Relieved once, two years ago. Voted £10 in two instalments.

Widow, aged 63, of L.R.F.P.S.Glas. who died in 1899. Applicant left without means, and suffers from chronic rheumatism and sciatica. Manages to earn a little by letting rooms, but not sufficient to live on. Relieved three times, £36. Voted £12 in twelve instalments.

Daughter, aged 58, of L.S.A.Lond. Applicant has to look after invalid father, who is an annuitant of the Fund, and owing to the high price of food finds it difficult to manage. Relieved once, £10. Voted £10 in two instalments.

Daughter, aged 41, of L.S.A.Lond. who died in 1887. Applicant's mother, who has just died, had recently been helped by the Fund. The Guild proposes training applicant as a shorthand-typist, and placing her in a position to earn her own living. Voted £5.

Daughter, aged 51, of F.R.C.S.Eng. who died in 1890. Applicant is a chronic invalid, and unable to undertake any permanent work. Relieved eighteen times, £165. Voted £12 in twelve instalments.

Daughter, aged 51, of M.R.C.S.Eng. who died in 1885. Applicant suffers from neuritis and defective eyesight, and was only able to earn £2 last year. Only other income £20 from sister. Relieved nineteen times, £221. Voted £15 in twelve instalments.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

LIBRARY U. OF I. URBANA-CHAMPAIGN

British Medical Journal.

SATURDAY, JUNE 9TH, 1917.

OFFICERS OF THE TERRITORIAL FORCE À LA SUITE OF A TERRITORIAL GENERAL HOSPITAL.

THE position of the Territorial medical officer who is *à la suite* ("available on mobilization") of a Territorial general hospital, who has accepted the imperial obligation and is in receipt of full army pay, affords a suitable text for reiterating two lessons already drawn in these columns. One is the need for economy on the military as well as on the civil side, and the other for co-operation between the military authorities and representatives of the civil profession and community.

When Sir Alfred Keogh in 1907 organized the Territorial Hospital Medical Service it is quite clear that he contemplated *à la suite* officers having a two-fold function. They were intended to staff a military hospital, but they were to continue to serve the civilian hospital to which they were attached. Moreover, they were still to remain available for private practice. The language of the original memorandum, in which is set forth the position these officers would occupy in war, may not have been very precise; but the interpretation we have given to it correctly represents the belief of the officers concerned and, we make no doubt, the intention of the military authorities also.

At the beginning of the war the wisdom of the establishment of the Territorial Hospital Service was proved. It enabled military hospitals, staffed by competent physicians and surgeons, to be organized with great rapidity in all the chief centres, and so meet the strain of early casualties in the war. But as the magnitude of operations increased, and the need for as many whole-time medical officers for the army as possible became pressing, the question naturally arose whether all the officers *à la suite* of Territorial general hospitals were really essential to the combined military and civil work, or whether some could not be set free for whole-time commissions. When Territorial medical officers were asked to sign the imperial obligation, whereby they undertook to go anywhere and do anything, the *à la suite* officers were included. This was a new departure, for while the whole Territorial force is of course under the War Office, it was not intended that a Territorial officer *à la suite* of a Territorial general hospital should leave his own locality. By signing the imperial obligation an officer placed himself completely under the control of the War Office; thenceforward he could be ordered for foreign service at any time. Thus the War Office can call up any such Territorial *à la suite* officer whenever it thinks fit, without reference to the work he may be doing in his civil capacity, and without communication with those responsible for safeguarding the needs of the civil community.

The Central Medical War Committee had not long been in existence before a case arose in which the impossibility of the position which might thus be produced was demonstrated. In a certain city almost all the active practitioners were Territorial officers *à la suite*. The military authorities suddenly called upon one or two of these men to go elsewhere. The city was a large military centre, and the removal of these officers would have produced serious embarrassment on the military as well as on the civilian side. The Central Medical War Committee approached the Army Medical Department, and obtained a promise that, from this city at all events, no more officers would be removed without consultation with the Committee. The result of this incident, however, has not been sufficient to prevent similar occurrences elsewhere. Recently, as mentioned in a leading article on May 26th, a case occurred in which out of ten members of the staff of a general hospital eight were ordered suddenly to hold themselves in readiness for overseas service at forty-eight hours' notice. This calling up was subsequently cancelled, but the fact that such things can happen in the case of men some of whom, at all events, are indispensable to civilian needs, without previous consultation with any civilian body, at the direction of military authorities who profess that the civilian community is no concern of theirs, is a very serious matter.

We do not propose for a moment to dispute the right of the military authorities to deal with the officers under their command as they see fit, or as the necessities of the situation require. But we do assert that except for the power over them possessed by these authorities—and the fact that they are in khaki and receiving military pay—there is really no difference between the *à la suite* officers and the practitioners now being dealt with by the professional committees. In each instance there are some men who can, so far as the civil community is concerned, be spared, and others who are indispensable. Both classes are engaged in military as well as civil work. Both contain men who are essential to the civil community, which includes persons engaged in civilian industries so essential to the conduct of the war as munition work, engineering, shipbuilding, and coal-mining. In neither case have the military authorities in their possession means to enable them to estimate the civilian needs; but this information is in the possession of the civilian professional committees and can be made immediately available to the military authorities if they are willing to accept it. The only difference between the medical man in the two classes is that in the one case he is already in the army, in the other he is not. This is surely a case for consultation and co-operation between representatives of the two sides. Nor should it be left for a body such as the Central Medical War Committee to receive indirectly information of the calling up of *à la suite* officers in a particular town, and then to make representation about that town. A definite arrangement that no such calling up shall take place without consultation with the professional committee concerned will put the matter on a better footing, and in the meantime will pave the way to much better results for the army. For it would then be possible to ask the professional committees to go systematically through the staffs of hospitals, with a view to finding out how far the civil community can spare the services of some of the *à la suite* officers. Thereafter, co-operation between the military authorities and the civilian representatives would lead to decision as to the most economical procedure.

We said that the position of the *à la suite* officer showed the need for co-operation, and the need for economy. The latter point is one worthy of much thought. No man can do more than a certain amount of work in the day over a long period of time. The officers *à la suite* have, for the most part, their hands full, partly with work in the civilian hospitals, partly with private practice, partly with their work in the

Territorial general and other military hospitals. To make it economical to remove such a man from the work on which he is engaged it must be shown either that he will be able to do even more work in the army than he is now doing, or that there is an adequate supply of practitioners in the town with sufficient time and skill to carry on his work in his absence. Now in the recent case to which we have referred the removal of eight out of ten of the hospital staff would have left a large civilian community almost without specialist assistance. Moreover, the remaining practitioners, even if they possessed the special knowledge, had not the time to carry on the civilian work; there is no evidence to show that any of the eight were doing unnecessary work; and, finally, it seems clear that by no possibility could they do more work in the army than they are doing at present for the soldier and the civilian. There is no doubt that some whole-time medical officers would have had to be sent down to deal with the large military hospitals in the area. From all the evidence that has been brought before us we cannot help thinking that instead of eight men doing a full day's work, partly civil and partly military, there would have been sixteen men engaged to do whole-time work for the army, some in the town and the rest somewhere else, but in fact none of them doing a full day's work, while the remaining civil practitioners in the town would have struggled with the increased work thrown upon them by the withdrawal of the eight *à la suite* officers.

The fact is that economy in the use of medical manpower is an urgent matter which should be investigated by the military authorities and the civil representatives in close consultation. The use of civil medical practitioners for military work is on a footing very similar to that of the use of Territorial officers *à la suite*. The cases of two large towns have been brought to our notice where a number of medical men under 41 cannot be taken for the army owing to the existence of large military hospitals. The task of staffing these hospitals in addition to attending to the needs of part of the civil community gives each of these men a very full day's work. There are not enough men over 41 to do both the civil and the military work; and such as exist are already working to their full capacity. The War Office might say "Give us the men under 41, and we will make arrangements for the military hospital work." But once again it is almost certain that this would result in twice the number of men to do work in the army, with an increased burden on the men over military age who remain in civil practice. Moreover, the question is complicated by the fact that the withdrawal of all men under 41 will leave the area insufficiently staffed as regards men skilled in special directions.

With the fuller co-operation which we have urged so frequently, it would be possible to find some method of dealing with the urgent problems involved. The actual position is that, while in the majority of cases it is difficult for the army doctor to find a full day's work to do, it is becoming increasingly difficult for the civil doctor, however long his day, to do the work that falls on him. It is easy to say that every sacrifice should be made by the civilian, but the civilian community is already on very short commons. If it be true that the bulk of the R.A.M.C. are decidedly underworked, then, even if some modification of peace time establishment is needed, it is for the Army Medical Department to consider what modifications are po[illegible]e. Such consideration cannot be thorough witho[illegible]presentation of the civilian side, and so far there i[illegible] evidence that the Army Medical Department is in the habit of consulting any authoritative civilian body. Military economies are absolutely necessary, and all the evidence leads to the conclusion that it is in this country that they must first be practised. The staffing of hospitals is, perhaps, the most urgent question at the moment, and the position of the Territorial officer who is *à la suite* of a Territorial general hospital is a suitable subject for early consideration.

MILITARY ORTHOPAEDICS AND THE AMERICAN UNIT.

COLONEL T. H. GOODWIN, A.M.S., the medical member of Mr. Balfour's mission, took over with him a request that the United States of America should lend us some orthopaedic surgeons to work in military orthopaedic hospitals in the United Kingdom. This request was very cordially received, and General Gorgas, Surgeon-General of the United States army, placed the work of organization in the hands of Dr. Joel E. Goldthwait of Boston, who at once went to Washington and associated with himself Dr. W. G. Erving of Washington. From this central situation these two surgeons set to work to communicate with other leading orthopaedic surgeons in the United States, and so cordial were the individual responses that within three weeks a unit, consisting of twenty surgeons, in addition to the director and assistant director, was fully organized and all but one member had sailed, the last man being detained for a few days by a pressing engagement at home. These surgeons (see p. 779), all of whom are commissioned in the United States Reserve—the Director, Dr. Goldthwait, and the Assistant Director, Dr. Erving, with the rank of major, thirteen other seniors with the rank of captain, and seven juniors with the rank of lieutenant—are paid by the United States War Office, which has placed their services fully and freely at the disposal of the British Director of Medical Orthopaedics, Sir Robert Jones.

The quickness of the response of the United States, the friendly spirit in which the whole scheme has been carried through, and the generous scale on which the arrangements have been made will profoundly touch the heart of this country. We are told that the medical units—the orthopaedic unit and six general hospitals—form the first contribution to the prosecution of this war of liberation which America found itself in a position to make, and so soon as the need was declared the help was given. The promise that if more help is needed in either direction it will be forthcoming will be fulfilled in the same spirit.

A distinguished surgeon some two years ago, when the need for the application of orthopaedic principles to the treatment of the men returning from the war zone first began to attract attention, said that it seemed that the military orthopaedists claimed half of military surgery for their department. If he had said that the claim was for half the military surgery at home he would probably not have been far wrong, and it is being recognized more and more that the application of these principles should begin at a very early stage. The word "orthopaedic" is an adaptation from the French *orthopédie;* the earliest authority Murray gives for this word is 1747, and for the English words "orthopaedy" (*ὀρθός*, straight; *παιδεία*, rearing of children) and orthopaedic, 1840. No doubt the primary meaning was the correction of deformities in children, but Murray notes that it has been extended to mean the correction of bodily deformities in general. That this took place at an early date is rather strikingly shown in Le Gros Clark's translation of Dupuytren's lectures on *Injuries and Diseases*

LIBRARY U. OF I. URBANA-CHAMPAIGN

of Bones.[1] In speaking of what the surgeon should do when in consequence of fracture the ends of the bone assume an altered and defective relation to each other, he asks whether the surgeon should leave this evil tendency to work its own mischief, involving as it does a disagreeable deformity and curtailing the use of the limb, or whether he ought not to make some effort to remedy the defect by re-establishing the normal direction of the limb. And he answers that "there exists considerable analogy between the deformities resulting from fracture and those which are attributable to other causes. It is well known how much benefit is derived from orthopaedic means in this latter class of affections; and if vicious curvatures of many years' standing may be corrected without inconvenience, how much rather may we anticipate the same desirable results, by the employment of analogous means, where the deformity does not date longer than a few weeks back, and is only maintained by a newly formed structure, which does not attain to the same consistence with bone until after the lapse of a very long time." If we add to this the lesions of joints, which no doubt Dupuytren had in mind, although his subject did not lead him specifically to mention them, it is seen how large a field there is for the application of orthopaedic principles in military surgery.

We have asked Major Goldthwait—than whom there could be no better authority—what he understands by the term "orthopaedics," and his reply is: "Orthopaedics with us has to do with 'the diseases or lesions of the bones, joints, and muscles, and deformities.' At one time it was expected to devote itself to the deformities, but now it is recognized that the treatment of the disease or special lesion that is causing the deformity is the most essential feature. For that reason the treatment of a rheumatic or rheumatoid condition is as essential as the treatment of the joint manifestation. The same is true of the deformities due to nerve injuries. Military orthopaedics is not different from civil orthopaedics, except in the greater prevalence of trauma as the cause of the lesion." Those who turn back to the remarkable article on military orthopaedic hospitals contributed to this JOURNAL by Dr. Colin Mackenzie on May 26th last will see how nearly Major Goldthwait has packed Dr. Mackenzie's doctrine into a definition.

The treatment of men who have sustained compound fractures of the bones, with or without involvement of joints, raises many difficult problems, surgical and administrative. Among the most severe injuries a man can receive and survive is a gunshot wound fracturing the femur, especially anywhere in the upper third. He is at once rendered helpless, and for a week or ten days runs peril of his life from the many wound infections by which he may be assailed. If he escapes this he must undergo a long course of treatment—probably three months—before the bones have consolidated sufficiently to make it possible for him to do much for himself. In an article published at p. 777 of this issue some account is given of the attempts which German surgeons have made to deal with the transport of these cases at the earlier and later stages. These notes will not teach British surgeons anything, for the methods used in the British armies, founded upon Thomas's principles, are superior to any described in the German publications available; but the article may help to give an idea of the difficulties encountered in dealing with the problem of fractures in this situation. The administrative problems have to do not only with the transport of the wounded man from the front to the base, but also with the selection of the proper place in which to treat him until the fracture is united. There must be continuity of highly skilled treatment if the best results are to be obtained. That the best results should be obtained is of the highest importance not only to the wounded man himself, but to the country. The number of these severe cases of fracture of the thigh is very considerable, and a man with a malunited fracture of the femur will probably always remain unable to engage in any active pursuit. Somewhat similar considerations apply to fractures of the humerus high up, although the difficulties are diminished by the fact that the man can move about. In both cases continuity of treatment is of the first importance.

[1] London: Sydenham Society, 1847.

BIRTHDAY HONOURS.

THE Birthday Honours list is a very long one, and contains a large number of distinctions conferred upon medical officers, regular or temporary, for services rendered in the field or in connexion with the war. An exception—if it is to be reckoned an exception, for he has been an active member of the Central Medical War Committee and the Committee of Reference—is the baronetcy conferred upon Dr. Frederick Taylor, President of the Royal College of Physicians, which will give great satisfaction to his colleagues, pupils, and friends. The knighthood conferred upon Colonel Robert Jones, who received the C.B. at the new year, is not an exception, for it is a further recognition of the fine work he has done, as Director of Military Orthopaedics, in the organization of this great new service, appreciation of the immense importance of which has steadily grown during the past year. He has also been at the same moment the recipient of a very high compliment from America, since the rapidity and cordiality shown in organizing the American orthopaedic unit of twenty-one surgeons to serve under his instructions is a compliment not only to his eminence as a surgeon but to his qualities as a man. Surgeon-General Eugène Fiset, on whom the honour of knighthood is conferred, was long an officer on the permanent staff of the Canadian Army Medical Corps. He went with the first Canadian contingent to South Africa, serving throughout the war and being taken prisoner. For his services at Paardeberg he received the D.S.O. In 1905 he became Director-General of Medical Services, Canada, but in 1907 he took over the work of the deputy Minister of Militia during the illness of the incumbent of that office; after that minister's death he succeeded to the post, Sir Eugène Fiset's place as Director-General being taken by Surgeon-General Carleton Jones. Sir Eugène Fiset was largely responsible for the organization of the Canadian contingent sent to take part in the present war. The honour of knighthood is also conferred upon Sir Thomas Kennedy Dalziel, who is lecturer on Clinical Surgery in the University of Glasgow, and surgeon to the Western Infirmary; on Sir E. C. Stirling, C.M.G., professor of physiology in Adelaide University, at one time lecturer on the subject at St. George's Hospital and a well known authority on the anthropology of Central Australia; and on Sir Herbert Waterhouse, surgeon to Charing Cross Hospital and Dean of the school, who has recently returned after serving for nearly a year with the Anglo-Russian hospitals in Russia. Of the military honours the first to catch the eye is the promotion of Sir Arthur Sloggett, K.C.B., Director-General with the British armies in France, already C.M.G., to be K.C.M.G. The same honour is conferred upon Surgeon-General Tom Percy Woodhouse, C.B., who was the D.M.S. of the original expeditionary force, and now holds the onerous and exacting office of D.M.S. of the lines of communication, and upon Surgeon-General Francis Treherne, C.M.G., who was D.M.S. in Mesopotamia during the

reorganization of the medical arrangements of the expeditionary force there. The other recipient of this honour is Colonel Robert Neil Campbell, C.B., I.M.S., who was in command of the Pavilion Military Hospital for Limbless Soldiers, Brighton. Lieutenant-Colonel P. J. Freyer, who is made K.C.B., retired from the Indian Medical Service some years ago, but has long been consulting surgeon to Queen Alexandra's Military Hospital, Millbank. Soon after the war began he became consulting surgeon to the Indian Hospitals at Brighton, and afterwards consulting surgeon to the Eastern Command, with charge of the county of Sussex. The same honour has been conferred on Colonel James Magill, A.M.S., who served with the Guards Camel Regiment during the Nile campaign of 1885, and was severely wounded at Abu Klea. He also served during the South African war. A full list of all the other distinctions conferred will be found at pages 770 and 780.

THE FRENCH ARMY MEDICAL SERVICE.

MENTION was made in these columns on May 19th (p. 657) of an official decree (May 11th) defining the relation of the French Service de Santé (Army Medical Service) to other branches of the Army. Regulations under this decree, made by the Under Secretary of State in consultation with the Commander-in-Chief, have now been issued. In each Army a medical officer, with the title Chef Supérieur du Service de Santé, is now a member of the head quarters staff to act as technical adviser in direct collaboration with the general commanding. He will elaborate with the general officer all measures concerning the army medical administration, and, in particular, the use and allocation of all medical units, and the arrangements for evacuation. All the reserves of medical personnel and sanitary material are at his disposition and he has permanent authority to issue orders in the name of the general commanding. A similar organization has been established for each Army Corps, for each Division, and for the lines of communication; further, a médecin major de 1re classe is attached to each railway transport officer at all the main stations and junctions to exercise medical control over all ambulance trains, and to keep in touch with the medical officers of the advanced formations. We learn from an article published by Dr. L. Mourier, deputy, and member of the Army Commission, in *Le Journal*, that serious defects in the handling of wounded men were disclosed during the French offensive last April, and that notice of various interpellations in both Chambers were given. The matter was fully considered by the Army Commissions of the two Chambers, which, after hearing the Minister and the Under Secretary of State for sanitary affairs in the War Ministry, recorded its regret that the military authorities had not in the thirty-third month of the war taken steps to ensure that the wounded French soldiers received the care and early surgical treatment they had earned. The failures which then occurred are attributed to a defective system. In addition to the steps already mentioned, it is intended that in the office of the Under Secretary for sanitary affairs in the War Office there shall be a chief of the medical staff, who will act as a connecting link between the generalissimo in the field and the minister. The chief of medical personnel at general head quarters in the field is to have authority also over all military medical buildings and over the means of evacuation. The general object of the reforms is to give the Army Medical Service the same position in the army and the same control of its own personnel and material as the artillery or the engineers. It is urged that the Army Medical Service should have its own engineer service for the making of dug-outs, or erecting protection for advanced medical posts, and for preparing sites for hospitals and building the huts. Further, the whole service of motor ambulances should be directly under the control of the divisional medical officers, and, where necessary, special light railways should be laid down solely for the use of the medical service, the transport of its material, and the evacuation of wounded. It appears that serious delays occurred recently in evacuating wounded from the Soissons and Rheims areas, the ambulance trains being held up for as long as thirty-six hours owing to the single line railway being encumbered by supplies for other branches. We do not gather that all these reforms have yet been accomplished, but it appears that there is a strong public feeling in France in favour of their application.

GERMAN IDEAS OF HUMANITY.

AN example of the flapdoodle on which German editors, and through them the German public, are fed is afforded by a paragraph which appeared in our sedate contemporary, the *Deutsche medizinische Wochenschrift*, a short time ago. The editor seems to have been supplied with a version of a speech delivered by Lord Newton in the House of Lords on February 22nd, which led him to suppose that Lord Newton had said that the British civilians interned at Ruhleben were being well treated. What Lord Newton really said was that they were not being so badly treated as before and that they were no worse treated than the military prisoners. The improvement, he added, was not due to any action on the part of the German Government, but rather to its inaction and to the British prisoners being allowed to organize the camp on their own lines and so to make their existence more tolerable. The hardships the British prisoners suffered in Germany were, he said, enormous. Lord Newton also said that a certain number of British interned prisoners over 45—110 out of 650 at Ruhleben—did not desire to leave Germany. The editor of the *Deutsche medizinische Wochenschrift* thinks that after Lord Newton's speech we ought to stop criticism of the German ways of treating prisoners. This we should be very glad to do, but if we are to stop criticism it can only be when the Germans learn to treat their prisoners decently. Of this we have as yet little or no evidence, but, unfortunately, a good deal of evidence the other way. There is, for instance, the statement corroborated by the American Ambassador in Berlin, referring to November, 1915, showing that the German guards kept ferocious dogs in certain internment camps (in Wittenberg for one), and that these animals were allowed and encouraged to attack the prisoners, many of whom were badly bitten. Official protests have been made, but to them German authorities turn a deaf ear, and so recently as last December stated that the use of dogs had been shown to be a military necessity, and that they considered it was "impossible to regard this measure as a breach of the principles of humane and reasonable treatment of prisoners." Then, again, there is the more recent evidence taken from Australians captured on April 11th, a few of whom have escaped back into the British lines. They were first of all robbed by Uhlans; they were given one loaf between four or five men a day, and the French sympathizers who tried to get bread to them were brutally handled. Finally, for five days and six nights, 110 men lived in a room 50 ft. by 20 ft., with a tiled floor, and without any sanitary conveniences except a barrel, and fed upon one slice of bread, some fermented mangolds, and two cups of coffee a day; 240 others who were sent to work at a dump were given a daily ration of a third of a loaf, and a stew of horseflesh, with a little barley. Not only is forced labour on insufficient diet the lot of military prisoners, but they are deprived of their overcoats during the Russian winter, and sent to work within the zone covered by our own or the Russian artillery. This last iniquity the Germans have at length consented to stop. But the Kaiser himself is reported to have said, in a speech made during his recent visit to the Arras front, that British prisoners were to be treated with the utmost severity. Then there is the treatment of the deported Belgians and the forced labour imposed upon the inhabitants of

LIBRARY U. OF I. URBANA-CHAMPAIGN

occupied territory in France. All the world has now seen the facsimile of the notice of July 20th, 1915, signed by Gross, Colonel and Commandant, posted in Holnon, a place about four miles north-west of St. Quentin, and in twenty-five surrounding villages. It is stamped with the Kaiser's arms and the legend, "Etappen-Kommandantur." It directs that all workmen, women, and children aged 15 shall work in the fields every day, Sundays included, from 4 a.m. to 8 p.m. The punishment for laziness was to be internment in barracks during the harvest and afterwards six months' imprisonment, every third day on bread and water. Lazy children and also lazy men were to be beaten with sticks. But we have not thought it necessary to record all the evidence of German misconduct towards prisoners and others in their power. We have been interested chiefly to publish enough evidence to let the indifferent understand that the conduct by which German doctors in official positions have disgraced medicine is execrated by the medical profession of this and all other civilized countries.

PRACTICES IN WAR TIME.

WE wish to direct the attention of readers to two articles in this week's SUPPLEMENT, which describe the manner in which local medical effort has attempted to deal with professional problems arising out of the war. The first is a description of the central medical office and consulting rooms set up in Dundee in order to assist a diminishing staff of practitioners to carry on practice. Dr. R. C. Buist explains the working of the scheme, and indicates the success which has been achieved. The other is an account of a scheme devised by the North Staffordshire Division of the British Medical Association for the insurance of practices of medical men during war time and throughout the period of upheaval which is sure to be associated with demobilization. This scheme is to some extent tentative, and discussion of it is invited by its originators.

THE TREATMENT OF WAR NEUROSES.

IN a recent lecture Professor L. Mann[1] gave a survey of the progress made during the war in the treatment of war neuroses. He and the majority of his colleagues had begun on conservative lines—that is, they had prescribed rest in bed, a full diet, gentle hydrotherapy and electrotherapy, and sedatives. The results had not been encouraging. The purely neurasthenic manifestations had, indeed, often reacted so satisfactorily that after weeks or months in hospital the patients had been able to return to garrison duty or even active service. But well defined psychogenic or hysterical phenomena, manifested in paralysis, contracture, cramp, astasia, tremor, and so on, were scarcely benefited by these conservative measures. The narcotics hyoscine, morphine, opium, chloral and bromides, were practically useless. Wilmanns found that, under such conservative treatment, only 5 per cent. again became fit for active service, whereas 64 per cent. had to be discharged from the army. Subsequent investigations had shown that of these discharged patients 75 per cent. were either just as ill or worse than before. Mann and others had been equally unsuccessful. Turning to the treatment by hypnosis, he quoted the startling results claimed by Nonne of Hamburg, who alleged that 65.4 per cent. of patients suffering from "gross hysteria" were cured or relieved of their symptoms, and that of these 29.5 per cent. had been cured in one sitting. Nonne's claims had subsequently been reduced to cures in 50 per cent., but even this was a brilliant result. Nonne was convinced also that his results could be permanent, for some of his patients had endured the fighting about Verdun and the Somme for months without a relapse. Yet Mann found this treatment applicable only in a few cases. Its effectiveness depended largely on the personality of the physician, and few patients and still fewer physicians were qualified to undergo or practise it. Mann then discussed at length Kaufmann's method[2] of combined suggestion and severe electrical shocks. He endorsed it heartily with a few reservations. He referred to the cruelty of the torture inflicted, and admitted that there had already been two deaths under this treatment. In both cases an enlarged thymus had been found at the necropsy. He thought, however, that deaths could be avoided by better technique, notably by the use of the faradic current only.

[1] *Berl. klin. Woch.*, December 11th, 1916.

MILITARY HOSPITALS IN THE FUTURE.

WE are informed that the War Office has decided to make an immediate but strictly limited trial of the scheme for organizing hospital units contained in the pamphlet by Lieut.-Colonel Sir James Kingston Fowler, K.C.V.O., on the *Medical and Nursing Services of the Imperial Army*,[3] to which reference was made in these columns on May 26th (p. 692). Circumstances having necessitated an increase in the hospital accommodation for the armies in the various theatres of war, it has been determined that one of the additional units required may be raised from amongst the medical men educated at a single hospital in London who have not yet been able to serve abroad for various reasons, or, having already done so, desire to renew their engagements for a further period. The Middlesex Hospital has been selected for the trial, and Sir James Fowler has undertaken to form a "mobilization centre" as described in his pamphlet, in connexion with it. This is not to be regarded as in any sense affording a test of the value of the scheme as a whole, which is one obviously intended to come into operation at the outbreak of a war. More than 400 Middlesex men are known to be now, or to have been some time during the war, serving as officers R.A.M.C., and other hospitals have an equally good record. The officers of this new unit will all be Middlesex men, the matron, sisters, and nurses will have been trained at that hospital, and the V.A.D.'s will be selected from families connected with the hospital, but the orderlies will be men now serving with the R.A.M.C. The unit will be known as The Middlesex No. — General Hospital. No undertaking will be given that the personnel of this unit will not be detached to other units, as the exigencies of the service may render such a proceeding necessary. The unit will be raised for general service, and will be sent to any of the various theatres of war at which it may be required. It follows that the officers, nurses, and others must all be fit for general service, and engagements will be for the duration of the war. No applications from Middlesex men now serving abroad for transfer to this unit will be considered except under special circumstances. We are asked to add that communications connected with this unit should in the first instance be addressed to Lieut.-Colonel Sir James K. Fowler at the Middlesex Hospital, or, in the case of nurses and V.A.D.'s, to the Matron of the Middlesex Hospital, Mortimer Street, London, W.

SOME AMERICAN OYSTER-BEDS.

THERE is a widespread opinion that even during the oyster season the oyster is a rather dangerous article of food, prone to give rise to enteric fever, and therefore better avoided unless well cooked. This view is, we hope, wrong and calumnious, thanks to the care now constantly exercised by those responsible for the purity of the beds from which oysters are supplied in this country. But it has not always been so; nor is it always so in other

[2] BRITISH MEDICAL JOURNAL, December 23rd, 1916.
[3] Macmillan and Co., London. 3d.

countries, as is shown in a recent *Public Health Bulletin*[1] issued by the Treasury Department of the United States of America. Here are recorded the investigations of the pollution of tidal waters about Maryland and Virginia, with special reference to areas bearing oysters and clams. The researches were carried out in a service steamer fitted as a floating bacteriological laboratory and oyster dredger combined. The area investigated included half a million acres of oyster-producing bottoms. Nearly twelve hundred samples of oysters were collected from various suspected and representative parts of this area, together with samples of the water from just over the oyster beds visited. The bacteriological examination consisted in estimations of the numbers of *B. coli* per c.c. of this water and of the liquor taken from inside the shells of five or more oysters. The *B. coli* determinations were made by the use of lactose peptone broth, confirmed on Endo's medium, instead of lactose bile. The lactose broth tubes were kept at 37° C. for forty-eight hours; smears from all tubes showing gas and from the next highest dilution were made upon Endo's plates. Other details of the laboratory routine are enumerated, and are described by the medical officer in charge as, in spite of their limitations, the most trustworthy yet suggested. The general conclusion reached is that the oysters of Chesapeake Bay and its tributaries are a safe food as a whole. About half of 1 per cent. of the oyster bed area investigated showed serious pollution with *B. coli*, but it is added that a large part of the polluted area had been voluntarily abandoned by the lessees, or had been closed by the authorities, and was not being worked. Only thirty-four of the samples of oysters collected contained sufficient *B. coli* to give "a score" of fifty or more, fifty being at present generally considered the limit of safety from the bacteriological standpoint; exactly how the score is calculated is not apparently stated. The author of the *Bulletin* expresses the hope that this report will have two good effects. In the first place, it should reassure the American public as to the general safety of eating the oysters it is offered in the market. In the second place, it will facilitate the work of the local, State, and United States authorities in identifying the polluted oyster beds, and in remedying the pollution and condemning the areas so long as they remain a source of danger. Instances are quoted in which the investigations have already led to joint and effective action in this direction by the Federal and State Governments concerned. The *Bulletin* contains a great deal of information of both local and general interest, and is well illustrated with maps of the areas investigated.

THE AMERICAN PHILOSOPHICAL SOCIETY.

MR. ARTHUR BALFOUR has been unanimously elected a member of the American Philosophical Society. The society has no honorary members, and Mr. Balfour's election took place under a rule of the society which has very seldom been put into force. It provides that a foreign member may be specially honoured in this way on the unanimous recommendation of the officers and council, ratified at the next subsequent meeting of the society by a unanimous vote. The society originated in Benjamin Franklin's "Junto," which he established in 1727, when he was only 21. It was organized formally under its present name in 1743. The rules were modelled by Franklin, its first president, on the traditions of the Royal Society, and it has always recognized the humanities broadly interpreted to include philology, archaecology, statecraft, and law. The society has had a remarkable series of European members elected under the ordinary rules, including from Great Britain Sir Joseph Banks, Dr. Fothergill, Edward Jenner, John Hunter, Dugald Stewart, Sir Charles Lyell, Mr. Gladstone, the four Darwins, Sir William Ramsay, and Lord Bryce. At the meeting at which Mr. Balfour was elected, when the president, Dr. W. W. Keen of Philadelphia, who is now in the tenth year of his occupancy of that office, was in the chair, a memoir of Sir William Ramsay was read by the secretary.

[1] *Investigation of the Pollution of Tidal Waters of Maryland and Virginia, with Special Reference to Shellfish-bearing Areas.* By H. S. Cumming, Treasury Department, United States Public Health Service. Public Health Bulletin No. 74, March, 1916. Washington: Government Printing Office. 1916. (Med. 8vo, pp. 199; illustrated.)

"GHOSTS."

IT is a sign of the times that there are now running in London two plays which deal with the subject of venereal disease. Even four years ago such a thing would have seemed impossible, and thirty-six years ago, when *Ghosts* was received with a storm of violent abuse, few could have foreseen how public opinion would change towards it. The reason is mainly to be found in the propaganda work which led to the appointment of the Royal Commission on Venereal Diseases. Of *Ghosts*, which is now running at the Kingsway Theatre, it is well to remember, in the words of Edmund Gosse, that "the author does not pose as a moral teacher, but as an imaginative investigator. He often, and with much heat, insisted that he was not called upon as a poet to suggest a remedy for the diseases of society, but to diagnose them." The unrelieved gloom of the final situation leaves the spectators with the feeling that Ibsen only intended to put the problem before them in its most dramatic form, leaving its solution to them if they were equal to it. The acting is good, notably in the parts of Mrs. Alving and Pastor Manders. It is a pity, however, that *Ghosts* is advertised as "the great forbidden play," though there was nothing in the manner of the audience to suggest that they came in any prurient spirit.

AT a meeting of the Section of Medicine of the Royal Society of Medicine, at 1, Wimpole Street, on Tuesday next, at 5.30 p.m., Major Aldo Castellani will give a lecture and lantern demonstration on tropical diseases to which the allied troops are exposed in the Balkanic zone. Since the operations in Macedonia commenced Major Castellani has spent a good deal of time in the Balkans, going as far forward as Monastir. But his main work was concerned with the investigation of malaria in the Struma Valley and the institution of prophylactic measures, a task for which his long experience and brilliant original researches in tropical diseases so specially fitted him. He is now in this country in connexion with the work of the interallied sanitary conference, of which he is a member.

WE announced a fortnight ago that American medical men on war duty in this country were invited to make use of the library of the British Medical Association, 429, Strand, London, W.C., which is open from 10 a.m. to 5 p.m., and on Saturdays to 2 p.m. We are asked to state that the Royal Society of Medicine offers similar facilities at its house (1, Wimpole Street, London, W.), and invites these officers to attend the meetings and demonstrations held by the various sections of the Society at the times announced in the weekly medical journals. This is an extension of the invitation already given to medical members of the British Overseas Contingents. The Society's house, which provides writing, conference, smoking, tea, and dressing rooms, as well as a library for reading and reference, is open every day, except Sunday, from 11 a.m. to 6.30 p.m. The Secretary of the Society, Mr. J. Y. W. MacAlister, also offers to help officers of the British Overseas and American Contingents who may be abroad in any practicable way possible—as, for instance, by sending information on any subject in which they are interested. Cards for suspension, displaying the nature of the facilities offered, can be obtained on application to Mr. MacAlister.

LIBRARY U. OF I. URBANA-CHAMPAIGN

THE WAR.

TRANSPORT OF GUNSHOT FRACTURES OF THE THIGH:

GERMAN SPLINTS AND METHODS.

THE question of the transport of cases of fracture of the thigh has been dealt with by Perthes, Colmers, Rogge, Thöle, Vulpius, and others. Perthes discussed three sets of conditions: (1) Those in the West, where the relatively stationary Feldlazarett was only a few miles behind the trenches; (2) where there was lack of plaster, or lack of time at the Feldlazarett; and (3) the Eastern front, where a transport of many miles was necessary before a stationary hospital could be reached. (1) In the condition first named a provisional splint was applied at the dressing station, the extension splints of v. Hacker, the Lange splint and straw splints were preferred. Peiser's and Rummel's splints were also recommended.

Hacker's splint[1] was an external wooden splint, reaching from the waist to about six inches below the foot. A strong nail was driven into each end, and well padded bandages or strips of clothing passing round the perineum and ankle were tied over these after the limb had been forcibly extended. The knee was fixed by bandages above and below. This splint was stated to immobilize well and to exercise some extension; the latter, however, rapidly diminished, owing to the limited elasticity of the bandage. Anschütz modified this splint, using a piece of wood 130 cm. long, 10 cm. wide, and ¾ cm. thick, with notches at the extremities, over which the bandages were tied. Under vigorous extension the splint bent slightly, and thus became elastic, and exercised a continuous extending force, which could be further increased by tying bandages to the ends of the splint and knotting them tightly on its outer side. The splint could also be improved by inserting a spiral spring between the foot and its lower end.

Peiser's splint[2] was made of Cramer's splint material (parallel iron wires with cross-wires), and consisted of a pelvic ring, to which was attached anteriorly a splint 8 cm. wide, passing down the front of the limb as far as the middle of the leg, with a slight forward convexity at the patella. A second splint, attached to the ring posteriorly and 10 cm. in width, passed down the back of the

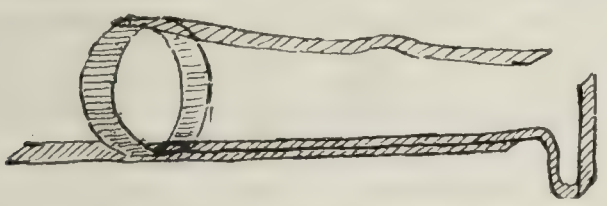


FIG. 1.—Peiser's splint.

limb as far as the heel, where it made a sharp bend backwards and then forwards beneath the sole. This part of the splint was doubled from the heel to the pelvis in order to give additional strength. The several parts were tied together with string at the points where they overlapped, to prevent shifting. The limb was first padded, the splint placed in position, and a bandage applied starting from the foot. Windows were provided by cutting away the transverse wires.

Rummel's splint[3] consisted of three pieces of Cramer's wire splinting. Two of these, which overlapped at the knee, formed a long posterior splint extending from the angles of the scapula to the sole; the lower of the two extended to the middle of the thigh, was bent at an angle of 150 degrees at the knee, and had a backward curve at the heel; the upper of the two reached below to the middle of the calf, was bent at an angle of 150 degrees at the knee, and superiorly was modelled to fit the thigh and back. The two were fixed together by string at their overlapping part, and together formed a double inclined plane with an angle of 150 degrees. The third piece of splinting was bent so as to form a support to the double plane, to which it was fastened by string. The measurements required—namely, from the sole to the bend of the knee, and from the latter to the tuber ischii—were taken on the sound limb, flexed almost to a right angle at knee and hip. In order that good extension should be provided,

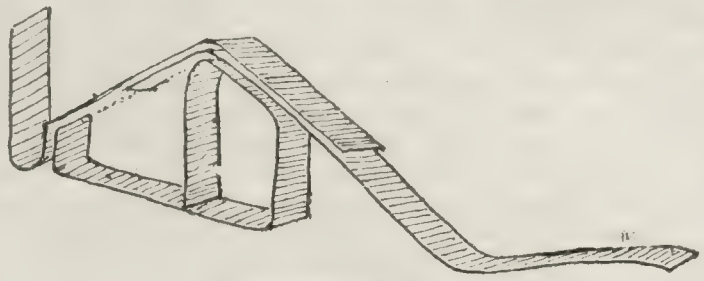


FIG. 2.—Rummel's splint.

the thigh plane was made about 5 cm. longer than the leg plane. The back and gluteal regions needed to be well padded. An anterior plaster splint could be readily added, including the leg and thigh, and gave great firmness for long transport.

Lange's splint in its original form was intended for use in civil practice.[4] It consisted of a piece of band iron 36 mm. wide and 2 mm. thick, to act as a posterior splint reaching from thorax to foot, and furnished with a foot-plate. To give the iron the necessary rigidity it was hammered so that it was arched, instead of linear, in transverse section. From three to six narrower transverse pieces of soft iron were fixed to this, and could be modelled with the hand to the varying circumference of the limb.



FIG. 3.—Lange's splint, original form.

Further, instead of ordinary padding, a layer of felt was fixed to the iron framework, that lining the transverse pieces extending somewhat beyond the metal, and being furnished with buckles. The splint was applied over the patient's clothes.

In the modified form, for military purposes, Lange replaced the felt by cardboard. Felt was not always obtainable, and the cardboard, if cut into large pieces and sewn to the iron splint, exercised a more diffused pressure, and was moreover readily replaced if it became soiled. Short straps with buckles were attached to the extremities of the transverse bars, or, if these were not obtainable, string served the purpose. The original straight form was further modified by an angular bend of 150 degrees at the knee and hip, thus producing a double inclined plane, and additional transverse bars were added.

In its final form, therefore, the splint consisted of a long posterior iron splint reaching from thorax to foot, provided with a foot-plate, and bent at an angle of 150 degrees at knee and hip. To this were attached seven transverse bands of soft iron (one for thorax, one for pelvis, three for thigh, and two for leg), and beneath these were placed three broad pieces of cardboard—one for the hinder and lateral aspects of the leg, one enveloping the thigh, and one

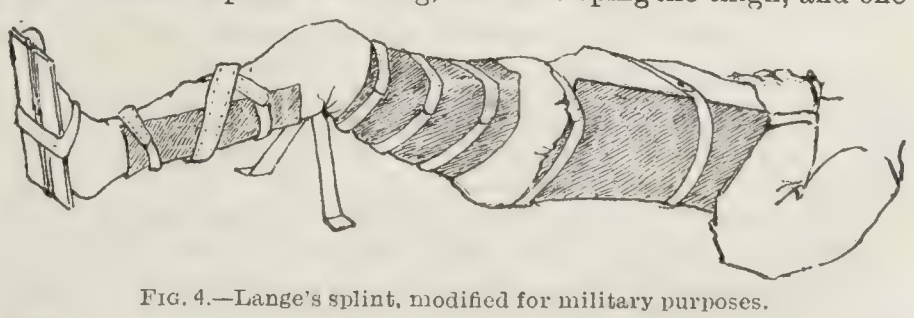


FIG. 4.—Lange's splint, modified for military purposes.

for the loins and lower parts of the thorax. To support the inclined plane at the knee a piece of band iron bent into the form of an inverted V was used. Patients were apt to complain of discomfort from the extending force at first. If this continued, the force could be reduced by inserting a thick pad between the hinder surface of the pelvis and the splint. If the extending force were insufficient it could be increased by placing a pad between the splint and the calf.

[1] *Muench. med. Woch.*, 1914, Feld Beil., No. 51; and Bruns's *Kriegschir.*, Heft 4, p. 551.
[2] *Muench. med. Woch.*, 1915, No. 23, p. 794.
[3] *Muench. med. Woch.*, 1915, No. 48, p. 1656.
[4] *Muench. med. Woch.*, 1914, No. 33, p. 1826; and Ibid., 1915, No. 5, p. 164.

The straw-plaster bandage[5] was thus applied. Padding having been applied and held in place with an ordinary bandage, straw was laid lengthwise on all sides of the limb. Into this layer of straw, which should not be too thick, a paste of plaster of Paris was thickly spread and at the same time modelled to the limb, the foot always being included in the mass. While the plaster was still moist an ordinary bandage was roughly applied. A window could be cut out at once if necessary. If this bandage were carried up as high as the ribs, especially anteriorly, the immobilization obtainable was equal or superior to that of any other appliance. Some stated, however, that strengthening with pieces of wood or cardboard was necessary. The merit claimed for this straw splint was that it was easily applied.

Whichever of these splints was applied in the first instance it was replaced at the Feldlazarett by the plaster bandage. Since abscesses were liable to form beneath the plaster around the wound, and were not always indicated by a rise of temperature, it was necessary to make the window large, and it was best not to cut it out, but to exclude the space by means of a ring of cardboard, or the like, while applying the bandage. The window was planned with a view to assisting the surgeon into whose hands the case would subsequently pass; otherwise large accumulations of fetid pus might be found when the bandage was removed. For large, and especially for infected, wounds the *Bügelgipsverband* (hoop bandage) was considered much superior to the ordinary circular plaster bandage. In describing this bandage, Colmers stated "that it must from the outset be so planned that not only are the wounds uncovered, but that a sufficiently large area of the wounded limb is left exposed to enable operative measures to be carried out. The bandage can be used even at the dressing stations. Hoop iron can be found at every village blacksmith's, and the farrier of the division can rapidly give it the recognized form and fix transverse bars. It is possible with this hoop in the bandage to leave the entire thigh uncovered. The plaster bandages must be prepared shortly before use, and plenty of alum must be used, so that the large circular window may be cut out without delay and the case immediately transported.

"2. When there was lack of plaster at the Feldlazarett or insufficient time to apply the plaster bandage, the provisional splints mentioned above were made use of for the longer transport.

"3. When the initial transport was one of many miles, as on the Eastern front, it was most desirable that the plaster bandage should be applied at the dressing stations. It had been objected that this was not possible, that the surgeons at those stations had neither the time nor the material. This, however, was contradicted by the experiences in certain sections and was merely a matter of organization. Some surgeons, however, objected to the use of plaster at the dressing stations, even for the lengthy transport on the Eastern front. These objections might possibly be due, to some extent, to the unfortunate results following the unskilful application of the plaster bandage. The fact had evidently been widely overlooked that it required considerable skill and experience; and Vulpius even suggested that a good surgeon was not necessarily a good plaster technician."

Thöle discussed the question of transport under mobile and stationary conditions separately; in the latter the Feldlazarett had the character of a stationary hospital, and the problems of lengthy transport did not arise. For the initial transport he made use of a modification of Weissgerber's extension splint.

This consisted of a wooden splint 140 cm. long with a small board attached at right angles to its lower end. The splint, which was applied to the outer side of the limb, was perforated in four places for straps to pass round the leg, thigh, and pelvis. Extension was provided by means of a spiral spring 5 cm. long, fixed at one end to the board and at the other end to a piece of string tied to a figure-of-eight bandage round the ankle and foot. The other end of the string was twisted round two nails driven into the splint, so that the tension could be graduated. A perineal band passing to the upper end of the splint acted in counter extension. In applying the splint the perineal band was first arranged; the string passing through the upper ring of the spiral spring was then drawn upon until the required extension was obtained, and the end twisted

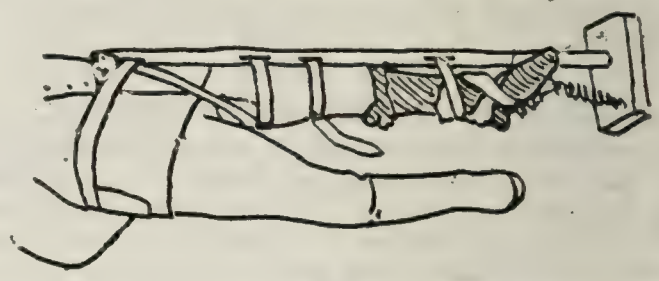


FIG. 5.—Thöle's modification of Weissgerber's extension splint.

round the nails and tied. Thöle claimed that this splint was easy of application, gave good fixation, and exerted a continuous extension which prevented longitudinal displacement. In discussing some of the provisional splints before mentioned he said that he had not found Lange's splint satisfactory, and expressed the opinion that the straw splints gave hardly sufficient fixation. He regarded Bruns's modification of Thomas's splint as good, but its cost was greater and it was more cumbersome than the Weissgerber splint.

If no splints were obtainable at the dressing station an improvised inclined plane was used, or the stretcher itself was employed as a splint. In the latter case the strap of a knapsack was passed round the foot, through the lowest ring of the stretcher pole and then across to the opposite pole, where it was fixed. A second strap passing to the head end of the pole acted as a perineal band, while a third fixed the limb at the knee by a figure of eight turn round knee and pole.

The Weissgerber splint was applied at the front dressing station. In stationary trench warfare when the Feldlazarett was practically a stationary hospital, no lengthy transport was to be anticipated. It was therefore unnecessary to change the splint at the main dressing station. In mobile warfare, on the other hand, when immediate transport from the Feldlazarett was to be expected, it was necessary that it should be changed either at the Feldhospital or the main dressing station, since the perineal band could not be tolerated beyond two days. It was, if possible, replaced by the plaster bandage, and it was very desirable that this should be applied at the main dressing station; otherwise, in the congested condition of the Feldlazarett, the case might have to be transported in disregard of the twelve to twenty-four hours' observation required to make sure of the satisfactory application of the bandage and of the possibility of the occurrence of spreading infection or haemorrhage.

For the transport from the Feldlazarett to the home hospital a plaster bandage including the pelvis was employed, the limb being fixed in a position of semiflexion. How far reposition of the fragments should be attempted was a matter of dispute; some deprecated any vigorous measures to effect this, others considered that exact reposition should be aimed at, others that it was sufficient if the broken ends were brought into a position in which they would cause no further damage to the soft parts. A short period of observation was desirable, as before mentioned, after the application of the bandage, but some surgeons made a rule of deferring the application of the bandage for two to three days in order to make sure of the absence of spreading infection.

If sufficient time were lacking at the Feldlazarett to apply the bandage, or if multiple large wounds rendered its application impossible, the case was transported in the Weissgerber's splint, provided the transport was of no more than two days' duration. For longer transport or where the duration of transport was uncertain, a modification (Fig. 7) of Rummel's extension splint was made use of. This was constructed out of the so-called Cramer's splint—stout wires connected by cross wires (Fig. 6).

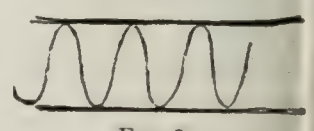


FIG. 6.

"A splint of this material, 1 metre long, modelled to the sole and hinder surface of the leg, but with a considerable backward curve carrying it away from the heel, is bent at an angle of 150 degrees at the knee, and reaches up to the middle of the back of the thigh. This is pro-

[5] *Muench. med. Woch.*, 1915, No. 13. Bruns's *Kreigschir.*, Heft 4, 1915, p. 548 and 553.

LIBRARY U. OF I. URBANA-CHAMPAIGN

onged to the angles of the scapulae by a second splint eaching from the middle of the calf and modelled to the parts. Support is provided for the double inclined plane hus formed by a piece of splint bent into suitable shape. The sound limb is made use of for modelling the several parts of the splint. To obtain good extension the length of the thigh plane must be 5 cm. more than that of the leg plane. The trunk acts as the extending force. A circular band, made of connected pieces of wire splint, is fixed round the pelvis, and a plaster splint is modelled to the



FIG. 7.—Thöle's modified Rummel splint, with anterior straw-plaster splint for leg and thigh.

front of the limb from the dorsum of the foot to the pelvis, or, instead of this, two lateral splints are employed. To dress the wound it is only necessary to remove the latter, the limb remaining fixed on the inclined plane. If a wound is present on the hinder surface of the thigh, it is necessary merely to cut away some of the transverse wires of the splint to form a window. A chaff cushion is placed beneath the dorsal part of the splint." Thöle considered this superior to Peiser's splint, which he also commends.

The spiral plaster bandage is not mentioned by these authors. Rogge, describing this bandage, stated that it was necessary in the first place to plan out the exact course that the spiral was to take on the limb. The wounds were to be avoided and if possible the seat of fracture should be left accessible to palpation. In order that extension might

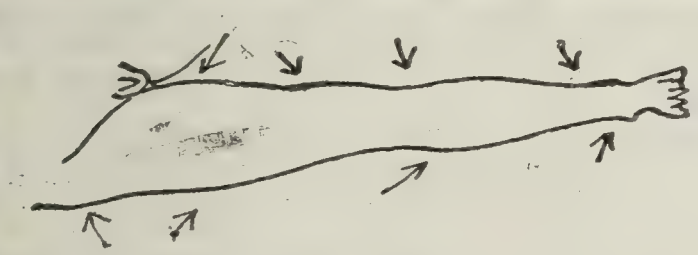


FIG. 8.

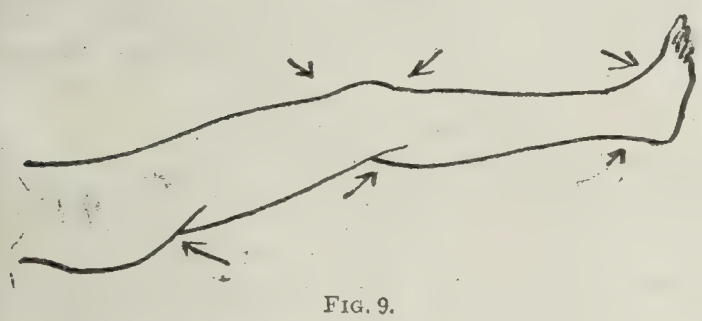


FIG. 9.



FIG. 10.—Spiral plaster bandage.

be secured it was necessary to arrange the spirals so that they bore on the prominences of the limb (Figs. 8 and 9). The points for downward pressure were above the heel, above the malleoli, the calf, above the inner condyle of the femur, and above the patella; for upward pressure, more especially the inner side of the thigh and the tuber ischii.

A pad somewhat broader than the plaster bandage was first laid on the limb, and over this the plaster bandage itself, working from the foot upwards. When a sufficient thickness had been applied a wooden splint, 6 to 15 cm. broad and 2 cm. thick, smeared with vaseline, was placed on the outer aspect of the limb, and the plaster spiral carried over it. The splint was made to project 10 to 20 cm. beyond the plaster at either end. Extension was now applied manually, and the positions assumed by the turns of the spiral were retained by strings previously passed round them and tied to the upper and lower ends of the splint, which was notched for this purpose. The foot was always included in the bandage, and the knee preferably slightly flexed. If a wound lay in the position of the splint either the spiral turns were thickened so that the splint was separated from it, or an internal splint was applied.

This bandage required considerable technical ability in its application, and considerable time; but it was stated to afford good fixation with extension, a displacement of 8 cm. being readily reducible.

AMERICA'S CONTRIBUTIONS.

THE AMERICAN ORTHOPAEDIC UNIT.

THE following are the members of the orthopaedic unit formed by the Surgeon-General of the United States Army, with the advice of Majors Goldthwait and Erving, for service in this country. All the members of the unit are placed at the disposal of Colonel Sir Robert Jones, Inspector-General of Military Orthopaedics, and all have arrived in this country with the exception of Dr. R. W. Johnson, who is expected in a few days. The first thirteen members whose names follow that of Major Erving in the following list, are all well-known orthopaedic surgeons, have been duly enlisted in the United States Reserve, and given the rank of captain. The remaining seven, who are of somewhat junior standing and have in some instances been acting as assistants to the seniors, are also enlisted officers in the United States Reserve, with the rank of lieutenant.

Major J. E. Goldthwait, *Director*, Boston, Mass.
Major W. G. Erving, *Assistant Director*, Washington, D.C.

Dr. C. R. Metcalf, Concord, N.H.
Dr. W. I. Baldwin, San Francisco, Ca.
Dr. A. R. MacAusland, Boston, Mass.
Dr. De Forest P. Willard, Philadelphia, Pa.
Dr. H. Winnett Orr, Lincoln, Neb.
Dr. S. M. Cone, Baltimore, Md.
Dr. M. S. Danforth, Providence, R.I.
Dr. C. F. Eikenbary, Spokane, Washington.
Dr. J. C. Graves, junr., Spokane, Washington.
Dr. Rhoades Fayerweather, Baltimore, Md.
Dr. F. C. Kidner, Detroit, Mich.
Dr. C. B. Francisco, Kansas City, Mo.
Dr. Wallace Cole, St. Paul, Minn.

Dr. R. C. Abbott, San Francisco, Ca.
Dr. Mitchell Langworthy, Chicago, Illinois.
Dr. Lewis Cass Spencer, Johns Hopkins Hospital, Baltimore, Md.
Dr. H. A. Durham, N.Y. Orthopaedic Dispensary and Hospital.
Dr. Custis L. Hall, Washington, D.C.
Dr. R. Wallace Billington, Nashville, Tenn.
Dr. Robert W. Johnson, junr., Baltimore, Md.

THE HOSPITAL UNITS.

During the last two weeks we have given some account of the organization of the hospital units which have been arriving in rapid succession in this country from the United States. The sixth has now arrived, and is proceeding to France. Its official title is U.S.A. Army Hospital No. 12. It consists of officers, nurses, and men recruited in Chicago. The three administrative officers from the medical corps of the regular army who are at the head of it are Major C. C. Collins, commanding, Captain J. C. Magee, adjutant, and Captain J. A. Porter, quartermaster. The professional director is Major Frederic A. Besley, associate professor of surgery at the North-Western University, and with him as medical and surgical assistant directors respectively are Major Milton Mandel and Major Kellogg Speed. The staff includes eight captains and twelve first lieutenants in the medical reserve corps, and two first lieutenants in the dental reserve corps. The hospital company is mainly from the University of Chicago and the North-Western University in Chicago, with a few from other schools.

HONOURS.

ON the occasion of his birthday the King has conferred the following honours and awards for distinguished services rendered in the field and elsewhere in connexion with the war:

To be K.C.B.

Military.—For services rendered in connexion with the war: Colonel James Magill, C.B., M.D. (ret. pay); Lieutenant-Colonel Peter Johnston Freyer, C.B., M.D., I.M.S. (ret.).

To be C.B.

Military.—For services rendered in connexion with the war: Surgeon-General George Welch, R.N.; Fleet Surgeon John Menary, M.D., R.N.; Colonels Charles Robert Tyrrell, A.M.S. (ret. pay); Douglas Wardrop, C.V.O., M.B., A.M.S. (ret. pay); temporary Colonel James Galloway, M.D., F.R.C.P., F.R.C.S., A.M.S.; Lieutenant-Colonel and Brevet-Colonel Sir Bruce Gordon Seton, Bt., I.M.S.; Surgeon-Lieutenant-Colonel Sir Warren R. Crooke-Lawless, C.I.E., M.D. (ret. pay), R. of O. (employed R.A.M.C.); Surgeon-Lieutenant-Colonel (honorary Surgeon-Colonel) Richard James Reece, M.D., H.A.C.; Major and Brevet-Lieutenant-Colonel (temporary Brigade-General) Auckland Campbell Geddes, M.D. (Unattached List).

For military operations in the field: Colonels Roger Kirkpatrick, C.M.G., M.D., A.M.S.; Charles Henry Burtchaell, C.M.G., M.B., A.M.S.; John Joseph Gerrard, M.B., A.M.S. Temporary Colonel William Henry Willcox, C.M.G., M.D., F.R.C.P. Lieutenant-Colonels (temporary Colonels): George Washington Brazier-Creagh, C.M.G. (ret. pay), late R.A.M.C.; Hugh Stanley Thurston, C.M.G., R.A.M.C.

Civil.—For services rendered in connexion with the war: Temporary Surgeons-General Sir William Macewen, M.D., R.N., and George Robertson Turner, F.R.C.S., R.N.

To be K.C.M.G.

For services rendered in connexion with military operations in the field: Surgeons-General Sir Arthur Thomas Sloggett, K.C.B., C.M.G., K.H.S.; Francis Harper Treherne, C.M.G.; Tom Percy Woodhouse, C.B.

For services rendered in connexion with the war: Colonel Robert Neil Campbell, C.B., C.I.E., I.M.S.(ret.).

To be C.M.G.

For services rendered in connexion with military operations in the field:—Colonels: Alfred William Bewley, A.M.S.; Courtenay Clarke Manifold, C.B., M.B., I.M.S.; Denis Moriarty O'Callaghan, A.M.S.; Reuter Emeric Roth, D.S.O., A.A.M.C. Lieutenant-Colonels (temporary Colonels): Frederick James Greig (ret. pay), R. of O., late R.A.M.C.; John Colpoys Connor, M.B., R.A.M.C. Lieutenant-Colonels: Andrew Hosie, M.D. (ret. pay), late R.A.M.C.; George Scott, M.B. (ret. pay), late R.A.M.C. Temporary Lieutenant-Colonel Arthur Dawson Milne, M.B., East Africa Medical Service. Major (temporary Lieutenant-Colonel) R. J. Campbell Thompson, D.S.O., R.A.M.C.

For services rendered in connexion with the war:—Fleet Surgeon George Thompson Bishop, R.N. Colonels: Charles Alfred Hodgetts, C.A.M.C.; Reginald Jeffrey Millard, A.A.M.C. Lieutenant-Colonels: Joshua Chaytor-White, M.D., I.M.S. (ret.); David Harvey, M.D., R.A.M.C.; William Thornborough Hayward, A.A.M.C.; Thomas Ernest Victor Hurley, A.A.M.C.; John Norman MacLeod, C.I.E., M.B., F.R.C.S., I.M.S. (ret.); Francis Frederic Perry, C.I.E., F.R.C.S., I.M.S. (ret.); Sidney Browning Smith, I.M.S.; Terence Humphreys Sweeny, F.R.C.S.I., I.M.S. (ret.). Temporary Honorary Lieutenant-Colonel Mervyn Henry Gordon, M.D., R.A.M.C. Majors: Patrick Stanislaus O'Reilly, R.A.M.C.; George Alfred Duncan Harvey, R.A.M.C. Temporary Major Archibald Douglas Reid, R.A.M.C.

Promotions.

To be Surgeon-General: Colonel (temporary Surgeon-General) W. W. Pike, C.M.G., D.S.O., F.R.C.S.I.

To be Brevet Colonels: Lieutenant-Colonel S. L. Cummins, C.M.G., M.D., R.A.M.C.; Lieutenant-Colonel (temporary Colonel) G. T. K. Maurice, C.M.G., R.A.M.C.

To be Brevet Lieutenant-Colonel: Major P. H. Henderson, D.S.O., M.B., R.A.M.C.

To be Brevet Majors: Captain D. M. Corbett, M.B., R.A.M.C.; Captain (acting Lieutenant-Colonel) B. Johnson, M.B., R.A.M.C.; Captain H. F. Panton, M.C., M.B., R.A.M.C.

To be honorary Lieutenant-Colonel: Quartermaster and honorary Major J. B. Short, R.A.M.C.

To be honorary Major: Quartermaster and honorary Captain E. J. Buckley, R.A.M.C.

D.S.O.

Lieutenant-Colonels (temporary Colonels): John Donald Alexander, M.B., R.A.M.C.; Arthur Winniett Nunn Bowen, R.A.M.C.; Peter MacKessack, M.B., R.A.M.C.; Standish de Courcy O'Grady, M.B., R.A.M.C.; Malcolm MacGregor Rattray, M.B., R.A.M.C.; Constantine T. C. de Crespigny, A.A.M.C.; William Weston Hearne, A.A.M.C.; Robert Beveridge Huxtable, A.A.M.C.

Lieutenant-Colonels (acting Colonels): James Geoffrey Gill, R.A.M.C., and Henry Herrick, R.A.M.C.

Lieutenant-Colonels: Harold John Kinahan Bamfield, I.M.S.; Harry Nairn Butler, A.A.M.C.; Harold Benn Fawcus, C.M.G., M.B., R.A.M.C.; Robert L. Girdwood, S.A.M.C.; Gerald Hamilton Goddard, R.A.M.C.; William Belfry Hendry, C.A.M.C.; Cyril Henry Howkins, R.A.M.C.; Chester Fish McGuffen, C.A.M.C.; John Douglas McQueen, C.A.M.C.; Edward W. P. V. Marriott, R.A.M.C.; Arthur Hamilton Tebbutt, A.A.M.C.; Charles Perry Templeton, C.A.M.C.; Herbert Wynne Vaughan-Williams, S.A.M.C.; Anthony Henry Waring, R.A.M.C.; Edward Johnston Williams, C.A.M.C.; Edwin Arnold Wraith, R.A.M.C.

Temporary Lieutenant-Colonel David Dale Logan, M.D., R.A.M.C.

Majors (temporary Lieutenant-Colonels): David Ahern, R.A.M.C.; Benjamin Howard Vella Dunbar, M.D., R.A.M.C.; George Herbert Leonard Hammerton, R.A.M.C.; Harold Crossley Hildreth, F.R.C.S., R.A.M.C.; John Matthews, R.A.M.C.; John Edward Powell, R.A.M.C.; Thomas P. Puddicombe, M.B., R.A.M.C.; Henry Rogers, M.B., R.A.M.C.; David Rorie, M.D., R.A.M.C.; Hugh Stewart, M.C., M.B., R.A.M.C.; Richard Melbourne West, M.D., R.A.M.C.; Thomas James Wright, R.A.M.C.

Major (acting Lieutenant-Colonel) Robert Norman Pringle, S.A.M.C.

Majors: Roland Harley Bridges, R.A.M.C.; George Cumming Byrne, A.A.M.C.; George Edwards Cole, A.A.M.C.; William Angus Fraser, A.A.M.C.; George Ernest Gask, F.R.C.S., R.A.M.C.; Raymond Meyers Gorssline, C.A.M.C.; Edward Temple Harris, M.B., I.M.S.; John Stephen Jenkins, C.A.M.C.; Cyril Leslie S. Macintosh, A.A.M.C.; James Sydney Pascoe, R.A.M.C.; John Duncan Richmond, M.B., R.A.M.C.; George Faber Sheehan, R.A.M.C.; Samuel Boylan Smith, M.D., R.A.M.C.; Thomas D. Macgregor Stout, N.Z.M.C.; Roy William W. Walsh, A.A.M.C.; Charles Henry Watson, I.M.S.; Herbert Locksley St. V. Welch, A.A.M.C.; Walter John Weston, R.A.M C.

Temporary Major (temporary Lieutenant-Colonel) Edward Lake Gowland, M.B., R.A.M.C.

Captains (acting Lieutenant-Colonels): Henry King Dawson, M.D., R.A.M.C.; Philip Gordon Moss Elvery, M.C., R.A.M.C.; Alexander Donald Fraser, M.C., M.B., R.A.M.C.; Archibald Smith Littlejohns, R.A.M.C.; G. Mackie, R.A.M.C.; Robert Magill, M.B., R.A.M.C.(S.R.); Charles Reade Monroe Morris, M.B., R.A.M.C.; Kenneth Duncan Murchison, M.B., R.A.M.C. (S.R.); Arthur Drought O'Carroll, M.B., R.A.M.C.; Gerald Hoey Stevenson, M.B., R.A.M.C.; Murray Ross Taylor, M.D., R.A.M.C.(S.R.); Alan Geoffry Wells, R.A.M.C.

Captain (temporary Major) Richard Stopford Taylor, M.B., F.R.C.S., R.A.M.C.

Captains: Francis Casement, M.B., R.A.M.C.; John Golding, R.A.M.C.; Hyman Lightstone, M.C., R.A.M.C.; Arthur Hunter Powell, A.A.M.C.; Arnold Newall Thomas, M.B., I.M.S.

Temporary Captain (acting Lieutenant-Colonel) Lawrence Drew Shaw, R.A.M.C.

Temporary Captains: Phillip Henry Bahr, M.D., R.A.M.C.; James Jameson Dwyer, R.A.M.C.; John Richardson Marrack, M.C., M.B., R.A.M.C.; Robert Bruce Wallace, M.B., R.A.M.C.

Lieutenant Nilkranth Skriram Jatar, I.M.S.

Second Lieutenant (temporary Captain) Marcus Beresford Heywood, M.D., Yeomanry.

Awarded the Military Cross.

Captains: L. B. Baird, R.A.M.C.; J. H. Bayley, R.A.M.C. (S.R.); R. A. Broderick, R.A.M.C.; A. E. Bullock, R.A.M.C.; J. M. A. Costello, R.A.M.C.; G. Dalziel, R.A.M.C.(S.R.); W. T. Gardiner, R.A.M.C.; W. George, R.A.M.C.; R. H. M. Hardisty, C.A.M.C.; P. Hartley, R.A.M.C.; A. S. Heale, R.A.M.C.; L. H. W. Iredale, R.A.M.C.(S.R.); A. C. C. Johnston, C.A.M.C.; D. R. King, R.A.M.C.(S.R.); J. C. Metcalfe, R.A.M.C.; J. R. Mitchell, R.A.M.C.; H. W. F. Mitchell, A.A.M.C.; R. E. U. Newman, R.A.M.C.; M. W. Paterson, R.A.M.C.(S.R.); G. S. Robinson, A.A.M.C.; D. J. Scott, R.A.M.C.; C. F. Searle, R.A.M.C.; O. Teichmann, R.A.M.C.; C. T. Turner, A.A.M.C.; W. G. Turner, C.A.M.C.; F. L. Wall, A.A.M.C.; L. T. Whelan, R.A.M.C.; J. St. G. Wilson, R.A.M.C.

Surgeon-Captain E. G. Storrs, Rhodesian Medical Service.

Temporary Captains: G. O. F. Alley, R.A.M.C.; J. H. Box, R.A.M.C.; J. V. Brown, R.A.M.C.; L. G. Brown, R.A.M.C.; E. R. C. Cooke, R.A.M.C.; N. J. H. Gavin, R.A.M.C.; D. Hardie, R.A.M.C.; J. T. Hurst, R.A.M.C.; A. Jones, R.A.M.C.; D. Kelly, R.A.M.C.; G. N. Lorimer, R.A.M.C.; J. T. McKenzie, R.A.M.C.; R. P. McNeill, S.A.M.C.; H. Moore, R.A.M.C.; A. S. Plant, R.A.M.C.; R. A. W. Proctor, R.A.M.C.; W. K. A. Richards, R.A.M.C.; A. D. Sharp, R.A.M.C.; A. V. Short, N.Z.M.C.; H. S. Sugars, R.A.M.C.; C. G. Sutherland, C.A.M.C.; W. B. Wamsley, R.A.M.C.

Lieutenant R. Ellis, R.A.M.C.(S.R.).

Sergeant-Major A. Kaufman, R.A.M.C.

Yuzbashi Wadia Effendi, Tanuis Ghusn Medical Corps, Egyptian Army.

MENTIONED IN DISPATCHES.

The following additional medical officers are included in the lists contained in Sir Douglas Haig's dispatch as deserving of special mention.

AUSTRALIAN IMPERIAL FORCE.

Staff.

Colonels: G. W. Barber, D.S.O.; A. Sutton, C.M.G.

Lieutenant-Colonel (temporary Brigade General) W. W.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Hearne; Lieutenant-Colonel (temporary Colonel) R. B. Huxtable.
Majors: L. W. Jeffries, D.S.O., J. J. Nicholas.

Army Medical Corps.
Colonel R. E. Roth, D.S.O., V.D.
Lieutenant-Colonels: H. N. Butler, J. Corbin, C. T. C. de Crespigny, H. S. Stacey, A. H. Tebbutt, M. L. Williams (died of wounds).
Majors: A. S. D. Barton, G. C. Byrne, J. P. Kenny, E. F. Lind, G. W. Macartney, C. L. S. Macintosh, C. W. Thompson, M.C., R. W. W. Walsh, H. L. St. V. Welch, A. M. Wilson.
Captains: M. J. Holmes, A. O. Howse (temporary Major), N. E. B. Kirkwood, J. McCusker, I. Morgan, A. H. Powell, S. A. Railton, H. O. Teague (killed), G. C. Willcocks.

CANADIAN FORCES.
Staff.
Lieutenant-Colonel C. P. Templeton, C.A.M.C.
Majors: R. M. Gorssline and J. S. Jenkins, C.A.M.C.

Canadian Army Medical Corps.
Colonel J. T. Fotheringham, C.M.G.
Lieutenant-Colonels: K. Cameron, J. M. Elder, C. F. McGuffen, J. D. McQueen, G. R. Philp, G. H. Wilson, C. F. Wylde.
Majors: A. T. Bazin, P. G. Bell, C. H. Dickson, A. L. C. Gilday, G. S. Mothersill.
Captains: T. H. Bell, H. Buck, J. C. Clarke, A. W. M. Ellis, D. B. Kennedy, C. Kerr, W. G. Lyall, A. McCausland, R. R. McClenahan, H. R. Mustard.
Lieutenant (temporary Captain) A. F. Laird, M.D.

NEW ZEALAND FORCE.
Head Quarters Staff.
Lieutenant-Colonel (temporary Colonel) D. J. McGavin, M.D., F.R.C.S., N.Z.M.C.

Medical Corps.
Lieutenant-Colonel J. Hardie-Neil.
Major T. D. M. Stout, F.R.C.S.
Captain W. G. Borrie, M.B.

SOUTH AFRICAN CONTINGENT.
South African Medical Corps.
Major (acting Lieutenant-Colonel) R. N. Pringle, M.B.
Temporary Major C. M. Murray, M.B.

INDIAN ARMY.
Indian Medical Service.
Colonel C. C. Manifold, C.B., M.B.
Lieutenant-Colonel H. J. K. Bamfield.

Among the names received too late to be included under their respective units are those of Captain (temporary Lieutenant-Colonel) D. B. Chiles-Evans, D.S.O., R.A.M.C. S.R. (killed), and Captain J. R. N. Warburton, R.A.M.C. S.R.

FOREIGN DECORATIONS.

The following medical officers are included in the list of officers upon whom the Allies have conferred decorations for distinguished services rendered during the course of the campaign:

ITALY.
Order of St. Maurice and St. Lazarus.
Cavalier: Lieutenant-Colonel William Weston Hearne, A.A.M.C.

Order of the Crown of Italy.
Commander: Surgeon-General William Grant Macpherson, C.B., C.M.G., M.B., K.H.P.

Silver Medal for Military Valour.
Captain Howard Hampton Burnham, C.A.M.C.
Temporary Captains Hugh Noel Murray Puckle, M.B., R.A.M.C., Maitland Scott, R.A.M.C., and Charles McMoran Wilson, M.C., M.D., R.A.M.C.

The bronze medal for military valour has been conferred upon eight non-commissioned officers and privates of the R.A.M.C., and also upon two privates of the Colonial Medical Corps.

FRANCE.
Croix de Chevalier.
Surgeon-General E. Fiset, Canadian Permanent Force.
Lieutenant-Colonel A. E. Le Bel, C.A.M.C.

Légion d'Honneur—Croix de Guerre.
Colonel S. Macdonald, C.M.G., A.M.S.
Lieutenant-Colonel H. B. Fawcus, C.M.G., M.B., R.A.M.C.
Captain S. J. Linzell, R.A.M.C.
Temporary Captains: R. W. P. Jackson, A. G. Maitland-Jones, V. M. Rich, A. G. H. Smart, R.A.M.C.

RUSSIA.
Order of St. Anne, First Class (with Swords).
Surgeon-General Menus William O'Keefe, C.B., M.D.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN W. G. CUMMINGS, R.A.M.C.(T.F.).

Captain William Gordon Cummings, R.A.M.C.(T.F.), whose death was recorded in our issue of last week, was reported as killed in action in the casualty list published on May 30th. He was 36 years of age, was a native of Dungannon, co. Tyrone, and was educated at Queen's College, Belfast. He graduated M.B., B.Ch., and B.A.O. of the Royal University of Ireland in 1903, and subsequently obtained the D.P.H. After acting as resident medical officer of the Richmond Hospital, Dublin, he settled in practice twelve years ago at Hanwell, and was a member of the Ealing Division of the British Medical Association. He joined the R.A.M.C. Territorial Force in January, 1915. In a letter to Mrs. Cummings informing her of the instantaneous death of her husband, the A.D.M.S. of his division wrote: "He was struck by a shell which exploded in the dug-out in which he was attending to the wounded. I feel his loss deeply, as he was an officer of whom I had formed the highest possible opinion, and on whom I placed the greatest reliance. He was always cheery under the most adverse circumstances. Such an officer the R.A.M.C. can ill afford to lose."

LIEUTENANT R. W. W. VAUGHAN, R.A.M.C.

Lieutenant Robert William Walter Vaughan, R.A.M.C., killed in action on May 22nd, was the only son of the late Rev. T. W. Vaughan, Vicar of Rhuddlan and Rural Dean of St. Asaph. He was educated at University College, London, taking the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1908, and graduated M.B., B.S.Lond. in 1910. After acting as house-surgeon of Cardiff Infirmary, he became assistant medical officer of the Banstead Asylum, Sutton, Surrey, a post which he held till he recently took a temporary commission in the R.A.M.C.

Died on Service.

CAPTAIN B. R. BAKER, C.A.M.C.

Captain Basil Rupert Baker, Canadian Army Medical Corps, died at Chatham House Annexe, Ramsgate, on May 9th, aged 39. He was the youngest son of the late Rev. Charles Coryndon Baker, D.D., of Newnham Rectory, Hook, Hampshire.

CAPTAIN S. D. RATNAGAR, I.M.S.

Captain Sorab Dhunjibhoy Ratnagar, Indian Medical Service, died of enteric fever at Dera Ismail Khan on April 25th, aged 32. He was born on September 7th, 1884, educated at the London Hospital, and took the Scottish triple qualification in 1911. Entering the I.M.S. as lieutenant on July 27th, 1912, he was promoted to captain on July 27th, 1915.

Wounded.

Major N. J. Bullen, Australian A.M.C.
Captain F. M. Hughes, R.A.M.C. (temporary).
Captain W. J. J. Lawson, R.A.M.C.(T.F.).
Captain G. Thomson, R.A.M.C. (temporary).
Captain F. R. Thornton, M.C., R.A.M.C. (temporary).
Lieutenant L. C. G. Bacon, R.A.M.C. (temporary).
Lieutenant T. Burrett, R.A.M.C. (temporary).
Lieutenant and Quartermaster W. J. C. Merriman, R.A.M.C.

DEATHS AMONG SONS OF MEDICAL MEN.

Carless, Hugh Dobbie, Second Lieutenant Gordon Highlanders, younger and only remaining child of Professor Albert Carless, F.R.C.S., King's College Hospital, London, temporary Lieutenant-Colonel R.A.M.C., died of wounds on April 24th, aged 19. He was educated at St. Clare School, Upper Walmer, and at Westminster School, where he was a King's scholar, and just before the war began had entered at Trinity College, Cambridge, intending to take orders. He enlisted in the London Scottish in November, 1914, and after serving for eight months in the ranks, received a commission in the Gordons. He went to the front in May, 1916, was wounded in July, and returned to the front last January. His elder brother, Lieutenant A. W. B. Carless, Middlesex Regiment, died of wounds received in the battle of Loos in September, 1915.

Dunwoody, John Miles, Second Lieutenant Royal Dublin Fusiliers, only son of Dr. Dunwoody, of Ramsgate, reported

as missing, believed drowned, in the loss of the transport *Transylvania* on May 4th, aged 20. His commission was dated April 9th, 1915.

Ezard, Herbert Henry, Second Lieutenant, attached Royal Flying Corps, accidentally killed while flying at an aerodrome in the West of England on May 30th, aged 25. He was the elder son of Dr. E. H. Ezard, honorary secretary of the Cambridge and Huntingdon Branch of the British Medical Association, was educated at Abraham Colfe's School, Lewisham, and subsequently went to Canada. He returned to England with the Canadian Forces in 1915, was transferred to the R.F.C. and obtained his commission three weeks before his death.

Hamilton, Henry Edmund Redmond, Captain Canadian Railway Troops, elder son of Dr. Hamilton, of Barnes, killed May 19th. He got a commission in December, 1916.

Hopkinson, Eric Humphry, M.C., Lieutenant Cambridgeshire Regiment, second son of Dr. Albert Hopkinson, of Withington, Manchester, reported as wounded and missing on June 2nd, 1915, two years ago, now reported as having died of wounds on that day. He was educated at Rugby, where he was head of his house, and gained the King's medal and the Lees-Knowles leaving exhibition, also gaining an open scholarship in history at Trinity College, Cambridge, before he took a commission on October 8th, 1914.

Jenkins, Christopher H., Captain Royal Sussex Regiment, youngest son of the late Dr. Jenkins and of Mrs. Jenkins, of West Ealing, died of wounds May 22nd, aged 19.

Mantle, Alexander, Lieutenant London Regiment, younger son of Dr. Mantle, of Harrogate, killed in action on May 22nd. He was 20 years of age, and had a distinguished career at Rugby School, which he left to enter Caius College, Cambridge, for an arts and medical degree. At the outbreak of war he entered the Inns of Court O.T.C., obtained his commission in April, 1915, was promoted full lieutenant in the following September, and went to the front six months ago. His adjutant writes: "His personality was one which for charm and sweetness could scarcely be equalled. Keen and absolutely fearless as a soldier, he was literally loved by the men who worked under him, and there is no officer or man in the brigade whose death could come as a more bitter loss to his friends and subordinates." His elder brother, Captain Mantle, was wounded in France five weeks ago, and is now in a London hospital.

Warner, Bernard Oldershaw, Lieutenant Essex Regiment, youngest son of the late Dr. Percy Warner, of Woodford Green, killed May 19th. He was educated at Berkhamsted, and articled to Messrs. Price, Waterhouse, and Co., passing his final examination in 1914. At the beginning of the war he rejoined the Artists Rifles, of which he had been a member, and went to the front. After being invalided home, he got a commission on April 25th, 1915, in the Essex Regiment, and served in Gallipoli. He was wounded on July 1st, 1916, and returned to the front on April 27th.

MEDICAL STUDENT.

Sinclair, George S., Lieutenant Royal Irish Rifles, second son of the late Samuel Sinclair, of Belfast, and nephew of Colonel T. Sinclair, C.B., A.M.S., killed May 28th. Before the war he had entered Queen's University, Belfast, as a medical student, with a scholarship, which he resigned in order to serve as a combatant. His commission was dated April 30th, 1915. He had taken part in many engagements, and at the storming of Moislains was the first British soldier to enter that stronghold.

Second Lieutenant Wilfrid B. Cramb, Argyll and Sutherland Highlanders, attached to the Royal Flying Corps, is reported missing on April 14th. His machine had been observed well over the German lines under very heavy anti-aircraft fire. He was educated at the Glasgow High School and was a third year medical student at Glasgow University. He was well known in motor-cycle circles and the Scottish six days' trials. In September, 1914, he went to France with the first unit of the Scottish branch of the British Red Cross Society, and was employed with motor ambulances; several suggestions in the design of motor ambulances submitted as the result of his early experience have been adopted. He received his commission in the Argyll and Sutherland Highlanders in 1915 and saw service till January, 1917, when he was attached to the Royal Flying Corps, and had been flying in France for six weeks. He is a nephew of the late Professor Cramb, the author of *Germany and England*.

[*We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.*]

THE Medical and Chirurgical Faculty of Maryland has created a fund of £2,000, to be known as the Osler Testimonial Fund, the income of which is to be applied to the purchase of books for the faculty library and for the upkeep of the hall which bears the name of Sir William Osler.

THE German Ministry for the Interior has recently issued a warning from which it appears that it is believed that the abuse of morphine is increasing. Doctors and the police are urged to keep a watch over morphine in drug stores and other businesses, and the former are enjoined not to allow nurses to have charge of, or administer, the drug.

Scotland.

CONTROL OF VENEREAL DISEASE.

THE Local Government Board for Scotland has just issued a circular to Scottish local authorities with regard to the preparation of schemes for the diagnosis, treatment, and prevention of venereal diseases, in accordance with the Order issued by the Board last October. The circular offers guidance on such matters as the collection and disposal of pathological specimens; the treatment of patients in their homes in special circumstances; and the use of substitutes for salvarsan, of which kharsivan, arsenobillon, novarsenobillon, diarsenol, and galyl have been approved. A memorandum on the keeping of records and reports by institutions is appended, together with specimen forms and leaflets for the use of medical practitioners, pathologists, local authorities, and patients. Among the latter is a draft form of public notice for insertion in local newspapers, and display in workshops and offices. The Board draws special attention to the urgent need, as revealed by the report of the Royal Commission, for the taking of all practical measures to cope with these diseases.

PROPOSED MINISTRY OF HEALTH.

A discussion on the proposed Ministry of Health took place on June 1st at the Shepherds' Conference in Dunfermline. Mr. Alexander Calvert (Glasgow) said that health questions had a most important effect on the finances of the society. The original tables were largely framed on the then ordinary sickness experience under much better health conditions than those now available. In the country four millions of people were living under sanitary conditions suitable only for half a million, and a scheme for housing should occupy the attention of the Government at the earliest opportunity, and friendly societies must take an interest in that question. A Ministry of Health which looked better after the appalling infantile mortality would reduce the death-rate considerably in a few years, but it must have nothing to do with the Local Government Board, for bumbledom should be excluded. Parish councils and boards of guardians had been hampered by the Local Government Board. A Ministry of Health must stand on its own legs, and not be connected with that antediluvian body. Other speakers took the same view, and Mr. Grieve, of Glasgow, said that there was just a possibility that the Ministry of Health might be created without the friendly societies having any say in the matter. The Local Government Board during the seventy years of its existence had been behind the times, and had not fulfilled the duties entrusted to it. If it had, the housing problem would not be in the condition in which it was now. Mr. Marsh, representative of South Wales, said that the proposal ought to be carefully watched, for some of them knew the author of the scheme. Eventually the matter was referred to the Executive Committee to take the necessary steps to safeguard the interests of the society.

REGISTRATION OF NURSES.

At a meeting of the Association for the Promotion of the Registration of Nurses in Scotland, held in Edinburgh on May 31st, a resolution adopted on November 24th, 1916, was reaffirmed in the following terms:

> That the Association for the Promotion of the Registration of Nurses in Scotland protests against the action of the Central Committee for the State Registration of Nurses in London in determining (1) to break off negotiations with the College of Nursing, Ltd., at a time when unanimity of action seemed so hopeful, and (2) to proceed with its own bill without having first consulted the members of the associations represented on the Central Committee in view of the fact that substantial progress in the negotiations between the two bodies towards an agreed bill seems to have been achieved.

The Executive Committee strongly recommends members of the Association for the Promotion of the Registration of Nurses in Scotland not to sign any petition to the Prime Minister such as is at present being circulated by the Society for the State Registration of Trained Nurses, 431, Oxford Street, London.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Ireland.

NATIONAL BABY WEEK FOR IRELAND.

AT a meeting in connexion with National Baby Week, called by the Women's National Health Association on May 31st, in the Mansion House, Dublin, when the Lord Mayor was in the chair, Sir Andrew Horne, F.R.C.P., said that 16 per cent. of the infants born annually in Dublin, and in perfect health at the time of their birth, died before reaching the age of one year. Poverty, ignorance, and improper feeding were the three chief causes of the infantile mortality in Dublin. The great problem before the city of Dublin was the milk question. On one day he saw that there were no less than five or six prosecutions of milk vendors in Dublin. The prosecutions were not for impure milk, but for adulterated milk. No attention, apparently, was paid to impure milk. Lieutenant-Colonel William Taylor, President of the Royal College of Surgeons, moved the following resolution, which was passed unanimously:

> That, as a Baby Week campaign is essential for the welfare of the nation, it is desirable to organize one in Dublin and throughout Ireland from July 1st to 7th, 1917, and that in connexion with it a representative baby health conference be held in Dublin, the Local Government Board being asked to approve of local authorities incurring the expense of sending delegates to such conference, providing that any local authority availing itself of the privilege has already a child welfare scheme in operation, or such a scheme in contemplation.

Dr. Mabel Crawford said that education was the main object of Baby Week. That improvement could be effected by making and enforcing efficient legislation had been proved in one town in America, where a reduction of the bacteria in milk by 80 per cent. had been followed by a fall of one-fourth in the deaths of infants from diarrhoeal diseases. It would take a long time to make the milk supply of Dublin satisfactory from the bacteriological point of view, and in the meantime milk dépôts should be set up in the city.

Correspondence.

THE CO-ORDINATION OF BRITISH MEDICAL POLICY.

SIR,—When the amateurs are ready again to enter upon the modification of medical practice, what are the defensive forces on which we shall rely, not only for our own protection, but the protection of the people of the empire, who are, when all is said and done, our medical charge? We may be sound in principle, wise in policy, but, if unsatisfactorily organized, we shall be beaten, as we were beaten over the Insurance Act.

There must obviously be some satisfactory corporate body capable of speaking and acting for the profession if it is to have a chance of success. Our choice seems to lie between:

The British Medical Association.
Certain (much smaller) associations or guilds.
Some (non-existent) great trade union.
Some (non-existent) alliance of colleges and universities.

The corporate body we want must be large and representative, and the time, I am sure, is short. Does any one really suppose we shall be able to grow *de novo* a great representative body in a few months? It has taken many years to make the British Medical Association what it is. It is plain nonsense to attempt such a construction, and we must use what we have. In other words, *we must rely on the British Medical Association.*

But the Association has recently failed us at our need, and I believe, as it stands, it will fail us again. And the question becomes the urgent one:

How can we reconstitute it to give a better chance of success? We must get on. We have little time to waste. What have we learnt to guide us? We want economy, sound business management, the best brains the profession holds, the removal of the stigma of "trade unionism."

What has the Association accomplished since the fatal days when it changed its constitution, wasted its big reserve fund, began to waste its income, alienated many of its ablest members, and in place of posing as a great public-spirited association of professional men clad itself in the garb of the "war-strikers' parliament"? If we are to do any good we must undo all this. I am sorry if I hurt any of my friends by what I am saying. It has to be said by somebody. What we need are:

1. *A first-rate business secretary*—a business man (not a medical man whose profession this is not) carefully chosen for proved ability in management of important concerns and well paid—preferably a legal man.

2. *Cessation of financial waste*, in order as fast as possible to accumulate from our great income a considerable fighting fund. By this I mean cessation of payment of members for attendances at Representative Meetings and Council Meetings—we used to have excellent men when there was no payment—reduction of such committees as really need payment (owing to frequent and onerous business) to the smallest number really needed, reduction of unnecessary expense in printing and paper.

3. *Reduction to manageable numbers of the present Representative Meeting*—eighty members would be ample.

4. *Abolition of the principle of "delegation."* If medical men cannot be trusted honestly to "represent" constituencies we must indeed be in a bad way.

5. *Calling to our councils the best brains of the profession*, the eminent men who are interested in its welfare but who now stand aloof from what is virtually a trade union, and a bad failure at that.

Let us be quite clear about one thing. It is useless to try to govern or lead medicine by trade unionism, even if it were decent or moral to do so. We British doctors are not a group of self-seeking artizans. We hold in the hollow of our hand the health and happiness of the greatest of empires. No more tremendous responsibility in peace time devolves on any section of the community. To take as our model, in ordering our steps, the classes who have not enjoyed our advantages of education, tradition, and responsibility is, to my mind, as foolish as it is wrong. The basis of trade unionism is physical force. Can we do "peaceful picketing"? For such a calling as ours there can be only one final appeal—namely, to personal honour and an enlightened public conscience. Such should exist amongst us. In this war what record is more honourable than medicine's?

Nor does the Association exist by its trade unionism. It exists as it always has existed—because of its scientific and social functions. Take away its admirable JOURNAL and see how many members will remain. Its recent trade unionism is only a noxious parasite which has grafted itself on the real tree and is sapping its vitality. I would say, pluck it off, and let us once more have an association of cultivated men, respecting themselves and their art, fully alive to their responsibilities, desirous to carry into peace time the patriotism which has been patent to all the world in war, eager to improve their knowledge, not merely for their own advantage, but for that of humanity. The public will quickly enough recognize that fundamental change. The Association will then be able to speak—for the nation first, for itself afterwards. Against such an organization the intrigues of interested politicians will have far less chance of success. With such an Association, statesmen who honestly desire to solve the problems of the medical care of the country, on sound scientific lines, will find themselves immediately in sympathetic collaboration.—I am, etc.,

Exeter, June 3rd. W. GORDON.

THE RECONSTRUCTION OF THE PUBLIC HEALTH SERVICE.

SIR,—Anything more remote from practical politics than the scheme of reconstruction of the Public Health Service adumbrated by the Council in the SUPPLEMENT to the JOURNAL of May 5th can hardly be conceived.

Take, for example, the constitution of the local authority for public health administration. "The local administrative health committee should consist of representatives (*a*) of the rating authorities, (*b*) of the education authorities, (*c*) of the persons contributing to a scheme of health insurance (including in this employers of labour), (*d*) the medical profession, (*e*) public hospitals, (*f*) dentists, (*g*) pharmacists, and (*h*) nurses." Does the Council for one moment imagine that the electorate will surrender

their right of electing their representatives to manage their affairs in order to establish the hybrid body which is suggested? If they do they much misjudge the mentality of the electorate.

Then, is the Council unaware that the most pressing problem of public health administration is that of housing and town planning, with all that is involved in the latter phrase? For the solution of that problem their scheme makes no provision and yet it is fundamental.

There are to be "representatives of the rating authorities." What "rating authorities"? "Representatives of the education authorities"! Why? Their business is education, and it is a big enough business in all conscience at this juncture. There are to be representatives of "dentists" and of "pharmacists." But in the body which is to have control of dairies and dairy herds there is to be no representative of the veterinary profession; in a body which will be charged with the administration of the Food and Drugs Act, why—on the lines the Council have adopted—no representative of the Society of Analysts?

Any one who has had any practical experience in local administration knows that, given large enough areas, a board consisting of practical business men, with competent professional advisers, is calculated to do the best work, and is most consonant with the genius of the nation. The "Committee" the Council proposes to establish would constitute an excellent debating society, but as an administrative entity it is beneath contempt.

"The administrative functions of the Ministry of Health should be carried out by a board"! I fancy the country will prefer a Minister of Health, solely and individually responsible for the public health administration of the country, to a glorified debating society.

But the whole scheme is a farrago of impracticability.—I am, etc.,

A. CAMPBELL MUNRO, M.B., M.R.C.P.Ed., D.Sc.

Paisley, May 22nd.

THE LIFE-HISTORIES OF THE LOWER BACTERIA.

SIR,—Permit me to acknowledge with much appreciation the courtesy and generosity of Dr. E. C. Hort's letter in the JOURNAL of May 19th, drawing attention to my early work in relation to this subject.

The morphological modifications which appear in *B. typhosus* and some other bacteria, when subjected to particular environments, were studied by W. Murray and myself in 1902 and 1903 in the Gordon Laboratory of Experimental Pathology at Guy's Hospital, and I continued to give a good deal of attention to the subject here during several subsequent years. I am familiar with the "aberrant" forms described by Dr. Hort. In a short paper published in this JOURNAL[1] (July, 1904) Murray and I drew particular attention to the following forms among those which we had noted: (1) Long unsegmented filaments, (2) filaments with segmentation at one end or in some part of their length, (3) beaded forms (presenting deeply staining beads at intervals along their length), (4) coccoid forms, (5) giant forms, (6) felted networks of filaments, (7) branching filaments.

Somewhat similar results were obtained (with *B. typhosus* and *Vib. cholerae*) by quite different methods by Professor Almquist of Stockholm, who published, in the same year, an account of them in a paper entitled "Neue Entwickelungsformen des Choleraspirills und der Typhusbakterie."[2]

Murray and I concluded our own description with the following statement:

> We are not at present prepared to estimate the precise importance of the foregoing observations. . . . But we conclude that the form in which we ordinarily see the *Bacillus typhosus* and some other bacteria in the laboratory is not the only form in which they may appear. Perhaps it may not even be the form in which by preference they exist as saprophytes. Further experiments which are now in progress suggest the possibility of an unsuspected complexity in the life-history of these micro-organisms. . . .

Some of the results of my further experiments were demonstrated in the Pathological Museum of the Oxford meeting of the Association in the summer of 1904, including appearances suggestive of "budding," oval and spherical forms, and the presence of tiny highly motile forms which I called "dots." But I have hitherto been unable to convince myself that I had evidence of a complete life-history, or to find a satisfactory method of securing permanent and demonstrable preparations of certain phases. Of this, however, I am certain: that any one who is interested in the matter can easily obtain filamentous forms of *B. typhosus* (and some other members of the typhoid-colon group) which show branching and the formation of lateral buds by following the methods which Murray and I employed. I have repeated the experiment successfully since the appearance of Dr. Hort's important paper, and it seems probable that what I called "dots" in 1904 may correspond to his filter-passing forms.

In conclusion, may I express my admiration of the enthusiasm and patience with which Dr. Hort has followed out his valuable work upon this subject? May one also venture to dissent from the view expressed in your leading article, which seems to regard the evidence for the existence in this group of bacteria of forms small enough to pass through a piece of porcelain as of greater ultimate importance in pathology than would be the complete elucidation of their general morphology? Such a view is not only open to misinterpretation as a disparagement of a great part of Dr. Hort's work, but it seems to stand in striking conflict with the Euclidean doctrine that of necessity "the whole is greater than its part."—I am, etc.,

Oxford, May 29th. E. W. AINLEY WALKER.

[1] Ainley Walker and W. Murray: The Effect of Certain Dyes upon the Cultural Characters of the *Bacillus typhosus* and some other Micro-organisms, BRITISH MEDICAL JOURNAL, July 2nd, 1904.

[2] E. Almquist: Neue Entwickelungsformen des Choleraspirills und der Typhusbakterie, *Centralbl. f. Bakt.*, etc., 1 Abt., Originale, Bd. xxxvii, Heft. 1, S. 18.

THE ADMINISTRATION OF ANAESTHETICS: A PRELIMINARY NARCOTIC.

SIR,—Captain Marshall's contribution on the administration of anaesthetics at the front, in the JOURNAL of June 2nd, is of great interest and obviously the outcome of a careful and laborious investigation.

His conclusions as to spinal analgesia and chloroform are what I should have expected, and the charts published, assuming them to be typical examples of a fairly large number of cases, should carry conviction.

I do not, however, follow him in his dictum that morphine should be withheld in the presence of shock, or where its advent is anticipated. Nor do I find in his paper any proof of this contention; I am assuming that in the charts he gives the ether anaesthesias were not preceded by its administration. My own experience naturally does not include a large proportion of the particular class of case under consideration, but extending, as it does, over many years and to thousands of operations, it has convinced me of the value of morphine with ether both when shock is already present and when it is anticipated. Since I adopted preliminary narcotics some six years ago shock on the operating table has been conspicuous by its absence, and appears only with extreme rarity in the recovery stage, the latter happy state of affairs being due, I think, to the small amount of ether required after morphine, resulting in no over-stimulation with its subsequent depression.

Captain Marshall's experience is of great value, and it would be interesting to know the reasons on which he founds his objections to morphine. Has he employed it in adequate doses and at an appropriate interval before operation? If not, disappointment is only to be expected.

With regard to the value of warm ether vapour, the administration of which has recently become fashionable, I am afraid I am of those who still remain unconvinced. The specific heat of gases is so low as to be practically negligible. In 43 consecutive cases in which I took the rectal temperature before and after operation, I found it actually rose in 13, remained the same in 1, and dropped in 29. Of these 29, some were already above normal before operation, so the fall did no harm; in the majority of the rest the fall only amounted to 0.2° or 0.4° F., and the only cases in which there was an important fall were those in which it was to be expected from the nature of the operation. It is only fair to state that the ether was not given by the "open drop" method—a wasteful and wearisome procedure which I abandoned after six months' trial—but in my "draw over" inhaler with inspiratory and expiratory valves in which the vapour is warmed and

LIBRARY U. OF I. URBANA-CHAMPAIGN

moistened to some extent by the expired air, the temperature in the face-piece ranging from 70° to 86°, and varying inversely with the strength of the vapour and respiration-rate. Nor is warming necessary to prevent coughing and straining against ether, always provided that alkaloids have been previously administered, and that sudden increase of vapour strength is avoided.—I am, etc.,

London, W., June 4th. G. A. H. BARTON.

REFRESHMENT HOUSE EXPERIMENT IN CARLISLE.

SIR,—It is a far cry from Plymouth to Carlisle, and I venture to think that if your correspondent in last week's JOURNAL writing on the above subject had lived nearer to the ancient Border city, he would hardly have described the Carlisle experiment as "a colossal failure."

Dr. Simpson is evidently a prohibitionist, and his information is apparently taken from a pamphlet issued in the interest of prohibition propaganda which has had a wide circulation. It is full of misleading statements, and was emphatically condemned at a meeting of the Local Advisory Committee of the Central Control Board held yesterday. This Committee consists of representatives of the Control Board, of the Corporation of Carlisle, of the County Council, of the Licensing Justices of the city and county, and of Labour interests. It is widely representative, and is fully conversant with all the facts. As a member of this committee, will you allow me briefly to recapitulate what has been done by the Board?

In less than twelve months under State purchase we are in a position to state as follows:

1. Nearly one-half of the licensed premises in the city have been closed (44 out of 119)—a reform which would have taken a generation to carry out under the 1904 Act.
2. The abolition of grocers' licences.
3. The limitation of the "off" sale of spirits to less than one-quarter of the premises in which they could be obtained before.
4. The abolition of the sale of spirits on Saturdays.
5. The introduction of food into public-houses.
6. The abolition of direct interest in the sale of intoxicants and the encouragement of the sale of food and non-intoxicants by offering commission to the managers on their sales.
7. The doing away with all advertisements relating to the sale of intoxicants and entirely altering the appearance of licensed premises so as to eliminate all adventitious aids to the sale of intoxicants.
8. The provision by the State of places where rest and refreshment can be obtained without any inducement to buy intoxicants.

Even temperance advocates must admit that these results are of some value in the national interest, and the results of the Board's work have met with the unqualified approval both of the city and the county police authorities.

Dr. Simpson makes a point of the small diminution of the convictions for drunkenness in the first three months of this year as compared with the corresponding period in 1916. It is true it was only 49, but of these 41 occurred in March. If we take the first five months of this year and compare the convictions with those of 1916, the following table is worthy of consideration:

	1916.	1917.	Decrease.
January	51	53	—
February	73	63	10
March	89	48	41
April	98	31	67
May	114	20	94

The steady decline in drunkenness during the period corresponding to that in which the increase was so alarming twelve months ago is most satisfactory, and what is even more satisfactory is that during the month of May this year there were no assaults on the police, whereas in May, 1916, there were nine charges of assault on the police.

The prohibition of the sale of spirits on Saturdays has had a most beneficial effect. The Order came into force on February 23rd of this year, and since that date there have been fifteen Saturdays. On only one of these occasions has there been an arrest for drunkenness, and that was on St. Patrick's Day. It is clear that the effect of the Order has been to bring about a marked change for the better in the character of Saturday drinking.—I am, etc.,

Carlisle, June 5th. HENRY BARNES, M.D.

SIR,—The important experiment in direct State control of the liquor trade which has been in operation at Carlisle and Annan for some months past, has recently been made the subject of severe criticism in a pamphlet written by the Rev. Wilson Stuart. After a detailed examination of the statements made by Mr. Stuart, the Local Advisory Committee has passed unanimously the following resolution:

> The Carlisle Advisory Committee of the Central Control Board (Liquor Traffic) having considered the pamphlet written by the Reverend Wilson Stuart of Birmingham, entitled, "The Carlisle and Annan Experiment," desire to record that in their judgement, based on an intimate knowledge of the affairs and improved conditions of the city, the description therein suggested of drinking in Carlisle entirely misrepresents the facts, and they deem it their duty to make this emphatic protest against the misleading suggestions contained in the pamphlet.

In view of the valuable experiments now proceeding in this area, the result of which will certainly exercise a very considerable bearing upon any permanent solution of the liquor problem, I venture to hope that you will be so kind as to give full publicity to this resolution, which embodies the convictions of representative citizens of Carlisle and the district.—I am, etc.,

A. F. HARVEY,
Secretary, Temperance Legislation League.

London, S.W., June 6th.

*** Though ready to receive any corrections of matters of fact, we cannot undertake to continue this correspondence.

"FOOD AT SCHOOL AGES."

SIR,—Recent experience in revising the dietary of an institution for growing boys—from 12 to 18—has warned me that considerable, perhaps lifelong, injury might be caused to growing boys and girls at these ages by misapplied enthusiasm in the direction of food saving. This period of life is, as Burney Yeo points out—

> One of the most critical and important epochs in the life of the individual as regards sufficient and adequate nutrition; it is a time of active growth and development, both physical and intellectual, and it is a time when any serious check to the perfect and complete evolution of the organs and functions of the body may lead to ineradicable mischief, and severely handicap the individual in the subsequent "struggle for existence."

Especially, one may add, as the prospective parents of the race. Pamphlet No. 7, published by the Ministry of Food, points out—

> Children need plentiful food for three reasons: their surface is large compared to their weight, they are growing, and they are generally very active. A child of 8 needs half as much as a grown up, a child of 12 three-fifths as much. A girl of 16 needs as much as her mother, and a boy of 16 may eat as much as his father.

The number of calories (heat units) that should be supplied daily by the food taken is laid down thus (Pamphlet No. 7):

	Calories.
Men, sedentary, and boys over 16 ...	2,500–2,800
Women, in business, and girls over 13 ...	2,000–2,200

A tall thin person will need 200 or 300 calories more than a plump person.

If children of school ages are rationed, managers and medical officers should see that the necessary number of heat units are supplied by the food. The Ministry of Food Pamphlet No. 7 (National Rations: How to Supplement Them, by Dr. Spriggs) gives a table which renders the calculation of dietary values absolutely simple.

The Ministry of Food never intended to stint the food of growing adolescents. Elder children are an exception to the 4 lb. ration. In a written reply to Mr. Duncan Millar, Captain Bathurst supplies the following table of

what is considered sufficient weekly ration of bread, meat, and sugar for growing children:

	Bread.	Meat.	Sugar.
Under 10	3 lb.	1¼ lb.	½ lb.
10–12	4 lb.	2 lb.	½ lb.
13–18	5 lb.	2½ lb.	½ lb.

Finally, to quote the Ministry of Food Pamphlet No. 21—

Every one will agree that the greatest care must be taken to give our children the food they need, whoever else goes short. Upon them will lie the duty of holding what has been won by the blood of the brave. They must be fit in body and mind to make peace more glorious than war by the right use of our dear bought freedom.

—I am, etc.,

D. S. DAVIES, M.D., LL.D.,
Medical Officer of Health.

Bristol, May 30th.

ARMY AND CIVIL CO-OPERATION FOR MEDICAL ECONOMY.

SIR,—It is with intense satisfaction to those of us who are at the present time combining military and civil work that you continue to urge with much energy the better distribution of the potential energies of the members of the medical profession in medical work. The waste of energy in the past is well known to those of us actually mixed up in the work.

Experience of individual cases does count for something, so that I have no hesitation in giving you my experience; doubtless there are many others of a similar nature. Here is a large industrial town with a territorial hospital of between 2,000 and 3,000 beds, staffed by men nearly all of whom are doing civil work in addition to their military work. By removal for military service a particular district in this town has been denuded of the services of three men—all territorial officers just under military age. This left myself as the only practitioner that was capable of attempting to do their work. The combined panel list of the four of us is between 7,000 and 8,000, of whom 5,000 certainly reside in this district. As a territorial officer *à la suite*, a little over military age, it has lately seemed very probable that I should be ordered to do military work elsewhere. The local Medical War Committee would at present have no say in the matter. It may be suggested that substitutes must be found in such a case. But what a waste of energy! Most of the year it would require the services of two energetic men to do the civil work, and, in addition, one would be necessary to do the military work. Surely there is a strong case for the much better "co-ordination of competing authorities" than there has been in the past.—I am, etc.,

CAPTAIN R.A.M.C. (T.F.)

MEDICAL BOARDS.

SIR,—I should like to make a few remarks in reply to the letter of "A Believer in Action," which appears in your JOURNAL of June 2nd, p. 749. According to him, the members of recruiting medical boards are paid 24s. a day for examining on an average thirty-two men in the day. He claims also that they are "entitled" to a fortnight's holiday in the summer and at least one half day per week to attend to their private business. They also pride themselves that they work all day on Saturdays.

The undermentioned facts may cause him a few moments of serious thought:

1. Officers of the Territorial Force did something for the country in peace times, and they came to the colours on August 4th, 1914.
2. Having reached the rank of captain by period of service, they are paid 15s. 6d. a day.
3. Few of them have seen or even heard of their businesses for nearly three years.
4. Being officers in the army, they have no "rights" at all—either as to summer holidays or half-days.
5. The families of many of them are in dire straits.

The writer of this letter not only has to perform all his usual medical work as an officer in an ambulance, but at certain intervals of time he acts also as examining officer on a travelling medical board, where his average number of examinations a day is 150.

He will remain up to the end of the war, and at the present moment he has much additional worry occasioned by some "patriotic civilians" who are endeavouring to deprive him of an appointment which he holds in civilian life.—I am, etc.,

ANOTHER "PATRIOTIC" TERRITORIAL.

June 5th.

Obituary.

J. H. BARTLET, M.D.,

IPSWICH.

BY the death on Whit Sunday, May 27th, of Dr. J. H. Bartlet of Ipswich a medical link with the early days of the nineteenth century is broken. Dr. Bartlet's grandfather, who was of Scottish extraction, began to practise in Ipswich within the first decade of that century. He died in 1856, and was succeeded by his son, Dr. A. H. Bartlet, who held the leading place among the physicians of the borough for half a century, and was the first member of the honorary staff of the East Suffolk and Ipswich Hospital when it was established in 1836.

John Henry Bartlet was born on June 9th, 1829, received his early education at Ipswich School, and then went to University College, London. He took the diplomas of M.R.C.S. in 1852 and of L.S.A. in 1854; he graduated M.B.Lond. in 1858, and M.D. in 1860. He was engaged in general practice in Ipswich for many years, and was a member of the active medical staff of the hospital.

Dr. Bartlet was a fellow student of the late Lord Lister, and remained his life-long friend, and as surgeon to the Ipswich Hospital was one of the earliest exponents of antiseptic methods in England. In 1886 he retired from general practice, and until recently practised as a consulting physician. He continued to be a member of the consulting staff of the hospital, and succeeded the late Mr. Felix T. Cobbold, M.P., as President, an office which he held until his death. He took a very great interest in the welfare of the institution; the out-patients' department and the porter's lodge stand as permanent memorials of this interest, while the endowment and improvement funds have received augmentation from time to time by donations in cash from him aggregating £3,600.

Dr. Bartlet was a J.P. for the borough of Ipswich and the county of Suffolk, and the way in which he became associated with the municipal work of the borough is thus related by the *East Anglian Daily Times*:

In October, 1894, in view of the prospect during the ensuing twelve months of the second visit of the British Association to the borough, the members of the council were anxious to elect to the mayoral office a gentleman of scientific attainments; opinion pointed to Dr. Bartlet, who, however, was without experience of corporate life. Moreover, hitherto there had been no idea of going outside the council chamber for the occupant of the civic chair. The council, by general consent, deemed it a fitting opportunity for making a new departure, and Dr. Bartlet, coming out of his retirement, consented to accept the responsibilities of the mayoralty during a year when large demands on time and liberality were certain. The British Association gatherings were marked by generous hospitality, and when his period of office had closed it was generally conceded that the success attained was without doubt due in no small degree to the untiring energy and personality of the mayor, while the highest traditions of the office were fully maintained. His interest in the affairs of the borough was continuous for many years.

Among other benefactions to Ipswich Dr. Bartlet some years since gave the parochial hall in St. Peter's, with which the family had close association—this being, like the out-patients' department building at the hospital, in memory of Mrs. Bartlet, who predeceased her husband by about eight years.

RICHARD HUGH BREW.

IT is right that a tribute of respect and admiration be paid to the memory of Richard Hugh Brew, who died at Chew Magna on May 16th at the age of 55. The only son of Richard St. John Brew, an officer in a West Indian Regiment, who died in the Bahamas of yellow fever at the age of 27, he was born at Ballyvaughan Rectory, co. Clare, the house of his grandfather, was educated in Galway and at the medical schools of Dublin and Edinburgh, and took the diplomas of L.R.C.P., L.R.C.S. and L.M.Edin. in 1884.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Having been for a few years an assistant at Chesham, he settled in Birmingham, married in 1890, and soon afterwards moved to Chew Magna, where he was in practice for twenty-three years. It has been written of him in a local journal that "he took a deep and lasting interest in the social welfare of the village," and the large concourse which met at his funeral on May 20th surely spoke of the love which every one of every class had for him.

Of manly physique, the picture of health and vigour, his bodily presence was the outward sign of the fine, strong spirit within. The writer had known him for the last eleven years—since his own retirement into the West Country—and as brother, sometime patient, and friend, had come to hold him, from his sterling worth of heart and head, and his sound professional knowledge, in the highest esteem. Gifted in no ordinary degree with the power of intuition, which is really the result of deep-laid and thoughtful experience, he went quickly and surely to the root of every malady, and seemed to have a right judgement in all things. Prompt in decision, fearless in opinion, without hesitation or ambiguity in speech, he straightway inspired confidence; and take him for all in all, he was to my mind one of the best doctors I have ever known. Then, alas, in the full tide of his work and prosperity, he was smitten down in the spring of 1915 by an obscure illness, due, it was thought, to some bacillary infection. He was at death's door, but rallied, recovered—it was thought permanently—and had been at work again for nearly a year, when there was a relapse in severer form. Nor can it be doubted that stress of work, the grave anxieties of this disastrous time, and, above all, the loss of Cyril, his much-loved younger son—a charming, gallant boy, who held a commission in the Irish Guards and who died somewhere near Ypres after terrible wounds last October—undermined his natural strength and lowered his resisting powers.

The end came somewhat suddenly after ten months of weary suffering, the diagnosis being still obscure. Only a country practitioner, but withal a man of noble, stainless character, of true humility and "gentleness untired," a keen sportsman both by river and on moor, ever ready to befriend the poor, and implicitly trusted in every walk of life. He will be long remembered and sadly mourned. May he rest in peace.

H. W. P.

DR. ARTHUR FREDERICK GAMBLE CODD died on May 24th. He was the son of Mr. Arthur Gamble Codd, barrister of the Inner Temple, and received his medical education at St. George's Hospital, where he was a good football player, being twice included in the team during the three years when St. George's held the challenge cup. He was second in the Henry Charles Johnson anatomy competition, assistant demonstrator of anatomy, and won the Brackenbury prize in medicine and the William Brown £40 exhibition. He became house-physician in his fifth year, and afterwards resident obstetric physician. He took the diplomas of M.R.C.S. in 1882 and L.R.C.P.Lond. in 1883, graduated M.D.Durh. in 1886, and became F.R.C.S.Eng. in 1888. After two years in the P. and O. service he settled in practice at Bromley, where he continued his work up to the time of his fatal illness. He was M.O.H. for Bromley, certifying factory surgeon and honorary medical officer to the Bromley Cottage Hospital. In 1905 he married Ada Margaret Cooper, and leaves three sons and one daughter. A friend of thirty-seven years' standing writes: "So simple was his nature, so unassuming and modest, that publicity was to him nothing short of pain, and he would be the first to deprecate any 'appreciation' even by so old a friend as myself. He had a strong personality and firm convictions, combined with a gentleness and a kindness that were remarkable. Hundreds will testify to his many deeds of kindness, monetary and otherwise. The profession has lost a most zealous and keen member in him, whilst his patients have lost a true friend and physician. The sympathy of friends and patients will go out towards his widow and the four children, all under 10 years of age. Though only 60 years of age, his working life (as medical lives go) has been long; during that time he first helped to support his mother and sister. He died as he would have wished, in harness; the shortness of his illness (pleuropneumonia) was in accordance with his desire."

DR. GEORGE GARDNER, who died at a nursing home in Glasgow on May 27th, aged 40, was the son of the late Mr. Robert Gardner, of Craigton, Milngavie. He graduated M.B., Ch.B.Glasg. in 1899, and M.D. in 1902. He had held the post of house-physician to the Royal Hospital for Sick Children, Glasgow. He settled in practice in Falkirk about thirteen years ago. He had held the office of secretary to the Stirling Branch of the British Medical Association, was secretary to the Panel Committee, and one of the medical members of the Burgh Insurance Committee. When the demand for doctors for the army was made Dr. Gardner joined in May, 1915, and served for a year on the staff of a general hospital at Etaples, where his work was so appreciated that his colonel sent in his name for mention in dispatches. He subsequently returned to his practice in Falkirk, but had applied for a commission in the R.A.M.C., and was expecting to return to military service at an early date when his illness supervened. He is survived by his widow and one son. The funeral took place at New Kilpatrick Cemetery, Bearsden, on May 30th, and was of a private character, only relatives and one or two intimate friends being present.

DR. OSWALDO CRUZ, who recently died at Rio de Janeiro, at the age of 46, was one of the foremost hygienists and bacteriologists of Brazil. As Director of Public Health he laboured with absolute singleness of purpose and utter disregard of political influences for the improvement of the sanitation of Rio de Janeiro. So drastic were his reforms that he once almost caused a revolution against the Government. He rigorously isolated all cases of infectious disease, and insisted on the thorough disinfection of the excretions of patients and of their dwellings. He pulled down unhealthy houses on so extensive a scale that whole quarters of the city were wiped out. He organized campaigns against mosquitos, and was untiring in devising measures for the safeguarding of human life. In this way he succeeded in three years in freeing the capital from yellow fever and plague. In 1908 he began a war against malaria and small-pox in Rio, which he carried on with great success. After much opposition he gained the confidence of his fellow countrymen to such a degree that he was accepted almost as a hygienic dictator throughout Brazil, to all parts of which he was called on the outbreak of epidemics. In 1900 he founded an institute of bacteriology and serum-therapy in Rio de Janeiro, to which in 1908 the grateful citizens gave his name. Thanks to the energy of Cruz and the enlightened liberality of the Brazilian Government, it has grown into one of the finest institutes of parasitology in the world. There Cario Chagas discovered the cause of chronic infective thyroiditis, and much other valuable research work has been done. The proceedings of the institute are issued in a beautifully illustrated volume; it was formerly published in Portuguese and German, but since Germany has put herself outside the pale of civilization French has been substituted for the latter language.

DR. JOSÉ M. ALVAREZ, professor of hygiene in the University of Cordoba (Argentine), died on December 22nd, 1916. He was the author of a work, *La Lucha por la Salud* (The Struggle for Health), which won for him a great reputation in his native country. He played a leading part in public life, being a member of the provincial senate, deputy to the National Congress, and Governor of the Province.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE Theodore Williams scholarship of the value of £100 for medicine at Pembroke College, Oxford, has been awarded to Frederic M. Wright, of Marlborough College and Bournemouth Technical School.

UNIVERSITY OF CAMBRIDGE.

DR. A. E. SHIPLEY, Master of Christ's College, has been elected Vice-Chancellor for the ensuing academical year, which commences October 1st.

The following medical degree has been conferred:

M.B.—J. H. Rees, King's.

Medical News.

THE Minister of Munitions has issued an order requiring persons engaged in the manufacture, purchase, or sale of artificial human eyes to make a return of stocks and materials within seven days to the Director of Optical Munitions, 117, Piccadilly, W.1.

DR. H. B. BRACKENBURY, Chairman of the Insurance Acts Committee of the British Medical Association, has been appointed a member of the Departmental Committee set up by the President of the Board of Education to inquire into the salaries of elementary school teachers.

THE Rev. J. W. Hayes, of West Thurrock Vicarage, Grays, Essex, has prepared a leaflet (price 2d.), giving a number of recipes for using barley, rye, oatmeal, rice, and maize flour for making bread, biscuits, and potato substitutes. He also gives two other leaflets (1d. each) giving additional maize recipes.

OWING to the spread of small-pox in Berlin the authorities have warned medical men to take precautions by vaccination, by revaccination of all persons over 40 not vaccinated since the age of 12, and by bearing in mind the risk of small-pox "carriers." At the end of February there were about 50 cases of small-pox in the Berlin hospitals; most of the patients were tramps and beggars, and nearly all were over 40.

ACCORDING to an official statment by Mr. Pike Pease, the number of British prisoners interned abroad at the end of our financial year was: Officers, 1,898; men, 36,583; civilians, 4,350, making a total of 42,831. The Postmaster-General had previously stated that this compared with 30,710 last year. The increase does not appear to have taken place recently, for Lord Newton stated in the House of Lords on February 22nd that the total number of British prisoners in Germany was something under 40,000. The total number of German civilians interned in this country and in the Overseas Dominions is about 36,000. We have no note of the total number of German military prisoners in our hands, but the number taken on the Western Front from April 9th to the end of May was 19,736, including 393 officers.

THE National Conference of Friendly Societies has forwarded to the Prime Minister a memorial in relation to the proposed Ministry of Health. This states that the friendly society organizations welcome further recognition of the need for preserving the nation's health, and strongly endorse the efforts now being made to secure national provision for maternity and child welfare, better housing, and the treatment of tuberculosis. The friendly societies are anxious that, in the formation of a Health Ministry, due weight should be given to the extension of the National Insurance Act benefits to the dependants of insured persons, including the establishment of child clinics and the institution of a national nursing scheme. They urge the Prime Minister, before any decision is reached, to appoint an impartial committee to investigate the whole matter.

WE have received copies of reports prepared in anticipation of a discussion on the relation of the glands of internal secretion to gynaecology and obstetrics at the forty-second annual meeting of the American Gynaecological Society, which was to take place early this month. The relations, real or asserted, of the female generative organs to the pituitary, pineal, parathyroid, thyroid, and thymus glands are considered from physiological, pathological, and clinical points of view in several monographs by experts. Papers are included which treat of the endocrine function of the pancreas and its relation to the sex life of women, the influence of the adrenal bodies on the genital system, the relation of the ovary to the uterus and mammary gland, and the placenta regarded as a gland of internal secretion; there are memoirs also on transplantation of ovarian tissue after hysterectomy, and the preparation and standardization of ovarian tissue.

THE annual report of the chief inspector of factories and workshops for the year 1916 (Cd. 8570, price 2d.) has been published by the Home Office. In the absence of Sir Arthur Whitelegge through illness, the report of the work of the department is supplied by Dr. H. M. Robinson, deputy chief inspector of factories. Miss A. M. Anderson, H.M. principal lady inspector of factories, contributes an interesting account of the effect of the third year of war on the industrial employment of women and girls. Dr. Robinson points out that beyond the ordinary range of duties the most important work done by his department during the year was in connexion with the substitution of women in manufacturing industries. He notes that it is fairly well recognized that continuous and excessive overtime very soon produces lassitude and slackness among the workers, injuriously affecting efficiency both in quality and quantity of work.

ON the occasion of the opening, on May 31st, at Sidmouth of a hospital for the treatment of officers suffering from stiff joints caused by wounds Dr. W. Gordon of Exeter delivered an address in which, after congratulating Sidmouth upon the establishment of a centre for treating the war disabilities of officers by combined physical methods, such as radiant heat, massage, whirlpool, and aëration baths, and medical appliances, he traced the progress of this line of treatment, giving a description of the methods now in general use and their value in the treatment of war disablement. One central fact proved beyond question was the immense advantage of the preparatory use of heat in the treatment of crippled limbs by massage and manipulation. Another point he insisted on is that treatment must be undertaken at the earliest possible moment after the wounds have healed if the greatest benefit is to be obtained. In respect of appliances Sidmouth now had all the advantages possessed by Paris and London for applying the new system of treatment, in addition to which it had its own arrangements for sea-water baths to widen the scope of its usefulness. Dr. Gordon concluded his address with the hope that there would be no delay in generalizing this method of treatment throughout the country.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

F.R.C.S. asks what are the quickest recorded results, after nerve grafting, as regards recovery in respect of (*a*) anaesthesia, (*b*) muscular action.

R. asks for the name of a maker of an inguinal truss consisting of an elastic band (about three inches broad) fitting round the hips, with a pad in front to keep the inguinal canal closed.

INCOME TAX.

UNCERTAIN owns his residence and uses it partly for professional purposes. He inquires how the deduction for professional use should be made.

*** Using the figures supplied, the net rental value of the house, £48, should appear on the statement of total income as in effect rent received; but in calculating the professional profit a deduction should be made of £16 as being rent paid for the professional portion of the house. Our correspondent pays income tax under Schedule A as if he received a net rent of £48, and out of that expends £16 for professional purposes; the £48 being already assessed to tax in full, he is entitled to deduct a proportion of this sum as if it were an actual out-of-pocket payment for professional accommodation.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

LIBRARY U. OF I. URBANA-CHAMPAIGN

THE DEVELOPMENT OF BRITISH SURGERY IN THE HOSPITALS ON THE LINES OF COMMUNICATION IN FRANCE.

BY

SURGEON-GENERAL SIR GEORGE H. MAKINS, K.C.M.G., C.B., F.R.C.S.,

CONSULTING SURGEON, BRITISH ARMIES IN FRANCE.

THE general hospitals on the lines of communication in France have undergone a steady process of extension in accommodation and development since August, 1914. They have been housed very variously—some in the original tent units, some in huts, and some in large buildings adapted to their present purpose. Tented units under the climatic conditions of France have proved to possess but one virtue, that of mobility, and in all the tented hospitals still remaining a certain proportion of huts for serious cases, operating theatres, mess accommodation and stores and offices, have been added. The most satisfactory units are hutted throughout, and these leave little to be desired either for comfort or for satisfactory work, even when compared with the civil hospitals at home. Most of the buildings now in use are either of the nature of public buildings or of large hotels. Each possesses some special advantages. The large rooms of casinos, etc., form excellent wards, easily overlooked and economical to work, but such buildings need usually considerable reinforcement with regard to sanitary accommodation. The hotels are more convenient for officers as providing a large number of smaller rooms, but this necessitates a somewhat larger nursing staff, and renders attention to individual patients a more troublesome task.

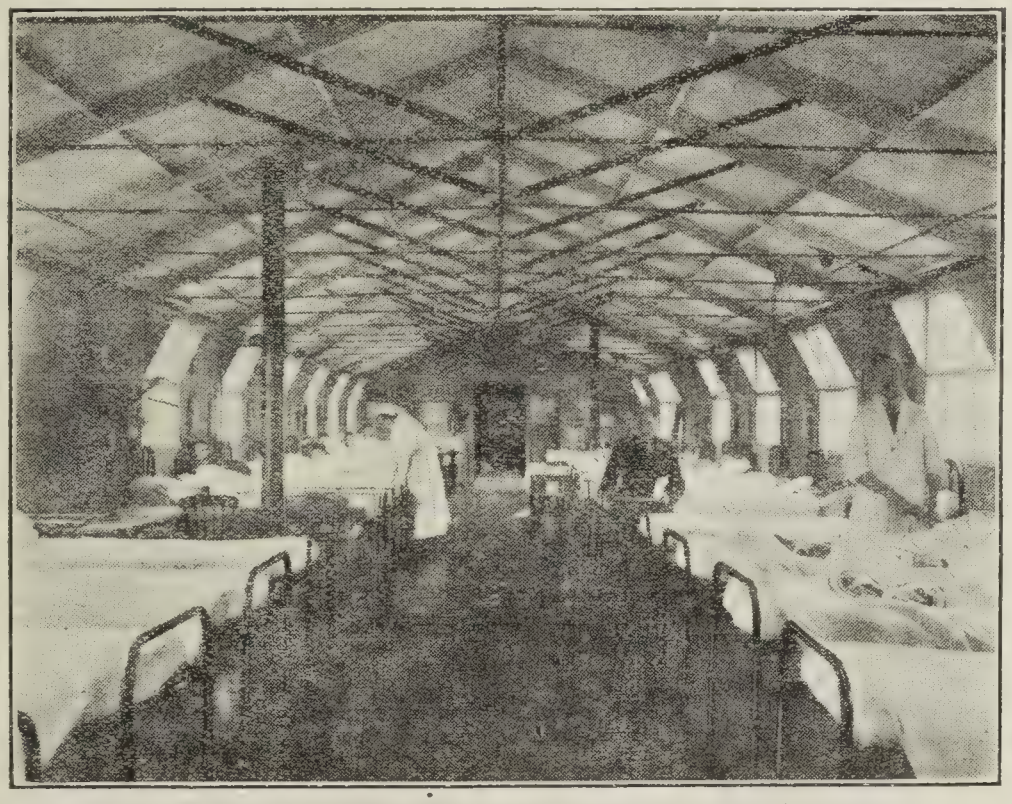


FIG. 1.—Interior of a ward at a general hospital at a base in France.

Special hospitals are set apart for the treatment of infectious cases, for skin diseases, and for venereal cases.

All the Dominions are represented. Thus Canada, Australia, New Zealand, and South Africa have all provided general or stationary hospitals in addition to the more mobile units present in the advanced lines. There is also an American voluntary unit.

Each unit is complete in itself, possessing operating theatres, clinical laboratory, and its own disinfecting apparatus. The only department that is commonly massed when a number of units are collected in the same area is the mortuary and accommodation for *post-mortem* examinations. The majority of the units—the normal capacity of which is 520 beds—have been extended by the provision of additional ward accommodation to receive 1,040 patients, while in times of stress a further extension to 2,000 is possible by the addition of tents. The number of patients which may need to be dealt with during active fighting may be very large; thus during the first three months of the action on the Somme as many as 8,500 wounded men have been passed through a single unit. This necessitates ample operating theatre accommodation, and in all either a large theatre is provided, or in one type of unit two, so that at least four operating tables can be kept at work contemporaneously. In spite of these provisions, at busy times the surgeons may be engaged continuously in shifts for two or three days and nights without cessation.

Within certain limits, arrangements exist for the aggregation of special classes of injury, such as fractures of the bones of the limbs, injuries to the face and jaws, compound and complicated fractures of the skull and vertebral column, and wounds of the chest.

In connexion with each large hospital camp convalescent camps are established, and life in these is rendered more pleasant to the men by the provision of the social huts of the Young Men's Christian Association, the Church Army, and other bodies.

HOSPITAL TRAINS AND MOTOR AMBULANCES.

The vast majority of the patients admitted to the general hospitals are brought down by the hospital trains. Although even the best of the present trains can only be said to be a slight advance on some of those in use during the South African campaign, or those already provided for transporting the patients on their arrival in port in England at the commencement of this war, yet the development of the hospital train in France was a matter of extreme urgency and great difficulty in the initial stages of this campaign. It seems as if both France and Germany had relied for the railway transport of the wounded on the same means which served the purpose in the war of 1870–71. In fact, with the exception of the addition of frames for carrying stretchers placed on the floors of merchandise wagons, no special arrangements appear to have been made. The trains conveying the wounded from the front were provided with no permanent arrangements for cooking food, no sanitary conveniences, no provision for the carriage of water, and, in fact, consisted of a mere string of trucks, with no means of intercommunication to allow the attendants to pass readily from wagon to wagon. To add to the miseries of the journeys made in these trains, they were long, sometimes extending over two or three days before the west coast was reached.

A small difference in gauge in the French and English lines prevented the prompt shifting of English hospital carriages across the Channel, and too great praise cannot be accorded to the officers who set to work to improvise more satisfactory means of railway transport. Odd carriages of every build and description were obtained whenever opportunity offered, and within a few weeks with alterations hastily but effectively carried out, a number of efficient if not luxuriously appointed hospital trains were forthcoming, and it says much for the officers who did this work that although at the present time over thirty hospital trains are running, no less than seven are of the original improvised series, and are still found efficient.

One word should be added regarding the fleet of improvised barges which run on the canals between the front and two of the general hospital areas. There is no doubt that the smooth passage of these boats provides the acme of comfort for patients to whom the unavoidable shaking of a railway journey entails both pain and harm. It is unfortunate that the general utility of the barges is limited to the few districts in which canals are to be found.

The splendid motor ambulance convoys attached to each district, and for most of which the army is indebted to the Red Cross Societies of the United Kingdom and the Colonies, have been already referred to as to their work at the front, and no further mention of their devoted work is necessary at this place.

As to the last link between the general hospitals on the lines of communication and the base in England, the hospital ships, it suffices to say that they leave nothing to be desired.

WOUND TREATMENT.

This question, which has exercised the ingenuity of man since the birth of surgery, has abated no jot of its capacity for arousing controversy and avoiding a solution which can satisfy all.

Experience has in no way controverted that gained in civil practice in the use of aseptic methods, but has, on the other hand, proved conclusively that advance in the treatment of septic wounds has had in this campaign to start from an unfamiliar standpoint, and has progressed but slowly. Practical application has demonstrated the superiority of the Listerian principle and method, but the multiplicity of the chemical media employed affords evidence enough of the difficulty met with in establishing any one means as that suitable for every class of case. On two points alone can no difference of opinion exist: (1) The urgency of an efficient primary mechanical cleansing and exposure of the wound cavity, and (2) the importance of maintaining the wounded part at rest. The latter point raises the first great difficulty which has to be met by the military surgeon, the absolute necessity of early transport of the wounded man; and leads directly to a second, the amount of interference advisable in wounds which have reached the "intermediate stage," that is, the period of established infection during its first phase, the condition, in fact, in which a large proportion of all gunshot wounds reach the general hospitals on the lines of communication.

Speaking generally, it has been shown that if the primary mechanical cleansing of the wound has been thoroughly carried out, no further gross intervention should be necessary; further, that if want of time and medical officers has not allowed of this procedure being fully carried out, yet if the wound has been sufficiently opened up and primary drainage ensured, the subsequent treatment is comparatively simple. From the point of view of the surgeon on the lines of communication, free incisions are never objectionable, provided they be made in such directions as not to render the subsequent secondary closure of the wound impracticable, the one structure for which he pleads avariciously being the integument. The primary cleansing, given satisfactory surroundings, cannot have been undertaken too early, as every hour of delay adds to the subsequent task of dealing with the infection. In this relation the immediate removal of shell fragments and clothing is of the first importance, because if allowed to remain the deferred operation, even in minor wounds, may prove a procedure of great danger when the patient has arrived at the general hospital on the lines of communication. Such an apparently trivial operation may be followed at this stage by an acute extension of anaërobic infection involving the whole segment of a limb, the entire member, or indeed be sufficiently extensive to lead to the loss of the limb, or even the patient's life.

The conditions of war, however, not infrequently prevent an ideal early treatment of the wounds. It may be impossible to remove patients from "No Man's Land," or even from the trenches, for many hours or even days after reception of the wound. On the occasion of serious fighting the number of the wounded may make it impossible for the requisite amount of time to be spent on individuals, especially those less seriously injured. Lastly, unavoidable delay in transport may result in extension of infection and conversion of a promising case as it left the casualty clearing station into one arriving at the general hospital in a highly unsatisfactory condition.

Happily, whatever the initial procedure and application may have been, in many cases the young and healthy patients arrive in good general condition, the local wound progressing satisfactorily, in some instances devoid of any serious infection. In a considerable proportion, however, men are admitted suffering, both generally and locally, with every grade of infection from the slight to the most severe. The former class present little difficulty, the wounds heal readily under any form of simple application, or, as a time-saving and precautionary measure, the smaller wounds may be completely excised and the gap sutured. The latter method, especially advocated by Colonel H. M. W. Gray, has been attended by success in his own hands and in those of other surgeons, particularly in the case of uncomplicated scalp wounds or the smaller multiple injuries inflicted by fragments of shells or bombs.

A vastly more difficult problem is presented by patients arriving in the stage of acute development of infections. The wound has already been primarily opened up and cleansed, and the question arises whether further surgical interference will effect improvement or lead to increased extension of the infective process. On the one hand, it is evident that the patient is suffering from an exacerbation directly due to the disturbance involved by transport; on the other, the possibility is always present that delay, even of a few hours, may allow such progress as to render any further intervention useless. A rough-and-ready distinction between cases in which clinical evidence suggests anaërobic or aërobic infection respectively to predominate forms the most useful guide. In the former case delay may be fatal to life or limb, in the latter an interval of rest often results in a rapid subsidence both of local signs and general symptoms, and no further incision may be required.

Patients arriving at the general hospitals may have been submitted to several varieties of primary wound treatment. Speaking generally, the principles adopted have consisted in the maintenance of rest, moisture, and an antiseptic application. In the earlier stages of the campaign numerous antiseptic solutions were employed, also the hypertonic saline solution, but of late, in the great majority of cases, solutions of which the active constituent is chlorine have found most favour and have proved the most satisfactory in practice. Eusol, and with gradually increasing frequency the Dakin-Daufresne solution of hypochlorite of sodium, are those now most commonly resorted to. In the case of the former, moist gauze dressings, in combination with ordinary rubber drainage tubes, have been generally employed; for the latter the technique of Carrel is used.

A smaller number of cases have been treated by other methods, such as primary suture, the salt pack, closure after the introduction of a mixture of iodoform, bismuth subnitrate and paraffin (Rutherford Morison's method), a solution of brilliant green, etc. A word may be added regarding the salt pack method advocated by Colonel H. M. W. Gray. This method, consisting in a thorough packing of every crevice of the wound with gauze, between the layers of which tablets of sodium chloride are enclosed, is suitable for wounds of the large funnel type or of a superficial nature. It is not safe for tunnel wounds, wounds implicating the large vessels, or highly comminuted fractures. The early action of the sodium chloride is inhibitory, and gives no aid to the healing process; indeed, the tablets, even when enveloped in gauze, cause local necrosis of the tissues opposite to them. On the other hand, wounds dressed in this manner may be left untouched in many cases for a week or ten days, during which period the patient's general condition remains excellent. The pack, acting as a foreign body, excites a local reaction around the wound, with a consequent narrow wall of inflammatory infiltration which protects the general system from the absorption of toxic products from the wound. Suitable cases dressed in this manner arrive in a surprisingly good condition at the general hospitals, and the wounds do well with subsequent cleanly antiseptic treatment. Subsequent introductions of the pack are neither conducive to rapid closure of the wound, cleanliness, nor the amenities of the ward, and are undesirable.

It may be well here to mention the experience which has been gained as to three points in the technique of the treatment of septic wounds—drainage, irrigation, and baths.

Drainage.

The methods of maintaining the free escape of septic discharges from the wound have undergone considerable modification, although no doubt has arisen as to the cardinal importance of the principle to be carried out. In the earlier stages of the war it was effected mainly by the introduction of rubber tubes of large calibre and other devices, and these were retained for prolonged periods at the general hospitals. The objections to this method—the tendency of the tube to form for itself a localized channel useless for general escape of fluid, the presence of a foreign body in the wound capable of exercising injurious local

LIBRARY U. OF I. URBANA-CHAMPAIGN

pressure, the establishment of a track by which infection could be freely conveyed from the surface to the depths of the wound cavity, and lastly, the difficulty of determining the moment at which the tube might be safely removed after its prolonged stay—were obvious, but they were faced for a time in view of the very serious infections that had to be dealt with. A revulsion, however, soon followed, in consequence of the unsatisfactory results attained, and the tube is now retained as a provisional measure, and in many cases not employed at all. The main element in the decreased use of the cylindrical tube has been the introduction of what may be called the "curtain" method. This is well illustrated in two forms by Carrel's and Rutherford Morison's systems respectively. In Carrel's the wound surfaces are kept apart not by the small tubes employed for the purpose of instillation, but by the layer of fluid constantly renewed between them and the light gauze packing introduced to retain it. In Rutherford Morison's, a thin layer of an antiseptic medium covers every part of the surface of the exposed tissues, and forms a curtain or cleft which allows for the escape of such fluids as may collect within the wound. The drainage effected by the salt pack is of a similar character, supplemented by the absorptive power of the pack itself before it becomes thoroughly impregnated with the discharges.

Irrigation.

Continuous irrigation has greatly lost in favour; it has the primary objection of inconvenience to the patient, while experience has demonstrated the difficulty of preventing the fluid from forming definite runlets, and consequently of ensuring the flow of the fluid employed over the whole surface of the wound. Its use has consequently been more and more restricted; and, except in the form of a periodical flush, irrigation is little employed.

Baths.

Antiseptic baths have also lost in favour with the development of more effective antiseptic methods. Beyond the obvious difficulties of so arranging the limb as to avoid pressure and swelling (a difficulty, by the way, much diminished by the excellent form of bath devised by Captain M. Donaldson), the bath entails the serious disadvantage, in dealing with a septic limb, of the impracticability of preventing hurtful movements of the part.

At the present time the most successful results that are being attained in all forms of wound are undoubtedly those in which the Carrel-Dakin method is employed. This method has not only shown itself successful in the early treatment, but also in the later treatment of septic wounds, even in the stage of chronic established suppuration. It has been definitely proved that simple flesh wounds dealt with during the first twelve hours after infliction can be rendered practically sterile in an average of six days, those dealt with later in an average of twelve days, that compound fractures may be sterilized within three weeks, and that all three classes of case may be secondarily sutured and closed at these dates. Economy in time, diminution in the risks of secondary complications, increase in the comfort and well-being of the patient during treatment, are all ensured by the method.

It also ensures what has become the supreme object in dealing with septic wounds, the possibility of early secondary suture. The importance of using a bacteriological test to determine the date of closure of the wound cannot be too strongly impressed if anything like habitual success is to be attained. Opportunity has not yet been afforded for the trial of the method during a great rush of wounded men, but arrangements have been made to carry it out if possible. Even should this prove impracticable, the system can readily be carried out in quieter times for a very large number of patients. It has one obvious advantage over any other method of treating septic wounds, the production of a thin supple scar, not likely to interfere with the mobility of the parts, or to cause trouble by subsequent contraction.

The alternative method of secondary closure (that of Rutherford Morison[1]) avoids the tedious process and careful manipulation essential to the success of Carrel's method, saves much time on the part of both surgeons and nurses, and the patient has not to undergo the discomfort of repeated dressings. Little experience has yet been gained of its suitability as a primary procedure, but in infected suppurating wounds it has attained great success. It must, however, be allowed that the cicatrix obtained is very inferior to that which follows the use of Carrel's system, from the initial period onward, and the inclusion of particles of bismuth and iodoform has some disadvantages, both immediate and remote. One great advantage of Rutherford Morison's method is also lost in the cases treated by it in a field ambulance or casualty clearing station—the patients must undergo transport with its consequent shaking and disturbance of the wound; hence patients with the slighter injuries, whose wounds have been closed by this method often arrive with the composition escaping from a wound in which little or no union has taken place, and no appreciable benefit has been conferred.

While it may be said fairly that the Listerian principle has been more nearly attained by the method of Carrel than by any other in use, and that the results are of a very satisfactory nature, yet it must still be allowed that an ideal antiseptic medium remains to be found, especially in respect of consistency of strength and persistence in action. In both respects the bismuth iodoform methods offer some advantages to make up for the cruder character of the cosmetic results obtained. In France the surgeon, like the modern Jew, still awaits the advent of the Messiah; perhaps that advent is near in the person of flavine. Meanwhile, we rest in hope and happy in the firm belief that "the stimulus of imperfection taking place immediately calls forth the action of restoration," and the struggle is maintained to further the great principle, "the first and great requisite for the restoration of wounded parts is rest, as it allows that action which is necessary for repair to go on without interruption," a struggle which only the military surgeon on active service can fully appreciate.

SECONDARY HAEMORRHAGE.

In the light of modern surgery this accident has been deplorably common, and though but little new has emerged from the experience of the war, a few remarks upon the subject seem warranted, the more so in that the increasing frequency with which transfusion of whole blood has been employed to counteract the effects of the accident does show some advance in treatment.

As a manifestation of septic infection, it is obvious that improved methods of wound treatment offer the best chance of reducing the frequency of secondary haemorrhage, and it may be confidently stated that with the development of more satisfactory methods the accident has become less common. Still it must be recognized that in dealing with gunshot wounds we are likely to be of necessity limited to the process of secondary sterilization of an infected wound; further, that we stand in the face of a variety of wound in which incomplete primary lesions of the blood vessels are more common than in any other. The eventual perforation of the vessel wall, therefore, is up to a certain date more commonly the result of the separation of a slough of primarily devitalized tissue than due to the extension of a process of ulceration from without.

One or two special features may be emphasized in connexion with secondary haemorrhage from gunshot wounds. It may, of course, occur from any large vessel, or in old toxaemic or septicaemic subjects it may be of the parenchymatous variety. Given this generalization, however, we find that certain vessels are much more commonly the source of bleeding than others. The localization is determined by the degree of fixation of the vessel and the firmness of the bed upon which it lies. Thus the circumflex branches of the axillary artery, the subscapular or posterior scapular vessels in proximity to the scapula, the gluteal artery, the articular branches of the popliteal artery, the circumflex branches of the profunda femoris, the femoral artery in the lower part of Hunter's canal, and the anterior tibial artery as it lies on the interosseous membrane, are all common sites, and, it may be also remarked, troublesome ones in which to deal comfortably with the injured vessel. Another peculiarity is the comparative frequency with which large trunks in mobile positions, such as Scarpa's triangle, may escape damage by displacement and lie exposed on the surface of a large open wound. Such vessels may not infrequently have suffered contusion with consequent thrombosis.

As to the general treatment of these injured vessels,

little new has been evolved; direct local ligature, prolonged forcipressure, or at the last extremity local plugging, are still the means on which the surgeon must depend. On rare occasions, as an emergency measure, a proximal ligature may be applied, but this is rarely successful and often harmful. A single exception to this rule must be allowed in the case of uncontrollable haemorrhage from wounds of the gluteal region; here in several instances ligature of either the internal iliac artery or its posterior trunk has proved a successful measure.

The proper method of treatment of an exposed arterial trunk, whether thrombosed or not, has opened up a question upon which the civil surgeon rarely has to form a decision. It may be broadly stated that the line of treatment depends mainly upon the degree of septicity of the wound of the surrounding soft parts. If the arterial coats are not seriously damaged and the wound be in a condition likely to respond to antiseptic treatment, an expectant attitude should be assumed if the vessel be pervious. If, on the other hand, the artery is thrombosed, the right course is to place ligatures both above and below the obliterated portion of the vessel, because such arterial thrombi in any case result in permanent occlusion, while in many instances the vessel may give way at the limits of the clot, a solid cylinder, like a pencil, coming away with great risk of haemorrhage; beyond this the clot provides a possible source of a peripheral embolus.

As to the general treatment of patients in whom a secondary haemorrhage has occurred, internal styptics such as calcium lactate have proved useless. This is easily intelligible in the case of the larger vessels, for in such a more or less rounded opening is usually present, the occlusion of which by a mural clot is of no more than very temporary use, while a local thrombus obstructing the whole lumen is unlikely to form. Even in cases of the parenchymatous variety internal remedies have proved useless.

The main advance in treatment has consisted in a return to the practice of transfusion of "whole blood," which has in great measure displaced the unsatisfactory saline infusion. For the popularization of this method we are mainly indebted to our Canadian colleagues in France. Several methods have been employed—the Kimpton tube, the Unger two-way stopcock, direct connexion of the radial artery of the donor with the vein of the recipient by a paraffin-coated rubber tube provided with silver cannulae at either end, the employment of a series of Record syringes, or the citrated method.

Papers have been written on this subject by E. Archibald,[2] L. Bruce Robertson,[3] A. Fullerton, G. Dreyer, and H. C. Bazett.[4] The number of cases published is not large; the latter authors include nineteen with eight recoveries. A large number of patients have, however, been treated over the whole army area, and a generally favourable opinion as to the results has been established. It must be remembered also that a very unpromising type of case has often been selected. Generally speaking, the good results have been obtained in cases of pure anaemia; when the anaemia has depended in part on haemorrhage, in part on septic infection, the procedure has not been satisfactory. Again, it has been more frequently successful as a measure in primary than in secondary haemorrhages.

Military conditions have allowed small opportunity for preliminary haemolytic tests applied to either donor or recipient, but, when practicable, a small preliminary transfusion of 10 c.cm. of the donor's blood has been made the day previous to the main procedure; accidents due to haemolytic reaction have not, however, been common. In one case, under the observation of the writer, the patient passed highly blood-stained urine for the succeeding thirty-six hours, but he recovered with no further bad symptom. In a few others alarming symptoms have passed off with no further result when the transfusion was discontinued, and two patients have probably died as a direct result of the treatment. Ill effects have not been sufficiently numerous, however, to raise the question of justifiability in the desperate cases for which the procedure is undertaken.

GAS GANGRENE.

This complication has been already dealt with, as it is met with in the field ambulances and casualty clearing stations. Naturally the most acute cases do not reach the hospitals on the lines of communication, and of late, coincidently with the development of the clearing station accommodation and the general acceleration of the transport of patients consequent on a shorter and quicker journey, fewer cases of the most serious nature arrive. None the less, the insidious manner in which the process starts, the rapidity with which it spreads, and the tendency which exists for delay in its development, all tend to maintain a constant supply of cases to the general hospitals.

Some early conceptions of the disease have undergone considerable modification; thus it was assumed, in consequence of the frequency with which the limbs are attacked and the fact that extension from the limbs to the trunk is commonly confined to the subcutaneous tissues, that the trunk itself was seldom primarily affected. More extensive observation has shown the fallacy of that assumption, and it is now well known that the contents of the cranial cavity, the pleurae, the pericardium, the peritoneum, the retroperitoneal tissue, and the muscular planes of the trunk are all attacked with varying degrees of frequency. The implication of the great body cavities, however, offers some special features; thus the infection is usually primarily of effused blood or blood clot, and in consequence of the resistance of freshly effused blood to the growth of the organisms, the exacerbation of symptoms is, as a rule, retarded for several days, or even a longer period. The symptoms in such cases offer a remarkable resemblance to those of a sudden internal secondary haemorrhage, a fact that in early days sometimes led to confusion.

Another question which is at present undetermined is the relative frequency with which patients die from a pure toxaemia, or of an actual septicaemia. The number of instances in which organisms have been observed in or cultured from the blood is relatively few, a remarkable fact considering the rapidity with which the entire vascular system is invaded after death. Certain observations, however, beyond those made upon the blood afford definite evidence that at an early stage a general infection is not uncommon. It was remarked at Boulogne in an early stage of the campaign that certain patients arriving with gaseous cellulitis of the limbs had at the same time local patches upon the trunk or arms at the sites of previous punctures for the injection of tetanus antitoxin, or even morphine injections; further, that similar phenomena might follow the introduction of a saline infusion. Again, cases were observed in which gas was voided with the urine, and in one of these a culture of *B. perfringens* was made from the urine. Further, a less striking occurrence, as the tendency of these infections to cause local thrombosis is well known, a certain proportion of the patients developed metastatic deposits in other parts of the body. It may be observed that one of the most common seats of these latter, the opposite buttock, is not always free from the suspicion of being a direct extension.

In other cases the rapidity of the process suggested a pure toxaemia, and some support to this view is found in the rapidity with which the limbs in some cases enlarge from a toxic oedema independently of the presence of gas. Major Rowland found that the filtered fluid from such cases caused general oedema and death in a few hours when injected into rabbits or guinea-pigs independently of the presence of any organisms, and was working on this subject at the time of his death.

The factors determining the mode and rapidity of extension of the process have also given rise to much interest. Certain facts appear to definitely favour the view that the process is a true cellulitis, although the frequency and extent to which the muscles suffer has led some observers to speak of the anaërobes giving rise to the condition as muscle feeders. It may be premised that the organisms concerned can establish no footing in the body in the absence of either dead tissue or some foreign body, and, this fact granted, it is obvious that the localization of the dead matter will correspond with the commencement of the process. Since the establishment of the fact by Major Curtis Webb,[5] that *x*-ray examination allows the determination of the presence of gas in the tissues, this method of examination has been widely employed as a means of diagnosis, and the examination of an entire limb by this method (Major Littler Jones) affords some striking information. If, for instance, the quadriceps muscle of the thigh has been wounded, the gas may invade the entire muscle, but the extension will be

LIBRARY U. OF I. URBANA-CHAMPAIGN

n to follow the course of the great vascular cleft to the and even the foot, being localized, in the early stage at st, to the cellular tissue. Again, clinically, the extension gas from the upper to the lower part of the thigh may uetimes be evidenced by a characteristic elongated elling following the course of the vessels. Then, with ard to the intimate structure of the muscle itself, the aration of the individual fibres appears to indicate a ilar process.

The rapidity with which the cellulitis spreads and truction is caused appears to depend on the one hand the tension in the special area affected, and possibly on virulence of the organism or group of organisms conned; on the other, on the degree of interference with vascular supply either by the original damage or by sequent thrombosis of the vessels concerned. Captain shford[6] has dealt with both these questions. The ical observation of the rapid development of massive grene in a limb subsequently to the ligature of the in artery, or again the rapid death of that part of a g muscle cut off from its arterial supply, is common ugh.

As to the actual organisms or combination of organisms ponsible for the gangrene in its special forms, which y determine either the soft oedematous limb or the ht drum-like, or the emphysematous varieties, no definite owledge exists. Captain Henry has furnished a short mmary (printed at page 806) of the important series of servations carried out by himself[7] on the organisms icerned.

Another point of interest in this relation not cleared up the absence of knowledge as to what determines the id haemolysis in one case accompanied by the development of more or less intense jaundice, while other patients sent merely the appearance of extreme anaemia before ath. Generally speaking, the anaemic patients are those t die most rapidly, and the difference may depend ply on time, since the characteristic brilliant orange-oured discharge from the wound met with in mixed ections is rarely observed before the third or fourth y. The actual deficiency in the volume of blood in cases of rapidly fatal issue is indicated by the low sion of the pulse as determined by palpation, and a loud cking sound in the great arterial trunks, which gains same intensity as it does in many patients dying from re haemorrhage, and consequent fall in the diastolic ssure.

Such advance in methods of treatment as has been made ts entirely on the knowledge of the danger of leaving id infected tissue or foreign bodies in the wound, and necessity of relieving all tension in the structures ected; thus the knife is still our only aid. In making isions for the relief of this form of cellulitis it may be nembered that size is of minor subsequent importance, vided the incisions are so planned as to avoid important uctures and to allow of subsequent secondary closure. e latter is of special importance since the wounds ected by anaërobes often rapidly clean, and form some the best for secondary closure at a comparatively early e.

Where amputation is indicated, the one principle to be nered to consists in the maintenance of an open stump. has been found that under these conditions, even ere the amputation has been made through oedematous sue, the latter drains freely and no further extension es place. Beyond this, oedematous connective tissue, ecially that of the green variety, is often found to be rile, hence the inadvisability of interfering with it, ticularly around the vessels and nerves, and thus ening up the planes of the limb to further infection.

Sir Almroth Wright,[8] in a paper on the conditions which vern the growth of the bacillus of gas gangrene in ificial culture media, in the blood fluids *in vitro*, and in dead and living organism, has made the suggestion t intravenous injections of sodium bicarbonate may ve a means of combating the toxaemia, and gives short ails of six patients treated by this method, of whom o survived. He assumes that in the treatment of the called "gas gangrene infections of man" he was ling essentially with the same phenomena as those served in certain laboratory experiments which showed t the bacillus of Welch, when grown *in vitro* in serum, inishes the antitryptic power of the medium and renders it acid, thus converting the serum into a pre-eminently favourable medium for the growth of the bacillus. Experiments on the blood in the dead body showed that it is these chemical changes which furnish the conditions required for the avalanche-like progress of the bacterial infection. Finally, experiments on living animals showed a reduction in the alkalinity of the fluids taken from the focus of infection, and a reduction in that of the circulating blood—also an increase in the anti-tryptic power of the blood, combined with a diminished or abolished antitryptic power in the infected tissues.

In his investigations of the disease in human subjects he found the same high antitryptic response in the circulating blood and the reduced or abolished antitryptic power in the infected tissues or infected effusions, combined with diminished alkalinity of both tissues and effusions—thus, a local acidosis but also an acidaemia, the latter being found when an infection has culminated in "gas gangrene toxaemia."

TETANUS.

Tetanus, the terrible scourge which gave rise to so great anxiety in the autumn and early winter of 1914, has become a comparatively infrequent wound complication since the adoption of prophylactic injections of antitoxin in all cases of wounds and in cases of "trench foot" accompanied by vesication. Nevertheless cases still occur, in some instances because the primary injection has been given late as a result of the patient not being able to be "collected" from the zone of fire, a few men escape treatment as a consequence of the number of wounded needing to be dealt with after a serious engagement, and special idiosyncrasy may account for others. At an early date it was also recognized that the protective influence of the antitoxin is often exhausted at the end of eight or ten days; hence a general order was given to the effect that the injections should be repeated at intervals of seven days in all cases of serious wound and to patients whose wounds were not progressing well.

The cases met with include every degree and variety of the disease. Thus very acute cases with general spasms, slight cases in which trismus is the main feature, cases of "head tetanus," either of the paralytic class or with clonic spasms of the muscles of mastication, splanchnic tetanus, local tetanus of the limbs, sometimes remaining confined to the wounded member, in others becoming general, and cases of the so-called delayed class. In one remarkable instance of the last variety the patient, who had been sent to England in August with a small wound of the buttock, at the bottom of which was a small retained foreign body, returned to duty two months later. When on duty in the trenches stiffness of the corresponding limb, at first ascribed to sciatica, developed, and later general tetanic symptoms. Active treatment with antitoxin was followed by an uninterrupted recovery.

Accumulated experience has negatived the utility of treatment with carbolic acid or magnesium sulphate, both of which remedies were vaunted in the early stages of the campaign. Curative treatment by antitoxin is still upon its trial, and considerable differences of opinion exist both as to its utility and as to which route should be chosen for its exhibition. The subcutaneous route is generally considered unsatisfactory on account of the delay in conveyance of the antitoxin to the required area; hence, although generally chosen for prophylactic purposes, its use as a method of curative treatment is restricted to an auxiliary rôle. The intermuscular route has found more favour, although its efficacy is doubted by many. The intravenous route has not been shown to be specially efficacious, and as accidents of an anaphylactic character have followed its use it has been practically abandoned. The general applicability of the intrathecal route is still under discussion; the chief objection to its use lies in the large quantity of serum which requires to be introduced and the comparatively serious nature of the procedure itself if repeated injections are made. In some cases a definite disturbance of the intracranial pressure appears to result, and in some local inflammatory changes in the spinal theca have occurred. In spite of these objections the intrathecal method has been very largely employed, and a trial is now being made of a highly concentrated antitoxin.

The prognosis has depended in individual cases on the length of the incubation period, and, in spite of treatment,

the mortality has remained above 70 per cent. of all cases treated. Symptomatic treatment by chloral and morphine, particularly the former, has retained its character both in the relief of suffering and as curative, in so far as it tends to delay exhaustion dependent on the spasms.

OTHER WOUND INFECTIONS.

Little new can be said regarding the remaining forms of wound infection, but it may be generally stated that the antiseptic solutions depending upon chlorine for their active element have proved the most successful application. One form of streptococcus infection deserves special mention as possibly corresponding to the variety of "classical hospital gangrene" described as the membranous. Cases of this nature have not been common, although sufficiently so to have become familiar. A wound which has previously been apparently progressing favourably becomes covered with a dense grey tough membrane, firmly adherent to the subjacent granulations. In the earliest stage this membrane does not materially differ from the thin layer of coagulated fibrin and included leucocytes which not uncommonly forms in cases of streptococcic infection which after a time fail to respond to treatment. The same cessation of free discharge from the wound surface is observed, a condition well described by Colonel Sir Almroth Wright as "lymph bound." The membrane then thickens so as to resemble one of the diphtheritic class; in fact strong suspicion was aroused in the earlier stages of the war that the change was due to a diphtheritic infection. Bacteriological examination has, however, in all cases resulted in the discovery of streptococci alone. With the development of the membrane a continuously increasing hard white oedema spreads up the limb or on to the trunk, the patient meanwhile suffering with pronounced signs of toxaemia. Incisions into the oedematous area give rise only to the escape of a small amount of serous discharge, and the tension wounds tend to dry up with little change. Amputation is usually followed by a recurrence of the same type of wound surface, and the patient dies in from four days to a week's time after the commencement of the process. No successful method of dealing with this special form of wound infection has been devised.

SEPTICAEMIA.

The most common form has been in connexion with streptococcal infections. It cannot be said that any advance has been made in the treatment of this condition. Encouraged by the results published by Messrs. Fraser and Bates[9] in dealing with some acute general infections, and the work of Lorrain Smith and his colleagues, a more or less extended trial has been made of intravenous injections of hypochlorous acid in the form of eusol, but no satisfactory results have been obtained. The same remark obtains to a more limited trial with colloid chloride of gold. The work of Dakin has shown that the antiseptic power of injections of eusol must be small in consequence of the minute amount of the antiseptic in proportion to the volume of the patient's blood. If either this solution or that of chloride of gold can effect any useful purpose, it is probably only by exciting as irritants a certain degree of activity in the endothelial lining of the blood vessels, and in neither case has this proved sufficient to serve the purpose aimed at of sterilizing the blood.

INJURIES TO THE GREAT VESSELS.

The dangerous nature of injuries to the great vascular trunks has been amply demonstrated by the fact that, except one or two injuries to the innominate vessels, the subclavian artery in the thoracic part of its course, and possibly a few iliac (although the writer has seen none of the latter amongst over 300 carefully examined cases of injuries to the larger arteries), injuries to the vessels of the trunk have been conspicuous by their absence on the lines of communication.

A considerable experience has been gained regarding the effects of contusion of the vessels, which has in the main substantiated the French pre-war experimental observations. At the same time, the occurrence of single simple linear fissures of the intima has been a more common form of lesion than one would have been led to expect. The chief importance of these lesions has been in connexion with secondary haemorrhage, to which allusion has already been made, and in the frequency with which the injury is followed by thrombosis. Several instances of subsequent embolism have been observed, this particularly in the case of the cervical vessels, where cerebral embolisms are readily detected as a consequence of the obvious signs with which blockage of the cerebral vessels is attended.[10 11] This experience, combined with that of similar accidents occurring in connexion with actual wounds of the vessels, raises the question of how great a proportion of the instances of gangrene of the extremities following injuries to the vessels of the limbs, either spontaneous or following ligature, is due solely to the local occlusion of the main vessel. It seems likely, if all these cases could be thoroughly investigated, that embolism in the distal circulation plays a more important part than has hitherto been accorded to it, since several observations have been made of its occurrence.

The frequency with which various forms of missile have been employed has been followed by considerable change in the nature of the lesions, the highly contused lateral wound of the artery, and the clean perforation made by the modern bullet, have of late been less in evidence than extensive lateral lacerations and more or less limited lateral perforations caused by fragments of shells or minute fragments derived from bombs. Occlusion of wounds of the vessels by retained shell fragments, the removal of which has been followed by free haemorrhage, has not been rare. On the other hand, instances of missiles entering and travelling along the blood vessels has rarely been observed. The most striking instances have been those in which shrapnel balls have obtained entrance to the heart or large veins of the trunk and travelled downwards by gravitation. The most interesting feature of these cases, observed also in some wounds of the inferior vena cava, is the moderate degree of primary haemorrhage which had taken place.

Wounds of the great vessels arrive in the hospitals on the lines of communication usually some days after their infliction, but a considerable proportion may arrive at an earlier date in consequence of the absence of primary haemorrhage, or the coexistence of some more serious or more easily recognized injury having allowed them to be overlooked. This is especially the case in multiple bomb or shell injuries, where one out of twenty small wounds produced by as many fragments widely distributed over the whole body may have implicated an artery; or in the case of severe fractures of the long bones, accompanied by great swelling of the soft parts.

The result of this experience has been greatly to widen the scope of the stethoscope in the diagnosis of arterial injuries, since auscultation will often reveal the presence of the pathognomonic systolic bruit, when the absence of local pulsation in the swollen area and the presence of pulsation in the distal arterial circulation may, if depended upon alone, lead to a serious error in diagnosis. Further it has been observed that the local vascular bruits may, in some third of the whole number of injuries to arteries of the lower extremity, and less frequently in other vessels, be conveyed to the cardiac area, and distant vascular lesions have in some cases been detected by the presence of the apparently cardiac murmur.[12] This phenomenon is observed both in pure arterial and arterio-venous injuries. It has also been observed that the distal blood pressure of the limb is materially lowered in the presence of a lateral arterial lesion—in fact, practically to the same degree as if the main vessel has been occluded.

As a consequence of the period at which arterial injuries reach the hospitals on the lines of communication the treatment has been for the most part expectant, the large majority of the patients being evacuated to the base in England. The importance of rest in allowing subsidence of the general circulatory excitement, and the consolidation of the aneurysmal tumour, has been obvious. It is also held that during this period the enlargement of the collateral circulation makes some progress. Some evidence in favour of this view is offered by the fact that the nutrition of the limb is not observed to suffer during this period, while wasting, sometimes of a rapid character, often follows the performance of necessary ligation.

Accidents during this probationary period have not been common: gangrene has been rare; secondary haemorrhage uncommon, unless the wounds were large and badly

LIBRARY U. OF I. URBANA-CHAMPAIGN

infected; and suppuration of the aneurysm has been an accident of extreme infrequency.

Active treatment has consisted in the main of ligature of the vessels. This has been indicated for extension of the blood effusion within the limb, secondary haemorrhage, signs of pressure on the trunk by increasing size and firmness of the false aneurysmal sac, or signs of inflammation. When the hospital accommodation has allowed a sufficiently long stay a certain number of cases have been operated upon in the absence of any untoward symptoms.

For purely arterial injuries, ligature of the vessel above and below the wounded spot has been the most common operation. In a number of these cases the main vein has been found to be thrombosed, but this accident has not had any adverse influence on the result. The same statement may be made as to the results observed when coexisting wound of the vein has made it obligatory to tie both vein and artery, or in the cases where the main vein had already suffered complete division and occlusion. The same experience has followed ligature of both artery and vein above and below the communicating channel in arterio-venous aneurysms or aneurysmal varices. Hence it has been claimed[13] that simultaneous occlusion of both artery and vein is a negligible occurrence with regard to any increase of risk to the vitality of the limb. Further, that insomuch as a better balance is maintained between the arterial and venous elements of the collateral circulation, and the blood pressure within the limb increased, the operation is preferable to that confined to the wounded artery alone.

In certain vessels—for example, common carotid, common femoral, popliteal—after ligature of which acute local anaemia and gangrene is specially liable to follow, a limited trial has been made of Tuffier's tubes to maintain temporarily the main current pending the increase of the collateral circulation. In a small series of eight cases (common carotid 1, axillary 1, femoral 2, popliteal 4) in which this method was used, in no instance did gangrene take place. In one femoral case, in which the tibial pulses were absent at the time of operation, feeble pulsation returned and persisted for a few hours, and in the second the foot, which had been cold, at once became warmer and remained so. Such evidence as has been obtained, however, does not suggest that the maintenance of the main current persisted more than a few hours, and the clots expressed from the tubes when removed on the fourth day, although firm in comparison with the terminal projecting into the proximal end of the vessel, did not suggest a very gradual formation. Moreover, in one of the popliteal cases, in which it would have been difficult to place a ligature on the lower end of the artery, it was not found necessary to do so, as the vessel was closed by a firm thrombus. Such experience as has been gained is, however, definitely in favour of a more extended trial of this method.

Suture of the vessels, either end-to-end or lateral, has been employed only in few cases. At the period during which the patients are still in the hospitals on the lines of communication the vessels are still comparatively fixed and difficult to free without damage to the coats, as well as rigid in themselves; hence, if sutures are introduced, the tension upon them is far greater than is the case with normal arteries. Again, a large proportion of the wounds are too extensive for anything but an end-to-end union after removal of the damaged extremities of the vessel, and here again both local tension and an undesirable temporary flexion of the limb to reduce it are opposed to successful suture. Cases, however, do occur in which either form of operation can be carried out. In a small series of six operations the following immediate results were obtained:—Brachial 3: (*a*) Lateral suture, lumen of vessel reduced more than one-third; no radial pulse before operation, but it returned four days after. (*b*) Refreshment of ends and end-to-end suture. Radial pulse palpable after operation and persisted. At the end of the third week the distal blood pressure in the limb had risen by 22 mm. of mercury. (*c*) Excision and end-to-end suture. Radial pulse absent during first two days after operation, then returned. Five days after the operation the distal blood pressure was 30 mm. of mercury greater than before. Popliteal 1: Lateral suture. A good anterior tibial pulse was present the day after operation, but the posterior tibial was absent. Femoral 2: (*a*) Lateral suture of an arterio-venous communication of six months' standing. Distal tibial pulses present at the end of the operation and persisted. (*b*) Lateral suture in Hunter's canal. Tibial pulses absent before operation, but were just palpable four days later. Distal blood pressure still 50 mm. of mercury lower than in other limb.

Time and a considerably more extended observation is needed to determine whether the operation of suture does attain very much better results than simple ligature. The above results, including no sort of accident, seem to do little more than prove that the operation is practicable and not dangerous in selected cases. That a patent lumen is preserved in the vessels in the majority of cases is, however, not yet proved.

In a case of large wound of the thigh, in which the foot was cold and no tibial pulses were palpable, the femoral artery was discovered to be thrombosed 2 in. above the apex of Scarpa's triangle and no pulse could be felt in Hunter's canal. Captain Cowell made an incision one-third of an inch long into the vessel and squeezed out a small decolorized thrombus and a red clot 3 in. in length from the vessel distal to the incision. The vessel was then sutured, and pulsation returned in Hunter's canal but was not palpable at the ankle. A secondary thrombus again formed and obstructed the vessel. It appears probable that if the intima has been sufficiently injured to cause a primary thrombus to develop, operations of this class are not very likely to succeed; still a repetition is probably worthy of trial.

FRACTURES.

At an early stage in the campaign, when wounded men were streaming in large numbers into the improvised hospitals in Boulogne, it became evident that neither the regulation outfit of splints nor the supply of emergency splints manufactured by the mechanics attached to each hospital unit sufficed to cope with the large number of fractures admitted. An opportune paper by Lieutenant-Colonel Robert Jones which appeared about this moment[14] moreover impressed all those concerned in the treatment of these injuries with the enormous advantages offered by splints of the H. O. Thomas class for military use, both in facilitating the early and safe transport of patients, and in allowing efficient extension of the limbs to be continuously maintained. Further, a number of modifications of the type of splints which have subsequently proved of much value were quickly in demand. In order to meet the requirements thus suddenly arising, application was made to the Medical Director-General at the War Office for the supply of a skilled surgical mechanician to undertake the control of a central splint manufactory at Boulogne. Mr. Salmon was sent out, and since that time an enormous number of splints have been manufactured locally, and supplied not only to the general hospitals on the lines of communication, but also to advanced units throughout the army. It would be difficult to overestimate the practical value of this establishment.

The first question which has arisen in connexion with these injuries is the relative importance of the primary treatment of the wound of the soft parts, or the adjustment of the bony fragments themselves. Cases may occur in which either assumes the first place—thus the limb may be threatened by anaërobic infection; reduction of the displacement and maintenance of the bone in position may prove a matter of extreme difficulty as a result of the position and direction of the fracture; or the presence of multiple wounds in inconvenient positions may render it impossible to apply such apparatus as will maintain sufficient extension. Under any of these circumstances treatment of the wounded soft parts may claim priority, but as a general rule the principle of prompt reduction of the displacement and maintenance of extension has been adhered to. It has been recognized that secondary efforts at reduction when a septic wound has cleaned and settled down is a serious operation involving risks of lighting up again a condition which has been with difficulty overcome.

The next question which arises is whether rigid extension in the direct long axis of the limb is to be maintained or the joints placed in the flexed position. For patients treated in France the former method has been the more widely adopted, in order to utilize the facilities in transport which the Thomas's splints undoubtedly offer. As an invariable custom, however, this practice has not been able to be followed, as many surgeons have not been able to obtain good position of the fragments in such

positions as the upper and lower thirds of the femur. To meet this difficulty the Thomas's splints have been bent or other methods employed. For instance, Hodgen's splint for the upper third of the thigh bone, or a swinging frame of the same dimensions of the bed, the feet being fixed by plaster extension strips to the angles of the lower end, and the head and body lowered (Major Sinclair). For the lower third the wire double-inclined plane of Hey Groves has occasionally been employed. All these methods, however, require additional attention and longer stay in France, hence they have not been widely resorted to.

The method of maintaining extension has also been a question much discussed, and fixed extension by a stirrup attached to the end of the Thomas's splints has been commonly adopted. Yet in a large number of cases weight and pulley extension has been preferred and is sometimes necessary. The question, in fact, has not been settled in favour of either of the opposing parties.

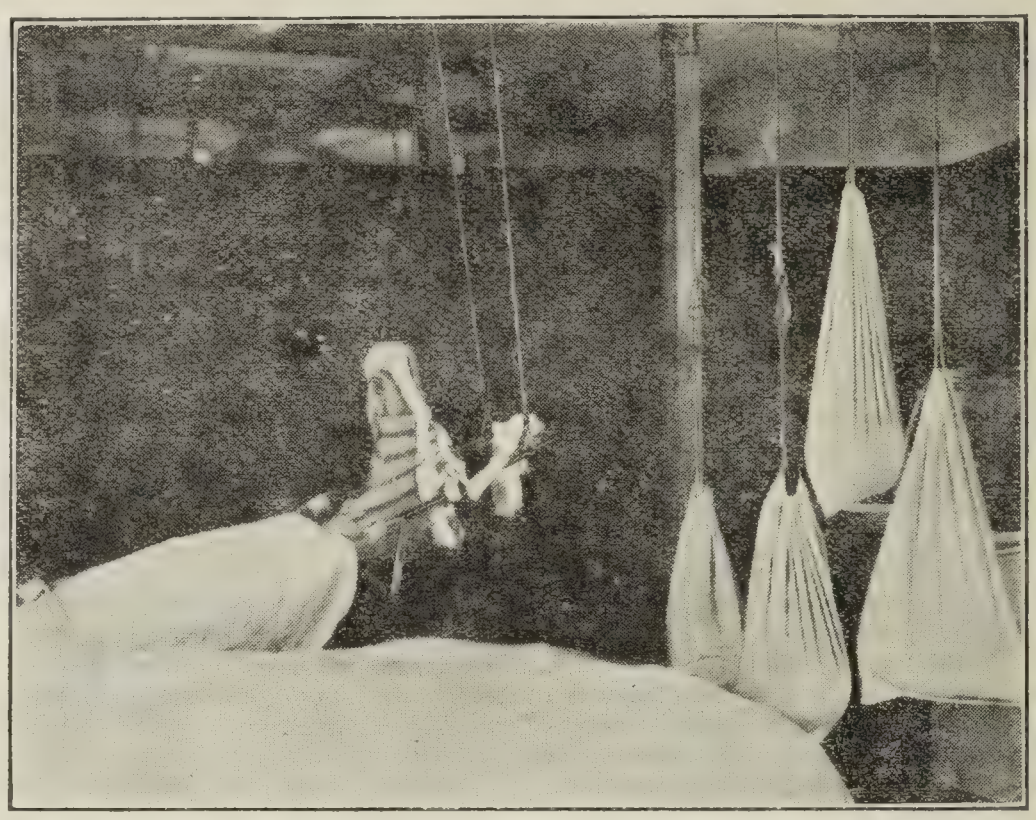


FIG. 2.—The Thomas Splint with Foot Extension, Suspended (Major Sinclair). The foot extension is applied by means of ¾ in. strips of flannel bandage, each strip being threaded through two metal triangles. One set of six triangles is aligned along the inner margin, another set of six along the outer margin of the sole. The flannel strips are glued to the sole, sides and dorsum of the foot, care being taken that the ends do not meet over the dorsum. Cotton-wool is dabbed over the glued area to hasten and strengthen the setting. Whilst the glue is drying the Thomas splint is applied in the usual way and fitted with a support to keep heel clear of the bed. The triangles are now threaded with tapes, which are passed over the serrated edges of the special wooden foot-piece and tied. This foot-piece rides on the side bars of the Thomas splint. The foot, now being secured to the foot-piece, is commanded absolutely. It can be flexed, extended, inverted or everted, rotated in or out, lowered or raised. At the same time extension can be applied to the whole limb by tapes attached to the cross-bar of the foot-piece and fixed in the V of the Thomas. Having got length and alignment in the fractured limb, the cross-bar is fixed by tying to the side bars with tape. This is often the only form of extension which can be applied in fractures of both bones of the leg near the ankle. Care should be taken to thoroughly fix the knee in the splint by means of large cotton-wool pads and a bandage. The whole splint is suspended in a C-model suspension.

A third method, that of a continuous screw, has also been considerably employed, both in conjunction with the type of Thomas's splint with a spat attachment, in the Wallace-Maybury modification of the Thomas, and also in the bent Thomas's splints and their modifications for treating fractures of the humerus with the elbow flexed.

The use of the pin transfixing either the lower end of the femur, or the upper extremity of the tibia, for the attachment of extension apparatus in cases of fracture of the femur, has found little favour in France. This has perhaps mainly depended on unwillingness to make a fresh wound in a limb already the seat of a septic wound; but beyond this, the fact that practically all patients need to be transported at an earlier date than would be convenient for removal of the pin renders the method undesirable.

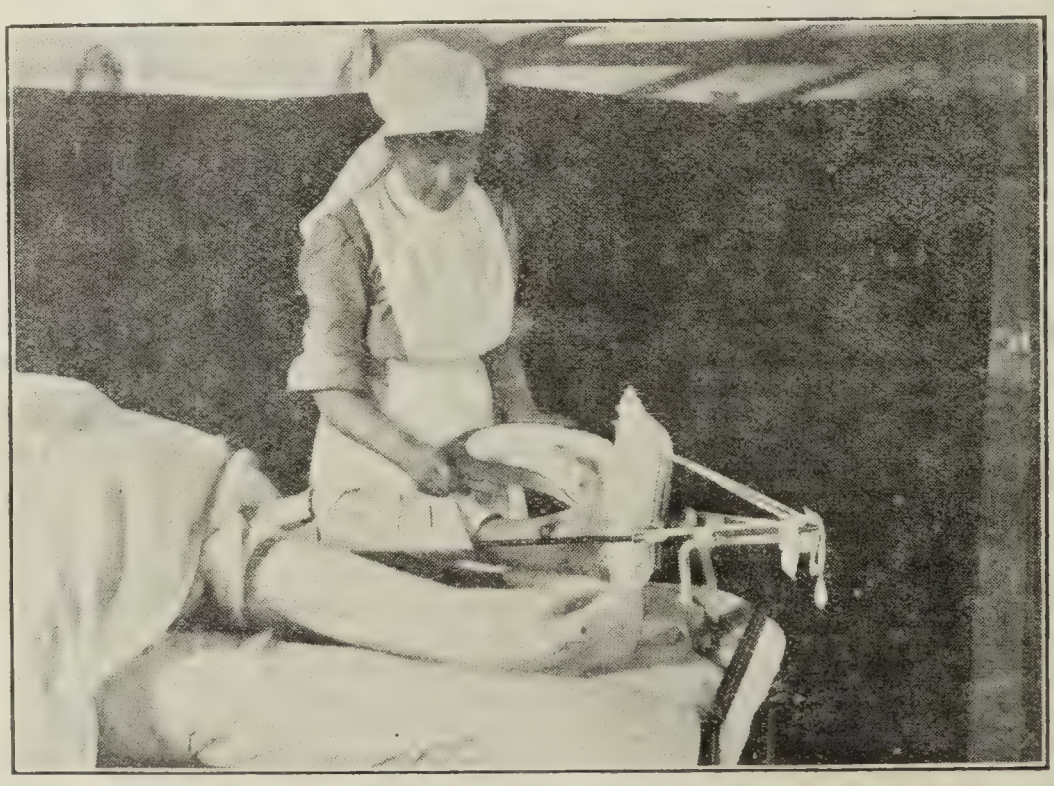


FIG. 3.—Thomas Knee Splint with Plantar Extension (Major Sinclair). A plaster cast is made of the sole of the foot by means of flannel impregnated with plaster-of-Paris. Incorporated in this cast are tapes. When the cast is dry it is glued to the sole of the foot and extension is got by attaching it with the tapes over the serrated border of a special wooden foot-piece.

One great feature in the wards, and an incalculable blessing to the patients and attendants, has been the wide adoption of the overhead rail for the suspension of limbs, and to take the place also of the pulley arranged over the head of the patient's bed in most hospitals to allow him to lift himself by his arms. This was devised at an early date in Boulogne as a result of seeing patients with fractured thigh put up by the so-called Balkan method by Lieut.-Colonel Miles. It has consequently acquired the name of the Balkan support. Two of them, one placed on either side of the bed, may also be employed for the support of an entire hammock bed.

For fixation of the thigh in the abducted position, the abduction frame of Robert Jones was ready to hand, but in the case of the upper extremity much difficulty was experienced in the earlier part of the campaign until the capability of a short Thomas's knee splint for this purpose was fully appreciated.

Captain Page has adopted the ambulatory method of treatment in some cases of fracture of the thigh and the leg, the former with the aid of lateral extending screws fixed above and below to plaster collars surrounding the thigh, the latter by muslin strips impregnated with plaster-of-Paris, after Delbet's method.[15]

A great amount of ingenuity has been expended on splints devised to facilitate transport or to meet special emergencies, also on various adjuncts to the splints themselves. Thus many varieties of rubber, metal, or flannel slings to support the limbs in wire splints, extension attachments, forms of glue for fixing extension strips to the limbs, and lastly, the highly efficient counterpoise suspension apparatuses of Major Sinclair (Figs. 2, 3, 4, 5). Space does not allow of more than mention of these many adjuncts to convenience, cleanliness, and the comfort of the patients.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Plaster-of-Paris has on the whole been but little used, and mostly for purposes of transport. The difficulty of keeping plaster splints clean has mainly militated against them.

Lastly, as to the treatment of the wounds. In this place it is assumed that proper cleansing, drainage, and removal of loose fragments and foreign bodies has been carried out at the casualty clearing stations. Under these circumstances no further immediate procedures are needed on the lines of communication. Even in the case of inefficient drainage or extending infection great judgement requires to be exercised in interference on the first arrival of the patient.

The object to be aimed at is the secondary closure of the wound at the earliest date practicable, and with this object a continuous antiseptic method should be carried on. Up to the present time the most conspicuous success in this direction has been attained with the Carrel-Dakin method, and if treatment has been commenced at the casualty clearing station, the wound may in a considerable proportion of all cases be closed within a period of three weeks. It may be fairly hoped, in the light of present experience, that the number of chronic suppurating compound fractures will be in the near future largely reduced.

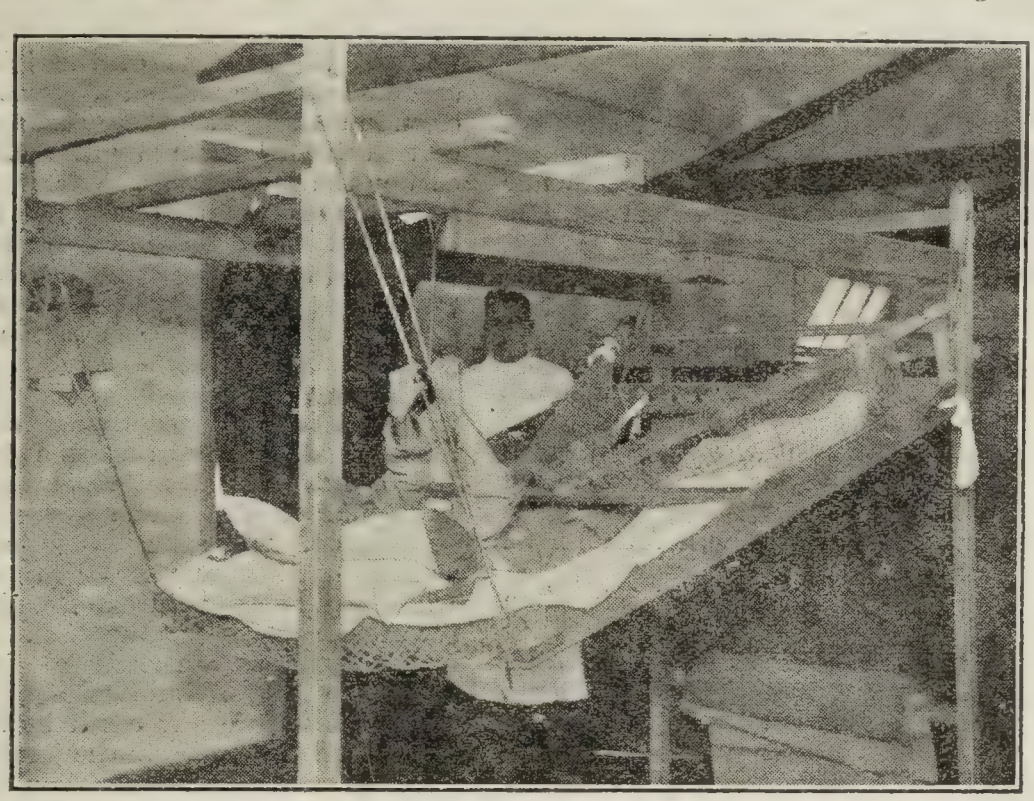


FIG. 4.—The Net Frame used in the Treatment of Fractures of Upper Third of Femur with or without Large Wounds (Major Sinclair). An ingenious combination of the hammock with abduction of the thigh, embodying the principle of Hodgen's thigh splint. A wooden frame 7 ft. by 5 ft. is constructed with a transverse bar, which is at the level of the patient's umbilicus; two leg bars run from the umbilical bar to the foot of the frame. Extensions are applied to both legs by means of gauze and glue. These are passed through holes at the end of the frame and tied. The patient's back and legs are well padded, and the body and legs are supported in the frame by strong one-inch netting. This netting is in three pieces—one for the body, fixed to the sides and head of the frame, and two leg pieces fixed to the leg bars, which are abducted to the necessary angle. Either can be freed independently. The frame is slung by the corners to four uprights (the universal leg suspension frame). Extension is obtained by lowering the head of the frame, usually about 15 inches. This method of treatment is efficient, and the results very satisfactory, both dressing of wounds and nursing of patient being extremely simple.

The date at which sequestra should be removed to allow a complete surgical sterilization of the wound has raised some discussion. When the fracture has not been accompanied by sufficient loss of bone for risk of non-union to occur, there can be no doubt that the earliest possible date is desirable. If, on the other hand, little but the periosteum and a few fragments remain, the probability of securing a sufficiently active osteogenesis to effect union is no doubt increased by leaving apparently dead fragments of bone in connexion with the periosteum for some time, because a few bone cells may have escaped to help in repair which will probably perish if exposed in a suppurating wound.

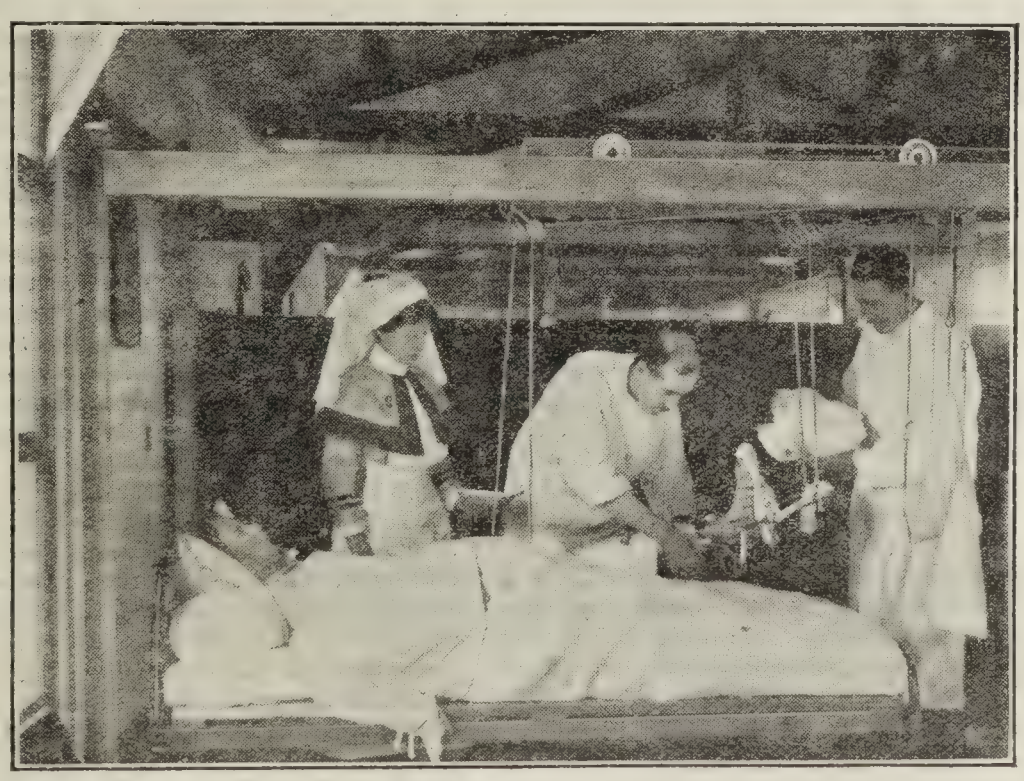


FIG. 5.—Fracture of the Thigh treated with Thomas's Knee-splint and Sinclair's Foot Extension; Counterpoise Suspension from a Travelling Gallery (Sinclair).

In suppurating fractures of some standing Rutherford Morison's method of secondary closure after introduction of the iodoform, bismuth, and paraffin compound has been imported from England, and is giving good results.

Radical treatment for the condition of chronic osteomyelitis has not often been undertaken, unless the cases are of such a character as to be subjected to amputation; the majority are transferred to England, where prolonged stay in hospital is more readily assured.

Lastly, methods of mechanical fixation by plates and screws or by wiring have been very little resorted to as primary measures. A very large proportion of the cases so treated failed from the septic character of the wound, but in the face of the results more recently obtained by secondary sterilization and closure of the wound it is probable that these methods may be revived in cases of difficulty of maintaining the fragments in position, or at any rate resorted to at a much earlier date under more favourable conditions.

Both in Boulogne and elsewhere special departments have been established for the treatment of fractures alone, and in the hospitals generally an attempt has been made to collect the patients with fractures under the charge of one medical officer. This plan has obvious advantages in ensuring special aptitude on the part of the surgeons concerned and the possibility of attaining general results approaching the ideal. At the same time, its general adoption is impracticable; the cases are of a nature to necessitate a long stay in hospital, their collection in one ward imposes a very heavy task on the nursing staff, which needs to be largely increased, and, finally, it not only removes a source of great interest from the general surgeon, but it also renders him less fit to treat such cases when heavy fighting produces them in such great numbers as to render segregation impossible. It must always be borne in mind that the good military medical officer is a general practitioner, since occasions must always occur with frequency in which he must be prepared to deal efficiently with any kind of casualty. The

only way to carry out usefully this idea is to create one or two special centres in which such cases can be treated as well as possible by specially skilled surgeons, and utilize these as presenting an ideal towards which all should work. Such special hospitals, no doubt, encourage the device of new methods and the perfection or modification of others; our special hospitals have done this, but it is only just to the medical officers generally to say that a number of the most useful devices have been introduced quite independently of special conditions, and it is fair to assume that with young and energetic officers this is always likely to be the case.

WOUNDS OF THE JOINTS.

The experience gained in recent previous wars regarding the treatment of wounds of the joints has proved of small avail in the present campaign, because it was obtained almost entirely from observation of the lesions produced by rifle bullets, which had proved themselves of minor gravity and capable of healing spontaneously with good results when subjected to simple treatment founded on the sovereign principle of rest.

The problem of dealing with grossly infected joints, often enclosing a septic irregular fragment of shell and dirty clothing, perhaps further complicated by extensive fractures of the cancellous articular extremities of the bones, was therefore practically a new one to the surgeons engaged. Some definite facts have emerged from the first flood of difficulties encountered, and these may be shortly summarized as follows:

1. The wound of the soft parts clothing the joint is vastly more difficult to deal with than the articular cavity itself, and demands the most scrupulous care on the part of the surgeon.

2. The synovial capsule itself is capable of dealing unaided with an infection often of a really serious grade.

3. A strong tendency exists for an infection to localize itself, and the remaining portion of the capsule may remain free.

4. Drainage in the sense of the insertion of large tubes left in position for days or more is not only useless but also harmful.

5. That a gunshot wound of a joint cannot be dealt with too early, and with proper treatment forms one of the best subject wounds for primary suture.

6. That following the primary surgical intervention the main principle to be observed is that of complete rest gained by immobilization and extension.

General appreciation of these facts has resulted in the conclusion that a large majority of the joint injuries should be subjected to their chief active surgical procedure in the hospitals of the advanced lines, and hence the general hospitals at the present time receive only cases well upon the road to recovery, or such as present the more difficult problem of dealing with established infection and suppuration.

The line of treatment which has been adopted in the former class of case has been already laid down elsewhere (June 2nd, p. 718); it only remains to add that even cases which eventually do excellently often arrive on the lines of communication with synovial effusion and local redness over the joint and in the neighbourhood of the closed wound, signs due entirely to an exacerbation consequent on the disturbance inseparable from transport down the lines. Such cases usually settle down rapidly if only strict care be taken to maintain complete immobilization, while any premature intervention may be the direct cause of disaster.

The class of case may be first dealt with in which a patient arrives with a foreign body still occupying the joint cavity. This may be the result of the impracticability of early *x*-ray examination, the nature of or the small size of the foreign body, or of a large number of patients having to be rapidly dealt with.

If the foreign body be a rifle bullet, and the condition of the external wound satisfactory, no immediate action beyond fixation of the joint is advisable at this period. It is far safer to leave the bullet *in situ* until all chances of awakening or spreading an infection have passed by. The same attitude of masterly inactivity is to be recommended in instances in which the included foreign body consists of very small fragments of shells or bombs, especially if the bodies lie without the actual confines of the articulating surfaces. Such foreign bodies may never need removal. Thirdly, when fragments of shell are of larger size and need removal they may be found to have rebounded from the surface of the bone and actually lie without the confines of the joint cavity, although the capsule has been wounded. Special care needs to be exercised in dealing with these cases, since portions of clothing carried before them by the shell fragments may still occupy the joint cavity. Lastly, the foreign body may be impacted more or less deeply in the articular end of the bone, and if a shell fragment it should be removed, although in a patient who has recently undergone transport undue haste in the procedure is not advisable.

Wounded joints which arrive with obvious local and general inflammatory signs need to be treated with great judgement. The condition may have been aggravated by transport and may rapidly improve when complete rest is assured. Again, the serious infection may be situated in the periarticular structures rather than in the joint itself. Precipitate action under these circumstances is to be deprecated. The safer plan is to place the limb at rest for twenty-four hours or longer, and observe the result, meanwhile making a puncture and withdrawing fluid, if present, for bacteriological examination. If want of improvement or the result of the bacteriological examination indicate the advisability of intervention, the type operation should be of the nature advocated by Colonel Gray—excision of the wound or wounds in the joint coverings, flushing of the synovial cavity after evacuation of its contents, and suture of the synovial membrane. The treatment of the external wound differs according to its size and condition. In some instances it may be closed completely, in others a drainage tube may be inserted down to the sutured capsule, or, where the wound is extensive or obviously not free from infection, it is better to leave it freely open and treat it by antiseptic measures until surgically sterile and suitable for secondary suture. Naturally some of the more extensive wounds must be left to heal by granulation.

The treatment of a freely suppurating joint requires to be of a different character; here the joint cavity must be maintained open and sterilization effected by an antiseptic method, of which Carrel's has undoubtedly given the best results. When, for instance, the cavity of the knee-joint in general needs to be drained, the method carried out by Captain Campbell and advocated by Captain Gill is worthy of special mention. It is generally agreed by all observers that when suppuration extends backwards from the knee the line of progress is not from the pouches lying on either side of the crucial ligaments but around the lateral aspects of the condyles—in point of fact, by the popliteus extension of the capsule on the outer side and the semimembranosus extension on the inner. Hence posterior drainage from the centre of the joint is not only inconvenient to arrange but also inadequate to meet the requirements. Postero-lateral incisions have therefore been devised, but Campbell and Gill have regularized a method which simplifies greatly the accurate and adequate drainage of these regions. Lateral incisions having been made corresponding in position with the reflection of the synovial membrane from the femur, a pair of artery forceps is pushed down on the outer and inner aspects of the lower end of the femur respectively until the points of the forceps can be palpated in the popliteal space. An incision is then made down on to the guide thus furnished, and a direct route is established to the two bursal extensions from the posterior aspect of the joint, and by this Carrel's tubes are conducted for the requisite depth. Should still freer drainage be required, the incision is enlarged, the respective heads of the gastrocnemius exposed, and a portion of the origins of the muscle excised, so that a free opening is ensured. Further mention of the treatment of the extensions by the subcrureal pouch, the internal intermuscular septum, beneath the popliteus or along the semimembranosus tendon is unnecessary. The upper pouch of the joint may need several instillation tubes, which are gradually decreased in number and totally removed at as early a date as possible.

For suppurating joints of some standing Rutherford Morison's method has been adopted with success.

The influence of a coexisting fracture on the prognosis in a joint injury is a matter of great moment in any class of case, but the frequency with which this condition is

LIBRARY U. OF I. URBANA-CHAMPAIGN

met with in gunshot wounds invests it with a very special degree of importance.

There is little doubt that the actual risks to the safety of the limb attached to this complication were somewhat over-estimated at the commencement of the war, and that to-day, in the presence of a more satisfactory and rational treatment of the wound, and also the knowledge acquired as to the possibility of saving the joint entire, or submitting it to either primary, intermediate, or secondary excision, the prospects of avoiding amputation are much improved.

It may be laid down generally that tunne's, cavities containing missiles, fissures, and even T fractures, do not of necessity entail a very serious prognostic gravity provided the wound in the soft parts can be and is satisfactorily dealt with, and the fragment of shell removed.

In a large proportion of such injuries a more or less movable joint can be attained, and in many a perfect result. Still, in no form of injury does this more depend upon the continuous attention of the surgeon, care in the initial treatment of the joint, and subsequent daily precaution. Injuries affecting both bony elements are more serious, but may be treated by excision. Severely comminuted articular ends commonly need amputation, except where the single articular end can be removed, as in the case of the upper ends of the humerus and femur, or where bones, such as the carpal and tarsal, can be completely removed. The position to-day may be fairly summed up by the remark that, putting on one side articular injuries in which the bony destruction is irreparable, the fate of the case depends upon the success with which the wound of the soft parts surrounding the articulation is treated, the actual joint lesion taking a place of secondary importance.

Excision of Joints for Gunshot Injury.

The operation of excision is certainly struggling for a return to its former position as a procedure in military surgery. The operations were no doubt in older wars often performed for what would now be considered injuries not sufficiently extensive to demand so radical a procedure; further wound treatment was often defective. Yet excision occupied a prominent place until, with the introduction of the bullet of small calibre and ogival or dome-shaped tip, injuries of the joints began to be regarded as of minor importance. A revulsion in the latter opinion occurred early in this campaign, and some surgeons, notably Colonel H. M. W. Gray [16] and Colonel A. Fullerton,[17] have striven to enlarge the sphere of application of the operation. Growing experience has shown that it may be resorted to in well chosen cases in all three stages of the progress of a joint injury, with a distinct prospect of success under suitable conditions.

Early Excision.

By this is meant immediate operation at the casualty clearing station. It is obvious that a certain number of joints may be excised as an alternative to amputation. Thus a severe localized comminution of the lower end of the femur or the upper end of the tibia may render any chance of recovery with a useful limb improbable, while the uninjured shaft may still be of sufficient length to allow of ultimate union. The same remark may apply when both articular surfaces have been destroyed by a traversing missile. In the case of the upper end of the humerus, and also of the femur, comminuted fractures with destruction of the articular surface also form good subjects for the operation. In the case of the elbow a partial excision may often be done. The possibility of these procedures is limited, however, by the definite condition that circumstances will allow the patient to remain a sufficiently long time to be able to bear safely the risks of transport down the lines of communication to the general hospital.

Intermediate Excision.

This operation is that concerning which the gravest doubts were felt in the earlier stages of the war, and even now it can only be undertaken with the definite intention of following it at once by an amputation if the procedure is followed by local extension of infection and signs of systemic absorption. It has, however, proved that excision may be a successful alternative when the severity of the general and local signs seems to indicate amputation as the only resource. The explanation of this experience can be found solely in the facts that better drainage can be ensured when the articular ends of the bones have been removed, and the wound can be treated more effectively. It is a striking fact that progressive osteomyelitis from the sawn ends of the bone has not developed, especially when the frequency of this complication in ill-drained comminuted fractures is remembered. Two special details need mention: (1) Should the synovial membrane be removed? As a general rule this question is to be answered in the negative. The synovial surface in itself is better capable of dealing with an infection than a freshly cut layer of subsynovial areolar tissue; further, when no extensions of suppuration have taken place it forms an effective barrier against such extensions when proper drainage is provided. (2) Should the refreshed ends of the bones be placed in apposition, or be temporarily kept widely separated by extension? The latter plan has been most generally adopted. The excision of bone should be of the most limited extent in the case of the knee. Lastly, in this joint as in all others, excision is not to be regarded as a proper alternative where efficient drainage can be expected to ensure the end desired.

Late Excision.

The principles guiding the performance of excision at a later date do not materially differ from those laid down above; moreover, as far as the hospitals on the lines of communication are concerned, the distinction is rather one of date than of the actual pathological conditions to be dealt with.

The Results Obtained in Wounds of the Knee-joint.

Any writer concerned with wounds of the articulations instinctively thinks of the knee-joint, the most troublesome to treat, and that in which a good result is most gratifying. Two small series of cases treated by Captain Campbell and Captain Gill respectively may give some indication of the results being attained.

In 60 consecutive cases (Campbell) coming from the fighting on the Somme, 14 were classified as very severe, 17 as severe, 13 as slight, and 16 as having retained foreign bodies. Three died and one required amputation. The three deaths were due in two cases to secondary haemorrhage and in one to septicaemia. The other 56 cases were transferred to England in good condition, the great majority with every prospect of good movable joints.

In a second series of 69 cases (Gill), in 31 the injury was inflicted by a bullet, and in all an uninterrupted recovery was obtained by rest alone.

Amongst the remaining 38 cases one died as a result of meningitis following a fracture of the skull, and in four cases, one of which developed delayed tetanus and recovered, amputation was required.

Thus in 129 cases amputation was required in 3.87 per cent., and death occurred in 3.1 per cent.

A much larger series of cases, treated by different surgeons at Rouen, has been analysed by Colonel Gilbert Barling, and the results are shown in the appended table:

Cases of Wound of Knee-joint operated on at Rouen Hospitals in the second half of 1916, excluding all those which were so quiet that nothing was done, and all those submitted to early amputation as conservative measures were inapplicable.

1.	Total cases of injury to knee operated on	845
2.	With bone injury	438
3.	Without bone injury	407
4.	Wound excised and closed	322
5.	Cases with wounds excised and closed requiring further operation	82=25.5%
6.	Wound excised and packed	336
7.	Cases with wounds excised and packed requiring further operation	128=38.4%
8.	Excision of knee	42
9.	Arthrectomy, partial or complete ...	15
10.	Excisions or arthrectomies amputated...	13=22.8%
11.	Deaths after excision or arthrectomy ...	13=22.8%
12.	Amputation without excision	151
13.	Deaths after amputation without excision	49=32.4%
14.	Total amputations	164=19.4%
15.	Total mortality	72= 8.5%

Note.—One hospital with a large number of cases was unable to separate the cases under headings 4 and 6.

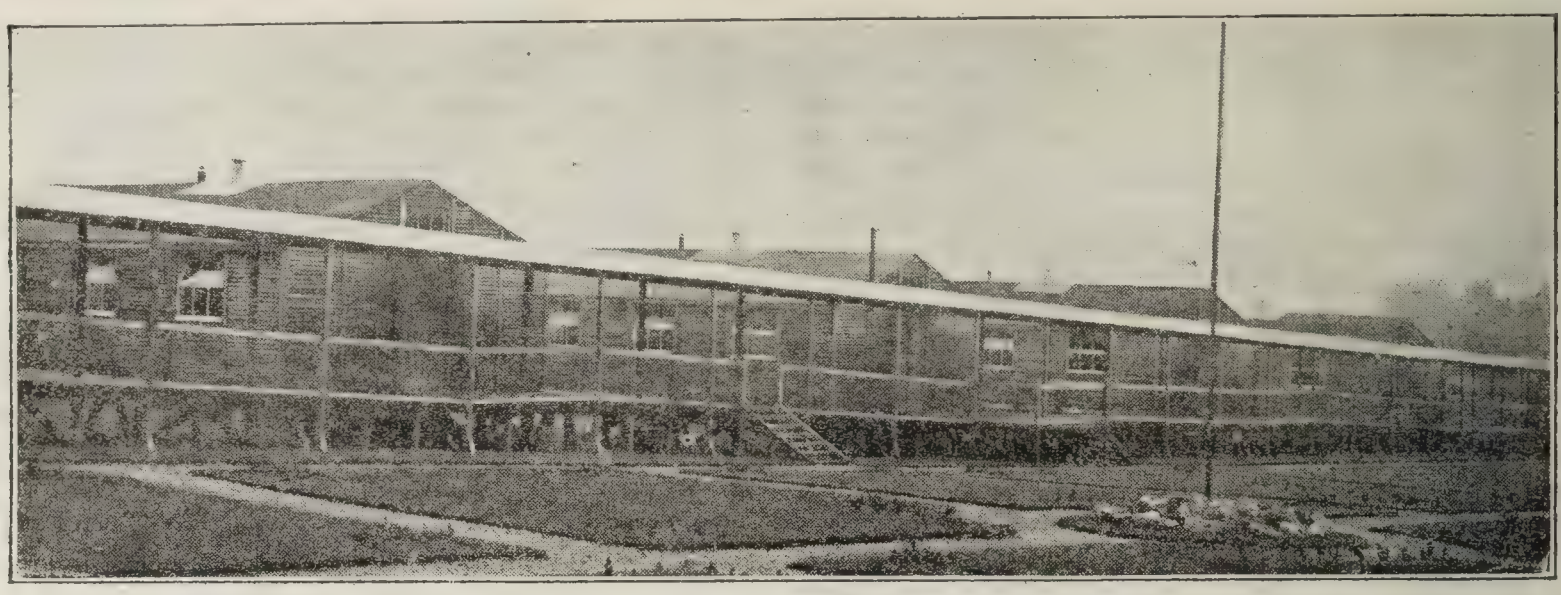


FIG. 6.—View of St. John Ambulance Brigade Hospital, showing connexion of the huts by an open corridor.

INJURIES TO THE HEAD.

A great change has taken place since the commencement of the war both in the nature of the cases and in their actual number. This change depends on the one hand on the fact that a larger number of these injuries are retained and operated upon at the front lines, and on the other on the protection afforded to the head by the helmet. The early treatment of these injuries has already been dealt with; it suffices here to say that the patients which now arrive have either already been operated upon and are in good condition, or they come down already suffering from septic complications. The general lines governing the treatment of the latter class of case have been admirably laid down in a paper in the *British Journal of Surgery* by Sargent and Holmes,[18] and certain points in the technique of the operative procedure elaborated. These authors have also dealt with the anatomical and histological changes associated with traumatic injuries and infected wounds of the brain and their bearing on the surgical treatment of these conditions. Further, examination of a considerable number of patients some months after their return to England proved much more satisfactory than had been generally expected. It was found that the proportion of patients who die after transference to England is small; later complications, such as cerebral abscess, are comparatively rare, and serious sequelae, such as insanity and epilepsy, are much less common than had been foretold. In only 15 per cent. of the patients examined, however, had more than one year elapsed from the date of the injury. It also appeared that many patients with foreign bodies deeply lodged in the brain recover, and are scarcely more liable to serious complications than men in whom the brain has been merely exposed and lacerated. These conclusions are obviously only tentative, but as far as they go appear hopeful.

Holmes and Sargent[19] have also described a condition hitherto rarely seen, and established a definite symptom-syndrome for its recognition. It is characterized by an immediate spastic paralysis of the legs, and frequently associated with spastic paresis of the proximal segments of the upper limbs; they have shown it to be due to occlusion of the superior longitudinal sinus or of the veins that enter it, by a depressed fracture of the vertex of the skull. Experience showed the results of surgical interference with cases of this class to have been extremely unsatisfactory. Thus, among 39 cases observed which were operated upon either by the authors or others, 15 deaths occurred, while among 37 cases in which no operation was undertaken only one died before transference to England. While it is allowed that these figures have no absolute value, as naturally only the most serious cases were selected for operation, and in seven of the fatal cases direct injury to the brain was present in addition, yet the results emphasized the danger of operation. Moreover, the uncomplicated cases showed a remarkable tendency to improve, probably owing to the free venous anastomosis permitting a re establishment of the circulation.

An important contribution to the localization of function in the brain has been published by Lister and Holmes,[20] who from a study of a large number of cases with injury in the occipital region were able to determine the relative positions in the cortical visual areas of the foci that subserve vision of separate portions of the visual fields. They bring forward strong evidence with regard to the site for the centre for macular or direct central vision, of which very little had been previously known.

The following conclusions are come to:

1. The upper half of each retina is represented in the dorsal, and the lower in the ventral, part of each visual area.

2. The centre for macular or central vision lies in the posterior extremities of the visual areas, probably on the margins and the lateral surfaces of the occipital poles.

3. That portion of each upper quadrant of the retina in the immediate neighbourhood of, and including the adjacent part of, the fovea centralis is represented in the upper and posterior part of the visual area in the hemisphere of the same side, and vice versa.

4. The centre for vision subserved by the periphery of the retinae is probably situated in the anterior end of the visual area, and the serial concentric zones of the retina from the macula to the periphery are probably represented in this order from behind forwards in the visual area.

Holmes and Smith have recorded observations on the nature and localization of motor apraxia, or the inability to perform purposeful actions despite the preservation of movement and power, and in disturbance of the faculty of localizing objects in the external world by vision.

Probably in no other branch of medicine have so many and such difficult problems arisen as in the treatment of wounds and diseases of the nervous system. Further, in this field an extraordinary opportunity has occurred to observe, analyse, and record the effects of local lesions, many of which are rarely, if ever, seen in civil life. When the results of this work are eventually correlated, they must throw much light on the physiology and the symptoms of disturbance of different parts of the brain, spinal cord, and peripheral nerves, and thus increase our knowledge of the diagnosis and treatment of nervous diseases. Special arrangements have been made in order that cases under early observation in France should be sent to special hospitals in England, so that continuous records will be maintained of a very large number of patients.

NOTE BY COLONEL PERCY SARGENT.

I am indebted to Colonel Sargent for the following summary of his opinions:

The very large experience gained of gunshot wounds of the head has led to a considerable degree of modification in their treatment. Immediate routine operation, often incomplete and, in the absence of full neurological information and *x*-ray examination, sometimes unnecessary and even misdirected, is no longer widely practised. It has long since been made abundantly clear that early evacuation of operated cases is often followed by disaster. As it is impossible to operate upon these cases and to retain them at the clearing stations for a period which renders transportation safe, more especially during times of great military activity, the practice now generally adopted is to transfer them without operation as soon as possible to hospitals further down the line. It has been made quite

LIBRARY U. OF I. URBANA-CHAMPAIGN

clear that surgical intervention is rarely required for the relief of cerebral symptoms, whether general or focal. Its chief aim is the prevention of intradural infection. On this conception all cases of gunshot wounds of the head fall into one of two categories, according to whether the dura mater has or has not been penetrated. Non-penetrating wounds have a low rate of mortality, whether operated upon or not, provided that the surgeon respects the integrity of the dura mater.

It is customary, therefore, to do in these cases only as much as may seem advisable to ensure speedy healing, such as excision of the edges of the wound, removal where necessary of bony fragments, and partial or complete closure of the gap in the scalp either by suture or by some form of plastic operation.



FIG. 7.—Interior of a ward of the St. John Ambulance Brigade Hospital.

Penetrating wounds, on the other hand, afford more room for difference of opinion regarding their treatment. Individual cases continue to present difficulties even to those who have seen large numbers, but, broadly speaking, there is a consensus of opinion in favour of the following line of treatment: The wounds having been cleansed and dressed, the patient is transferred as soon as possible to a hospital where he can be retained for at least a fortnight after the operation. A complete neurological and radiographic examination is made and the operative treatment then directed according to the diagnosis thus arrived at. In some cases of penetrating wounds no operation is indicated, such as those in which a bullet has passed completely through the head; or those in which a bullet or a metallic fragment is embedded in the brain at a distance from a small clean entrance wound, and is giving rise to no symptoms. Another class of case for which operative interference is usually contra-indicated is that in which the longitudinal sinus has been injured. Cases where a track from the scalp wound leads down to indriven bony fragments, or to an easily accessible missile are operated upon, briefly, as follows: A moderately large flap is turned down after resection of all damaged tissue round the scalp wound; the bony opening is enlarged sufficiently to expose thoroughly the opening in the dura mater; the indriven fragments of bone and metal are removed under a constant stream of hot physiological saline solution; and the track is drained by a celluloid, metal, or rubber tube brought out through the original wound. In cases of more superficial cerebral laceration, where track drainage is unnecessary, the principle is employed of covering the denuded brain by some plastic operation on the scalp; in these circumstances drainage tubes emerging from the angles of the scalp flap are usually employed for a few days.

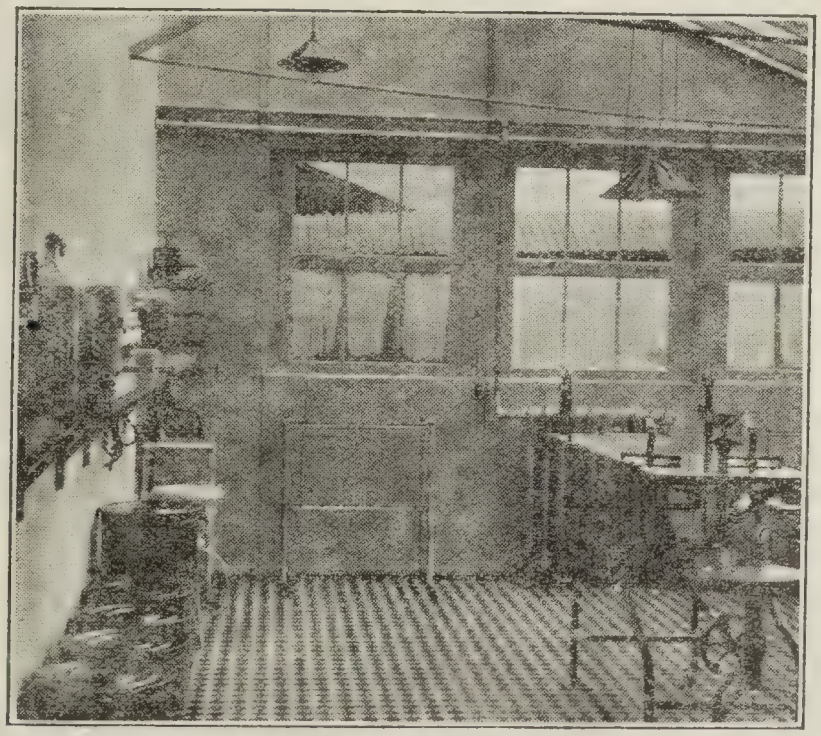


FIG. 8.—Interior of the operating theatre of the St. John Ambulance Brigade Hospital.

Retained Missiles.

Opinions still vary regarding the advisability of operating for the removal of bullets or shell fragments. There is much evidence to show that these foreign bodies are well retained, and, apart from the uncommon accident of late suppuration, cause no symptoms. It has been stated by more than one writer that bullets embedded in the brain move about under the influence of gravity. The evidence for this view is wholly unconvincing. Removal of bullets, even when the wounds have healed and the risk of septic infection thereby is largely minimized, must be, even in skilled hands, attended by an amount of damage which in most cases would have more serious neurological consequences than could the presence of an aseptic bullet.

Primary removal of a deeply-seated missile carries with it the additional risk of septic infection. For these reasons the usual practice is to leave alone such missiles.

The treatment of indriven fragments of bone is more debateable. When driven into the brain by a missile which is itself retained, the bony fragments are rarely, if ever, more deeply placed than the projectile. When driven in by the impact of a missile which does not itself enter the cranial cavity, the bony fragments are rarely found so deeply situated but that they can be removed along the track with little, if any, additional damage being done.

With regard to the septicity of these indriven metallic and bony fragments, it has been found that a large proportion, when dropped into culture media immediately upon removal, fail to provoke any bacterial growth, either aërobically or anaërobically.

The question of the intracranial pressure has been the subject of repeated observation. Among the conclusions of practical importance which have been arrived at are the following:

1. Apart from the rare instances of extensive intracranial haemorrhage, traumatic oedema, whilst playing an important part in symptomatology, does not reach a sufficient degree of intensity to endanger life.

2. The instances of severe intracranial haemorrhage not rapidly fatal are very few; and even amongst these there is a certain number which surgical intervention is not likely to save. Experience has shown that an intracranial haemorrhage which is sufficiently severe to demand operative relief, and which can be recovered from, gives unmistakable signs of its progress. The operation can be deliberately planned and carried out with the definite object in view. Exploratory operations on the chance of discovering a haemorrhage are rarely if ever called for.

3. In case of intracranial pressure from secondary oedema which is causing severe headache and herniation of brain, this can almost always be controlled by lumbar puncture. Occasionally contralateral decompression has been done for these cases and has afforded good results.

Such evidence as is at present available from the later results (six months to two years) is all in support of the general policy of treatment outlined above.

The steel helmets have played an important part. The study of cranial wounds before and after their general adoption brings to light many interesting points. The outstanding feature, however, is that which concerns the penetration of the dura mater. The proportion of penetrating wounds has very largely diminished, as also has the mortality, another amongst many indications that the surgeon cannot attach too much importance to the integrity of this membrane, or treat it with too much respect.

INJURIES TO THE SPINAL CORD.

Wounds and injuries of the spinal cord, when amenable to treatment, demand early surgical intervention. At the commencement of this war but little was known regarding the actual structural changes attendant on gunshot injuries, and what was known was concerned mainly with the changes which were found in spinal cords examined at a comparatively late date. The position of the surgeon was rendered yet the more difficult, in that past clinical experience had shown the extreme difficulty which exists in forming a correct prognosis, particularly in view of the remarkable ultimate recoveries observed in patients whose primary symptoms had not been able to be distinguished from those observed as attending total destructive lesions.

In order, therefore, to recognize when surgical intervention can be undertaken with a reasonable prospect of success, it was necessary to obtain an accurate idea of the nature of the pathological changes produced in the cord by modern projectiles. An investigation on this subject was undertaken by Gordon Holmes.[21] He found that even slight local injuries are very frequently associated with extensive oedema, haemorrhages, softenings, and often with ascending cavity formation, which may extend a considerable distance both above and below the level of the original injury or wound. These changes he refers to the concussion effect produced by the missile through the walls of the spinal canal; they may exist even without the presence of a fracture of the vertebrae. Such changes can obviously not be relieved by any reasonable operation, and the fact that, apart from the secondary cavities that develop later, they occur immediately or within a very short time of the infliction of the injury, diminishes the favourable prospect of any surgical intervention. In some cases undoubtedly the symptoms are largely or in part due to compression of the spinal cord by either the missile or a fragment of depressed bone, but numerous examinations have proved that even in these the same intraspinal lesions exist.

Even relatively slight injuries often produce for the first few days, the period when operation offers the best chance of success, symptoms that may be confused with those of total and irreparable damage to the cord, and some clinical indication of the severity of the spinal injury is consequently necessary before an operation can be reasonably undertaken. This question was investigated in a large number of cases and the conclusions were published in the same lectures. These are to the effect that the safest guide to the severity of the injury is afforded by the form and character of the sensory disturbances, and especially by the changes and modifications in the reflexes of the affected limbs.

In most cases the site of the wound or a radiographic examination permits an accurate diagnosis of the medullary lesion, but not infrequently this can be determined only by a study of the symptoms produced by it. The method by which an accurate local diagnosis can be made is also dealt with in these lectures. Here, too, many important and interesting symptoms which result from injuries to different portions of the spinal cord are described. It was found, for example, that when its lower cervical and the upper thoracic segments were severely affected, the patients often presented a serious symptom-syndrome characterized by hypothermia, bradycardia, low blood pressure, reduced secretion of urine, and mental hebetude. The body temperature may fall as low as 80° F. (27° C.), the pulse-rate to 35 or 40 per minute, the blood pressure to 60 mm. of mercury, and only 4 to 8 oz. of urine may be secreted in the twenty-four hours.

Injuries to the region from which the vasomotor fibres to the kidneys pass off may, on the other hand, produce an extraordinary polyuria, and lesions in the higher cervical segments were shown to be often associated with hyperpyrexia.

Attention has been drawn by T. R. Elliott[22] to the occurrence of spinal lesions in men who have been exposed to shell explosions in their immediate vicinity, but who escaped direct injuries.

The acquisition of wider knowledge has not, however, greatly widened the scope of operative intervention. Operations are still for the most part confined (1) to cases in which a radiographic or direct examination reveals the presence of displaced and depressed fragments of bone or the lodgement of foreign bodies either within the canal or buried in the cord (it may be mentioned that several cases have been observed where retained bullets have travelled long distances within the spinal canal, particularly in its lower part); (2) to cases in which the patients suffer severe and unbearable pain; (3) to cases in which pressure from haemorrhage around the cord is suspected, such cases being very rare. An additional class may be added in which a late operation is performed on the chance of some improvement being gained, mainly as a question of expediency. Patients with injuries to the nerves of the cauda equina have as a rule been evacuated to England.

No striking change in operative technique has been developed, beyond the general tendency to partial rather than classical laminectomies, and perhaps the development of an increased confidence in the utility of placing a muscle graft over the opening in the spinal membranes when leakage of cerebro-spinal fluid has been associated with the performance of the operation. An intact dura has throughout been an important immediate prognostic element, as in the case of injuries to the head.

Early drainage of the bladder by a suprapubic tube has been advocated by Percy Sargent since the commencement of the campaign, but the difficulties in the transport of patients thus operated upon, and the increased responsibility devolving on the nurse in keeping the back in good condition, have militated against an extensive adoption of this measure.

Injuries to the peripheral nerves have been extremely common; it has indeed been estimated that in 18 to 20 per cent. of all limb wounds slight or more serious lesions of the large nerve trunks coexist. But owing to the facts that when, as is usually the case, extensive septic wounds are present, the early surgical treatment of nerve injuries is impracticable, and that the patients with small and clean wounds can be safely transferred to England, neither the treatment nor the study of these injuries has been an urgent question in the general hospitals on the lines of communication in France.

ABDOMINAL INJURIES.

The chief interest in injuries to the abdomen has rightly been transferred from the general hospitals to special hospitals at an advanced line or to the highly developed casualty clearing stations. Prior to the summer of 1915, however, the great majority of injuries to the abdominal viscera were dealt with on the expectant system, and such of the patients as survived arrived in the general hospitals. The experience gained from the observation of these afforded some information regarding the prognosis of wounds of both hollow and solid viscera, which may in the future not be so readily obtained.

The enormous mortality attending injuries to the small intestine was clearly demonstrated, both by the comparatively small number of patients arriving, and by the simple nature of the injuries found at *post-mortem* examination compared with the extensive and multiple character of the lesions which have been almost uniformly discovered by early operations. This experience exerted a healthy influence in supporting the advisability of early operation. The lesser fatality attending wounds of the colon, excluding the transverse colon and the sigmoid flexure, was also clearly brought out, since a larger proportion of wounds of the large gut arrived at the general hospitals, and of these more than 50 per cent. recovered sufficiently to be transferred to England in good condition. This number obviously has no bearing on the actual mortality of wounds of the colon, but compared with a percentage recovery of less than 16 per cent. in a small series of minor injuries to the small intestine, it is sufficiently striking.

A few points of some interest also emerged from the series of *post-mortem* examinations made on patients who had survived several days; thus the general character of the peritonitis in cases of wounds of the small intestine,

LIBRARY U. OF I. URBANA-CHAMPAIGN

and the localized nature of that developing in consequence of wounds of the large intestine; the observation that when the wound track traversed the psoas muscle and its sheath, extravasation of faecal contents extended to the thigh, and, indeed, might travel the whole length of the lower limb; that, while patients dying from the effects of wounds of the small intestine uniformly succumbed to peritoneal infection, deaths following wounds of the colon were, in 40 per cent. of all the cases, the result of a general infection from the septic wound of the soft parts of the trunk, and not from the peritoneum itself, the main feature of the general infection being a purulent bronchitis; lastly, in a series of *post-mortem* examinations made by Captain Henry, in every case a general *post-mortem* invasion of the blood stream by anaërobic organisms was discovered.

Experience again proved the practical futility of performing operations for the closure of intestinal wounds after thirty-six hours has elapsed from the time of injury, and it is probable that any successes obtained in this field can be counted upon the fingers. On the other hand, the good results often obtained by performing a proximal colostomy in large wounds involving the colon, and thus preventing the occurrence of the late systemic infection referred to above, have been amply proved. The few cases in which an attempt has been made to obtain the same result by making an intestinal short circuit by anastomosis have not been encouraging, and it is obvious that this class of case is not a favourable one for such procedure, both by reason of the general condition of the patient and the difficulty in performing a clean operation.

No novel features have been disclosed by observation of the numerous instances of wounds to the solid abdominal viscera, except that perhaps more attention has been given to interference with their secretory activity, and that the favourable course commonly following these injuries in the absence of serious septic complications has tended to confirm the propriety of maintaining an expectant attitude in the question of surgical intervention. Speaking generally, it may be said that the formation of an abscess or the occurrence of secondary haemorrhage are the only indications for interference at the period at which the patients reach the general hospitals. Septic infection has been the common cause of death in all cases of fatal injury to the solid viscera, and in 40 per cent. of deaths from wounds of the liver secondary haemorrhage has accounted for the fatal issue.

Intraperitoneal injuries to the urinary bladder, even discovered during operation, have been rare throughout the campaign, and for some reason probably connected with the conditions of trench warfare extraperitoneal wounds have become far less often seen than in the earlier stages of the war. These latter cases were the source of much interest because they were sometimes difficult to diagnose from injury to the pelvic small intestine in the early stage, and also because treatment by simple suprapubic cystostomy was found so successful. Of thirty such consecutive operations only two proved unsuccessful, and in each of these comminuted fractures of the pelvis were coexistent. If treated expectantly, in many instances the urine escaped freely from apertures in the abdominal wall, the buttock, or the thigh for a week or ten days, and the patients appeared to be doing well, when infection of the urine took place, extended to the bladder, and toxaemia followed. Even in the latter class of case, however, a late operation may save the patient.

The condition of cases arriving at the general hospitals subsequently to the primary operations at the advanced lines deserves a word of mention, although the patients are for the most part birds of passage.

The general results have been remarkably good, the most common defect, now not so common as in the earlier stages of the adoption of early operation, has been incomplete union of the wound in the abdominal wall. In some cases this has been accounted for by a primary use of the initial entry or exit aperture for the site of the exploratory incision, in others from the persistency of a gap left for a drainage tube; but beyond these complicating factors an obvious difficulty has been experienced in obtaining firm primary union. In some cases this may have depended on an actual deficiency in vitality of the patient, but in the majority it has undoubtedly been due to infection, and when it is borne in mind that these operations are performed on the subjects of intestinal perforations in whom infected blood is present and has to be evacuated from the abdominal cavity, it is not to be surprised at. Such wounds have usually healed readily by granulation. The next occasional trouble has been the secondary formation of abscesses or fistulae. These have not been common, the abscesses usually following colic wounds and the fistulae wounds of the small intestine. It is noteworthy that fistulae have formed secondarily in several cases in which the primary exploration has been negative—a fact bearing on the common occurrence of severe contusion of the wall of the intestine unaccompanied by perforation. As a rule, the bowels have acted regularly and well; in some instances diarrhoea has been troublesome, and the writer has only seen one patient in whom secondary obstruction was caused by adhesions. On the whole, the evidence seems against troublesome peritoneal adhesions developing with any degree of frequency. In one *post-mortem* examination made upon a patient who died from pneumonia the abdominal cavity was absolutely free from adhesions, and an end-to-end anastomosis was so perfect as to be with difficulty discovered. As is usually the case, however, the bowel on the proximal side of the line of union was already somewhat dilated.

RADIOGRAPHY.*

Considerable advance in the localization of foreign bodies has been made in the general hospitals on the lines of communication during the progress of the campaign.

While the majority of surgeons are agreed that the greatest radiographic assistance which they receive in the removal of foreign bodies is afforded either by stereoscopic

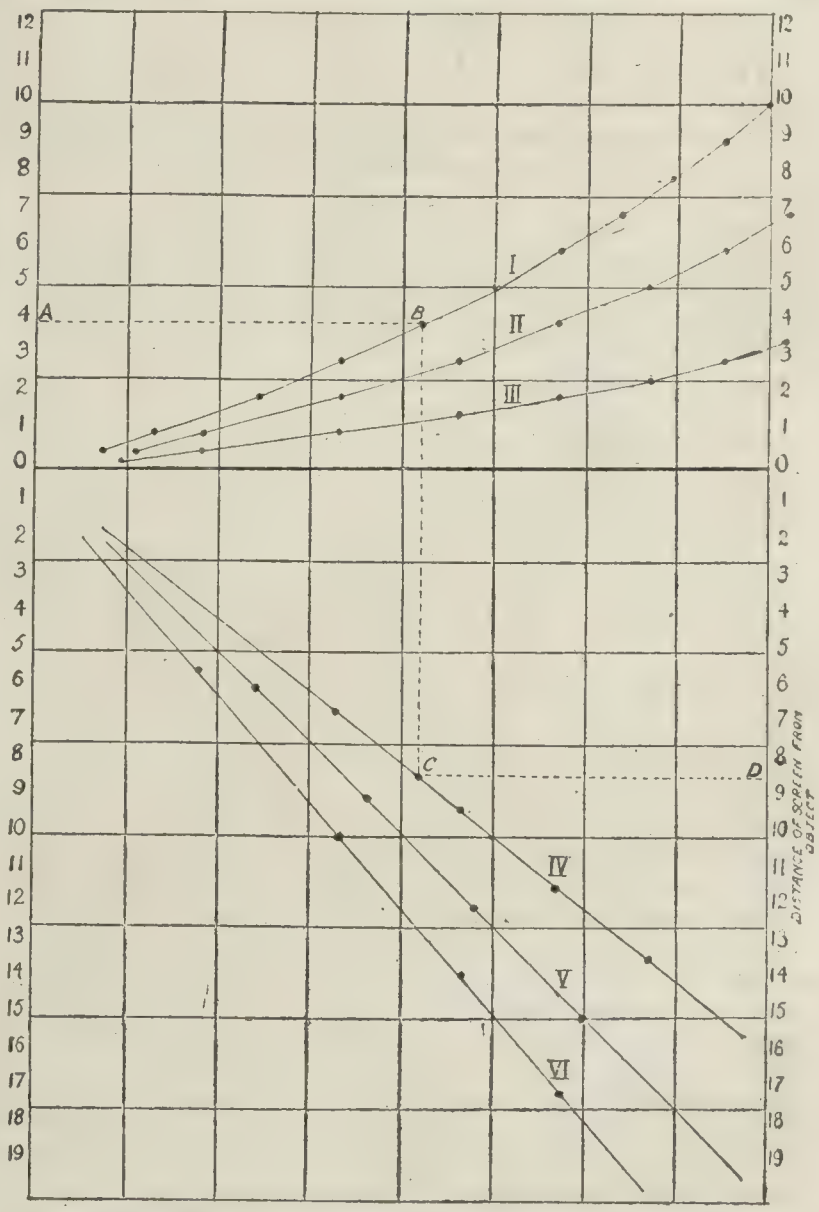


FIG. 9.—I, Curve for a displacement of the focus of 150 mm. II, Curve for a displacement of the focus of 100 mm. III, Curve for a displacement of the focus of 50 mm. IV, Correction for a distance from the screen to the focus of 400 mm. V, Correction for a distance from the screen to the focus of 500 mm. VI, Correction for a distance from the screen to the focus of 600 mm.

skiagrams, or else by two plates taken at planes at right angles to one another—usually antero-posterior and lateral—there are situations in the body, such as the thorax, abdomen, and hip region, where it is more convenient to be provided with the depth of the foreign body in centimetres under a certain spot.

* The writer is indebted to Major Curtis Webb for the technical details contained in this section.

The prime credit of evolving a method for estimating the position of a foreign body must be accorded to Mackenzie Davidson, but in the early days of the war Dr. Hampson worked out a modification of Davidson's principle whereby the depth of the foreign body from the screen or plate could be easily and quickly determined, and several ingenious modifications of a mechanical device attached to a fluorescent screen have been put upon the market based in principle on Hampson's work.

In October, 1914, M. Paul Wigny, director of the Rouen Electric Light Company, worked out a formula and chart (Fig. 9) for Major Curtis Webb; subsequently the formula was independently evolved, and published in England in 1915. This formula is based on Hampson's principle, and has been extensively utilized by Major Curtis Webb, who has supplied the following details as to its application:

In Figure 10 T is the table, and P the part of the patient in which lies the foreign body at an unknown depth (x); L = the distance between the anticathode and plate;

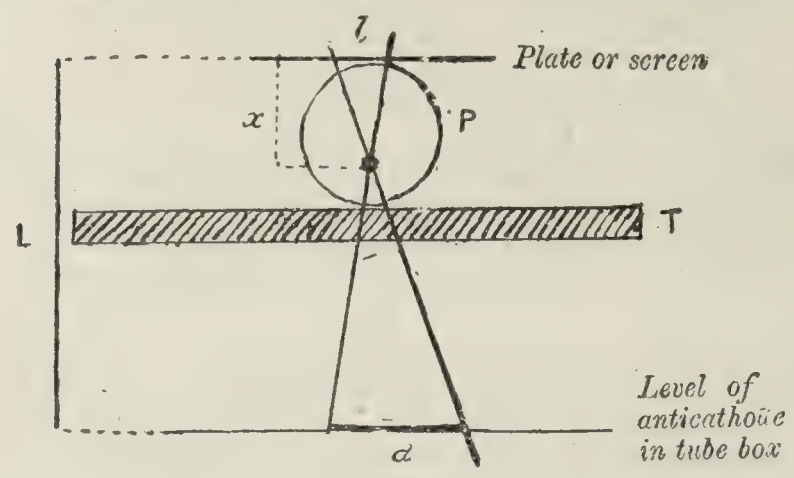


FIG. 10.

d = the horizontal movement of the tube between the two exposures; l = the distance between the two shadows on the plate or screen. With these indications it is easy to work out the formula:

$$x = \frac{l \times L}{d + l}$$

The procedure is as follows: First centre the tube under the part where the foreign body is seen, and close the diaphragm down until the foreign body is just enclosed by the aperture. Mark the skin over the point, and the foreign body will lie vertically under it. Place a plate in position with its centre about over the foreign body, move the tube a few centimetres (4 or 5) one way, expose and then move the tube back 10 centimetres, and expose again *on the same plate*. On developing, there will be two shadows: the distance in centimetres between two corresponding points of the shadows will be the distance l; d should be 10 cm., and L should be 50 cm. On many x-ray couches there are arrangements for securing this last factor, and where this is the case the chart (Fig. 9) will enable the exact depth of the foreign body to be ascertained without calculation in the following way:

In the upper left side of the chart are a series of numbers corresponding to the distance between the shadows. Take this figure, follow the horizontal line until it touches the curve corresponding to the amount of lateral movement of the plate—usually 10 cm. Then follow the perpendicular from there until it impinges on the line corresponding to the distance between the plate and the anticathode (L), and then trace the horizontal from this point towards the right of the chart. The example in the chart is indicated by the line A B C D, where a distance between shadows of 4 cm., a movement of the tube of 15 cm., and 40 cm. between plate and anticathode corresponds to a depth of the foreign body of 8.5 cm.

If a couch has been extemporized the distance of the anticathode from the top of the couch can be measured once and for all and noted, and the distance of the plate, where lying on the part under examination, from the top of the table can be added to the above known distance and the depth of the foreign body finally worked out from the formula; or the part can be raised on pillows until L is approximately 50 cm. From a surgical point of view approximation is all that is necessary, for note that, if it be endeavoured to arrange that L be 50 cm., but for some reason it be either 48 or 52 cm., then x will be either 8 or $8\frac{2}{3}$. Should, for example, l be taken as 2 cm., then a difference of $\frac{2}{3}$ cm. is negligible in an ordinary removal of a foreign body. However, very little ingenuity is required to ensure L being fairly accurately 50 cm.

For localization of foreign bodies in the eye, an excellent head rest has been devised by Major Higham Cooper, which is both simple, rapid, accurate, and convenient.

In civil practice it has been customary to radiograph the eye with the patient in the sitting position. This is impracticable in the majority of wounded soldiers,

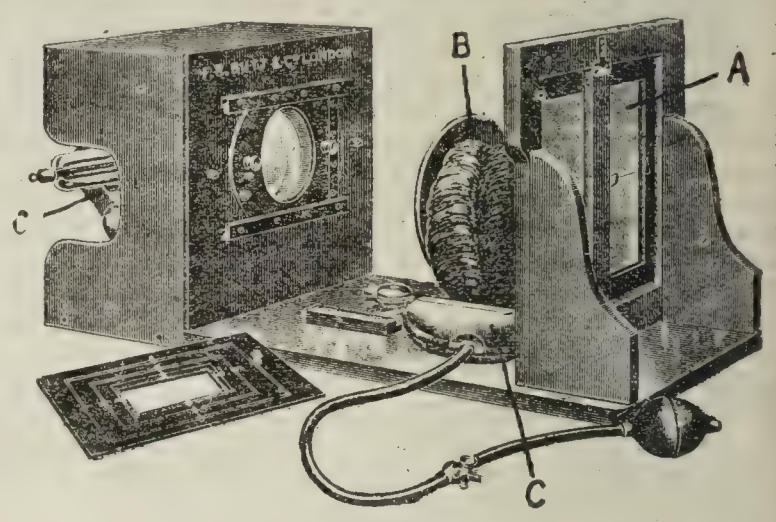


FIG. 11.

hence the head rest, illustrated in Fig. 11, was designed to enable men to be x-rayed while in bed in the wards.

The apparatus is either arranged across the bed, or made to replace the pillow, the patient's head being placed in the position shown in Fig. 11, pressed against a plate-holder A, provided with cross wires. The patient's head rests upon an air pillow, which can be inflated to raise it to the height desired. An upright of thin wood, B, is then pushed up to the other side of the head, and clamped to immobilize the head. The x-ray tube (previously centred on the intersection of the cross wires on the plate-holder) is held in a clamp, c, capable of a 3 cm. shift to either side of the central position against stops. Hence no measurements require to be made, as both the distance of the tube and the displacements are fixed.

In localizing foreign bodies in the eye a metal marker must be placed in some known relation to the centre of the cornea. In head injuries the markers may be placed as desired. Localization is done by the graphic method for vertical and horizontal position, and the usual formula is employed to calculate depth. The negatives possess also the advantage of being stereoscopic.

For working out the *exact* position from a pair of stereoscopic plates a most excellent and accurate method has

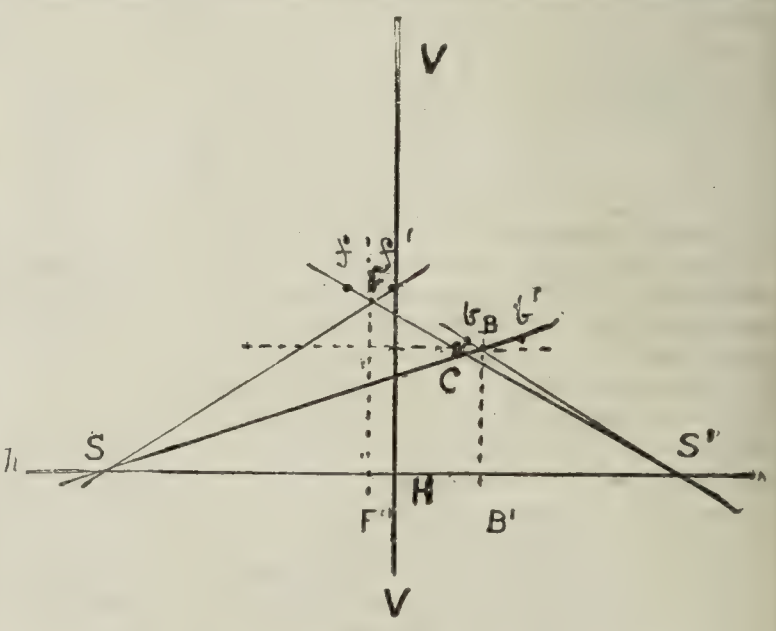


FIG. 12.

recently been published which dispenses with the Mackenzie Davidson localizer.

A typical case will make this clear (Fig. 12). In this case the tip of the fuse wire was exactly 9 mm. under and on the same plane as the centre of the pupil when the

LIBRARY U. OF I. URBANA-CHAMPAIGN

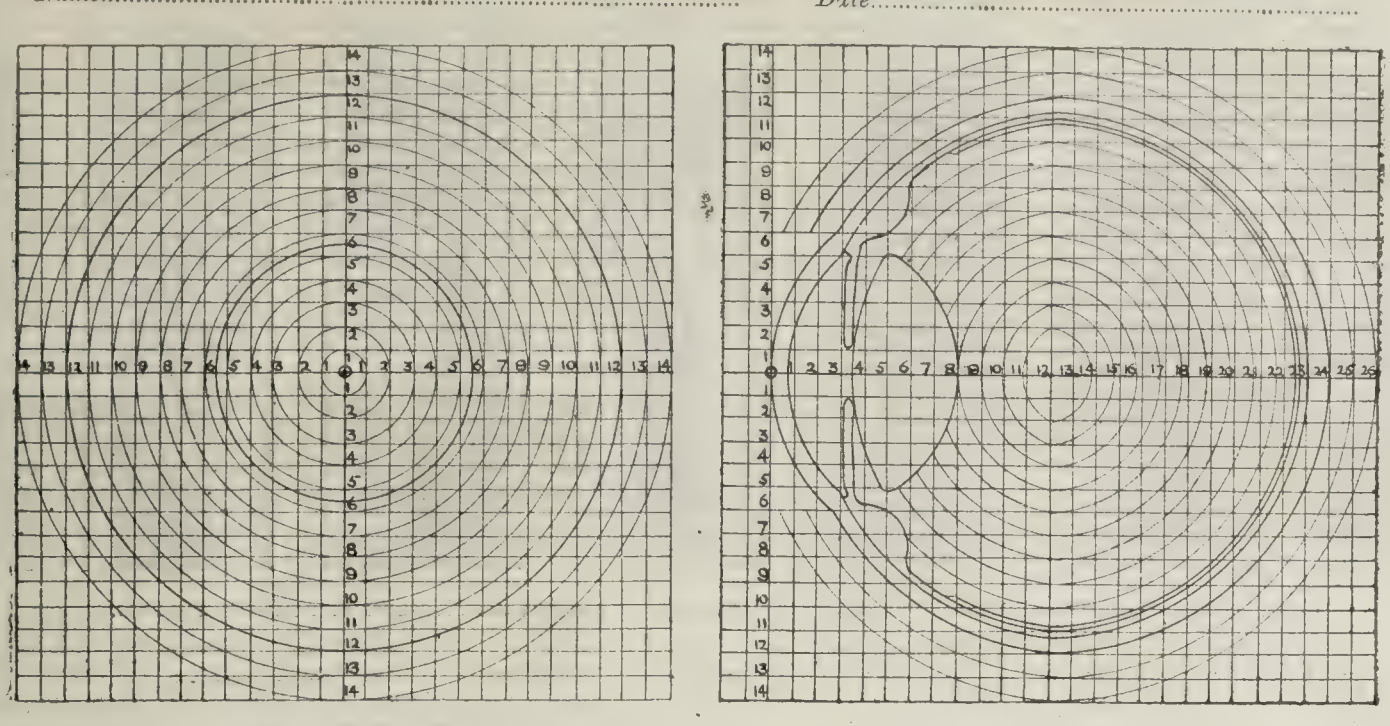


FIG. 13.—Plot out the foreign body on the left diagram, and read off its distance in mm. from the Central Corneal Axis (C.C.A.). Imagine the right diagram rotated round the line of the C.C.A. to the plane passing through the foreign body. The number of mm. the foreign body is from the C.C.A. is counted in the plane tangential to the centre of the anterior surface of the cornea, and the foreign body is plotted out at the appropriate depth. It will be seen whether the foreign body is inside or outside the globe, and how many mm. it is internal or external to the outer surface of the sclerotic.

The foreign body is .....mm. { above / below } the central corneal axis.

.....mm. to the { nasal / temporal } side of the central corneal axis.

.....mm. deep to the plane tangential to the centre of the anterior surface of the cornea.

The charts show the foreign body to be { inside / outside } the globe.....mm. { internal / external } to the outer surface of the sclerotic.

patient looked at some distant object with the sound eye, the patient lying on his back so that the horizontal line *h h* may be considered as passing from the vertex towards the chin. Obviously, then, the vertical line, v v, will be parallel to the central corneal axis (C.C.A.).

Now, on either side of the point of intersection H measure two distances, H S, H S', each of 3 cm., then the points s and s' will correspond to the respective positions of the anticathode of the tubes at the two exposures, and *f* and *f'* the shadows of the tip of the fuse wire, and *b* and *b'* the shadows of the foreign body, and F and B will be the respective true positions of the tip of the fuse wire and of the foreign body. From F and B drop two verticals F F' and B B'; measure F F' and B B', then F F' minus B B' will be the depth of the foreign body. Again, draw a horizontal line through B parallel to *h h*, and as it is known that F was 9 mm. below the central corneal axis, then the centre of the pupil is indicated by the point C; then the distance C B will be the distance of the foreign body *above* or *below* (in this case above) C.C.A. Finally, knowing the distance of the anticathode from the plate, we can determine the distance of the tip of the fuse wire F from the plate—using the formula

$$x = \frac{b \times L}{d + l}$$

—by the distance between the shadows *f* and *f'*, and in the same way the distance of B from the plate can be estimated. If the distance of F be greater than the distance of B from the plate, B is that much on the temporal side of the C.C.A., as is indicated by the difference between the two distances. On the other hand, if B is further from the plate than F, then the foreign body will be that much to the *nasal* side. In the case typified the exact position of the foreign body was

4 mm. deep to
3 mm. above } C.C.A.
exactly on vertical
∴ in globe.

The accompanying charts (Fig. 13) have been suggested by Colonel Lister for demonstrating the position of foreign bodies in the eye, on the lines laid down by Captain J. Herbert Fisher, F.R.C.S., R.A.M.C., in his article in the *Ophthalmic Review*.

EMPLOYMENT OF RADIOSCOPY.

It would appear expedient specially to emphasize the danger of substituting radioscopy for radiography in the localization of foreign bodies except in occasional cases. When a number of cases require attention, radioscopy is undoubtedly the more expeditious, but more than one operator in France has had his face and hands severely burnt by excessive use of the screen. Further, the radiographic plate, even though the structures have a double contour, can afford very definite assistance to the surgeon at the time of operation.

The removal of foreign bodies under the fluorescent screen has been employed to a considerable extent in some hospitals, the following method and precautions being adopted:

The patient is laid on the *x*-ray couch and anaesthetized. The part to be examined is cleansed and covered with a sterile towel, upon which the fluorescent screen is placed. The current being turned on, the diaphragm on the tube box beneath the table is reduced in diameter enough to define the foreign body clearly, which procedure also cuts off all unnecessary rays, and so saves the operator's hands. By pressing on the skin in the neighbourhood of the foreign body and noting its maximum movement it is easy to ascertain at what point the foreign body is nearest to the surface, and it can then be determined whether it should be removed through the original track or whether a fresh incision should be made directly over it. Whichever proceeding be decided upon, the point of a forceps is now introduced and pushed on until it reaches the foreign body. By moving the points up and down alternately it can be noted which movement causes the greatest displacement of the foreign body, and thus it is known whether the forceps occupy a plane above or below it. A little practice enables the forceps to be brought quickly into contact with the foreign body, when they are opened just sufficiently widely to allow it to be grasped without the inclusion of muscle or other structures surrounding it.

As an extra precaution it is well to place a sheet of aluminium 1 mm. in thickness over the diaphragm in order to cut off the soft rays.

RAPID LOCALIZATION OF BULLETS OR SHRAPNEL BALLS FROM A SINGLE RADIOGRAPH ON A SINGLE PLATE.

This method, devised by Captain Pirie, C.A.M.S.,[23] is obviously limited in application, since it assumes that only

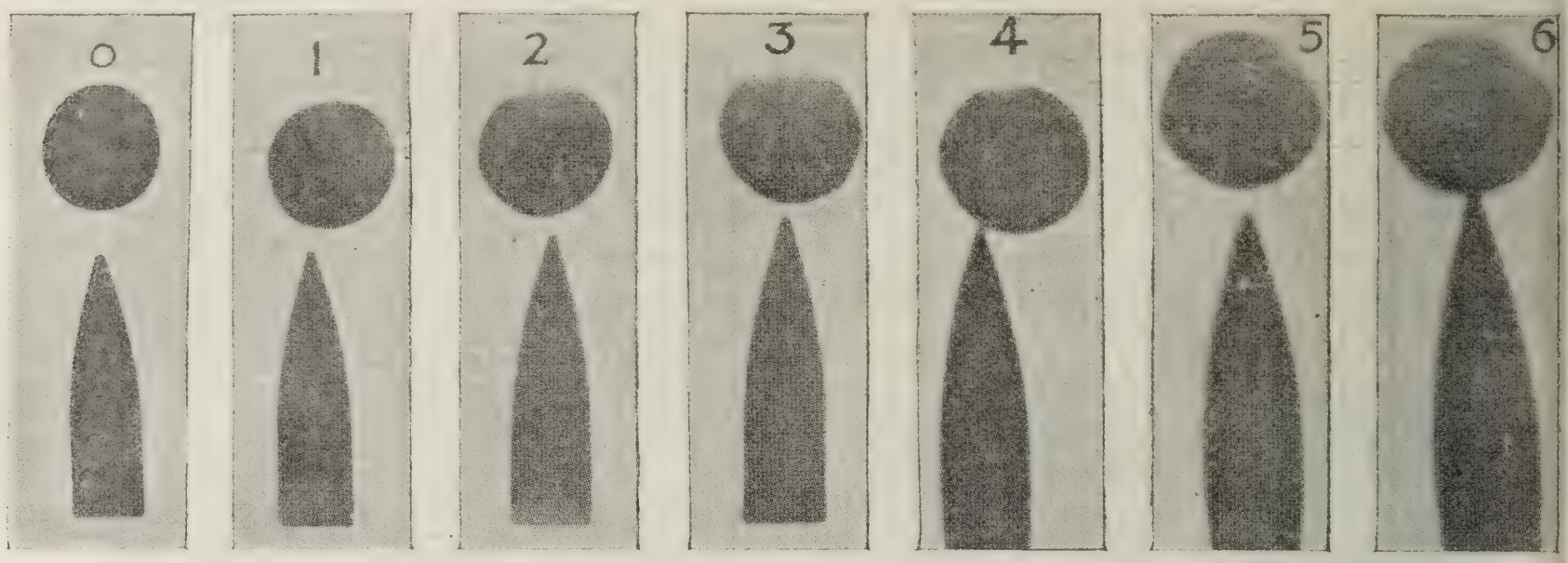


FIG. 14.—Showing bullets and shrapnel balls radiographed at the distances mentioned in inches.

bullets and shrapnel balls of the same calibre are being dealt with.

A key radiographic table is prepared by making radiographs of the bullet or shrapnel ball at the following distances from the plate: 0, 1, 2, 3, 4, 5, 6 in. (Fig. 14.)

The diameter of the bullet or ball casts a shadow the width of which is proportional to its distance from the plate, no matter at what angle the missile may be lying. The length of the bullet forms no guide.

A measurement of the uniformly cylindrical portion of the bullet is made with a fine pair of dividers; the latter are then transferred to the key plate and compared with the shadows; the shadow which they fit exactly, decides the depth of the bullet. The same method applies to the shrapnel ball, provided it is not more than very slightly deformed.

ANATOMICAL LOCALIZATION OF A METALLIC FOREIGN BODY AND RECONSTRUCTION OF ITS TRACK.

Captain Crymble[24] has shown the practical possibility of combining radiographic results with the information which can be obtained from a study of sectional anatomy. By this combination the actual anatomical position of a foreign body can be determined in addition to its depth from the surface or relation to neighbouring bony points. To attain this object he has employed a series of original coronal and horizontal sections of the body, and also the atlas of cross section anatomy of Eycleshymer and Shoemaker. By marking the vertical and lateral positions of the foreign body on a reconstruction of the part of the body concerned, obtained by replacing the sections in position, the sections corresponding to the position of the missile and the track leading thereto are selected.

Application of the depth measurement from the surface, or observation of the relation of the bone to the surface of the section of the body actually occupied by the missile, then allows the definite anatomical structure enclosing the foreign body to be determined.

The structures involved throughout the entire length of the track may also be worked out by the employment of a reconstruction viewed from the anterior aspect, and another viewed from the lateral aspect. On these the positions of the entry wound and of the foreign body are marked respectively. If no bone lesion is present the positions of the entry wound and of the foreign body are connected by a straight line. Where a bone lesion is present the line is carried from the wound to the bone lesion by a straight line, and from this point a second straight line connects the position of the bone lesion with that of the foreign body. Reference to the anterior reconstruction will then give the lateral position of the track in any section, and reference to the lateral reconstruction will give the sagittal or antero-posterior position in any section.

Crymble points out that the method is seldom needed in dealing with the limbs, but it is more useful in regions like the hip or the great body cavities. Further, anatomical localization both of the track and the missile is of extreme importance in prognosis and treatment in injuries to the head, and also affords a valuable means of studying the functions of the brain.

REFERENCES.
[1] *Lancet*, August 12th, 1916, p. 268. [2] Ibid., September 2nd, 1916, p. 429. [3] BRITISH MEDICAL JOURNAL, July 8th, 1916, p. 38. [4] A. Fullerton, G. Dreyer, and H. C. Bazett, Direct Transfusion of Blood, with a Description of a Simple Method, *Lancet*, May 12th, 1917, p. 715. [5] *Journ. Roy. Army Med. Corps*, January, 1916. [6] *Brit. Journ. of Surgery*, vol. iv, April, 1917, p. 562. [7] *Journ. of Pathology*, 1917. [8] *Proc. Roy. Soc. Med.*, February, 1917, p. 1. [9] BRITISH MEDICAL JOURNAL, January 15th, 1916, p. 83. [10] Makins, *Lancet*, September 23rd, 1916, p. 543. [11] Colledge and Dunn, Ibid., January 13th, 1917, p. 57. [12] Makins, Ibid., April 15th, 1916, p. 812; *Brit. Journ. of Surgery*, vol. iv, January, 1917, No. 15, p. 531. [13] Makins, Hunterian Oration, *Lancet*, February 17th, 1917, p. 249. [14] BRITISH MEDICAL JOURNAL, January 16th, 1915. [15] Ibid., March 3rd, 1917, p. 292. [16] H. M. W. Gray, Ibid., July 10th, 1915, p. 41; August 28th, 1915, p. 317. [17] A. Fullerton, Ibid., November 25th, 1916, p. 709. [18] Vol. iii, No. 11, January, 1916, p. 475. [19] *Journ. Roy. Army Med. Corps*, July, 1915, p. 56. [20] *Proc. Roy. Soc. Med.*, vol. ix, 1916, Sect. of Ophth., p. 57. [21] Goulstonian Lectures, BRITISH MEDICAL JOURNAL, 1915, vol. ii, pp. 769, 815, 855. [22] BRITISH MEDICAL JOURNAL, 1914, vol. ii, p. 1005. [23] Captain A. H. Pirie, *Arch. of Radiol. and Electrother.*, October, 1916. [24] *Brit. Journ. of Surgery*, vol. iv, No. 14, October, 1916, p. 234.

ON SOME ANAËROBES FOUND IN WOUNDS AND THEIR MODE OF ACTION IN THE TISSUES.

BY

HERBERT HENRY, M.D., CAPTAIN R.A.M.C.

(From the Laboratory of a Base Hospital in France.)

THE literature on the anaërobes is beset with so many contradictory statements that it is impossible to construct from it an accurate account of the reactions of even the better known organisms. Experience has shown that this confusion is due almost entirely to the investigation of impure cultures, for, with the establishment of a more exact and rigorous technique, the features of individual species are found to become more clearly defined, and previously existing discrepancies tend to disappear altogether.

A CLASSIFICATION OF ANAËROBES.

All the anaërobes isolated from wounds are probably faecal in origin. They give vigorous fermentation reactions in the presence of organic material, and according to their biochemical activities they may be divided into two main groups—the saccharolytic group and the proteolytic group.

I. *The Saccharolytic Group.*

The members of this group vigorously decompose a variety of carbohydrates with the production of acid and gas, but they are only feebly proteolytic. The group comprises:

1. *B. welchii.* (Synonyms: *B. aërogenes capsulatus* of Welch and Nuttall;[1] *B. perfringens* of Veillon and Zuber;[2] *B. phleymonis emphysematosae* of Fraenkel.[3])
2. *B. tertius.* (Synonyms: *Bacillus Y* of Fleming;[4] *B. von Hibler IX* or *B. rodella III* of Robertson.[5])
3. *B. fallax* of Weinberg.[6]
4. *B. aërofetidus* of Weinberg.[7]
5. *B. oedematiens* of Weinberg.[8]

Pasteur's *Vibrion septique* would seem to belong to this group, but it is omitted because we have had as yet no opportunity of establishing its characteristics.

The sugar reactions which have been found to hold good after a long series of observations are given in the following

LIBRARY U. OF I. URBANA-CHAMPAIGN

bbreviated table, and would appear to furnish valuable vidence in the differential diagnosis of individual organsms from other members of the group. There are four ypes of *B. welchii* which differ from each other according o their reaction in inulin and glycerin. This finding onfirms the observations of Simonds.[9] *B. tertius* reembles *B. welchii* in its sugar reactions, but ferments annite and salicin in addition. *B. aërofetidus* does not erment saccharose, and *B. fallax* attacks lactose only fter several days, while *B. oedematiens* ferments dextrose, evulose, and maltose only, resembling the individuals of he proteolytic group in this respect. Certain strains of *B. welchii* are slightly proteolytic, and produce small uantities of amino-acids, and *B. aërofetidus* carries the igestion of protein still further, for it produces a very etid odour in cultures. In neither case, however, is the roteolytic activity at all comparable to that which haracterizes the members of the second group.

TABLE I.

	Dextrose.	Levulose.	Maltose.	Saccharose.	Lactose.	Mannite.	Glycerin.	Inulin.	Salicin.	Amygdalin.	Glycogen.
B. welchii I	+	+	+	+	+	−	−	−	−	−	+
,, II	+	+	+	+	+	−	−	+	−	−	+
,, III	+	+	+	+	+	−	+	−	−	−	+
,, IV	+	+	+	+	+	−	+	+	−	−	+
B. tertius	+	+	+	+	+	+	−	−	+	+	+
B. fallax	+	+	+	+	−	−	−	+	+	−	+
B. aërofetidus	+	+	+	−	+	−	−	−	+	−	+
B. oedematiens	+	+	+	−	−	−	−	−	−	−	−

II. *The Proteolytic Group.*

This comprises—

1. *B. sporogenes* of Metchnikoff.[10]
2. *B. histolyticus* of Weinberg.[11]
3. *B. putrificus coli* of Bienstock.[12]
4. *B. cadaveris sporogenes* of Klein.[13]
5. *B. tetani* of Nikolaier.[14]

The individual members of this group digest protein ery vigorously, but have a restricted range in the matter f carbohydrate fermentation. *B. histolyticus* breaks own protein as far as the amino-acid stage, whereas the ther members of the group push digestion still further to he ammonia stage. They all ferment dextrose, levulose, nd maltose. It is probable that *B. sporogenes*, *B. putrificus coli*, and *B. cadaveris sporogenes* are closely related, f not identical.

The term *B. oedematis maligni* of Koch is intentionally mitted from the above list, for we believe that the rganism described as such by English writers during the war is really *B. sporogenes* of Metchnikoff. It is significant, too, that no mention of Koch's organism appears in erman literature published since the outbreak of war. ts place seems to have been taken by a bacillus which as been described independently by Aschoff[15] and by onradi,[16] and which is taken by those observers to be a uman form of Rauschbrand. It is of interest in this onnexion to note that Nicolle,[17] as the result of serological ests, considers the *Vibrion septique* of Pasteur to be losely allied to, if not identical with, the bacillus of auschbrand. The organism of Conradi and Aschoff is aid to produce in animals a solid oedema of the type which is so characteristic of Weinberg's *B. oedematiens*, ut the strong saccharolytic powers attributed to it listinguish it from the latter.

THE INCIDENCE OF ANAËROBES IN WAR WOUNDS.

The production of a gaseous cellulitis in the tissues urrounding a wound is practically certain evidence of naërobic infection, although it must be noted that the nfiltration of gas may often out-distance the microbic nvasion in the tissues. It is not uncommon to find no nicroscopical or cultural evidence of organisms in the edema fluid taken from crepitant subcutaneous tissues t some distance from the wound. Another feature of naërobic growth is the necrosis it produces in the invaded part. Quite apart from wounds which show these clinical manifestations, the majority of open wounds treated at a base hospital in France give cultural evidence of the presence of anaërobes. Out of 100 open septic wounds of all grades of severity examined at intervals of from two to twenty-two days after the receipt of the injury two-thirds showed the presence of *B. welchii*, and almost one-half showed the presence of *B. sporogenes* (see Table II). It is unusual to find only one anaërobe in a wound. In the vast majority of cases the anaërobe infection is a mixed one, the most frequent combination being *B. welchii* with *B. sporogenes*.

In contradistinction to these open wounds, we have had the opportunity of examining a large series of bloody effusions resulting from penetrating wounds of the pleura and lung. In most of the open septic wounds the anaërobes are implanted into, or come in contact with, damaged muscle, whereas in the thoracic injuries just mentioned, which might be looked on as closed wounds, the organisms carried in have to develop in a collection of ordinary blood. Out of 500 specimens of haemothorax fluid examined, 195 proved to be septic, and 44.6 per cent. of these were infected with anaërobes. Here, again, *B. welchii* is the most common infecting anaërobe, and the combination of this organism with *B. sporogenes* is frequent.

The anaërobes tend to remain localized to the tissues during life, and it is only seldom that they can be found in the circulating blood. On the other hand, cases have been recorded from time to time of so-called metastatic gas gangrene in which anaërobes have developed in some position at a distance from the infected tissue. This would seem to occur in a focus which has suffered slight damage, as from continuous pressure or from the introduction of a hypodermic needle, and it is certain that the organisms must have been conveyed through the blood stream. It is quite frequent, however, for anaërobes to become disseminated through the blood stream immediately before death. Out of 40 cases in which death resulted from wounds which were proved to be infected with anaërobes, the heart blood taken from one to twenty hours after death gave a positive cultural result on twenty-five occasions. In 20 of these cases *B. welchii* was found (that is, in 80 per cent.), and in 15 (that is, 60 per cent.) *B. sporogenes* was present.

TABLE II.

	Total Examined.	Total Septic.	Infected with Anaërobes.	Infected with B. welchii.	Infected with B. sporogenes
Open wounds 2 to 22 days old	100	100	72%	66%	48%
Haemothorax fluids	500	195	87 = 44.6%	71 = 36.4%	14 = 7.1%
Post-mortem heart blood	40	36	25 = 69.4%	20 = 55.5%	15 = 41.6%

THE PATHOLOGICAL PROCESS PRODUCED BY ANAËROBES IN THE TISSUES.

The incidence of anaërobic infection in wounds during the present war would seem to be determined by two factors. The first is the unavoidable soiling of a wound by earth or by clothing infected with faecal organisms. Secondly, the destruction of tissues produced in and around a wound by the modern missile gives rise to just those conditions which are most favourable for anaërobic growth.

The implantation of anaërobes in a focus of dead organic material is directly comparable to the inoculation of an artificial culture, and it is for this very reason that a laboratory study of the activities of anaërobes in artificial media is of service in determining the nature of the earlier pathological processes which follow infection of the tissues. In the wound, just as in the test tube, the members of the carbohydrate splitting group of anaërobes are the first to develop. The glycogen which is found in living healthy muscle is rapidly converted after death into dextrose and a small fraction of isomaltose. Both these substances are vigorously fermented by such an organism as *B. welchii*, and it is because of their presence that the organism in question so readily establishes itself in damaged muscle.

This early fermentation in muscle results in the formation of acid and gas. The latter consists of a mixture of

carbon dioxide and of hydrogen in varying proportions. It often develops with astonishing rapidity, and may become clinically evident four to six hours after the receipt of the wound. The appearance of crepitation in the subcutaneous tissues is probably due to gas which has escaped from subjacent infected muscle.

The gas may accumulate under considerable pressure, and, in so doing, it adds to the embarrassment of a circulation which is already impeded by the presence of inflammatory exudate.

Coincident with the production of gas is a formation and setting free of various organic acids. The acids which occur in the *in vitro* fermentation of carbohydrates by *B. welchii* retard and finally inhibit the growth of the organism, and, unless there is a high amount of available protein present, the culture dies out rapidly. If, however, some method be adopted of neutralizing the acid as that is formed, as, for example, by the addition of calcium or of magnesium carbonate to the culture, then the growth is not only much more luxuriant but its vitality is considerably increased.

In infected tissues such a neutralization is brought about by the inflammatory exudate, for the buffer salts of the serum constitute an absorbing reservoir which will take up any excess of free acid, and it is only when this considerable reserve is used up, if ever this does happen, that one can expect to find an increased hydrogen ion content of the circulating blood.

There is, however, another contributing factor to the neutralization of acid, a factor which comes into operation in the later stages of bacterial growth. The early rapid growth of the saccharolytic group is succeeded by the more gradual development of members of the proteolytic group. The protein constituents of the damaged tissues are attacked by the digestive ferments elaborated by organisms of this second group, and are broken down by successive stages. The final product consists largely of ammonia bodies, and it is these that help to counteract the acids resulting from carbohydrate degradation.

It is probably just at this point that certain saccharolytic organisms become proteolytic, and throw in their lot with the real tissue digesting organisms.

The gas formed in the proteolytic stage of wound infection is malodorous because of the development of sulphuretted hydrogen and certain volatile bodies.

It is probably during the proteolytic period also that the toxic products are elaborated which give rise to the clinical condition of toxaemia. It is very unlikely that such a condition is established as the result of carbohydrate fermentation. The clinical picture of a man dying with anaërobic toxaemia is chiefly that of a rapidly progressive circulatory failure, and death may come so abruptly that it is often falsely ascribed to pulmonary embolism. It never bears a resemblance to that state of "air hunger" which clinical pathologists have proved to be associated with blood acidosis.

One may, then, summarize the pathological processes in an anaërobe-infected wound as being characterized by two main features—the production of gas and the death of tissue. Each of the two main groups of anaërobes above defined has its share in these processes, and the successive stages by which an anaërobe infection develops may be thus summarized:

1. The initial trauma in determining the death of tissue establishes a focus for growth. This is characterized by the latent period, which precedes any obvious clinical signs of anaërobic infection.

2. The first active phase of anaërobic infection consists in the development of the rapidly growing saccharolytic organisms, of which *B. welchii* is the chief. It is because of the richness of muscle in fermentable carbohydrate that this tissue provides such favourable conditions for the growth of organisms of the saccharolytic type. Their development results in the production of acid and gas. The gas accumulates first in the muscle and reaches the subcutaneous tissues by escape from the muscle. The pressure produced by gas and also by inflammatory oedema fluid leads to an anaemic condition in the tissues surrounding a wound, and this change initiates the second active period of anaërobic invasion. The muscle in the saccharolytic period is of a brick-red colour.

3. The second phase of anaërobic infection in a wound consists in active proteolytic digestion. This is characterized by death and digestion of the tissues. The process is accompanied by the formation of sulphuretted hydrogen and of volatile substances, which give the penetrating putrefactive odour so typical of the later stages of infection. The previously red muscle becomes soft and diffluent. It may be stained black by a sulphide of iron formed by the interaction of sulphuretted hydrogen with the iron released from broken-down haemoglobin. The toxaemia which develops at this period results from the absorption of toxic substances produced in the breaking down of the protein molecule, and cannot be attributed to the acid which is formed in the breaking down of the carbohydrate molecule.

4. The final phase is that of successful bacterial invasion of the blood stream. It occurs in most cases just at, or immediately preceding, the death of the individual.

REFERENCES.

[1] Welch and Nuttall, *Bull. Johns Hopkins Hosp.*, 1892, iii, 81. [2] Veillon and Zuber, *Arch. de méd. expér. et d'anat. path.*, 1898, 517. [3] Fraenkel, *Centralbl. f. Bakt.*, 1893, xiii, 13. [4] Fleming, *Lancet*, September 18th, 1915. [5] Robertson, *Journ. of Path. and Bact.*, 1916, xx, 327. [6] Weinberg, *C. R. Soc. de Biol.*, lxxviii, 686, 1913. [7] Weinberg, ibid., lxxix, 116, 1916. [8] Weinberg, ibid., lvxviii, 507, 1915. [9] Simonds, *Memo. Rockefeller Inst.*, No. 5, 1915. [10] Metchnikoff, *Ann. de l'Inst. Pasteur*, xx, 929, 1908. [11] Weinberg, *C. R. Acad. des Sci.*, clxiii, 449, 1916. [12] Bienstock, *Ann. de l'Inst. Pasteur*, xx, 407, 1916. [13] Klein, Ann. Rep. Med. Off. L. G. Board, xxxi, 404, 1901-02. [14] Nikolaier, Inaug. Diss., Göttingen, 1885. [15] Aschoff, Fränkel, Konigsfeld, and Frankenthal, *Deut. med. Woch.*, 16, 469–71; 17, 512–15, 1916. [16] Conradi and Bieling, *Muench. med. Woch.*, 4, 113–37; 5, 178–82; 28, 1023–25; 29, 1068–70, 1916. [17] Nicolle, Cesari, and Raphael, *Ann. de l'Inst. Pasteur*, xxix, 165, 1915.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE VALUE OF PURE CARBOLIC ACID IN THE TREATMENT OF SEPTIC WOUNDS.

WE are apt to forget the value of old remedies in the multitude of new ones, which, admirable and useful as they may be in many cases, are often not so well adapted for the particular purpose for which they may be employed. The special class of septic wounds referred to is that in which the destruction of soft tissues has led to ill-defined attached portions of dead skin, subcutaneous tissue, or muscles. Much of such tissue it may be possible to cut away, but there is always more or less left which Nature must detach itself, and so long as such necrosed tissue remains adherent it is a veritable hotbed for the development and multiplication of pathogenic and saprophytic organisms not only capable of exciting active local mischief but proving also a fruitful source for septic absorption. It is difficult to get at these deeply embedded organisms by means of any of the more modern solutions recently introduced, or by any of the various methods adopted in their employment. But to soak all necrotic tissue freely with pure carbolic acid is to effect complete sterilization.

Any who have tried this old Listerian practice—for it is to Lister that we owe it[1]—will bear out the statement that wounds so treated rapidly "clean up"; any advance of the acute septic process in the immediate neighbourhood of the necrotic tissue ceases; pain in the part is relieved; the temperature often falls, and, in every way, both the patient generally and the part locally show signs of rapid improvement.

I have been induced to draw attention to this old method because I have failed to notice any allusion to it in the many contributions that have recently appeared in the journals on the subject of *septic* wound treatment; and still more for the reason that the abundant opportunities which the present war has afforded of testing its value in the particular class of cases referred to have amply justified its use in the way originally suggested and employed by Lister.

A. ERNEST MAYLARD,
Surgeon, Springburn Red Cross Hospital.

Glasgow.

ADRENALIN IN ANGIONEUROTIC OEDEMA.

THIS disease, though rare, is very distressing and intractable. In the following case, that of a lady aged 39, it lasted for three years, and resisted all the reputed

[1] *The Collected Papers of Joseph, Baron Lister*, vol. ii, p. 38.

LIBRARY U. OF I. URBANA-CHAMPAIGN

remedies. The first symptoms were numbness, tingling, and itching. The complexion became waxy, and the patient felt thoroughly depressed. The itching increased, and the part gradually reddened, then became erythematous, being well raised above the surface. The intense pruritus got worse the first day, remained stationary the second day, and on the third day gradually cleared up. The usual sites were: (1) Both eyelids, in which case it spread over the face, forming a huge urticarial and erythematous patch; (2) centre of the lower lip; (3) the interdigital spaces, spreading all over the fingers, chiefly the dorsum. The intense pruritus could only be controlled by holding the hand (when it was the hand that was affected) in a lavatory basin, and keeping the water running. Lotions and ointments of the usual type "got hot," and bandages had to be removed.

The chief exciting cause was worry, especially recurring sources of worry. The pruritus recurred very frequently, with only a few days' interval between successive attacks. Owing to the suddenness of the onset, the patient was often unable to go out to dinner; while dressing for dinner it would come on and quite disfigure her. The frequency would be much reduced during holiday, it rarely showed itself at such times, but on return from holiday it would speedily return. On one occasion, at the end of a visit to the West Coast of Scotland, she had intense pain in the right ear; there was nothing to account for it, and it disappeared in the morning; but during the journey, while on a steamboat, it returned with great intensity.

In the earlier part of the treatment she had, internally, calcium lactate, sodium salicylate, and nitroglycerin; and, externally, Lassar's paste, lotio calaminae, lotio plumbi, resinol, and many other remedies, but without any obvious effect. Then I tried adrenalin injections. I gave 4 minims of solutions of adrenalin chloride or epinine. The immediate effect was rather remarkable. The insertion of the needle was particularly painful; the patient then felt she was "going lifeless," a sensation almost like one of impending death; she was intensely anxious and dared not move, but lay quite horizontal. She had a numb feeling, beginning at the toes and gradually spreading up the body, and she felt as though she was being blanched. At this time there was definite pallor, which increased, and the pulse distinctly waned and became flickering. There was a zone of pallor round the injection, and always a black stain at the site of puncture. The unpleasant apprehensive feeling speedily passed off, and she felt quite well again. If the rash were fully out it took several hours to disappear, but when given in the first stage of numbness and itching the injection would abort the attack at once. After a few injections and observation of the specific effect I gave her suprarenal tablets three times a day. At first the attacks were diminished in frequency and severity, and eventually they ceased.

There were two patches, one on the back of the neck and one on the inner side of the knee, which came up in a similar way, but they were more raised and much more severe than the others. Although they yielded to adrenalin they did not disappear but left a lesion like psoriasis, which persisted for months. The patch on the neck received one dose of *x* rays, which produced a violent reaction and dermatitis, but it subsequently cleared up. The other remained stationary for years without causing trouble, and it has now almost disappeared.

It is now four years since any lesion has appeared, and the condition might be regarded as cured.

J. ALFRED CODD, M.D.Lond.,
Physician, General Hospital, Wolverhampton.

ANTHRAX IN UGANDA.

AN adult male Swahili, a lamp cleaner on the Busoga Railway, taken ill four days previously with shivering fits and pains in chest, appeared acutely ill when admitted to hospital. Respiration was rapid, cough constant, and expectoration free; pulse 120, respirations 40, temperature 102° F.

There was marked deficiency in resonance over the whole of the left lung, with diminished air entry and tactile vocal fremitus, numerous moist râles throughout the left side of chest, with jerky "cogwheel" inspirations, and few crepitations scattered throughout the right lung. The apex beat was ill defined and the heart sounds muffled. Clinically the case presented a typical picture of acute pulmonary tuberculosis, but in view of the existing plague epidemic the possibility of pneumonic plague had to be considered. Microscopical examination of the sputum for tubercle and plague bacilli showed that both were absent, but anthrax bacilli, with marked granular staining, were found to be numerous.

The patient was isolated. He died on the evening of the sixth day after admission, after about ten days' illness.

Post-mortem Examination.

There was a considerable quantity of straw-coloured fluid in the pericardium and a small amount in the pleural cavity. The left lung was extremely congested and oedematous, with patches of grey hepatization, which in parts had broken down into small caseating masses. Except for a small amount of congestion and oedema, the right lung was normal. The trachea was congested and the bronchial glands considerably enlarged. Films taken from the broken-down patches in the left lung showed anthrax bacilli. The liver and kidneys were somewhat congested; the spleen was enlarged and congested; no bacilli were found in a smear from the spleen.

The case is noteworthy for its rarity. It is, I think, the first case reported in the Protectorate. The man stated that he never came into contact with cattle or hides. Considering the large numbers of cattle and the extensive trade in hides, it is surprising that cases do not occur more frequently.

B. SPEARMAN, M.A., M.B., B.C.Cantab.
Jinga, Uganda Protectorate, B.E.A.

TONSILLECTOMY.

LIKE most of us, Dr. Stirling (BRITISH MEDICAL JOURNAL, June 9th, p. 765) considers the method he is used to for the performance of this operation is by far the best. With an experience of over four thousand tonsil operations the method that gives me the most satisfaction is that by the use of O'Malley's instrument: removing the right tonsil first, then changing the instrument to the left hand for removing the left tonsil. I find ethyl chloride the most satisfactory anaesthetic.

Wimbledon. VINCENT GREEN, M.D.Edin.

Reports of Societies.

TROPICAL DISEASE IN THE BALKANS.

AT a meeting of the Medical Section of the Royal Society of Medicine, held on Tuesday, June 12th, Sir RICKMAN GODLEE being in the chair, Major ALDO CASTELLANI delivered a lecture on the tropical diseases found in the Balkanic zone.

Malaria.

In the course of his lecture he said that the allied troops in the Balkans were exposed to many tropical diseases. That most frequently met with was malaria, the protean nature of which, though formerly well known, had been again brought into prominence. Pernicious cases were common in the late spring, summer, and autumn. The symptoms might simulate many other diseases, and a wrong diagnosis might easily be made with very serious results. Cases with symptoms pointing to lesions of the central nervous system were far from being rare, and he had met with the following types: (1) comatose, (2) delusional, (3) cerebro-spinal meningitis, (4) hemiplegic or monoplegic, (5) bulbar, (6) cerebellar, (7) tetanic, (8) eclamptic, (9) aphasic, (10) amaurotic, (11) spinal. The classical varieties of malaria as described in the books were not frequent. A purpuric and haemorrhagic form had occurred and resembled scurvy. It was marked by petechiae and haematomata, spongy and bleeding gums, and sometimes bleeding from mucous membranes. The spleen, however, was enlarged, and although parasites were found in only about 10 per cent. of the cases, they reacted to treatment by quinine. Another blood condition which might be closely imitated was pernicious anaemia. The patient was generally a young man or woman with the typical pallor and lemon yellow tint of pernicious anaemia; in some cases the liver was enlarged, or more rarely the spleen; there was either no fever or very little.

The blood might be negative for malaria on repeated examination, and show most of the common features of pernicious anaemia, including a high colour index. In old individuals the profound anaemia might give rise to the suspicion of internal cancer.

He had come across cases of malaria simulating other specific infectious diseases. The typhoid type was far from sure; the patient looked like a case of typhoid, and the temperature was typhoid-like, whilst the spleen was large but not hard. Bacteriological examinations for typhoid and paratyphoid infections, however, were negative, whilst the blood was full of malaria parasites which in this type of case were very little influenced by quinine. He had seen cases of pseudo-cholera and pseudo-dysentery of malarial origin, and also of pseudo-tetanus due to the same cause.

Several diseases of the digestive system might be simulated by malaria—for example, appendicitis and cholecystitis. Malaria might affect the respiratory and circulatory systems. He had seen several cases of dry bronchitis of malarial origin and one case of pneumonia-like consolidation with bloody expectoration, and also three cases of typical angina pectoris, all cured by the administration of quinine. Heart-block, of which he had seen one case, and tachycardia and cardiac arrhythmia might be malarial. He had met with cases of peripheral arteritis due to the same cause, and also neuritic cases resembling beri-beri and others of local oedema.

As regards the diagnosis of the malady in the Balkans, he suggested the following rules:

1. Whatever the symptoms of the cases, one should always keep in mind the possibility of malaria.
2. A negative blood examination is of no importance whatever, unless the examination is repeated many times and at different intervals.
3. If quinine does not influence the fever, this does not always exclude malaria.
4. While giving very great importance to laboratory methods—for it is only by this means that a positive diagnosis can be made with certainty—do not neglect the clinical examination of patients. Train your senses as much as possible. The importance of simple inspection and of simple palpation can hardly be exaggerated. A slight abnormality of the colour and pigmentation of the skin, easily overlooked by the inexperienced, may suggest a diagnosis of probability in an obscure case, and acting on it may perhaps save the patient's life.

For treatment of the disease in the Balkans, quinine was by far the most important drug; it should always be given in very large doses, at least 30 to 60 grains daily, by the mouth in ordinary cases, by intramuscular injection in severe cases, intravenously in the pernicious forms. It must be admitted, however, that there were cases which responded very slowly to a simple quinine treatment. In them, other drugs had been tried, such as arsenical preparations, antimony, and picric acid. When given alone none of these had much effect, but when used as adjuvants to quinine some of them (arsenic, for instance) seemed to increase its beneficial action. A treatment which had given him good results in certain cases was a combination of quinine, phosphorus, and tartar emetic.

The prognosis was good in the enormous majority of cases if efficiently treated, but it must be remembered that in pernicious cases a high mortality might occur despite energetic treatment, and that in a large number of cases, even of the benign form, the cure was merely clinical, complete sterilization not having been achieved. The affection lay dormant for months and years, and any cause lowering resistance, such as chill or traumatism, might cause the acute symptoms to reappear.

Intestinal Infections.

Next to malaria, the diarrhoeas and dysenteries were the most common affections. The majority of cases of dysentery were of bacterial origin, but numerous cases of amoebic type were also seen. Cases of enteritis due to flagellates, and, much more rarely to ciliates, occurred. Coccidiosis had been observed. Cholera and paracholera had been rare. Attention should be called to the choleraic type of bacterial dysentery, also to a peculiar type of diarrhoea seen in Serbian soldiers who had suffered terribly from starvation during the Albanian retreat, and which closely resembled the famine diarrhoea observed in India.

Camp jaundice was common. Two varieties might be distinguished: (1) a very severe type with high fever, lasting ten to twelve days and showing occasional relapses—true Weil's disease, which was rare; (2) a mild type, often febrile and very common. Weil's disease was, of course, of spirochaetic origin, but, in his opinion, it was probable that many cases of the mild type were also spirochaetic. In addition to true camp jaundice, there were also cases of jaundice due to malaria, to paratyphoid, and to streptococci; nor should the icteric type of relapsing fever be forgotten.

Enteric diseases were fairly frequent in the Balkans, but recently had not taken any epidemic form. In certain districts paratyphoid A and B were more frequently met with than true typhoid. Similar fevers due to various intra-intestinal germs were not rare. Lurie and himself had found cases due to *B. columbensis*. Attention should be paid to the not rare association of mixed infections of the typhoid and paratyphoid organisms. He had seen two cases in which there was infection by all three.

Other Diseases.

Malta fever was not common. Major Castellani had only seen two cases in Macedonia, and the kala-azar of adults he had never seen in the Balkans, though he had met with many cases of the infantile type in certain islands of the Adriatic and Aegean Seas. Relapsing fever was quite common. In its treatment he had obtained the best results by a combination of salvarsan, neo-salvarsan, or galyl, with tartar emetic. Typhus exanthematicus was, at the present moment, very rare, although a terrible epidemic raged in 1914 and 1915. Trench fever was occasionally met with. Both of the types described in France had been recognized in the Balkans.

Pappataci fever was extremely common in certain parts of the Balkans, especially in the late summer and early part of the autumn. It was often erroneously diagnosed as dengue, though a few cases of the latter had probably occurred. A distinguishing feature of pappataci fever was the flushing of the face, which had often the appearance of being slightly bloated. This flushing sometimes amounted to an erythematous rash, which also involved the neck. This flushing was very persistent, and lasted long after the fever was over. The mucosa of the soft palate presented a peculiar appearance, numerous small hyperaemic roundish spots, sharply limited by a line of demarcation between the hard and soft palate, being visible, which also persisted after the temperature had dropped. Leucopenia served to distinguish it from incipient typhus.

Pellagra was quite common in several districts of Macedonia, but he did not think there was any danger for our troops. Bronchomycosis and bronchospirochaetosis were observed. Of the tropical diseases which were of rarer occurrence, he mentioned filariasis, sprue, intestinal myiasis, mycotic, spirochaetic, and flagellatic urethritis.

Certain tropical skin diseases were frequently met with. The following were a cause of great discomfort in summer, and were often wrongly diagnosed: Dermatitis interdigitalis, epidermophytis or "mango toe," tinia cruris or "dhobie itch," prickly heat, various types of tropical pyosis, such as pyosis mansoni, pyosis discoides, etc. He had seen in 1915 in Macedonian peasants cases of ulcus tropicum, oriental sore, ulcus infantum, blastomycosis, sporotrichosis, accladiosis, etc., and also numerous cases of trichomycosis axillaris flava, nigra and rubra; of intertrigo saccharomycetica, and various other hyphomycetic affections. He had also observed two cases of Madura foot, two of keratoma plantare sulcatum, and one of ainhum.

A REPORT issued by the New York Committee on the After-care of Paralysis Cases states that 9,063 cases of infantile paralysis occurred during the epidemic of anterior poliomyelitis. The number of deaths from the acute disease was 2,308, leaving 6,755 for after-treatment. Of these 5,003 are still receiving treatment under medical supervision, 1,073 are under the care of private practitioners, 102 have been discharged as cured, and 95 have died; 31 refused treatment, 68 have left New York, and 388 have been lost sight of. The committee was enabled to carry on its work by a fund of £31,689 raised by public subscription.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Reviews.

FRACTURES.

THE *Treatise on Fractures*,[1] by J. B. ROBERTS and J. A. KELLY, is one of the most readable books on the subject that we have met with. It is full and complete, all fractures, whether common or rare, being dealt with. The views as to treatment are eminently sensible. The authors make no special plea for any one form of treatment, but hold that the great majority of fractures, in capable hands, will give good results with the old methods of fixation, passive movement, and massage. They consider that in the past sufficient attention has not been paid to fractures, and that the rise of interest in abdominal surgery has caused their treatment to be neglected. Insufficient pains have been taken to keep the soft parts in the neighbourhood of the fracture in good condition, fractures being often "put up" and left for long periods undisturbed. In hospital practice it has often been the custom to relegate the care of fractures to officers of no great experience; whereas to obtain the best results will often tax to the uttermost the skill and patience of a surgeon of experience.

The authors believe that much can be done by the old-fashioned methods, but admit that in certain cases open operation is essential. Indications for operation are fully discussed, and plating, wiring, and bone-grafting methods are well described.

The book is beautifully illustrated throughout by photographs, *x*-ray plates, and diagrams. The latter, showing the action of the various muscles causing displacements of fragments, will be found specially useful. The prognosis of the various fractures is fully dealt with, and the statistics given as to frequency, time of union, and period of disability should prove of use as guides to treatment. The only criticism that can be made is that the authors have not slightly enlarged the book by adding a chapter on dislocations.

OPHTHALMOLOGY.

THE eighth edition of DE SCHWEINITZ's handbook of *Diseases of the Eye*[2] is a handsome volume well worthy the study of those to whom it is inscribed—"Students and Practitioners." Since the first edition was published, in 1892, it has been one of the most popular of the larger American textbooks, and this popularity has extended not a little to this side of the world. In the new edition the chapter on iritis has been in the main rewritten, particularly that section relating to autotoxaemic iritis and iritis secondary to infections of the mucous membranes. The section is well done, but the illustrations of keratitis punctata, or precipitates on the back of the cornea in uveitis, are somewhat more than diagrammatic, and little likely to suggest the delicacy of these lesions to the average student. Lieut.-Colonel Elliot, I.M.S., has written a section on the operation of corneo-scleral trephining for glaucoma; and Dr. William Sweet a description of his revised method of localizing foreign bodies within the eye by means of *x* rays. Besides these, considerable changes have been made by the inclusion of details of the technique of several new operations, for cataract extraction, for squint, and on the nasal duct. No one who had the opportunity of meeting the author of this volume, or of hearing him speak at the last International Congress, could doubt that the style of his writing would be any other than grateful to English tastes, and not the least pleasing feature of his book is the frequency with which names well known in these islands are mentioned, for the author is as diligent a student of British literature as of his own or of Continental literature.

Dr. TERSON's book on ophthalmology[3] has been written for the general practitioner, its object being to indicate those conditions which he may safely treat and to teach him how to render first aid to patients whom he must send on to a specialist. A general grasp of ophthalmology should be demanded by the examination bodies from every candidate, and a certificate that he has dressed in the eye department of his hospital should be as essential as one which certifies that he has had instruction in vaccination or midwifery. Only by practical work among actual patients can he learn to distinguish serious from trivial affections of the eye. No book, however good, can take the place of clinical work. This statement is as true of ophthalmic surgery as of all other branches of medical study. We cannot place the book before us upon an equality with many others which are in use in this country and on the Continent. The illustrations are poor and there is much to criticize in the subject matter. The use of the ophthalmoscope is regarded as beyond the capacity of the general practitioner, and yet this instrument is almost as essential in the diagnosis of disease as is the stethoscope. Testing for colour-blindness, a duty which every railway medical officer must perform, is dismissed with the bald statement that all that is necessary is a set of Holmgren's wools. We are bound to believe that Dr. Terson is not ignorant of the voluminous literature which has appeared during the past ten years tending to show that this method of testing is unreliable and that it has been abandoned by most of the navies and by many of the railway companies in Europe. In treating of corneal ulcers, the use of atropine, the sheet anchor of treatment, is not mentioned, nor is a bandage spoken of. Simple lavage of the lacrymal sac is held to be very dangerous, far more so than the passage of probes. In countries where trachoma is common there is a danger, but elsewhere lavage of a lacrymal sac is a safe and efficient procedure which can be carried out by any medical man who will inform himself of the technique and will obtain a suitable cannula and syringe. Dr. Terson emphasizes the danger of using a mercurial preparation for the eye of a patient who is taking any form of iodine internally. This is a common mistake; frequently a child is given the yellow oxide of mercury ointment for massage into the globe, and at the same time iodide of iron is prescribed internally. The result is that nascent biniodide of mercury is formed in the tissues of the eye, a caustic salt which causes great irritation.

A REGIMENTAL SURGEON IN WAR AND PRISON.[4]

THIS very interesting book falls naturally into two parts. The first begins somewhere in the middle of the retreat from Mons, when Captain DOLBEY joined the K.O.S.B., and ends with his capture by the Germans. The second describes his captivity. The first part is extremely well done, and we recall no more vivid picture in recent war literature than that of the last days before his extemporized hospital was surrounded by the enemy, and its officers and wounded captured near La Bassée during the first battle of Ypres. Captain Dolbey has some striking remarks on the duties of a battalion medical officer when his regiment is fighting. "A regimental doctor," he says, "who is not up with the companies is no good. . . . Most important is it that a responsible person, though medical officer himself, should go where his stretcher-bearers do; for there are good and bad stretcher-bearers, and if the search for the wounded is not systematically laid out by the doctor, he may be certain that some will be left out all night." In another place he speaks of the difficulty in certain lights of seeing a khaki-clad man lying on ploughed land.

After capture he suffered many indignities and much hardship on his road to Crefeld, where he was given charge of the wounded, and relatively well treated. He was moved to Minden at the end of November, 1914, where were soldiers (French, Belgian, and a few British) and a number of British civilians. Less than a month later he was sent to Sennelager, where, as is already known, German medical mismanagement and incompetence seems to have reached a depth of depravity not surpassed elsewhere before or since. "The camp was swept by almost every infectious disease—scarlet fever, pneumonia, dysentery of both kinds, cerebro-spinal meningitis, mumps,

[1] *Treatise on Fractures.* By J. B. Roberts, A.M., M.D., F.R.C.S., and J. A. Kelly, A.M., M.D. Philadelphia and London: J. B. Lippincott Co. 1916. (Med. 8vo, pp. 702; 909 figures. 25s. net.)

[2] *Diseases of the Eye: A Handbook of Ophthalmic Practice for Students and Practitioners.* By G. E. de Schweinitz, M.D., LL.D. Philadelphia and London: W. B. Saunders Company. 1916. Eighth edition, reset. (Roy. 8vo, pp. 754; 387 figures, 7 plates. 25s. net.)

[3] *Ophthalmologie du Médecin Praticien.* Par le Dr. A. Terson. Paris: Masson et Cie. 1916. (Post 8vo, pp. 484; 347 figures. Fr. 12.)

[4] *A Regimental Surgeon in War and Prison.* By Captain R. V. Dolbey, M.B., M.S.Lond., F.R.C.S.Eng., R.A.M.C. London: John Murray. 1917. (Cr. 8vo, pp. ix + 248. 5s. net.)

and measles"; but the German medical authorities either could not diagnose these diseases or deliberately shut their eyes to the facts. For a memorandum drawing attention to the indubitable occurrence of cerebro-spinal meningitis, and asking that suitable precautions should be taken and suitable treatment provided, he was put into a punishment prison. Early in March, 1915, he was sent away to an officers' camp at Gütersloh, where he found the commandant, "suspected on fairly good grounds of having a Scottish wife in Aberdeen," very full of hatred to the English. "How he hated us! And how we cherished that hatred! What a compliment to the English and all that we are doing in the war!" Captain Dolbey met with much ignorance, incompetence, and cruelty in the German military hospitals and in the so-called hospitals of prison camps, but he tries to be just. He tells of one German military hospital where he found efficiency and kindness, and has a good word for the Prussian who, he thinks, may fear God and the Kaiser, but does not fear anything else, and does not kill prisoners as do the Saxons, Würtembergers, and especially the Bavarians. "Often the worst instances of butchery of stretcher-bearers and other unarmed prisoners may be put to the credit of the young officers of the Bavarian, Würtembergian, or Saxon troops."

NOTES ON BOOKS.

A FOURTH edition has appeared of Dr. BLOMFIELD'S little manual on *Anaesthetics*,[5] which has proved useful to many medical students needing a brief practical guide to the principles upon which common anaesthetics are selected and administered. A few words on anaesthetics in military practice are added to the present edition.

In *The War and the Nation*[6] Mr. DAMPIER WHETHAM applies his talent for sociological inquiry to a critical examination of the past, present, and future of national organization. From the beginning the author avows himself a "constructive Tory," and in frank disagreement with the notion that the downfall of the feudal system was of benefit to the people of Europe. His book is a thoughtful contribution to the problem of after-war policy. It deserves study from all who feel with him that the war has blurred the old, bad, party lines, and that when it is over the whole people will remain one national party, ready to learn from each other's merits and shortcomings, and to work together in the task of reconstruction for the common weal. Mr. Whetham is outspoken in his criticism of the political dogmas at each end of the former party system, but we fail to find any evidence of rancour or provocation in his essay. Medical readers in particular will find much that is interesting and suggestive in the chapter on "The War and the Race."

Among a number of interesting papers read to the members of the American Otological Society at its forty-ninth annual meeting,[7] held in May, 1916, at Washington, D.C., is one on a "Case of syringomyelia with marked vestibular symptoms," by Dr. G. E. Shambaugh of Chicago. The patient, a mining engineer aged 28, had suffered for two years from occipital headache, latterly with ataxy and vertigo and difficulty in reading. He showed alternating horizontal nystagmus, and examination of the functions of the vestibular nerves proved that, while the internal ear was not directly involved, the central tract of these nerves was not intact. Examination by a neurologist showed that the sensations due to touch, to pain, and to heat on most of the left side of the body were much diminished, and even lost in certain areas. A history pointing to such disturbances could be traced back at least six years. The Wassermann reaction proved negative, as did examination of the cerebro-spinal fluid. Dr. Shambaugh concludes that the syringomyelic process had extended in this patient past the medulla into the region of the fourth ventricle, and that the case is one of syringobulbia.

[5] *Anaesthetics: A Practical Handbook*. By J. Blomfield, M.D. Cantab., Senior Anaesthetist and Lecturer on Anaesthetics at St. George's Hospital. Fourth edition. London: Baillière, Tindall, and Cox. 1917. (Cr. 8vo, pp. 147; 22 figures. 4s. net.)

[6] *The War and the Nation: A Study in Constructive Politics*. By W. C. Dampier Whetham, F.R.S., Senior Tutor of Trinity College, Cambridge. London: John Murray. 1917. (Cr. 8vo, pp. 312. 6s. net.)

[7] *Transactions of the American Otological Society*. Forty-ninth annual meeting. Vol. xiv, Part I. New Bedford, Mass.: Mercury Publishing Co. 1916. (Med. 8vo, pp. 201; 4 charts.)

The *Medical Register*[8] for 1917 has been published. It contains, as usual, the list of registered medical practitioners including the colonial and foreign lists. The number of names added by registration during 1916 was 1,202, as compared with 1,526 in 1915, and an average of 1,297 for the last five years. The *Dentists' Register* for 1917 has also been issued. It is similarly divided into the list for the United Kingdom, the colonial list, and the list of foreign dentists registered in this country. The total number of names on the *Register* is now 5,512, as compared with 5,453 in 1916.

The Expectant Mother,[9] by Dr. S. W. BANDLER, is a book for lay readers. It discusses pregnancy, labour, and the *post-partum* period from the point of view of the mother, and aims at giving the general facts in which doctors, nurses, and intelligent members of the laity have a common interest. To those who have no medical knowledge the book, with its abundance of detail and precaution, will perhaps prove rather intimidating reading.

[8] The *Medical Register* for 1917. London: Published for the General Medical Council by Constable and Co. 1917. (Pp. 1283. 10s. 6d.) The *Dentists' Register* for 1917. London: Published for the General Medical Council by Constable and Co. 1917. (Pp. 162. 3s. 4d.)

[9] *The Expectant Mother*. By S. W. Bandler, M.D. Philadelphia and London: W. B. Saunders Co. 1916. (Post 8vo, pp. 405; 71 figures. 6s. 6d. net.)

MEDICAL AND SURGICAL APPLIANCES.

The "Luc" Syringe.

MESSRS. ALLEN AND HANBURYS, LIMITED, have sent us a sample of the "Luc" syringe, which has the great advantage over ordinary glass, or glass and metal syringes, of being unbreakable by heat. The graduated barrel is made from fused quartz glass, and when the piston is withdrawn, and the metal plunger rests in a safety expansion chamber, the whole syringe can be sterilized by dry or moist heat without further separation of the parts. If necessary, water can be boiled in the syringe over a flame. The metal case contains a tray, with clips for holding the syringe and a holder for two needles, and the complete apparatus can be sterilized together, so that the contents are ready for use in an aseptic state. All who use syringes for hypodermic medication, or for taking samples of blood for culture, will appreciate the convenience of this arrangement. The syringe, needle-holder, and case are strongly made, and the whole apparatus is handy and workmanlike. We have tested the glass tubing from which the barrels are made, and found that after holding in a Bunsen flame it can be immediately plunged into ice cold water without breaking.

A Needle for Intravenous Injection of Arseno-benzol Preparations.

Mr. H. W. ABBOTT, M.R.C.S.Eng., L.R.C.P.Lond., writes: The instrument I have devised, a woodcut of which accompanies this description, differs from other needles used for a similar purpose in that it has a handle on the upper surface of its mount, and over the centre of gravity of the instrument; this gives a perfect sense of balance. If the needle be held by its handle (not by the mount as is the usual method), the "grip" so obtained provides a greater delicacy of touch than has hitherto been possible, and the surgeon can easily give to the point of the needle any gradation of movement in order to insure its entry into a vein; in this way the perception of control is absolute. The mount is $1\frac{3}{4}$ in. long, and its form is such that, when the instrument is lying on a horizontal surface, the shank of the needle is directed downwards, thus ensuring that the point remains within the lumen of the vein after introduction. Further, by virtue of its length and the fact that each of its four surfaces is flat, the mount lies fairly and squarely on the skin during injection. In practice the needle has given extremely good results. It has been made for me by the Holborn Surgical Instrument Company, of Thavies Inn, Holborn Circus, and I am more than pleased with the excellence of the workmanship and the finish.



A FUND of £100,000 has been raised for the construction of the new St. Luke's Hospital at Tokyo. Of the total sum £15,000 was contributed by the Japanese; the remainder was collected in the United States.

LIBRARY U. OF I. URBANA-CHAMPAIGN

British Medical Journal.

SATURDAY, JUNE 16TH, 1917.

MEDICINE AT MESSINES.

FIELD-MARSHAL SIR DOUGLAS HAIG, in a general order addressed to the General Officer commanding the Second British Army, says of the victory of the Messines Ridge, "our own casualties were for a battle of such magnitude most gratifyingly light," and everything one hears confirms the statement that in the offensive last week the objects were attained with very small losses. All previous offensives have caused a large wave at the base hospitals and have kept the casualty clearing stations of the forces engaged at work day and night. But on this occasion the casualty clearing stations all appear to have got through their work quite comfortably, there seems to have been hardly a ripple at the bases, and the wounded are reported to have reached them in very good order. The weather has been favourable, and the advance was strictly confined to its intended limits; the aim was to capture a range of strongly fortified hills that have dominated the whole situation on the true Flanders front ever since the end of 1914, and not to advance beyond these hills any greater distance than was necessary to secure the position. Consequently, very long carries of wounded men such as were a feature of the two recent advances at Arras and Bapaume were unnecessary. The whole area lying just in front of these hills has roads running parallel to them from end to end, and these have been kept in good condition, despite the heavy shelling to which they have been subjected for more than two years. Moreover, they have been joined up at frequent intervals by cross-roads. Advanced dressing stations were long ago pushed up close to the foot of the hills, and the casualty clearing stations were all easily accessible; they were among the very best equipped to be found on the whole front, for they are nearly all of them in hutted or other buildings of a more or less permanent type. The preparations for the attack were begun well in advance, and at one place, where the fighting promised to be heavy and did in fact prove so to be, a place which lies away from the main roads, two main dressing stations were provided—one for walking cases and one for sitting cases—within three or four thousand yards of the actual fighting. This place, it would seem, was excellently arranged, and the buildings, chiefly of wood, were connected up with the main roads leading to the casualty clearing stations by well-built tracks across the fields. In fact, the medical arrangements were clearly as well thought out as those of the fighting operations, and the whole affair moved like clockwork.

Apart from its strictly military importance the capture of this Wytschaete-Messines Ridge has distinct medical interest, for it dominated the salient held by the British between Wytschaete Hill and Ypres. Though little has been heard of this salient—during the last eighteen months or two years it has hardly been mentioned in the newspapers—those who have had occasion to visit the hospitals at home must have been struck by the number of men who said that they received their wounds in this area. It has, in fact, been the source of a steady stream of casualties ever since it was first established, and, moreover, they have not been of a light kind, for the ground is low-lying, highly cultivated alluvial soil, and teems with the organisms of gas gangrene and other infections. The extent to which this area can now be raked by the enemy will be greatly lessened, and the casualties arising in the salient will diminish correspondingly. The area as a whole, or rather its outskirts, is perhaps more familiar to people at home than any other scene of a large offensive, for it is the one to which most official visitors have been taken. At one end lies Popperinghe, with Ypres some eight miles in front, and at the other Bailleul, some six or seven miles from Armentières, the site of certain much described soldiers' baths, and close to the famous "Plug-street."

The splendid efficiency of it all may already have made the men on the spot forget the anxious period of preparation, but we at home must not be unmindful. The careful testing for weeks and months beforehand of every link, from the organization of the battalion stretcher-bearers and the choice of aid posts back through the ambulance trains to the bases; the careful estimate of the capacity of each field ambulance and casualty clearing station, the questioning of their numerical adequacy, the debating of the need for pushing up more units or of reinforcing those already established but not perhaps quite strong enough to cope with a large influx of seriously wounded men—all this has meant months of anxious work. Happily all has gone well, and anticipation was in advance of realization; but let us imagine what would have happened if the converse had been true, though we need not draw on our imagination, for we know a part at least of what happened at Gallipoli and in Egypt and in Mesopotamia. Let us also bear in mind to-day the labours and anxieties of the Army Medical Department at home to meet all needs in men and material of those responsible for the medical conduct of the operations of the army that faced the Messines ridge on the night of June 6th–7th. Finally, let us remember that 98 per cent. of the officers serving under Sir Arthur Sloggett in France were civilians when the war began and will be civilians again when the war ends. It is a fine record of which any profession could be proud; we have been privileged to serve the country in its need in our own way by the practice of our own beneficent calling; and in courage in the field, in skill in the field ambulances and casualty clearing stations and base hospitals, and in devotion to duty in every part of the great military medical machines with the armies in France there has been no faltering, but wise foresight to prepare and eager enthusiasm to fulfil.

MILITARY HOSPITAL ECONOMIES.

IN the BRITISH MEDICAL JOURNAL of May 12th last attention was called to the lack of economy due to the multiplication of small Voluntary Aid hospitals. It seems not unlikely that in the near future the whole system of auxiliary military hospitals will come in for adverse public criticism, and we would venture to appeal to the Director-General of the Army Medical Service to investigate the position impartially with the profession of which he is so distinguished an ornament, and to accept the co-operation of his civilian colleagues, especially that of the professional committees which are so closely concerned in a matter affecting the distribution of doctors both for military and for civil needs.

To the Territorial general hospitals established in large centres are linked a number of smaller hospitals. Some of these are section hospitals more or less directly under the control of the Territorial general hospital, others are Red Cross and Voluntary Aid hospitals which we understand are visited and inspected by members of the staffs of the Territorial general hospitals. Thus the 1st London Territorial General Hospital at Camberwell has a section hospital of 200 beds at St. Bartholomew's Hospital, and is responsible also for the inspection of six or seven Red Cross hospitals. The latter are staffed generally by local practitioners, and the intention would appear to be that they should be visited once a week by a member of the staff of the Territorial General Hospital. The small auxiliary hospitals were formed as a result of appeals by county directors of the Territorial Force Associations, the organization of the hospitals being delegated, as a rule, to the British Red Cross Society. Such hospitals have been established in very large numbers throughout the country, and their number has recently been increased. We are not aware that the total number of these small hospitals has been stated, but it appears that in one command alone there are some 350 of them in addition to the large military or Territorial general hospitals. The number of beds in a Voluntary Aid hospital varies very much—probably the usual range is from 30 to 70; but hospitals are believed to exist, or have existed, with as few as 7 beds, while others may contain 200 or 300.

From the public point of view several questions may be raised with regard to auxiliary hospitals. We have already endeavoured to show that the multiplicity of small hospitals is uneconomical. But wider questions are involved. The primary function of the military hospital is to return a soldier to the fighting forces as quickly as possible. A second duty is to repair, as far as practicable, the man who will never be fit for service again, in order that when he returns to civil life he may be as self-helpful as possible. Is the best being done for the country in all the auxiliary hospitals in the way of rendering possible the rapid return of the soldier to the combatant ranks? Is the best being done in the way of treatment and training for the man who has been injured in his country's service and must be discharged from the army to civil life? And, lastly, is the medical man-power available being used in the most effective and least wasteful way possible?

All the evidence available seems to show that the answer to each of these questions is unsatisfactory. Apparently the initial sorting of wounded who arrive in this country has hitherto been defective, so that suitable cases do not invariably reach suitable centres. In some instances the staffs of many small hospitals have given as a reason for urging the importance of the work carried on in their hospital that they receive convoys direct. In any case, although many small hospitals near large centres are largely used for convalescents, it seems certain that quite a number of small hospitals throughout the country become possessed of patients who require some form of special treatment unobtainable locally. How is the future of these patients controlled?

As we have said above, the auxiliary hospitals are for the most part regarded as annexes of the large Territorial general hospitals, to be controlled and inspected from these hospitals by the members of their staffs, most of whom are already carrying on civil as well as military work. In addition, the War Office has appointed certain inspectors and other officials. Thus each command has a consulting physician and a consulting surgeon, but the real function of these officers is consultation as to treatment, and not inspection. In the Military Orthopaedic Department, the inspector, Sir Robert Jones, has several deputy inspectors, while Colonel Aldren Turner is inspector for the Neurological Department.

Auxiliary hospitals in the same town as a Territorial general hospital, or in the immediate neighbourhood, are no doubt subject to effective control and inspection. But in regard to, say, 300 small hospitals scattered over sparsely populated country districts where public means of communication are scanty and roads often hilly and badly kept, is it conceivable that with so few officers as have been mentioned the control can be other than of the mildest description, or the inspection other than rare? To inspect such a hospital in a remote country district, a busy member of the staffs of military and civilian hospitals, engaged moreover in private practice, must leave his ordinary work. How many men are available? How often can they make their visits and how long will it take them to go round the 300 or more hospitals in a command? Again, how often are the inspectors of the orthopaedic or neurological departments able to visit all the hospitals within their areas? Yet without such inspection numbers of cases must be held up without the special treatment required. Are there not from time to time many men who ought to be in command dépôts, or even back with their regiments, waiting for travelling medical boards to decide what should be done with them? It would be interesting to know how frequently each hospital is visited by these boards. Take as a hypothetical case an auxiliary hospital with fifty beds in a country place, and assume that it has forty patients; thirty of these, perhaps, will be men who merely want ordinary treatment, or are convalescent and waiting to be sent to command dépôts. Of the remaining ten, perhaps three or four require special orthopaedic treatment, two or three are neurasthenics or suffering from shell shock, one or two may have sustained comminuted fracture of the jaw, and the remainder may, perhaps, be suffering from chronic heart or kidney disease or tuberculosis. Such cases may require special treatment, or would be more likely to be restored to fitness by treatment in special hospitals. The machinery for picking out such cases seems to be inadequate, and it is no uncommon complaint at special hospitals that patients have been allowed to remain at small hospitals until cure has become difficult. If suitable machinery were devised, or if a sufficient number of expert inspectors were available, it would probably be found possible to reduce the number of small auxiliary hospitals, so saving medical personnel, and to use country houses and the like only as convalescent homes to which men might be sent for a month or six weeks. At the end of this period the soldier might be sent automatically to a command dépôt, or back to the Territorial general hospital for decision as to his future. If men are allowed to remain in the hospitals too long, or if unsuitable cases are being retained which could be better treated elsewhere, then not only is there a waste of beds and of the men's time, but also of medical time and energy.

It is necessary, therefore, for the Army Medical Department to solve the problem of ensuring such efficient inspection (1) that only suitable cases are sent to each hospital; (2) that trivial cases are discharged as soon as possible to command dépôts with a view to their return to the army; (3) that treatment started abroad or in Territorial general hospitals at home is properly continued; (4) that

LIBRARY U. OF I. URBANA-CHAMPAIGN

atients not making satisfactory progress are weeded ut, and dispatched elsewhere; and (5) that special ases are referred to special centres without loss of ime.

In our view the problem cannot be solved by an verworked and understaffed department, manned lmost entirely by officers trained in peace time in he routine of a small regular army, for they can, rom personal experience, know little of civilian eeds. Much of the good work already accomlished is due to the unceasing efforts of temporary fficers who have striven against the dead weight of fficial methods. Once again we urge the Director-eneral to take the wide and impartial view of the ituation of which he has so often shown himself apable, and, for the sake of his department and its chievements at the front, so to modify conditions at ome as to combine the highest efficiency with the conomy the application of which cannot much onger be delayed.

THE MEDICAL ASPECTS OF MATERNITY AND CHILD WELFARE.

THE appalling loss of young adult life during the last hree years, and the horrible probability of its coninuance for an indefinite period, have brought home o every one the need for the preservation of the oncoming generation, and for the arrest of the present candalously high rate of infant mortality. The daily eturns of casualties in the one case tell the tale only oo plainly, but in the other no record is published of he loss of life that goes on unceasingly in peace as vell as in war. If such records could be similarly ublished from day to day the public conscience would ndeed be stirred, and demands for preventive legislaion would be made on every hand. For the moment, owever, the matter must be dealt with locally, and lready in Edinburgh a scheme has been started which ay well be taken as a guide by other local authorities vho have the power to establish the necessary achinery. A very comprehensive plan was devised ast year by Dr. Williamson, medical officer of health, ut was found to be too large for adoption at the resent time, and a modified scheme has now been pproved by the City Council. An account of this cheme will be found in our issue of March 10th, . 348. In the meantime a very valuable contribution o the whole subject from the medical point of view as been made by the Royal College of Physicians, Edinburgh, which has recently issued a full report[1] of he papers read in the course of a discussion at the Edinburgh Pathological Club. These papers cover lmost all aspects of the problem to be dealt with in rotecting the health and well-being of infants up to chool age, and are in every case written by experts in he particular branches to which they relate.

An all-important, but much neglected, factor in the anagement of infant life is the regulation of the re-natal period. The ill health of the baby is too ften the result of carelessness or neglect of her own ealth on the part of the mother, and as this depends n the majority of cases upon sheer ignorance it is ery necessary that means should be established to ring expectant mothers of the more ignorant classes nder the supervision of skilled advisers. For this urpose maternity centres are strongly advocated and ll possible means adopted to induce such mothers to register thmselves and to take advantage of the advice that may be tendered to them.

Maternity benefit is granted under the National Insurance Act, but it is only obtainable after confinement. In very many cases the need for pecuniary help is greater in the pre-natal period and might sometimes enable the half-starved mother to produce a vigorous instead of a puny offspring. Grants of money for such special purposes are, however, only too apt to be misapplied. Expectant mothers are ignorant of their medical needs during pregnancy, but it has to be recognized that medical knowledge as to the exact physiological conditions prevailing as the pregnancy proceeds is insufficient, and pathological conditions likewise have not been fully worked out. Hence it is eminently desirable that laboratory study should form a part of every scheme, and that far more attention should be paid to the pathological evidence afforded by examination of the placenta, etc., than has been the practice hitherto.

Large numbers of babies are treated at general hospitals every year, and it is not gratifying to learn that in one representative institution the proportion of cases to which no real benefit could be afforded amounted to no less than 43 per cent.

Edinburgh is distinguished for the progress that has been made in dealing with tuberculosis at all stages, but it would seem that the amount of bone and gland disease in children is still excessive, and is attributed directly to the lack of proper control of the milk supply. The adult consumptive is provided for, as far as possible, and there are many institutions for convalescence for children, but it is obvious that the spread of the disease in one form or other is constantly going on, and must continue to do so among the infant population so long as the presence of tubercle bacilli in the feeding-bottle is ignored. Doubtless Edinburgh does not stand alone in this respect, and it will need much patient reiteration to induce the average mother to regard the bacillus as a more dangerous missile than the shrapnel bullet. The wound inflicted by the latter is often serious, but it is far less dangerous in its after-effects than the invisible, but none the less deadly, encroachments of the former.

At no period of life is the aid of the specialist more needed than in early infancy. The affections of the throat, teeth, eyes, and ears to which infants are subject have far-reaching effects in after-life if neglected. Hence the desirability of specialization in the treatment of babies as apart from children of school age. The establishment of fully-equipped babies' hospitals is urgently needed as a part of the whole plan for dealing with child welfare. The work of examination and treatment calls for much patience and perseverance on the part of doctors and nurses, and cannot be carried out satisfactorily in the general hospitals.

Apart from the treatment of actual disease there is also a vast field for advisory work in the patient's home. The detection of the first departure from health and the indications of oncoming illness can only be effected by a trained eye. Too often the stage of prevention has passed before the mother has found out that there is anything the matter. The services of health visitors with medical knowledge and experience must be enlisted in the carrying out of any complete scheme.

The whole subject is a very large one, and bristles with difficulties when practical measures have to be devised, but as regards the need for prompt and vigorous action there can be no difference of opinion.

[1] *Some Medical Aspects of Maternity and Child Welfare.* Papers ead at the Edinburgh Pathological Club, introducing a discussion on he subject. Reprinted from the *Edinburgh Medical Journal*, May-une, 1917.

The papers contributed to the Edinburgh discussion will be found to present every aspect of the medical side of the problem, and deserve the careful attention of every one who may be charged with a share in the successful propagation of this much-needed reform.

SURGERY ON THE LINES OF COMMUNICATION.

To the JOURNAL of June 2nd, 1917, Sir Anthony Bowlby and Colonel Cuthbert Wallace contributed an account of the development of British surgery in the front area of the Western campaign. This week Sir George Makins describes the corresponding progress of surgical opinion and practice within the great field of medical activity known as the lines of communication, of which Sir T. P. Woodhouse is the administrative head. These two illuminating articles between them cover that part of the surgical system which catches up the soldier wounded in Flemish or French battle line, and cares for him until he is returned fit to the front, or landed in this country for further treatment. The surgery that can be undertaken on the journey by ambulance train or barge, from the clearing station to an overseas base, is necessarily limited in scope, and Sir George Makins gives main attention to the lessons learnt in the wards and laboratories of the base hospitals, and to the current surgical procedure derived from them. In spite of the diverse views held by different surgeons upon many questions of wound treatment and operative technique, as we pass from details towards the broader issues of principle there are signs of general agreement. This, we believe, is largely due to the interchange of information as to results and methods between medical officers at the front and at the base, and between fellow workers in the same area; in this matter the consultants have played an important part by their personal influence, by their encouragement of the passage of brief case-records up and down the line, and by the stimulus they have given to the exchange of views at medical meetings in the various armies and bases. The chief difficulty has been to overcome that queer indifference of men labouring together in units not only to work of the same kind being done next door, but also to further stages of treatment in which they have had a hand—an attitude of mind partly due to the conditions of military life, and partly to human nature itself. The articles we are publishing will help to diffuse the knowledge which has been collected and tested by the most experienced observers, and will, we hope, break down what remains of the water-tight compartments separating bands of workers whose aim is identical.

HOUSING AND HEALTH REORGANIZATION.

WITHIN the last month three deputations from organizations concerned with housing have waited upon the President of the Local Government Board, the last being one from the Workers' National Housing Council, which put before Lord Rhondda the point of view of the organized working classes with regard to the improvement and extension of industrial dwellings. As we have said with reiteration that may have seemed wearisome, the housing question is closely bound up with all measures for the betterment of the nation's health, and any scheme for consolidating the health activities of Government departments will fail if it is divorced from housing reform. Lord Rhondda, in his replies, showed that this is recognized by the department of which he is the head; and it seems likely that if his proposals for the establishment of a Ministry of Health are accepted by the Cabinet, the control of housing will be one of the functions of the new department. For the present, however, the important public announcement by the Government on the setting up of a Ministry of Health, which the newspapers heralded a fortnight ago, seems to have been postponed, possibly in consequence of representations from the approved societies under the Insurance Act. As we reported last week, the National Conference of Friendly Societies recently forwarded to the Prime Minister a memorial on this subject, urging him, among other things, to appoint an impartial committee to investigate the whole question before any decision is reached by the Government. To this a reply has been sent by Mr. Lloyd George to the effect that the memorial is now engaging his personal attention. It is further understood that the Prime Minister will shortly receive a deputation representing all the insurance organizations of the country to confer upon the matter. With this in view, friendly societies and allied bodies are holding meetings this week in order that their collective wishes may be laid officially before the Government. It is to be hoped that the views of the medical profession will receive at least equal consideration from the Prime Minister.

WELFARE WORK IN FACTORIES.

AT a meeting of the Royal Institute of Public Health on June 6th, under the chairmanship of Dr. T. M. Legge, Mr. B. Seebohm Rowntree made a thoughtful contribution to a course of lectures on public health problems under war, and after-war, conditions. At this time of national stocktaking he wished to balance up that imponderable asset, the vitality of the nation as a whole. At any given moment on the credit side of the national life there was a certain amount of energy, staying power, and fitness—that is to say, so much health; on the debit side were all the conditions and forces tending to sap and squander health. The long roll of those poor creatures "physically unfit for any useful occupation" was not a mere deduction from the credit side, but must be placed on the debit side, since they used up the energies of the fit. Welfare work, continued Mr. Rowntree, was largely an attempt by employers of labour in their own sphere to increase the nation's asset of health, and to remedy leakage, breakage, and waste of vitality. The first aim should be a satisfactory wage level, not only covering the bare demands of physical efficiency, but giving a substantial margin for the amenities which add to health and happiness. Effort must be correlated with capacity, and hours of work must not be so long as to overtax health, since a man starved of rest is no better off than a man starved of food. Another task of the welfare worker is to give watchful care to hygienic conditions, to organize recreative facilities, and to promote social schemes generally, on a self-supporting basis. Lastly, the welfare movement aims at arousing a spirit of co-operation and goodwill pervading the whole factory, and touching each individual. Taking a comprehensive view, Mr. Rowntree realizes that an unredressed grievance, however trivial, is a focus of irritation in the industrial body, detrimental to its health. "Contentment, on the other hand, is a very great physician. His fees are high, but we cannot afford to dispense with him."

RUSSIAN PRISONERS IN GERMANY.

IN an article published in the *Revue des Deux Mondes* of March 15th a French lady, who signs herself "Marylie Markovitch," gives an account of a visit she paid in the summer of 1916 to the military convalescent hospitals in the Crimea. In what was then known as the Alexandra Feodorovna Sanatorium at Massandra, near Livadia, she came across a young officer, Henry Sienkiewicz, a nephew of the famous author of *Quo Vadis?* His statements may be added to the large body of personal testimony to the brutality of the Germans towards the prisoners of war in their hands which have already been published in the JOURNAL. He was a captive in Germany for fourteen months in conditions which he described as terrible. He had received two bullet wounds in the leg besides a severe contusion on the head, and was left for dead on the field. He was brought back to consciousness by a sharp pain in the arm caused by a bayonet thrust,

LIBRARY U. OF I. URBANA-CHAMPAIGN

and was horrified to see German soldiers dealing with all the Russians in the same way to make sure there were no wounded overlooked among the dead. He was picked up by stretcher-bearers, and thought he was being carried to an ambulance, but he was thrown into a stable with other wounded men. There they remained four days, untended, without food, and tortured by thirst and fever. Many of them died of gangrene; the guards did not trouble to remove the bodies. The air already polluted became irrespirable, the only ventilation being through holes in the walls. Luckily Sienkiewicz had kept his emergency dressing and some iodine and this saved his life. At last the prisoners were removed to the hospital of Ostrakno. The Germans kept such dressings as they had for their own wounded and treated the Russians with morphine. Owing to this, almost all the soldiers and officers sent back from Germany are morphinomaniacs. Even in hospitals in the early months of the war food was insufficient. Later, especially in the internment camps, it became uneatable and the men died of starvation. Sienkiewicz maintained that everything that had been said on this subject was short of the truth. Of the prisoners, those most to be pitied were the poor Russian *moujiks*, whose wives generally could not read or write and whose homes were scattered throughout the vast Steppes of the East. No letter or parcel ever came to them. When they had eaten their meagre ration, they would devour the most disgusting offal. Whatever is resignation, his readiness to forgive injuries, his simple faith, the Russian peasant will long remember the German prisons. Captive officers are spared no kind of insult or ill treatment. Sienkiewicz was made to spend four weeks among lunatics. For refusing to remove his epaulettes he was sent to a soldiers' camp where bodily punishments were inflicted with a savagery which caused new, and sometimes irreparable, injury to weakened constitutions. He was finally transferred to the Stralsund hospital, where the treatment was slightly better. The worst example of cruelty he saw was the treatment to which a brother officer, Captain Fomine, was subjected. He had fourteen wounds, hardly dressed, and suffered so acutely from the jolting of a railway carriage that he could not restrain his cries. For this a German soldier took him up bodily and threw him out of the moving train. By a miracle he was not killed. He rolled down the embankment on to a road, where the passers-by recognizing him as a Russian yelled abuse, showered blows upon him, and pelted him with stones. A kind-hearted peasant picked him up and saved his life.

CONGENITAL TUBERCULOSIS.

GENUINE cases of congenital tuberculosis in human beings are undoubtedly very rare. Indeed, two French authors, after an exhaustive analysis of the available literature, came to the conclusion in 1915 that only fifty-one conclusively genuine instances of it had then been published. The subject is reviewed in an interesting article[1] by Dr. F. Parkes Weber, who points out that while the infection of the fetus in these rare cases has been generally thought to have occurred only when the mother was in an advanced stage of tuberculosis and probably suffering from generalization of the disease, it may in fact occur when the mother's tuberculosis is not far advanced, or is even quiescent. In few, if any, of these instances does direct maternal infection seem to have been concerned, although such seminal infection is undoubtedly possible. Dr. Parkes Weber shows that the tubercle bacilli can pass from the mother to the fetus in various ways. No doubt the infection most commonly takes place by way of the placenta, in which tuberculous changes may be present yet extraordinarily hard to demonstrate; Schmorl even speaks of examining as many as 20,000 microscopic sections of a placenta before the tuberculous lesions present in it could actually be demonstrated. In such examples of placental infection the tubercle bacilli might be supposed to "grow through" the placenta into the fetal circulation; or else, perhaps, to be forced from the placenta into the fetal circulation by the uterine contractions during labour. Two other possible methods of infection were suggested by Sitzenfrey in 1909. One is that chronic venous engorgement of the villous capillaries might lead to their rupture into the maternal intervillous spaces. Should this occur, maternal blood containing tubercle bacilli might gain entry into the fetal circulation. The second of Sitzenfrey's suggestions is that tuberculous foci situated in the decidua vera may penetrate the amnion, infecting the liquor amnii and so the fetus. Dr. F. W. Andrewes had already, in 1903, put forward the view that prenatal tuberculosis might possibly be caused by the fetal ingestion of amniotic fluid containing tubercle bacilli derived from a disintegrating tuberculous lesion of the placenta. It may be added that the literature contains records of a few instances in which miliary tuberculosis of the placenta has occurred in mothers with latent tuberculosis. These would no doubt be explained by the occurrence of a temporary tuberculous bacillaemia from which the mothers made good recoveries.

[1] *British Journal of Children's Diseases*, London, 1916, xii, 321, 359.

EYES AND NO EYES.

IT is to be hoped that in the years to come it will never again happen that industries providing materials which are directly, or indirectly, essential to the practice of medicine are allowed to languish and die out in this country. Instances which strike the mind at once are the manufacture of many kinds of scientific apparatus, and the synthetic drug industry, both of which had so largely passed into the hands of firms in foreign countries, that the outbreak of war found us cut off from almost every source of supply. The result has been a dangerous shortage of instruments, chemicals, and appliances indispensable alike in research, in diagnosis, and in therapeutics. British firms have done, and are doing, their best to cope with this situation in the midst of the war, but the heavy and increasing demands of the army are always ahead of the supply. One after another the available stocks of articles needed for medical practice are being, so to speak, called up to the colours or passed into the army reserve. A new department of Technical Optics in connexion with the Imperial College of Science and Technology is now being organized by a committee having representatives on it of the Admiralty, the Army Council, the Ministry of Munitions, the Royal Society, the National Physical Laboratory, employers in the optical and glass-making trades, and elected representatives of glass workers and metal workers. Mr. Frederic J. Cheshire, President of the Optical Society, formerly of the optical department of the Patent Office, and recently technical director of the optical department of that Ministry, is to occupy the office of director under the committee, and also to be professor of technical optics at the Imperial College. The professed object of this important new department is to co-ordinate the optical industry on national lines. The scheme began with the London County Council, but the Government is granting £5,000 for equipment and £4,000 a year for working expenses, and it appears that scientific research and technical education will both be undertaken. There is a great deal of scope for the work of this committee not only directly in matters concerning the production of optical instruments, but also for glass appliances required for scientific research and in medical treatment. With regard to the use of glass apparatus in research laboratories we need not say anything, for the need must be recognized by everybody who has ever entered a laboratory, but it is possible that the demands of medical practice may not be fully realized. There is, for instance, the question of the supply of thermometers and syringes for

the administration of drugs and vaccines. Further, there is the relatively minor matter of the supply of artificial eyes. There is a constant demand for artificial eyes both for civilians and soldiers. Only last week we recorded the issue of an order requiring persons engaged in the manufacture, purchase, or sale of artificial human eyes to make a return of stocks and materials within seven days to the Director of Optical Munitions. An artificial eye—contrary, perhaps, to public belief—is not a mere luxury used only for cosmetic purposes; it is often needed as part of the ophthalmic surgeon's treatment of the case. All will agree that the soldier who has lost an eye in the service of his country must come before the one-eyed civilian, but the latter must not be allowed to go short. Before the war, we understand that the manufacture of artificial eyes in this country was limited to a very few small firms, and that the great bulk of the supply came from Germany. Vendors in the early days of the war held good stocks, mostly of German make, but these, we believe, are now almost depleted. The recent order of the Ministry of Munitions, unless something is done to stimulate the home production, will, we fear, have the effect of cutting off the civilian supply. This is a matter which should receive attention from the new department.

THE CAVENDISH LECTURE.

THE President and Council of the West London Medico-Chirurgical Society, wishing to pay a compliment to the medical services of the overseas forces, invited Captain Andrew Macphail, M.D., C.A.M.C., the distinguished Professor of History of Medicine in McGill University, Montreal, to be the Cavendish Lecturer for the present year. The lecture will be delivered at the West London Hospital on Friday, June 22nd, at 8.15 p.m., and Captain Macphail has chosen as his subject "A Day's Work." Representatives of the medical services of all the overseas forces will be present, and it is hoped there will be a large attendance on this occasion, which is a notable departure from precedent. Invitation cards to the lecture and conversazione may be had on application to Dr. Reginald Morton, 66, Harley Street, W. 1.

Medical Notes in Parliament.

Medical Arrangements in Mesopotamia.—In a written reply to a question by Sir J. Jardine as to the health of troops in garrisons on the rivers Tigris and Euphrates, the provision of hospitals and the supply of nurses at Basra, Baghdad, Amara, and Nasiriya, and the supply of fresh vegetables, the Under Secretary of State for War said that the general health of the whole British Forces in Mesopotamia was satisfactory. There was an ample supply of hospitals and no deficiency of nurses had been reported. The ratio of admission to hospital was less than double that of the troops in India in peace time. The death-rate for all causes other than wounds in action was 4.5 per 1,000 per annum, which was only fractionally higher than the peace rate in India. Owing to the arrangements made to induce local cultivators to grow crops under our control, it was reported that full and varied supplies of vegetables could now be obtained throughout the year at all the principal centres.

Pensions Appeal Committee.—Sir A. Griffith-Boscawen stated, on June 11th, that the Committee who are to hear appeals in pension cases will be constituted as follows:

His Honour Judge Parry.
Lieutenant-General Sir A. E. Codrington (representing the War Office).
Admiral Sir Wilmot Fawkes (representing the Admiralty).
Dr. Norman Moore (Royal College of Physicians).
Mr. Bilton Pollard (Royal College of Surgeons).
Mr. A. Bellamy (Railwaymen Union).

Artificial Limbs.—In reply to a question by Mr. W. Thorne, on June 12th, the Parliamentary Secretary to the Ministry of Munitions said that under the Workmen's Compensation Act there was no obligation on the employer to provide artificial substitutes for munition workers who suffered the loss of a limb. In the case of workers in the direct employ of the Ministry an artificial substitute was provided free of charge.

Prisoners of War.—On June 12th, in reply to Mr. G. Faber, Mr. James Hope said that the number of British combatant prisoners of war in the Regular and Territorial forces, Royal Naval Division, and Indian forces was as follows:

	Officers.	Other Ranks.
Germany	1,354	34,304
Turkey	556	8,355
Austria	5	12
Bulgaria	22	523
	1,937	43,194

The German figures included a certain number of prisoners taken in East Africa, and he believed that the great majority of prisoners in Turkish hands were native Indians.

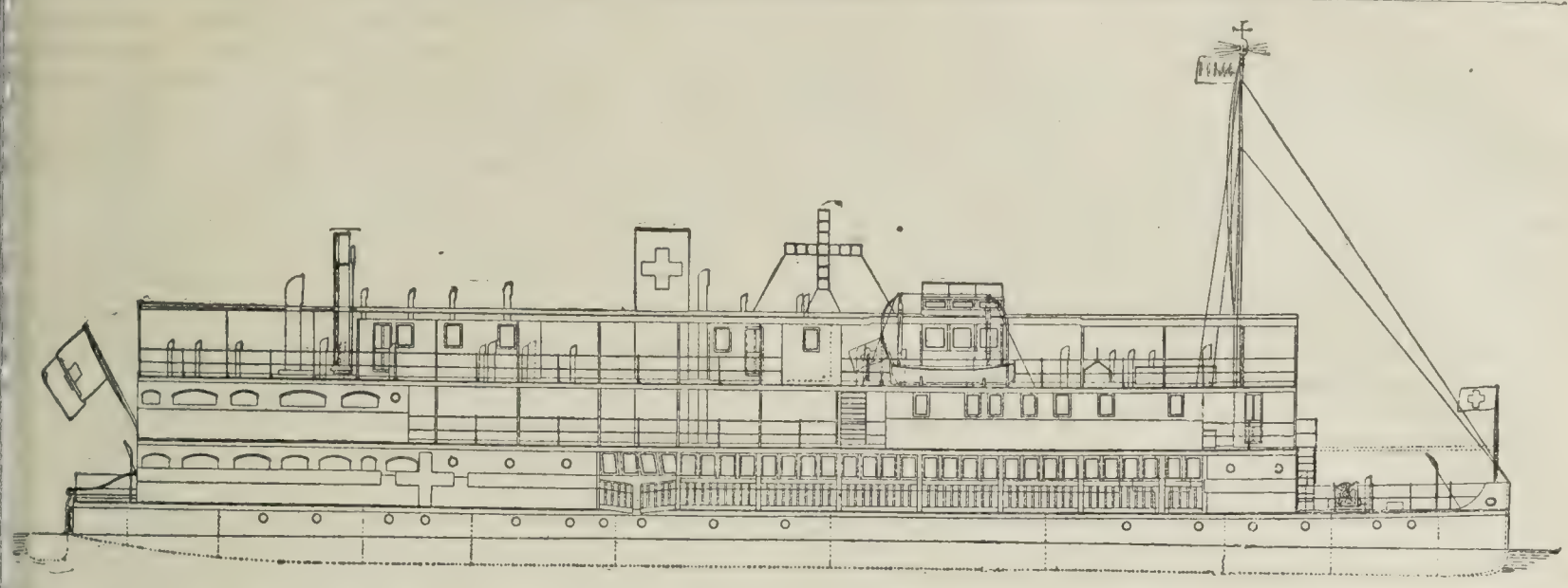
Flavine.—On June 8th General Croft asked two questions with regard to flavine, inquiring whether its properties were known to the medical profession in January last through a preliminary report published in the BRITISH MEDICAL JOURNAL; whether hitherto substantial quantities could not be obtained for the treatment of wounded soldiers at home or abroad; what steps the War Office had taken to obtain it; and whether there had been delay in the execution of any order given. The Under Secretary of State for War said that the preliminary report gave the results of experiments with a small supply of flavine, a complex substance specially made for those experimental purposes in a Government laboratory. Arrangements were made at the time for further trials in various military and other hospitals, and steps taken to arrange for a commercial supply being rendered available in the event of these trials proving sufficiently favourable. The trials had been in progress since January, and the effects so far obtained were under careful comparison with those of other antiseptics. It was necessary to obtain a licence from the Board of Trade before the substance could be placed on the market, as it was already the subject of a patent obtained before the war. In the middle of May applications were made to the Board of Trade by various firms, and the hearing took place on May 24th. The requisite licences were now being issued to five firms, and there would seem to be no doubt that the substance would be supplied as rapidly as the several firms could produce it. He hoped it would be available in the near future.

The Passing of Unfit Men.—A large number of questions have recently been addressed to the Under Secretary for War as to the re-examination of recruits and the passing of unfit men. The questions referred to incidents stated to have occurred at Hulme Town Hall, Salford, Hyde, Ulverston, Northampton, Leicester, and other places. Mr. Macpherson indicated in his replies that all the complaints were being carefully investigated. The instruction was that men suffering from definite disabilities which incapacitated them from general service were to be classified in the lower categories for service of an auxiliary character. Every effort was made not to accept for service men with disabilities of such a character as to unfit them for rendering military service either of a general or auxiliary character.

Osteopaths.—In reply to Sir George Greenwood, who appeared anxious that American osteopathic doctors should be allowed to treat British soldiers in France and the British Isles, Mr. Macpherson replied that a large number of doctors commissioned in the army of the United States had been sent to Europe, and many of the most eminent practitioners in the United States were included. The American Government had commissioned the officers sent, and it was not proposed to look for any other security that these officers were qualified for the duties assigned to them.

Artificial Limbs for Invalided Soldiers.—Replying to Major Chapple, who asked whether it would be more conducive to economy and efficiency for the State to undertake the manufacture of artificial limbs for soldiers, instead of obtaining them from private firms, Sir A. Griffith-Boscawen said that the Pensions Ministry would not hesitate to adopt the former alternative if there was reason to suppose that the prices charged by the private firms were considerably in excess of the intrinsic value of the limbs. He accepted as approximately correct figures by Major Chapple—namely, that 8,805 artificial limbs had been made for our soldiers by private firms at a cost of £127,293, and that over 7,000 men who had already lost their limbs had still to be supplied. He agreed also that the cost of renewals and repairs would recur.

LIBRARY U. OF I. URBANA-CHAMPAIGN



THE WAR.

HOSPITAL SHIPS FOR THE TIGRIS.

N June 9th a representative of the JOURNAL was given an portunity, through the courtesy of the Inland Water- ays and Docks Department, of inspecting one of the ver hospital ships which have been built in this country r service on the Tigris for the benefit of the sick and ounded in the Mesopotamia campaign. This type of ssel is the outcome of a great deal of thought, and of st-hand knowledge of the actual conditions under which will work. It is specifically designed for the carrying wounded and sick men from the upper reaches of the ver Tigris to the main base at Basra; for this the draught ust not exceed 3 ft. 6 in. The length of the vessel and e kind of steering control are also limited by the sharp nds in the river to be navigated, and the restriction of ngth has necessitated a beam limit in order to give the quired displacement. The speed of eight knots is ob- ined by oil fuel motor engines operating twin screw opellers, thus saving weight and simplifying the fuel oblem. The longitudinal section, which we reproduce, ows that the vessel consists of hold, main deck, upper ck, and flying deck, with a light sun deck fitted over the st named. Temporary strengthening for the outward yage to the East has been provided, as the whole of the ucture has been made as light as possible consistent th strength. Steam auxiliary power is given by an oil el water-tube boiler, which works the main steering ar, windlass, evaporating apparatus for fresh water pply, and a calorifier for hot water supply. A very mplete system of ventilation on the thermo-tank prin- ple gives a continuous supply of fresh air by means of ge electrical centrifugal fans and trunks; in the severe ld of a Mesopotamian winter this air is heated by steam; the extreme heat of summer there is a very liberal pply of smaller electric fans throughout the ship. An -making plant with ice store and meat room is ovided, and in the same compartment there is a soda ter machine.

The main and upper decks are arranged as hospital rds for either European or Indian troops. Some of the s are grouped in two tiers, the rest are long and wide cture cots, all arranged to give free access to the patient. e flying deck is for convalescents. The sides of the ver wards are specially designed to exclude cold and rain winter, and to allow the freest play of air in the summer at, with the minimum of flies and direct sunshine. At e fore end of the upper ward is an excellent operating eatre, well lit and fully equipped; with a preparation d sterilizing room adjoining. Each ward has also its n complete minor surgical outfit.

Much care has been spent upon the officers' and sisters' arters, which are very neatly and compactly furnished. ths, lavatories, etc., are generously provided through the p. The principal medical officer's cabin is fitted as nbined cabin, office, and laboratory. The dispensary is remely well stocked with every drug likely to be needed the climate. The commissariat arrangements are well thought out, and besides bakery, butcher's shop, and wash-houses, there are separate galleys and pantries for British patients and for each of the different castes of Indian sick and wounded. The water supply is abundant and accessible, and can be maintained by the distilling plant already mentioned. A noteworthy point is that the sanitary arrangements are all on the opposite side of the vessel to the food stores and cooking apparatus, with a longitudinal screen between them to discourage flies. Patients can be loaded from either side of the two ward decks, with ample room for the passage of serious fracture cases, while a cot lift plies between the two decks.

Careful inspection of the ship under the guidance of Lieut.-Colonel R. M. Carter, I.M.S., who has had much to do with its planning, gave the impression that everything in the way of design and equipment has been done to secure the comfort and welfare of the sick and wounded on their long journey from the Tigris front to the base. Only intimate knowledge of the actual conditions, and unremitting attention to details, could have produced so excellent a result. Since the early disastrous months of the Mesopotamian campaign, as Sir Arthur Lawley's report has already indicated,[1] a new breath of energy and efficiency has passed through all medical arrangements. The appalling wastage of life and health due to preventable causes has been checked. River hospital ships of the class now being supplied must prove an important factor in the medical situation on this front, and their design will serve as a type for future construction.

In Lieut.-General Sir Percy Lake's dispatch dealing with the period January 19th to April 30th, 1916, he stated that the first river hospital ship *Sikkim* arrived in February. This fact was underlined, as it were, by Sir Victor Horsley, who in one of the last letters written before his death wrote: "There never (until March, when our solitary hospital steamer arrived) has been any medical transport whatever; nothing but the foulest store barges and steamers used on their return journey to the base to carry the sick and wounded."

The King visited the new vessel on June 5th, and, after close investigation of all its features, expressed himself in the warmest terms of appreciation.

THE FRENCH ARMY MEDICAL MUSEUM.

A LITTLE over a year ago, under an order of the Under Secretary of State (sanitary) of the French War Office, a collection of specimens illustrative of military medicine and surgery in this war was instituted at the Ecole d'Application du Service de Santé Militaire at Val de Grâce. It has been visited by many British surgeons passing through Paris and has excited a good deal of interest.

There had long been in that institution a collection of specimens chiefly illustrating injuries to bone formed by M. E. Delorme, who only a few months ago retired from his position as one of the three medical inspector-generals of the French army. For many years he had

[1] BRITISH MEDICAL JOURNAL, May 5th, 1917, p. 595.

been carrying on a very extensive investigation of the effect of missiles on bones, and had collected specimens from all wars during the last two decades. There were also a certain number of specimens dating from as far back as the Crimean War. Pictures derived from Delorme's specimens or from his books are to be found in so many publications issued before the war and early in the war that some at least are familiar to most surgeons. He has been active both as a teacher and as an administrator, and the pathological museum at Val de Grâce as it now stands owes its existence largely to his efforts.

It is an annexe to a museum started some thirty years ago to illustrate the history of the French Army Medical Service. Part of this museum is a kind of library in which a large number of documents bearing on the history of the corps and the lives of its more distinguished members are made easily available. In the open corridors outside there are in addition many tablets inscribed with extracts from dispatches bearing upon medical work from general officers in command of armies in past wars. They date back to the time just before and after the first French Revolution, about 125 years ago. Among other things the inscriptions indicate that the French Army Service de Santé Militaire was first organized very early in the eighteenth century, and that in the third year of the great Revolution, some eighty-two years later—that is to say about 1794—the Convention decreed that Val de Grâce, until recently a monastery but now a military hospital, should also be used as a place of instruction for army surgeons. The Committee of Public Safety in the following year extended this order by making it what it now is, the finishing school of officers and pharmacists admitted to the Service de Santé, and a place devoted to the study of the technique of the work of the corps, in relation to the collection, the evacuation, and the treatment of the sick and wounded.

The school portion of the buildings occupies a relatively small space; the hospital portion is large, being distributed through a number of buildings round a very large central garden. Some of these buildings are new, many are very old so far as their main structure is concerned. Medical men and pharmacists, before coming to this school where they are supposed to spend a year, must have obtained their state diplomas by studying for the ordinary five and four year periods at the medical school at Lyons. Part of this school is solely for future army medical officers, who gain admission by competitive examination, and receive education practically free.

Among the inscriptions in the corridor are many recording the names of army medical officers who died from sickness or were killed in action or died from wounds in past wars. Judging from these the losses must always have been heavy; for instance, one tablet shows that there were over 600 deaths in the field in the first eighteen months after the establishment of the first Republic, and the names on another tablet relating to an outbreak of yellow fever in San Domingo in 1800 number between 120 and 140, exclusive of pharmacists. Another interesting point made clear by the inscriptions is that the French Army Medical Corps won official recognition and received expressions of public gratitude at a very early date. For instance, Percy, Larrey, and Desgenettes were all made Barons of the Empire by Napoleon, as also Commanders of the Legion of Honour on its establishment, and their names were inscribed on the Arc de Triomphe.

At the present time the principal contents of the main museum, apart from archives and pictures, are clay models of regimental aid posts and dressing stations used in this war, and model plans of various hospitals so arranged as to illustrate the method of their working. There are also a very large number of specimens illustrative of the technical work of hospitals; a large proportion are models, but others are specimens of the apparatus itself. They include stretchers of all kinds, splints and irrigation appliances, and models of hospital trains. The models relating to medical trench work are from all points of view admirable, but not so much can be said for the rest. The collection no doubt has a certain historical interest, but is not in all respects thoroughly representative and illustrative of actual medical and surgical ideas at the present time.

In the pathological portion of the museum a large, perhaps the major, portion of the specimens now on view were got together in the first few months of the war by telling off one or two medical officers specially for this purpose. But there are many other specimens in addition, as also some admirable models illustrative of the surg of the face and the appearance of limbs after injuries nerves, and a few relating to conditions intention brought about by men desirous of escaping milit service. Perhaps the outstanding feature of the muse is the care and completeness of the documentation of m of the specimens. They show precisely for the most p the way in which the man received the injury and interval that elapsed between the moment of the wo and the time at which the specimen was prepared. P ticularly interesting are some of the specimens of h injuries, the scalp, the skull, the dura mater, and the b all being shown side by side. All the bone specimens excellently prepared, and they include many which il trate the capacity of modern missiles to fracture a b not only at the point of impact, but also at a dista therefrom. The same kind of injury in organs is a freely illustrated—that is to say, the splitting of the li the kidneys, and the spleen, etc., by the explosive effec a missile which has hit the body in some other part has not actually come into contact with the organ injur These specimens of soft organs resemble for the most p those familiar in museums of ten years ago—that is say, they have not been preserved in such fashion as retain their colour. An endeavour to do the latter i feature of British work in the same direction; no do the French workers before the war is over will h plenty of specimens of this more attractive kind. Ret tion of colour in pathological specimens is one of the m means by which the path of the modern medical stud is smoothed.

CASUALTIES IN THE MEDICAL SERVICE

ARMY.

Drowned.

CAPTAIN J. GIBSON, LATE C.A.M.C.

Captain John Gibson, late of the Canadian Army Med Corps, was drowned recently while bathing at Sandyc near Dublin.

Wounded.

Colonel F. S. L. Ford, Canadian A.M.C.
Lieutenant-Colonel C. P. Templeton, Canadian A.M.C
Captain F. P. Fisher, R.A.M.C. (temporary).
Captain S. S. Greaves, R.A.M.C.(T.F.).
Captain A. Kidd, New Zealand Medical Corps.
Captain A. G. M. Middleton, R.A.M.C. (temporary).
Captain B. C. Tennent, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Dockrell, Herbert Morgan, Lance-Corporal Duke of Cornw Light Infantry, youngest son of Dr. Morgan Dockrell, Lon W., killed April 23rd. He held a commission as lieutenan the Cork Royal Garrison Artillery (Special Reserve), and at beginning of the war got a similar commission in the R Field Artillery, which he resigned on account of ill healt February, 1915. Having improved in health, he enlisted in Duke of Cornwall's Light Infantry in December, 1915. He previously been wounded.

Fleming, David, Private Light Trench Mortar Batt A.I.F., youngest son of the late Brigade Surgeon Jos Macnaughton Fleming, I.M.S., killed May 8th.

Hamilton, Ronald M., Second Lieutenant Cheshire Regim fifth son of Dr. Hamilton, late of Chester, accidentally ki abroad June 3rd.

Shirlaw, Ninian F., Captain Argyll and Sutherland H landers, eldest son of Dr. Shirlaw, of Montpelier Park, ki May 16th, aged 22.

Sutcliffe, F. Malcolm, Second Lieutenant London Regim third son of the late Dr. Sutcliffe, of Clapham, killed May 2 He joined the Inns of Court O.T.C. in November, 1915, after getting his commission, went to the front last March. T of his brothers are serving in France.

NOTES.

SURGEON-GENERAL G. CARLETON JONES, Canadian Medical C missioner, who has been in Canada for the last few mon has returned to this country.

QUEEN ALEXANDRA'S HOSPITAL FOR OFFICERS: OPENING OF ANNEXE.

An annexe to Queen Alexandra's Hospital for Offi at Highgate Hill has been opened, through the generos of Mr. S. J. Waring, at 25, Portland Place for the re tion of partially convalescent or less seriously woun officers. It contains 12 beds, with an allowance of 1, cubic feet of air and 88 square feet of floor space for ea

LIBRARY U. OF I. URBANA-CHAMPAIGN

ll these beds are in the front and back drawing-rooms
1 the first floor, and in addition to ample accommodation
r the nursing and domestic staff, there are sitting and
riting rooms for the use of patients and a winter garden.
n June 7th Mr. Waring formally handed over the house
) Sir Alfred Mond, Chairman of the Queen Alexandra
ospital Committee, and Sir Alfred Keogh in declaring it
)en said that Queen Alexandra's Hospital for Officers,
hich was one of the earliest to be opened in this country,
ld a surprisingly good record. Among the nearly 500
ises admitted to the hospital during the last two
ears, the total number of deaths had been only four, and
is low mortality was all the more remarkable when the
ther exceptional severity of the cases which had been
alt with was considered. It was a useful fact to re-
ember, and one which was new to him, that anaesthetics
ere borne with much greater ease in the country and in
ich places as Highgate and Hampstead than in the city
)spitals. It was explained by the influence of the fresh
r on the condition of the patients after administration.
he report of the honorary surgeon-in-charge, Mr. Herbert
Paterson, was to the effect that there was a slighter
)st-operative rise of temperature and a greater freedom
om bronchial irritation as compared with the effects of
milar anaesthetics administered in a London hospital.
r Alfred Keogh said that he had been criticized for re-
ining small hospitals in view of their admitted waste-
lness in effort, money, and staff; but they had the virtue
enabling generous citizens to render valuable help in
e care of the wounded, and to get rid of them ruthlessly,
en if sufficient larger hospitals were available, would be
mething of a catastrophe.

Scotland.

HE Glasgow University Court, at its meeting on June 7th,
ld before it answers from the Senate to questions re-
rding a proposed age limit for principals and professors.
he questions were drawn up at the instance of a joint
nference of representatives of the courts of the four
)ottish universities, and the replies of the Glasgow
nate will be sent to this conference. The Principal
ated, in reply to a question, that legislation would be
)cessary to give effect to any such scheme.

EDINBURGH SCHEME FOR DEAF SOLDIERS.

Hitherto the cause of the soldier deafened in his
untry's service has scarcely received the sympathy and
blic attention which it deserves. In this matter, as in
any others, Scotland has given a lead. The Edinburgh
p-Reading Association, finding that little was being done
r the thousand soldiers discharged up to a year ago
rough Chelsea, with damaged powers of hearing, took
) the matter and raised funds. The Edinburgh School
)ard agreed to supply class-rooms and teachers, while the
sociation undertook the care of the men during their
riod of training. The first session of six weeks'
struction organized by the association lately came to
close, when the class was inspected by the Marquis
Graham. It is to be hoped that this valuable work will
undertaken in other centres without delay, so that the
af soldier may no longer feel that he is "nobody's
ild."

THE ERSKINE HOSPITAL FOR LIMBLESS MEN.

The West of Scotland hospital for sailors and soldiers
10 have lost their limbs, the organization of which
ring the last year has been mentioned from time to time
these columns, was formally opened by H.R.H. Princess
)uise, Duchess of Argyll, on June 6th. It is established
Erskine House, the grounds of which go down to the
nks of the Clyde. Sir William Macewen, C.B., in a
tement regarding the scope of the hospital, said that
e aims of the Executive Committee were (1) to secure
d maintain a hospital in Scotland for the care and treat-
ent of limbless sailors and soldiers; (2) to manufacture
d supply them with artificial limbs; (3) to train the
nbless in the use of their artificial appliances and to
ve them facilities for learning trades suitable to their
)ered condition; and (4) generally to aid in restoring
em to their place as effectives in the industrial army
the nation. The house itself provided 200 beds besides
commodation for the staff, but the total number of beds had been increased to 400 by the erection of temporary pavilions. A committee composed of expert engineers and surgeons had made arrangements for the construction, standardization, and improvement of artificial limbs, which were made of the finest wood, Scottish willow, the toughest steel, and the best leather. The committee had been able to bring about a marked reduction in the prices hitherto paid, but there was a good deal more to be done, especially in regard to artificial arms, which, as supplied by competing firms of limb makers, were far from perfect. A scheme had been adopted to establish a research workshop or laboratory to which skilled artificers would be appointed. For this purpose a separate fund had been raised, to which a contribution of £2,000 and another of £300 had already been made. The workshops, though still in the initial stage, had produced very satisfactory results, and it was hoped by keeping in touch with various trades to draft workers straight from Erskine into paid positions. Sir William Macewen concluded by paying a generous tribute to the hospital staff and to all who had co-operated in the undertaking.

CONTROL OF VENEREAL DISEASES.

On June 1st a conference on the control of venereal diseases was held under the auspices of the Edinburgh Public Health Committee. Sir Malcolm Morris, chairman of the Propaganda Committee of the National Union for Combating Venereal Diseases, the presidents of the Royal Colleges of Surgeons and Physicians of Edinburgh, and a representative from the Royal Infirmary, took part in the proceedings. The Edinburgh Corporation has now in preparation a scheme in accordance with the order issued last October by the Local Government Board for Scotland, to which reference was made in this column last week.

MATERNITY AND CHILD WELFARE EXHIBITION IN EDINBURGH AND LEITH.

The Scottish Travelling Exhibition of Maternity and Child Welfare Work, Food Values, Housewifery, and Thrift was on view in the Synod Hall, Edinburgh, during the last week of May. This exhibition, prepared and conducted under the Maternity and Child Welfare Committee of the Scottish Union of Women Workers, has already done good service in popularizing the campaign against infantile mortality due to ignorance of hygiene in various parts of Scotland. The civic authorities and several members of the medical profession—including Sir Halliday Croom, Sir Robert Philip, and Dr. J. W. Ballantyne—took part in the proceedings, and the attendance, especially in the evenings, was very good. The same exhibition visited Leith, and was on view in the Assembly Rooms there between June 6th and 9th. Again a large share of the speaking was done by doctors—Mrs. Elder, M.B., Mrs. Grace Dundas, D.P.H., Dr. Ballantyne and others taking part either in the opening ceremonies or the evening lectures. Many of the exhibits made a strong appeal to the eye on behalf of healthier homes, feeding, and hygiene, and the element of humour was not lacking "to point a moral or adorn a tale."

MEDICAL NEEDS OF THE ARMY.

At a recent meeting of the Caithness and Sutherland Local Medical War Committee the position which would arise if more medical men of military age in the area were called up was discussed. Owing to the wide area covered by the remaining practitioners under 41, and the badness of the roads, it was considered that most of them could only be released for service by a system of substitution, since it would be impossible for neighbouring practitioners to do the work. As, however, the needs of the wounded were the first consideration, the committee warned the public that considerable sacrifices would have to be made; they would have to do with less medical attention and to be more reasonable in their demands on the doctors left behind if more calls were made for military service upon the medical men of the two northern counties. The meeting unanimously resolved that the time had come when every fit man in the medical profession in Scotland, irrespective of age, should be conscripted and his services placed at the disposal of the Scottish Medical Service Emergency Committee, thus making possible a scheme of redistribution of doctors whereby more men of military age could be released for the army.

Ireland.

TUBERCULOSIS IN ANTRIM.

DR. TURKINGTON, Tuberculosis Medical Officer for County Antrim, in his report to the county council, states that the number of applications for sanatorium benefit received by the County Antrim Insurance Committee during the year was 180, a number which would doubtless have been much larger had it not been for the fact that the Committee was obliged, for financial reasons, to suspend the treatment of "surgical" cases of tuberculosis early in the year. Of the 180 cases, treatment was refused to 32; sanatorium benefit was granted to 31 patients (17 men and 14 women). The cases sent to the sanatorium were either (*a*) incipient cases or (*b*) persons who resided in crowded cottages and were likely to infect others. While anything but temporary arrest of the disease was not to be hoped for in the latter cases, the committee felt that a short educational course in the sanatorium might be of value to teach these patients how best to live without being harmful to their neighbours. The results of sanatorium treatment were: Discharged much improved, 12; discharged, no improvement, 3; left contrary to medical advice, 3; died in sanatorium, 1; remaining in sanatorium, January 1st, 1917, 12. Domiciliary treatment, which was granted to 117 patients, has proved rather expensive, and an attempt was made during the year to substitute monthly for weekly visits where possible. This system will probably be widely extended during 1917, and it is probable that domiciliary treatment in the urban areas of Ballymena and Lisburn will be almost altogether replaced by dispensary treatment. Of the 180 cases, 123 (or 68.3 per cent.) occurred under 30 years of age. A great proportion of these cases were young girls, workers in various factories exposed to dusty atmospheres and frequent changes of temperature, and accustomed to live on a very insufficient diet, largely consisting of tea. The more elderly cases were generally, if males, of the farm labouring class; or, if females, of the middle-age mill-operative class, broken down by the attempt to do housework and millwork at the same time.

England and Wales.

MATERNITY AND CHILD WELFARE.

THE Local Government Board has published a report on the provision made by public health authorities and voluntary agencies in England and Wales for maternity and child welfare.[1] The report summarizes the arrangements made in each sanitary district for the promotion of the health and physical welfare of expectant and nursing mothers, and of infants and children under school age. At the present time all the 29 metropolitan boroughs except Camberwell, all the 82 county boroughs except Gateshead, 51 of the 61 county councils outside London, and 360 county districts have made some provision for health visiting. Most of these authorities have also established maternity and child welfare centres, or have made use of centres set up by voluntary effort. The number of voluntary societies engaged in maternity and child welfare work mentioned in the report is 321. It is pointed out that the co-operation between a local authority which is carrying out a scheme and the voluntary agencies working in its districts must be as close as possible if the full value of the voluntary effort is to be obtained. A great deal has already been accomplished, but much still remains to be done. More centres are needed and a large addition to the staff of health visitors. Competent midwives should be provided throughout the country, the report adds, and their services should be free to all women who cannot afford to pay; and a medical service for giving aid when this is necessary during the confinement should also be secured.

BABY WEEK.

The National Baby Week Council, 6, Holles Street, Oxford Street, W., has been actively at work during the past few weeks in preparation for the National Baby Week, which, as already announced, will be held from July 1st to the 7th. The programme includes the representation of a film entitled "Motherhood," designed by Mrs. H. B. Irving, who, with the Mayor of St. Pancras, has arranged a pageant and procession for St. Pancras, St. Marylebone, Hampstead, and Paddington, on Thursday, July 5th, concluding with a garden party at the Botanic Gardens. Courses of lectures for prospective speakers during the week are now being given at the College of Ambulance, 3, Vere Street, W., and elsewhere. It is hoped that upon the foundation of these seven days' activity, a great and permanent national movement will be organized to awaken the public to the dignity of motherhood and the rights of the child.

The standing joint committee of all industrial women's organizations on June 5th forwarded a resolution to the National Baby Week Council, asking it to consider the possibility of bringing forward proposals to make it compulsory on the public health authorities to establish maternity committees and adopt schemes providing for the health of mothers before, at, and after confinement and for children up to school age. The committee recommends also that a Ministry of Health, based on the public health work of the Local Government Board, with a maternity department partly staffed by women, should be immediately created, and that local health authorities should be empowered to supply pure milk at a cost within the reach of all classes.

EMERGENCY SURGICAL AID CORPS.

Previous references have been made in the JOURNAL to the establishment, in November, 1914, of an Emergency Surgical Aid Corps for London, with head quarters at the house of the Royal Society of Medicine, No. 1, Wimpole Street. At the annual meeting, which was held early this year, the chairman, Sir Rickman Godlee, reported on the work carried out between October, 1915, and January, 1917. Twelve calls were received, including a summons to the scene of the explosion on January 19th; more than a hundred members responded, and fifty-three were sent to the scene of the disaster. A naval section has been formed, consisting of twelve chief surgeons, forty-three surgeons, and thirteen anaesthetists, ready to answer any call the Admiralty might make. The chairman pointed out that further funds were needed in order to carry on the organization, and appreciative speeches were made by Sir Arthur May, on behalf of the Medical Department R.N., by Sir Thomas Gallwey, D.M.S. Home Forces, on behalf of Lord French, and by Sir Edward Henry, Commissioner of Metropolitan Police.

MIDWIFERY SERVICE IN LONDON.

An investigation into the provision for midwifery service in London is the subject of a report by Dr. Janet Lane Claypon to the Local Government Board.[2] In 1915, in the County of London, 90,345 births were attended in the homes and between 9,000 and 10,000 in institutions. An shortage of facilities for in-patient treatment which can be said to exist is attributed to the unequal distribution of institutions, and not to any lack of total accommodation for complicated cases. Of the births occurring in the home it is estimated that 38,146 were attended by doctors and 32,461 by independent midwives, and that 19,738 were attended from institutions which carry on out-patient maternity work. About 7,000 of the cases in this last category—a diminishing number—were attended by medical students and the remainder by midwives connected with the institutions. These institutions belong to four classes—namely, those attached to general, to special, and to maternity hospitals, and those (seven in number) which exist for out-patient maternity work only; the standard exacted from the midwives on the staffs is good on the whole, and in some cases very high. About half the midwifery practice of general practitioners in the home is among persons who cannot be described as belonging to the well-to-do class. The fee in these cases is most frequently between one and a half and two guineas, and its value is often given many times over in the services rendered by the practitioner. Attention is drawn to the frequently unsatisfactory natur

[1] H.M. Stationery Office. Price 6d. net.

[2] Reports to the Local Government Board on Public Health and Medical Subjects. (New Series, No. 111.) Report on the Provision of Midwifery Service in the County of London. By Janet E. Lane-Claypon, M.D., D.Sc. London: His Majesty's Stationery Office. 191 (1s. net.)

LIBRARY U. OF I. URBANA-CHAMPAIGN

of the work of the "handy-women" engaged in the home, and especially to the fact that from an exaggerated idea of their own importance these women often fail to send for the doctor in time. It is said that even apart from such cases, it is almost impossible for a doctor to be certain that he will be able to attend a given confinement, and that the remedy is to ensure the engagement of a certificated midwife for all confinements, whether a doctor is also engaged or not. The number of practising midwives unconnected with institutions was 377 in 1915, of whom 329 were midwives by examination, and 48 were registered by virtue of having been in practice before 1902. The average number of cases attended by each midwife in the year was 86.1. The amount of antenatal work done by midwives is not large, but many competent women could do more if they had time and were paid for it. The provision of medical aid in emergencies at or after confinements is a source of anxiety to many midwives, but the fact that generally this aid is forthcoming so readily is greatly to the credit of the medical profession, especially in view of the precariousness of the fee. The number of cases which a midwife fully at work might be expected to cover in the course of the year is given as 120 (or 130 if the area is fairly compact), and on this basis, if £3 a week be regarded as a reasonable income, the value of her services for each case would be 25s., this sum to include antenatal visiting, full midwifery service, and adequate maternity nursing. Such a fee is beyond the capacity of all except a few of the midwifery patients. The usual fee is from 12s. 6d. to one guinea for first confinements, and less for later ones. The majority of midwives, even with large practices, rarely have an income exceeding £100 a year. Notes on the maternity work of each of the medical schools and institutions providing midwifery service are appended to the report.

THE LINGFIELD EPILEPTIC HOMES AND SCHOOLS.

The twenty-first annual report of the Incorporated National Union for Christian Social Service gives particulars of the epileptic colony at Lingfield, Surrey, for 1916. The 308 epileptic patients in the colony, over half of them being of school age, are accommodated in ten separate homes, one being for children under the age of 8. Three are for girls—two for those under 16 years of age, and one for those above this age who have passed through the school. For boys under 16 years there are three homes, and three homes for adults, who are instructed in market gardening, carpentry, bootmaking, tailoring, and lathe work, etc. The report of Dr. A. Hume Griffith, the medical superintendent, shows that there had been no death for nearly two years, and great improvement in the health of the patients had been brought about by the care and treatment given in the colony, as evidenced by marked diminution in the frequency of fits recorded in a large number of cases. Of 352 pupils subjected to mental tests, 220 are tabulated as improving, and only 28 as deteriorating. The schools are certified by the Board of Education under the Elementary Education (Defective and Epileptic Children) Act, and are visited by its inspectors. A smaller epileptic colony, under the management of the same society, also exists at Starnthwaite, Westmorland.

Correspondence.

THE CO-ORDINATION OF BRITISH MEDICAL POLICY.

SIR,—Dr. Gordon's letter is admirable; the question to be now settled is how to make the ideas contained therein fructify. He says, and says truly: "We must rely on the British Medical Association." And everyone who knows what the Association has accomplished in the past must realize that he is right. But he is also right in saying that the Association has failed in many instances, and this has been due, in part, to inherent faults in its constitution. This especially applies to that aspect of the doctor's life which is chiefly financial. Dr. Gordon calls for a first-rate business secretary and cessation of financial waste, and he hints how these are to be obtained. He also wants a "considerable fighting fund" to be formed. What I want Dr. Gordon to explain is the purposes for which this fighting fund is to be used. If it is to be used to better our financial demands, to prevent degrading conditions being imposed upon us, to support men who resist the arbitrary regulations which may be issued, say, by the Insurance Commissioners, I fail to see the difference between it and a trade union fund except in name.

I am in a dilemma, for, like Dr. Gordon, I intensely dislike the idea of a trade union, but modern conditions must be fought with modern weapons, and yet I should be the last to advocate "physical force" or "peaceful picketing," but there are such weapons as masterly inactivity or refusal to work under certain conditions: as an example, suppose the Insurance Commissioners, or a probable State Medical Commission, were to issue regulations which would be considered degrading by the profession, would not the refusal to work under such conditions compel their withdrawal? Let me be clear. By "refusal to work" I do not mean refusal to see or treat sick people; I do mean refusal to treat or see them except under our own conditions—that is, as our private patients. I am quite sure that the general population would not go without necessary medical attendance; and although the policy I suggest might result in an actual loss of income to the whole profession, yet such loss would be only temporary.

But to return to Dr. Gordon's axiom, "We must rely on the British Medical Association." Will Dr. Gordon consent to the Association being made comprehensive enough to contain within it, or perhaps to run in double harness with, another association which is run on purely "protective" lines? To me this seems to be the only practical policy in the present crisis, and it is because of this that I am a member of such an association as well as of the British Medical Association. Why is it that medical men want to run two or three societies for almost similar objects? Is it not because of our jealousy of one another? Why is it that such societies do not amalgamate and so prevent waste of energy and money? Is it not because of the vested interests of the officials?—I am, etc.,

Plymstock, June 11th. S. NOY SCOTT.

SIR,—It is to be hoped that many more men will awaken to the urgency there is for improving the organization of the profession in view of the vast changes in public medical services that may at any time be upon us.

Dr. Gordon, of Exeter, suggests improvements in the British Medical Association, and a cutting adrift from all taint of trade unionism. I have heard and read much abuse of the British Medical Association, but I have never before heard it accused of undue flirtation with trade unionism. Apart from some minor alterations in the British Medical Association there is no constructive policy outlined in Dr. Gordon's letter, and we are to rely in a final appeal to our personal honour and an enlightened public conscience.

May I be allowed to make suggestions of a more practical nature? The Insurance Act has given us the groundwork of an excellent professional organization. Whereas the British Medical Association, medical trade unions, and other bodies have members scattered about here and there, there are thousands of men who belong to neither the one nor the other, and will never do so. The panel system, on the other hand, gives us 16,000 medical men whose names, addresses, and panel responsibilities are known. Above these, and intimately in touch with them, are popularly elected Panel Committees in every area. But here the organization ends; no Panel Committee knows its neighbours, nor has any idea of what they are doing.

The following points may help to improve matters:

1. The standardization of Panel Committees in dates of meetings, in methods of finance, in presentation of agendas, minutes and reports to panel practitioners.
2. The active co-operation of Panel Committees with the formation of a central committee.
3. The central committee must be popularly elected, and, though small, every Panel Committee must have definite representation on it, one man representing many Panel Committees.
4. After the war there should be at once created an executive or inner committee of whole-time men with a whole-time solicitor at £1,000 a year each. They would give their whole time to our needs, catching new movements at their very start. They would keep Panel Committees conversant with the trend of affairs, and again by "general news" in a quarterly panel magazine they would keep the panel practitioners in any area up to date in panel happenings. They would negotiate with Government departments, but would not be allowed to compromise us or take any action without first obtaining our consent. Being good men with at least ten years' general practice

behind them they would make up their minds what should be done and just ask us "Yes" or "No" before doing it. That is a very different matter to asking us to initiate a course of action ourselves, and allows of speed. Twenty-four hours should be enough to get a referendum of the 16,000 panel practitioners on any important and clear-cut issue such as a wholesale resignation.

5. Finance. The penny per head per insured person is over £40,000 a year—a large amount, but not much as insurance to stop the tuberculosis sixpence, £240,000 a year, or the Treasury grant of £1,200,000 a year, being taken from us.

6. Trade unionism. There are still many men who imagine the whole duty of a trade unionist is "peaceful picketing" or throwing bricks at one another's windows. The Trade Union Acts offer certain immunities to trade unions and their funds, for which labour worked many years to get, and of which we should be fools if we did not take advantage. I would ask those who consider the profession should rely on "our own personal honour and an enlightened public conscience" to carry us through to consider the following fact: Our notification fee was reduced from 2s. 6d. to 1s. as a war economy, thereby saving £23,000 a year; shortly afterwards the organized railway men received their second war bonus of £7,500,000. I think the money talks!

7. The weapon of wholesale resignation. By Clause 1 of the original Act and Clause 3 of the 1917 Regulations we are bound to accept any and all changes the Government may think fit to make in our terms of service. The alternative proscribed by the Government is to resign. The abrupt terminology of the notice forwarding us new regulations (1916) ends with the following: "If you desire your name to be removed from the medical list at the end of the current year, notice in writing to that effect must be given to the (Insurance) Committee by the 19th of November. Failing such notice, you will be deemed, in accordance with Article 17 (2) of the Regulations, to have undertaken service during 1916, on the terms of your agreement as modified in the manner of which the Committee have given notice."

8. Universal adoption of the "Kent scheme," which aims at complete preparation for a resignation of the county *en bloc* and for the conduct of such a campaign. Its chief points are the collection and use of resignations by the Panel Committee, the pledge of practitioners that their resignation will not be sent in if in a hopeless minority in any place, the injunction that men must disregard all other advice during the crisis except such as comes to them through the Panel Committee, the removal of noxious clauses and the inclusion of such new "essential clauses" in the agreement as the strength of the resignation permits, and the circulation of a scheme for carrying on medical practice in the event of a deadlock ensuing, and the resignations really taking effect.

These matters are already under discussion in many quarters; let us form our Central Committee at once, and let our preparation for a wholesale resignation be now made so perfect that we shall get all we want without ever bringing it into force.

I would suggest to the British Medical Association that there was a time when we enjoyed meetings under its auspices devoted to scientific debate and interest. Since the coming of the Insurance Act they have stopped; so much so that in East Kent we have had meetings, medical politics barred, apart from the British Medical Association. There is a large demand for such scientific meetings, and let the British Medical Association look to its laurels or they may find, when they are tired of medico-politics, some one else in the realms of science they have left empty so long.—I am, etc.,

Ashford, June 12th. FRANK COKE, F.R.C.S.

WAR EMERGENCY FUND
OF THE ROYAL MEDICAL BENEVOLENT FUND.

SIR,—The time has come to make a further appeal for the War Emergency Fund.

This Fund was instituted last year to afford assistance to members of our profession who, in consequence of having joined the Army Medical Service, find themselves in temporary difficulties.

Many medical men, when called up, had to leave on very short notice, without time to make adequate provision for the continuance and maintenance of their practices during their absence. As a result they have had to face a severe fall in income even when supplemented by army pay; while many expenses, such as rent, insurance, taxes, family maintenance, and education, could not be reduced. Although in a year or two after their return it may be hoped those affected will recover their position, still in the interval help is, and will be, necessary, and it is to meet these needs that the War Emergency Fund was established.

To be effective the grants must be made on a liberal scale, and the fund from which they are to be drawn must be a large one. The sum obtained last year was about £4,000. This is quite inadequate, as at least £25,000 will be required, if even a small proportion of those requiring assistance is to be helped. From the wealthier members of the medical profession, it is hoped, substantial sums will be received, but every one should feel it a duty which he owes to his less prosperous colleagues to give the most liberal donation he can afford.

At the same time the appeal is not, and ought not to be, restricted to the medical profession. The public, too, may be rightly called upon to bear its share, and to show, by liberal contributions, its appreciation of the special services so freely rendered by the medical profession to the country.

The War Emergency Fund is a special department of the Royal Medical Benevolent Fund. It is kept separate and distinct from the ordinary operations of the general fund, and is under the management of a committee specially appointed for the purpose.

Communications should be addressed to the Honorary Secretary, War Emergency Fund, 11, Chandos Street, Cavendish Square, W.1., to whom cheques should be made payable.—We are, etc.,

SAMUEL WEST,
President.
CHARTERS J. SYMONDS, Colonel A.M.S.,
Honorary Treasurer.
G. NEWTON PITT, Major R.A.M.C.,
London, W.1, June 8th. Honorary Secretary.

Cases of Special Distress caused by the War which the Committee have Helped.

A lieutenant in the R.A.M.C., who had only been in practice a few years, volunteered for service, and was killed in action a few days later. He left a widow, with two children, aged 3½ and 1 year, without means except the War Office pension. The Fund voted £25 for her immediate necessities, and the Officers' Families Fund gave further help.

A captain in the Territorials was called out, and had to leave his practice in the hands of a locum, who proved a failure. There were seven children aged 2 to 14. Financial difficulties arose, and payment of the school fees became impossible. Between the Fund and Guild, and the Officers' Families Fund, the necessary fees were raised, and sorely needed clothing provided.

A captain in the Territorials, who was called out when the army mobilized, and had to leave his practice worth £800 at a day's notice, could not pay the fees for his son's education, who was in his last year at school. The Fund, the Guild, and the Professional Classes War Relief Council together raised the necessary money.

A captain in the Territorials was killed in action, and left a widow, and two children, aged 3 and 4½ years. The Fund investigated the case, and referred it to the Officers' Families Fund, who gave her a grant to meet her immediate necessities. The Fund also obtained work for the widow, a trained nurse, who was thus enabled to earn her own living.

A major, R.A.M.C., Territorial, was called out at the beginning of the war and was abroad for over two years. He was invalided to England and put on home service. His practice was completely lost by his absence. There are three children, one in the navy, one in the army, and one at school. He had to give up his house, as he was in difficulties with rent, taxes, and education. The Fund gave £50, and further help was obtained from other sources.

A captain in the R.A.M.C.(T.), with a wife and six children, found the income derived from his practice, left in charge of a locum, and the balance of his army pay insufficient to meet his expenses. He obtained assistance from the Civil Liabilities Committee and the Officers' Families Fund, and a grant was made from the War Emergency Fund towards the education of the children.

A practitioner, earning £700 to £800, volunteered for service, leaving his practice in the hands of a neighbour, who was not a success. There were two children, aged 7 and 10, and another baby was born shortly after the husband left. The wife contracted pneumonia and nearly died. A resident patient had to leave the house. Rent and other expenses led to a debt of about £30. This the doctor could not meet, and he hurried back from the trenches to save his home from being sold up. The Fund voted £25, the Guild gave £15, the Officers' Families Fund £25, and the Professional Classes War Relief Council offered further help, with the result that he returned to the front with his immediate anxieties relieved.

RESEARCH ON THE ANTISEPTIC PROPERTIES OF "FLAVINE" COMPOUNDS.

SIR,—Under the heading "The Antiseptic 'Flavine' (Acriflavine)," an official statement by the Medical Research Committee appeared in this JOURNAL last week.

As the original publication concerning "flavine" was made from this department, and based on work by several members of the staff (Browning, Gulbransen, Kennaway, and Thornton[1]), the unfortunate impression might be

[1] BRITISH MEDICAL JOURNAL, January 20th, 1917.

LIBRARY U. OF I. URBANA-CHAMPAIGN

created unintentionally in the minds of those reading the Medical Research Committee's statement that we had neglected to acknowledge its share in furthering this work. I would, therefore, add to what it has said that when after the outbreak of the war it seemed to us that further investigation on antiseptics was urgently required, the Medical Research Committee was approached with a view to securing its support for this department of the Middlesex Hospital on the subject, and we met with most cordial interest, the first material outcome being that the Committee provided the emoluments of one part-time worker. As a result of the combined facilities afforded by the hospital and by the Medical Research Committee it was possible to resume work on the lines of that which had been done by myself along with Gilmour[2] in Professor Muir's department at Glasgow University some years ago, and before this country enjoyed the benefit of the operations of a State Medical Research Committee; thus we were able here to develop the investigation with a view to a practical application in the treatment of infected wounds. The introduction of brilliant green as an antiseptic in the treatment of wounds by Leitch[3] appears to have been a valuable practical outcome of attention drawn to this substance by our earlier work, and we have also recommended "flavine" ("acriflavine") as a result of the continuation of this work, the original experimental part of which was carried out here with a sample which had been supplied to us under the auspices of the late Professor Ehrlich in 1912. The Department of Biochemistry and Pharmacology of the Medical Research Committee has been especially helpful by preparing the latter compound, and so affording a considerable quantity for clinical trial of what, up till recently, we believed to be the most valuable member of this group; in this way they supplemented our slender store of somewhat less suitable compounds of the same type (acridine dyes), although the latter, judging by the opinion of Colonel Pilcher, D.S.O. (see Browning, Gulbransen, Kennaway, and Thornton,[1] also James,[4] and the report by D. Ligat,[5]) also proved valuable clinically. The assistance afforded by the Medical Research Committee, as well as by the Royal Society's Scientific Grants Committee towards this work of the Bland-Sutton Institute, was acknowledged in the only publication which we have made.

It is, of course, almost unnecessary to say that neither the staff of the institute nor the hospital has been concerned in any way with the production and supply of "flavine." The Medical Research Committee's Department of Biochemistry and Pharmacology has since then continued to give us valuable aid, especially by providing an experimental supply of "proflavine" (the basic constituent of which had been examined by Browning and Gilmour, loc. cit.). We have had no opportunity of acknowledging the latter, as we have as yet made no publication on the investigation of its properties. However, the tribute to the Committee's aid paid by Sir John Bland-Sutton in his speech at a recent quarterly meeting of the Board of Governors of the Middlesex Hospital and widely published in the daily press prior to the appearance of the Medical Research Committee's official communication, would appear to have anticipated the latter in a generous and sympathetic correction of any erroneous impression which might have existed anywhere in the public mind.—I am, etc.,

C. H. BROWNING.

Bland-Sutton Institute of Pathology,
Middlesex Hospital, June 11th.

*** The following is communicated by the Medical Research Committee: "By the courtesy of Dr. Browning the Committee have had an opportunity of seeing the foregoing statement. They would entirely confirm the accuracy of the account Dr. Browning gives. Their communication to the lay press last week was made to correct so far as possible the results of recent statements made in the lay press which were based upon misapprehension of the present situation in regard to the properties and the supply of acriflavine, and must have been an equal source of embarrassment to all concerned. They would greatly regret that their communication should be read in any other sense."

[2] *Journ. of Path. and Bact.*, vol. xviii, 1913, p. 144.
[3] BRITISH MEDICAL JOURNAL, February 12th, 1916.
[4] *R.A.M.C. Journ.*, March 1917.
[5] BRITISH MEDICAL JOURNAL, January 20th, 1917.

TYPHUS FEVER AND THE SO-CALLED WEIL-FELIX REACTION.

SIR,—In the BRITISH MEDICAL JOURNAL of May 19th, 1917, p. 649, the following note is given:

> The German authorities have arranged for the systematic testing at the Robert Koch Institute of blood taken from patients suspected of typhus fever. The Weil-Felix reaction is employed, and whenever the reaction is negative but the clinical symptoms remain suspicious, a second sample is examined.

I read this with great interest, since it shows that investigations carried out by me at Belfast some ten years ago are now being confirmed on an extensive scale. The results of my investigations were published in the *Journal of Hygiene*. The names of my papers are the "Etiology of typhus fever,"[1] and "On heterologous agglutinins, more particularly those present in the blood serum of cerebro-spinal fever and typhus fever cases."[2] In these publications I showed that in typhus fever the blood serum often agglutinates intestinal bacilli—for example, *B. coli*, *B. typhosus*, and especially a coliform bacillus isolated from the urine of certain cases. I pointed out in the paper dealing with the etiology of typhus fever that the presence of these agglutinins did not necessarily imply that the bacillus in question was of etiological importance. I rather inclined to the view that we were dealing with an interesting instance of secondary infection. I showed that in the blood of healthy controls the agglutinins were present in very much smaller amount. At a later date French observers in Northern Africa showed that in a certain number of instances the blood serum of cases of typhus fever there agglutinated the *Micrococcus melitensis*.

The whole question of heterologous agglutinins is fully discussed in my paper in the *Journal of Hygiene*, and before the reaction is credited to Weil-Felix, I think it but fair that my work on the subject should be considered. I am sorry that I have no opportunity here to consult all the literature on the subject, but the reference given in the *Bulletin de l'Institut Pasteur*, xv, No. 8, April 30th, 1917, p. 243, indicates that Dietrich[3] had found the "Weil-Felixschen Reaktion" of diagnostic value, and that it was evidently an example of paragglutination. I learn from this paper the following facts: (1) Weil and Felix isolated from the urine of two typhus fever patients a bacillus termed by them X 19, which was agglutinated in a specific fashion by the serum of typhus fever cases. (2) Dietrich showed that this bacillus belonged to the *Proteus vulgaris* class. (3) In 90 per cent. of 500 cases of typhus fever in the German army agglutination of the bacillus was present in a 1 in 100 or higher dilution of the patient's serum, whereas it was absent, or only present to a feeble extent, in an equal number of non-typhus controls.

It would seem, therefore, that this work of Weil, Felix, and Dietrich is a rediscovery of what was pointed out by me in the *Journal of Hygiene* many years ago. I also pointed out that in the acute stage of the disease the eosinophile cells disappear from the circulation, but that in convalescence there may be a transient eosinophilia; this fact has also been recently rediscovered by the Germans.

I may remark at this point that typhus fever is a disease in which cultures from the urine, besides showing the presence of coliform bacilli, often yield enterococci. I am of opinion that research may yet show that a certain degree of kinship exists between the so-called trench fever and typhus fever. They would seem to have the following etiological points in common: (1) Virus unknown or uncertain; (2) virus conveyed by lice in the case of typhus, possibly by lice in trench fever[4]; (3) the frequent occurrence of enterococci in the urine of trench fever cases (Houston and McCloy). In the urine of typhus fever cases Dr. Georgina Darling and I at Belfast have frequently found enterococci. Of course, typhus fever in adults is a much more serious condition than trench fever, but in children typhus fever is so mild as to be comparable to trench fever.

In conclusion, it would seem that those who hold that it is possible by the agglutination test to diagnose the infective agent, even in the case of inoculated subjects, should give more attention to the question of heterologous or

[1] *Journal of Hygiene*, 1910, vol. x, p. 155.
[2] Ibid., 1909, vol. ix, p. 306.
[3] *Deut. med. Woch.*, December 21st, 1916, pp. 1570-73.
[4] Davies and Weldon, *Lancet*, vol. cxcii, p. 183, 1917.

paragglutination. The recent paper by H. Conradi and R. Beiling, "Ueber Fehlerquellen der Gruber-Widalschen Reaktion," is most instructive in showing that in an inoculated subject the titre of agglutinins for the injected bacillus may be increased not only by an infection with it, but also by an attack of various other diseases.—I am, etc.,

W. JAMES WILSON, M.D., D.Sc.,
Captain R.A.M.C.(T.F.).

No. 54 (London) General Hospital,
B.E.F., May 25th.

ANAESTHESIA BY WARMED ETHER.

SIR,—To whom should the credit be given for the invention of "open ether" and of "warmed ether"? Hitherto these discoveries have been assumed to have originated in America. It has, however, been recently pointed out to me by Mr. E. Mayer, of Messrs. Mayer and Meltzer, that the late Mr. Lawson Tait published in 1883 an account of "an apparatus for administering ether vapour at blood-heat."[1] Lawson Tait was an enthusiastic advocate of ether, which was given (by the sister in charge or by a nurse) after the simple fashion introduced by Sir James Simpson for the administration of chloroform—that is, by dropping it on the outside of a single fold of a towel. Certain directions were given by Lawson Tait for successful anaesthesia: thus the towel must be not too thin, but of such a texture as to ensure the passage of air freely through it; the ether must be dropped continuously, not splashed on, in order to obtain a continuous volume of ether vapour, and the towel must be puffed out around the face at a distance of an inch, or an inch and a half, so as to "enclose a body of vapour." Lawson Tait held that the only risk about the administration of ether was the occurrence of bronchitis in old people. Hence he devised his apparatus for giving in these cases warmed ether vapour at a temperature of 33° C. A glass boiler containing three drachms of ether was suspended in a hot-water tank, beneath which was placed a spirit lamp. From the boiler an exit tube passed to a Junker's mouthpiece.

It is fairly obvious that these are the first published accounts of "open ether" and of "warmed ether." It is curious that they should have been so long neglected, for Lawson Tait's writings must have been widely read. Was this neglect due to prejudice arising from the unskilful administration of ether and the greater convenience to the surgeon of chloroform, or was it due to the influence of Clover, which led strongly in the direction of closed methods? Perhaps the use of closed methods condemned ether entirely for abdominal operations in the eyes of some surgeons. It seems a pity that Lawson Tait's methods were not more practised.

Dr. Beresford Kingsford's letter in your issue of June 2nd (p. 748) raises a point of considerable importance. He objects to rebreathing during ether anaesthesia. On what grounds? The observations of Dr. Pembrey and myself on the composition of the air under masks during ether anaesthesia[2] show that in open methods (which include warm vapour anaesthesia) there is some rebreathing. This is looked upon as beneficial to the patient, owing to the stimulating effect of carbon dioxide upon the respiratory centre. We found that carbon dioxide is present in adequate but not excessive amount, and the oxygen supply is ample. There is no danger of acapnia. It is in the closed methods that the rebreathing is excessive; the amount of carbon dioxide is too high, and the oxygen may be decreased to a point which is dangerously low.

It will, I am sure, much interest Dr. Kingsford to know that in Kappeler's *Deutsche Chirurgie*, 20, 1880, s. 185, appears an illustration of Hawksley's inhalation ether apparatus of the "draw-over" type. It is almost exactly similar to that described by Dr. Kingsford. "There is nothing new under the sun."—I am, etc.,

London, W., June 2nd. FRANCIS E. SHIPWAY.

FRAGILITAS OSSIUM, BLUE SCLEROTICS, AND OTOSCLEROSIS.

SIR,—In a note on fragilitas ossium (BRITISH MEDICAL JOURNAL, June 2nd, p. 739) it is stated that "the earliest record of association of the blue sclerotic with fragility of the bones was made by Eddowes in 1900." This is a mistake. In 1896 I contributed a short article to the BRITISH MEDICAL JOURNAL, entitled, "Hereditary tendency to fracture." In it I described the history of three or four generations of a single family in which an extraordinary number of fractures occurred, many of them under my own care. I added: "The only other symptom common to these cases was a blue sclerotic," which I had never seen under other circumstances. This was four years before Dr. Eddowes's record.—I am, etc.,

London, N.W., June 4th. JOHN SPURWAY, M.B.

[1] *Diseases of the Ovaries*. Fourth edition, p. 266.
[2] *Proc. Roy. Soc. Med.*, 1916, vol. x, No. 2, p. 7.

Universities and Colleges.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on May 23rd.

Examinations for the M.B., B.S. Degree.—It was resolved to exempt candidates for the M.B., B.S. degree from attendance at certain systematic lectures.

Examiners.—The following were appointed staff examiners in the subjects indicated for medical degrees for 1917–18:—*Anatomy:* Professor R. W. Reid. *Bacteriology:* Professor R. T. Hewlett. *Chemistry:* P. Haas, D.Sc., and Professor J. M. Thomson. *Forensic Medicine and Hygiene:* Dr. F. J. Smith and Professor Matthew Hay. *General Biology:* J. S. Thomson, M.Sc., and J. T. Cunningham, M.A. *Medicine:* Professor A. J. Hall and Dr. James Galloway, C.B. (internal). *Mental Disease and Psychology:* Dr. R. H. Cole and Dr. W. H. B. Stoddart. *Obstetric Medicine:* Professor W. C. Swayne and Dr. G. F. Blacker. *Pathology:* Professor F. W. Andrewes and Professor J. Martin Beattie. *Pharmacology:* Professor R. B. Wild. *Physics:* W. Makower, D.Sc., and F. L. Hopwood, M.Sc. *Physiology:* Professor D. Noël Paton. *State Medicine:* Dr. R. K. Brown and Dr. W. G. Savage. *Surgery:* Mr. William Turner, M.S., and Dr. V. Warren Low. *Tropical Medicine:* Professor F. M. Sandwith, C.M.G., and Dr. C. W. Daniels.

Personnel of Senate.—Professor G. A. Buckmaster has been appointed the representative on the Senate of the Faculty of Science for the remainder of the period 1915–19 in the place of Professor A. D. Waller, resigned.

Annual Report of the Vice-Chancellor.—The Vice-Chancellor, Sir Alfred Pearce Gould, in his report on the work of the University during the past year, stated that the number of members of the University who were known to be serving, or had served, with the forces, was estimated at about 21,000. The war had increasingly depleted the teaching and administrative staffs, but the component colleges and individual workers had managed to close up the gaps by mutual assistance while economies undreamt of in normal times had been effected. The University through its research departments and laboratories had come to the assistance of the Government departments in fulfilling the manifold requirements of the war. The report also referred to the admirable response to the demand of the War Office made by teachers and qualified students in the medical schools of the hospitals affiliated to the University.

The following candidates have been approved at the examinations indicated:

THIRD M.B., B.S.—*†J. I. Keen, *†J. H. Thomas, C. V. Boland, C. C. Chesterman, Hetty E. Claremont, Raghunath Ganesh Dani, P. O. Ellison, T. S. Evans, J. W. Heekes, J. J. Jhirad, F. A. Knott, E. E. Lightwood, J. E. G. McGibbon, G. A. S. Madgwick, F. Molina, V. J. E. C. del S. Perez y Marzan, Pinthu Sai, B. Sampson, Raghunath Dadoba Shirvalkar, P. Smith, D. J. Thomas, Lotty Weihermann.

B.S. EXAMINATION.—S. Forsdyke.

* Honours. † Distinguished in Surgery.

The following candidates have passed in one of the two groups of subjects:

Group I: Hannah K. Alton, Elizabeth L. Ashby, Margaret S. G. Bott, Dorothy T. Daintree, Alice M. L. Greaves, Rosalie Jobson, W. A. E. Karunaratne, S. Muttiah, M. Schwartz, Ellen Sylk. *Group II:* T. A. Davies, Susan A. Finch, H. M. Holt, H. C. Jennings, C. V. Pink.

UNIVERSITY OF BIRMINGHAM.

DR. J. W. RUSSELL, F.R.C.P., has been elected joint Professor of Medicine to succeed Professor Saundby, whose resignation takes effect on September 30th. The council has resolved to recommend the court of governors at its next meeting to confer the title of Emeritus Professor upon Professor Saundby in recognition of his conspicuous services to the University and his eminence in the general field of medicine.

The vice-chancellor, Professor Gilbert Barling, F.R.C.S., has been appointed the representative of the University on the General Council of Medical Education and Registration for five years from October 1st.

THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS.

MR. HARRISON CRIPPS, of St. Bartholomew's Hospital, has decided to offer himself for re-election as a member of the Council, and Mr. Vincent Warren Low, C.B., of St. Mary's Hospital, will also seek re-election. There are five new candidates: Mr. Henry Betham Robinson, Member since 1887, Fellow 1887, of St. Thomas's Hospital; Mr. Francis Jame

LIBRARY U. OF I. URBANA-CHAMPAIGN

Steward, Member 1895, Fellow 1898, of Guy's Hospital; Mr. James Sherren, Member 1899, Fellow 1900, London Hospital; Mr. Harold Barr Grimsdale, Member 1894, Fellow 1894, of St. George's Hospital. Mr. Grimsdale, M.B., B.C.Cantab., is ophthalmic surgeon to a hospital not at present represented on the Council, nor are there any eye surgeons nor representatives of Cambridge University at present among the Councillors. The fifth candidate is Fleet Surgeon Percy William Bassett-Smith, C.B., R.N., Member 1883 and Fellow by election 1916, professor of clinical pathology, and lecturer on tropical medicine, Royal Naval College, Greenwich, who offers himself for election as a representative of the Services.

The Services.

TERRITORIAL FORCE.

TERRITORIAL DECORATION.

THE King has conferred the Territorial Decoration upon the following officers:

Army Medical Service: Colonels C. T. Green, J. R. I. Raywood.
Royal Army Medical Corps: Lieut.-Colonel W. G. Richardson; Majors (temporary Lieut.-Colonels) G. A. Troup, A. W. Anderson; Majors A. Butler, A. C. Hartley, R. B. Sidebottom (attached Cheshire Regiment), R. Brodie (attached Seaforth Highlanders), P. Paget (attached East Kent Regiment); Quartermaster and Honorary Major T. Spibey; Quartermaster and Honorary Captain C. W. Hearn.

Obituary.

JOHN MITFORD ATKINSON, M.B.LOND.,

FORMERLY OF HONG KONG.

THE death of John Mitford Atkinson at the age of 60 removes from our ranks one who did yeoman service during twenty-five years in the colony of Hong Kong. He was the son of the Rev. S. Atkinson, M.A., was educated at Taunton, matriculated at the London University, and entered the London Hospital. He obtained honours in Botany at the Preliminary Scientific Examination and the London Hospital prize for Zoology in 1876. He took the diplomas of M.R.C.S.Eng. and L.S.A. in 1878, graduated M.B.Lond. in 1881, and in 1894, when home on leave, he obtained the D.P.H.Camb.

After acting as assistant medical officer at Kensington Infirmary he, in 1887, entered the Colonial Service and was made superintendent of the Civil Hospital, Hong Kong, where he found much scope for administrative changes in the hospital, and though he encountered local opposition he was able, in the end, to substitute a European staff of nurses trained in British hospitals for those who were formerly employed, and the Civil Hospital rose to the front rank. Here it was that many of the disabled Russian sailors of the cruiser *Varyag*, after their fight with the Japanese cruiser *Chemulpo*, received at his hands that skill and care which induced the Czar to present Dr. Atkinson with a gold cigarette case mounted with the Imperial arms in diamonds, as a slight appreciation of his services.

Plague was rampant in the colony, and Atkinson set to work to abate the scourge, and, as a member of the Executive and Legislative Council of the island from 1903 to 1912, his influence was felt. He contributed many articles on plague, malarial fever, and mosquitos to the *Lancet* and BRITISH MEDICAL JOURNAL from 1901 to 1913, and in June, 1894, he read before a meeting of the Hong Kong and China Branch a report, afterwards published in the BRITISH MEDICAL JOURNAL, of a remarkable case of compound depressed fracture of the frontal bone, with wounds of the urethra and scrotum, which ended in recovery. In 1897 he became P.C.M.O. for the colony, but continued to carry on his duties as head of the Civil Hospital.

In 1912 he retired from the Colonial Service, settled in London, and for a time practised as a consultant in tropical diseases. He received a commission as major in the R.A.M.C. on July 26th, 1915, and was appointed head of the Richmond Military Hospital, converting the old and interesting workhouse and infirmary there into an up-to-date war hospital. In addition, all through the winter months he devoted his evenings to ambulance and first-aid work. But the long years of hard work and hard play in the climate of Hong Kong had told their tale, and the strain of the hospital administration taxed his strength; finally, under the advice of medical friends, he resigned his commission. For a little while he seemed to improve, but on May 23rd his end came quite suddenly, after one of the many anginal attacks from which he had suffered.

He was fond of cricket and lawn tennis, was the owner of a few ponies when in Hong Kong, and was a good runner, having run for the London Hospital in the inter-hospital sports. He loved to do good by stealth, and many a one would be able to testify how Atkinson had helped them through monetary and other difficulties. He married on August 3rd, 1898, the eldest daughter of the late Mr. James Eastmond, of Puddyngton, Devon, and leaves his widow and two sons, aged 17 and 16 years, to mourn his loss.

DR. JOHN JAMES NASON, of Stratford-upon-Avon, who died recently at an advanced age, was a member of an old and well-known Warwickshire family. He received his medical education at Guy's Hospital, took the diplomas of M.R.C.S.Eng. and L.S.A. in 1856, and graduated M.B.Lond. in 1858, winning an exhibition and gold medal. He settled at Stratford-upon-Avon about sixty years ago and acquired a large practice. He took a keen interest in the old infirmary, was a member of the medical staff, and greatly assisted the movement for the erection of a building more appropriate to the important work performed. Changes and additions in the building have been made from time to time to keep it up to date. On the occasion of his retirement from the active medical staff in 1880 he was appointed honorary consultant and was presented with his portrait in oils and a service of plate, together with a suitable address. The portrait now hangs in the board room of the hospital. Dr. Nason also took great interest in civic affairs; he became a member of the borough council in 1867 and subsequently held the offices of councillor, alderman, and chief magistrate. On the termination of the latter office he was presented by his fellow members with a handsome silver cup as a mark of esteem. He was a regular attendant at Holy Trinity Church, of which he was a warden from 1884 to 1914, when he resigned in consequence of advancing years, and was appointed honorary churchwarden. He took great interest in the work of the British Medical Association and was president of the Birmingham and Midland Counties Branch in 1884–5.

DR. JAMES ALBERT WETHERELL died recently at his residence in Hull after a short illness. He received his medical education at the University of Edinburgh, where he graduated M.B., C.M. in 1886 and M.D. in 1890. He took the diploma of L.R.C.P.I. in 1885. He had served as assistant medical officer to the Barnsley Union Infirmary, and later as medical officer and Government Resident at East Kimberley, West Australia. Later he settled in practice at Hull, and was a member of the East York Division of the British Medical Association. His wife died about four months ago, and her death appeared to have impaired his health.

DR. JOHN SIDNEY GRAY, who died at Winnipeg on February 11th, had won by his zeal, ability, and idealism the affection and esteem of his colleagues and the devotion of his patients. He occupied the Chair of Gynaecology in the Manitoba Medical College for many years and, since the year 1886, had been the Registrar of the Manitoba Medical Council. He was also representative of the Medical College on the University Board of Studies, and in 1912, upon the formation of the Medical Council of Canada, was unanimously chosen to represent the Manitoba Medical Board on the Dominion Council. He was born near Heckston, in the province of Ontario, on January 26th, 1850, and obtained his medical degree from McGill University in 1876. He practised for a few years in Winnipeg and then went to Europe to study gynaecology, taking a post-graduate course under Lawson Tait. He leaves a widow, one son, and two daughters.

DR. EPHRAIM CUTTER, of New York, died on April 25th, in his 85th year. He was one of the early American laryngologists, and invented many instruments. He graduated in arts at Yale in 1852, and in medicine at Harvard in 1856. He settled in New York in 1881.

Medical News.

A DISCUSSION on meat inspection problems will take place at a meeting of the Royal Sanitary Institute at the Town Hall, Weston-super-Mare, on Saturday, June 30th.

WE are asked to state that the office of the Assistant Director of Medical Service, Canadians, London Area, has been removed to 13, Berners Street, W.1 (Telephone: Museum 3250).

THE London Insurance Committee has appointed a sub-committee to consider the policy of continuing the office of medical adviser for sanatorium benefit, rendered vacant by the death of Dr. J. E. Squire. Dr. George Johnston has been appointed temporarily to attend on three days a week.

THE Chancellor of the Exchequer has informed Captain Rowland Fothergill that officers in uniform and nurses in uniform in attendance on officers are not excluded from the exemption from entertainments tax contained in Section 3 (2) of the Finance Bill. The concession does not extend to nurses when not in attendance on sick or wounded soldiers or sailors.

WE learn that the American Council of Defence—a body organized for the purpose of mobilizing the industries of the country and to supply the needs of the army and navy—has appointed a pharmaceutical and chemical section, and has nominated Mr. Frank G. Ryan, president of Messrs. Parke, Davis and Co., who has enlisted in the army, to be its secretary.

PROFESSOR WARTHIN is giving a course of lectures during the present summer session at the University of Michigan (Ann Arbor, Vermont) on the pathology of camp, trench, and hospital infections, and of trauma, on repair, and on munition workers' diseases. He would be glad to have duplicate slides for the purposes of his demonstrations. So far as we are aware no such course has been given at a university in this country, and its institution is evidence of the thoroughness with which our colleagues in the United States are going into this war.

The child welfare institution, known as the National Children's Home and Orphanage, has published, under the title, *A Sanctuary for Little Pilgrims*, an account of the work of its branch, the Children's Sanatorium at Harpenden. Dr. T. N. Kelynack, the medical adviser and visiting physician, contributes a note on the aim and scope of the sanatorium, which is devoted to the care, education, and treatment of tuberculous and tuberculously disposed children, opened seven years ago by Sir Thomas Barlow. The pamphlet is illustrated with plans and reproductions of photographs, which give a good idea of the sanatorium and its open-air school.

OWING to the urgent need for further accommodation for war staff in the immediate neighbourhood of the War Office and Admiralty, the offices of the Board of Education are to be removed to the Victoria and Albert Museum at the request of the Prime Minister. It will not be at all easy to carry on the work of the Board, especially during the period of transition, and the president relies on all concerned to co-operate with him in order that the administration of the system of public education shall not suffer in efficiency. Although the administrative offices will be at South Kensington, rooms in Whitehall will be retained for the use of the president, parliamentary secretary, and permanent secretary of the Board, and for conferences, deputations, and interviews. The precise date on which the new quarters will be taken up will be announced later; in the meantime, correspondence should continue to be addressed to Whitehall in the usual way.

A NEW publication devoted to the surgery of the organs of movement has made its appearance under the editorship of Dr. V. Putti, professor of orthopaedics in the University of Bologna and director of the Orthopaedic Institute there. It bears the title *La Chirurgia degli Organi di Movimento*, and will be published in fasciculi, six of which will form a volume of 600 pages. The subscription price for foreign countries is 35 liras. It is published by L. Cappelli, Bologna, and Messrs. Williams and Norgate, 14, Henrietta Street, London, W.C.2, are, we understand, the English agents. The first fasciculus opens with a paper by the editor on the surgical mobilization of ankylosis of the knee, and among the other contributions is one by Dr. Delitala on traumatic lesions of the bones of the foot, and another by Dr. Serra on transplantation of bone. In the matter of printing of text and illustrations the new publication is got up in a manner to excite the envy of the editor of a weekly medical publication in this country.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

MESSRS. WEISS AND SON (287, Oxford Street) state that they make a truss corresponding to that as to which "R." inquired in the JOURNAL of June 9th.

LETTERS, NOTES, ETC.

ADVANTAGES OF BIEBRICH SCARLET AS A PLASMA STAIN.

DR. A. KNYVETT GORDON (Medical Superintendent, Virol Research Laboratories, London, W.C. 1) writes: In routine histological work it is customary and advantageous to use a "contrast" stain after the nuclei of the cells have been defined by haematoxylin or (in the case of chronic or sublimate hardened material) by methylene blue. For this purpose eosin is commonly employed, but it has two disadvantages: (1) It not infrequently extracts the colour from the previously stained nuclei; and (2) it colours everything else with the same intensity. Benzopurpurin is free from these drawbacks but it is useless in weak solution, and in adequate concentration is apt to stain very unevenly, and to deposit gelatinous flakes in portions of the section. Picrorubin (Van Gieson's stain), picro-erythrosin and similar preparations have the grave disadvantage of discharging the colour almost completely from the nuclei after the preparation has been mounted for a short period.

Biebrich scarlet is soluble in water freely and is best used in 1 per cent. solution. It never overstains and does not discharge the colour from the nuclei. Most sections are stained sufficiently in two to five minutes. It does not wash out in alcohol, clove oil, cedar-wood oil, or xylol. Its chief advantage, however, is the fact that it stains different tissues with varying degrees of shade and tint. Muscle, for instance, is stained a yellowish-brown, and the protoplasm of young epithelial cells a bluish-pink, while the older keratinized cells are bright scarlet. In an epithelioma, for instance, the degree of pressure to which the epithelial cells have been subjected, which is a valuable guide to the rate of growth of the tumour, is well differentiated. Used after methylene-blue for tissues that have been fixed in Flemming's or Zenker's fluid it does not discharge the nuclear stain. The staining is of marked permanency and the preparation is now obtainable from British Dyes, Ltd., Huddersfield.

"ANTI-TENSION SPRING" FOR STRAPPING.

DR. H. ELLIOT-BLAKE, of Beer, Devon, has devised a means of preventing undue pressure on a tender part by strapping a knee or other joint. A layer of wool or lint is wrapped round a small ruler, or other similar object, in such a way that it can easily be withdrawn, leaving the sheath behind. The strapping is applied to the affected part over the ruler and sheath, and the ruler withdrawn. If this appliance, which Dr. Elliot-Blake calls an anti-tension spring, be placed over an artery, under a joint, or over a tender area, there is elastic recoil. The circulation is not interfered with. When used at the knee the ruler and scabbard are laid along the middle of the popliteal space or over the tender spot. The advantages he claims are: (1) Relief of local unnecessary constringency; (2) a generally improved pressure; (3) arterial and return circulation promoted; (4) anxiety about too tight strapping avoided; (5) the safety pressure gives the *tension spring*.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers

LIBRARY U. OF I. URBANA-CHAMPAIGN

THE WORK OF BRITISH PATHOLOGY IN RELATION TO THE WAR.

BY

F. W. ANDREWES, M.D., F.R.S.,

PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF LONDON.

IN forming any estimate of the work carried out by British pathologists during the past two years it is necessary to bear in mind the position of medical research in this country when the war broke out. The numerous and important medical and pathological discoveries which have had their birth in England have chiefly been the work of individual men, and have owed little to co-ordinated research, though admirable work was done in the laboratories of the different universities, of the Royal College of Physicians in Edinburgh, and in many other places. Up to the year 1913 the State did hardly anything to advance knowledge in medical science; a small sum doled out yearly by the Local Government Board and some assistance given by the Colonial Office to the Schools of Tropical Medicine represented almost all that was done, though it would be unjust to ignore the valuable research work carried out by the pathological staff of the Royal Army Medical Corps. Apart from the State, such endowed institutions as the Lister Institute and the Imperial Cancer Research Fund proved that as a race we were capable of sustained and not unfruitful effort on the lines of co-ordinated research where the opportunities for this existed. Nevertheless, individualism was the rule, and each pathologist tended to devote his energies to the research which happened to appeal to him whenever he had the necessary time and freedom from financial cares. Even under these conditions the output of good research work in medical science was by no means discreditable, and Englishmen have good reason for pride in the share which this country has taken in the advance of our knowledge of disease and of its treatment.

The Insurance Act, however, promised a revolution in research. For the first time the State set aside a considerable annual sum, between fifty and sixty thousand pounds a year, for the express purpose of advancing medical knowledge, and the Act organized machinery for its intelligent expenditure. The guiding hand was exercised by a body of nine persons, the Medical Research Committee, established in 1913, and carefully chosen from amongst those known to have the power of organizing research or distinguished in its prosecution. Much time and thought were expended by this committee in elaborating their schemes of action, but scarcely had the machinery begun to move when the war broke out and interrupted most of their projects.

A gigantic war, carried out under conditions largely new, necessarily presents a continuous series of new medical, surgical, and pathological problems requiring immediate solution. It was a fortunate thing for the country that the Army Medical Service was well organized and efficient. Many of the problems which would confront us had been foreseen and their solution thought out. In particular the pathological branch of the service was well developed and excellently officered by a staff trained in the well-equipped laboratories of the Royal Army Medical College. At the onset of the war, however, the Army Medical Service found itself more than fully occupied with the necessary administrative duties which it was called upon to fulfil, so that it was impossible for its staff to deal at once with all the new questions which arose. It was now that the Medical Research Committee proved its value. It was already a "going concern," and was in a position to divert the energies which were to have been expended on research into the medical problems of a country at peace to the solution of those which arose in consequence of war. The committee therefore placed itself at the disposal of the nation, and especially at the service of the military authorities; its flexible organization enabled it to attack new problems at short notice and with maximum effect, and the value of the results which have been attained under its auspices has been in many cases immediate and remarkable, as will appear in the following pages. It will be convenient to group the chief pathological problems which have been met during the war and discuss them seriatim.

The Control of Enteric Fever.

Enteric fever, the great medical scourge of all former wars, has been reduced in this, the greatest of all wars, to insignificant proportions. Two factors have contributed to this: one was a knowledge of the "carrier" danger, which was met from the outset by the bacteriological examination of all suspected persons and their prompt segregation; the other and more important factor was prophylactic inoculation. The practice of inoculation against typhoid fever, which we owe to Sir Almroth Wright, had been tried on a small and inadequate scale in the South African war, with not wholly convincing results. It had since proved its worth in our Indian army, and the most effective methods for securing protection had been worked out in detail by the pathologists of the R.A.M.C. under Colonel Sir W. B. Leishman. The methods devised were put into practice from the beginning of the war, and in the course of a few months practically the whole army was inoculated. Small local outbreaks of enteric were promptly suppressed, and the total number of cases was extremely small in comparison with what might have been anticipated. The inoculation, however, was carried out with vaccines of *B. typhosus* alone, and the protection afforded against infection with *B. paratyphosus* (A and B) was not of high degree. During the first year of the war actually more paratyphoid than typhoid was observed amongst our troops. As the result of this experience the War Office appointed a small committee of pathologists to consider the advisability of including paratyphoid bacilli in the prophylactic inoculation. The question of dosage was carefully considered, and groups of men were experimentally inoculated with the mixed vaccine to make sure that the constitutional reaction was not too severe. The tests were satisfactory, and from the beginning of 1916 the new triple vaccine, known as T.A.B., has been the sole official vaccine for the British army, and has proved itself efficient in controlling paratyphoid as well as typhoid fever.

The pathological diagnosis of enteric fever has been complicated by the fact that practically all soldiers were inoculated men, so that the old methods of serum diagnosis became untrustworthy. At an early period of the war Professor Dreyer of Oxford drew attention to the method of carrying out agglutination reactions macroscopically with standardized killed cultures, which he had elaborated in Copenhagen some years previously. The advocacy of this method by Professor Dreyer and his colleague, Dr. Ainley Walker, led to its widespread use, and its accuracy proved such that a diagnosis could be made even in triply-inoculated men, provided that two or three observations were made at intervals of a few days, so as to follow the agglutination titres of the blood against the three bacilli respectively. The Medical Research Committee took the matter up and established at Oxford a laboratory from which standardized emulsions together with the requisite outfit for carrying out the test have been supplied free to all military pathologists, Dreyer's technique being now used almost universally. Much valuable information about the course and diagnosis of the different forms of enteric fever has resulted from the widespread use of this standard method, which has the advantage that the observations of different workers are strictly comparable.

That the freedom from enteric which has been enjoyed by our armies on the Western front is due to the care taken in ensuring inoculation, and to the sanitary precautions which have been enforced, is shown by the condition of affairs where this care was impossible and inoculation incomplete, notably in the Gallipoli expedition. Here, although there was little typhoid, the amount of paratyphoid was by no means inconsiderable, but exact figures are wanting owing to the lack of facilities for diagnosis.

Dysentery.

Of this second great medical scourge of war a less favourable tale can be told, inasmuch as no specific preventive measures have yet been devised. It has not been found practicable to employ prophylactic inoculation against bacillary dysentery, chiefly on account of the high toxicity of Shiga's bacillus, though research work on this subject is in progress, and mention may be made of the method of reducing this toxicity by the action of hypochlorites, as suggested by Professor Dean of Manchester. Prevention has therefore been reduced to hygienic precautions and to

the search for carriers, and on the Western front these measures have hitherto sufficed to prevent any serious outbreak of dysentery, in spite of the return to France of large bodies of troops from the Mediterranean area. In the Eastern Mediterranean, and in Mesopotamia, dysentery has prevailed largely, both amoebic and bacillary, and has offered an opportunity for careful study, particularly in the cases returning home to this country. In the autumn of 1915 an immense number of cases of the disease returned home from the Mediterranean area, and, in order to avoid any risk of spread, were concentrated by the War Office in certain centres scattered over England. The Medical Research Committee provided laboratory assistance at these centres and were able to organize courses of instruction in protozoology for the numerous workers who were comparatively unversed in that subject. In the London district over a thousand cases were studied in full detail, and the facts which have been collected will afford a mine of valuable information on dysentery and allied diseases. Some of the work has already been published by the Medical Research Committee, namely, Dobell's report on amoebic dysentery, and that by the workers at the London Hospital on the investigation of 878 cases of bacillary enteritis from the Eastern Mediterranean. No such opportunity has ever occurred for the study of the tropical forms of dysentery in England, and many new facts have been brought to light.

The value of emetine in the treatment of amoebic dysentery has been abundantly confirmed, and Dr. Dale has introduced the double iodide of bismuth and emetine for the treatment of amoebic carriers, upon whom it has been used with successful results. Dr. Dale has also shown that the persistent administration of emetine may lead to symptoms not unlike those of the dysentery it is designed to cure.

Cerebro-spinal Fever.

Although this fever has been present amongst the British forces on the Western front, anxiety has chiefly been felt about the troops in training in England. For the first time the disease has prevailed epidemically over the whole of this country, affecting equally the civil and military populations. Strenuous efforts have been made by the War Office to control its spread, and invaluable assistance has been furnished by the Medical Research Committee in the provision and equipment of bacteriological laboratories for the purpose. Lieut.-Colonel M. H. Gordon was placed in control of the scientific work, and he organized laboratories for the diagnosis and study of cerebro-spinal fever at numerous centres throughout the country, while he himself and his immediate staff carried out research work at the Central Laboratory at Millbank. The outcome of Lieutenant-Colonel Gordon's researches promises a distinct advance in our methods of combating the spread of the disease. New, cheap, and easily prepared media for the growth of the meningococcus have been devised. A serological study of the races of this organism concerned in the epidemic has been carried out, with the result that the chief epidemic strains have been determined and a simple means for their diagnosis by agglutination placed within the reach of all pathologists. The importance of these observations is twofold. The value of a curative serum in cerebro-spinal fever depends upon whether the particular epidemic strain concerned in a given case of the disease has been employed in producing the serum. The serum available at the beginning of the epidemic, largely American in origin, was found of little value in treatment, but that prepared during 1915 from a due admixture of current epidemic strains proved of considerable curative potency. In the second place, the problem of the segregation of carriers of the meningococcus is simplified. So numerous may such carriers be at certain times that their isolation is almost impracticable. Gordon therefore proposed the isolation of those carriers only who bore epidemic strains of the meningococcus. Although certain risks may be run by such limitation, it has the merit of reducing the numbers to be isolated within practicable limits, and it has been found possible to carry out this policy, at least in a military population, with satisfactory results as regards the spread of the disease, for the more dangerous carriers have been eliminated. Another useful research carried out by Lieutenant-Colonel Gordon has been in relation to the cure of chronic carriers: by causing them to breathe for a short time every day the air of a room saturated with a fine spray containing chloramine-T he found it possible to cure the majority, though not all, of such carriers within a fortnight; a special spraying apparatus has been devised for this purpose. It may be added that valuable work on the races of the meningococcus has been carried out in military laboratories in France by Arkwright and by Ellis; and, further, that a very thorough study of the same subject amongst the civil population has been going on for two years in the laboratories of the Local Government Board by Drs. Eastwood, F. Griffith, and Scott.

Other Medical Diseases Incident on Trench Warfare.

The conditions under which the troops have fought for the past two years have been associated with the appearance of epidemic diseases some of which have been known before while others have previously escaped recognition. The chief work on diseases of this character has necessarily been carried on at the front, where they are encountered in the acute stage; their clinical features have been defined by the work of the physicians and their etiology studied by pathologists at the base hospitals. Lack of space prevents our doing much more than to allude to them here, and indeed so much remains to be found out concerning most of them that few positive assertions can be made.

Trench nephritis has been exceedingly prevalent, and its course and symptomatology are now familiar, but we have failed to discover the exciting cause in spite of a large amount of work both in France and in England. The balance of evidence is in favour of the view that it is an infective malady, but no definite microbe is demonstrable, and efforts to transmit the disease to animals have so far proved unsuccessful. A very complete clinical study of this form of nephritis has been made by Captain Langdon Brown at St. Bartholomew's Hospital, so far as concerns the stages at which cases reach England, while the chemical pathology of the urine has been elaborately investigated by Captain Mackenzie Wallis. Two meetings have been held for the discussion of the disease, one at the Royal Society of Medicine and one at the Medical Society of London. At the last of these meetings Lieutenant Dunn showed a valuable series of histological preparations which he had made from recent cases in France.

Trench fever is a novel disease which received this name towards the end of 1915, when Captain Hunt and Major A. C. Rankin published an account of thirty cases. It appears to be distinct from any fever hitherto recognized, and, according to Captain McNee and Lieutenant Renshaw, who published a careful account of it in April, 1916, it assumes two forms, the second being the relapsing variety. The two latter observers were able to reproduce the disease in man by injecting the blood from active cases into volunteers for the experiment, and they further showed that the infecting property resided in the corpuscles and not in the serum. Nevertheless, they were unable to demonstrate any visible parasite in the blood, and the natural mode in which the disease is conveyed is still a matter of conjecture. Captains Davies and Weldon have, however, in one case reproduced the disease in man through the intermediation of the louse.

Infective jaundice, often known as "Weil's disease," has been of not infrequent occurrence in France, as well as in the Mediterranean area, and the infecting agent—*Spirochaeta icterohaemorrhagiae*—has been repeatedly demonstrated. *Cholera* and *typhus fever* have fortunately been conspicuous by their absence among the British forces, but admirable work was done in the control of typhus by the British hospital units in Serbia, chiefly by eliminating lice.

The Study and Treatment of Wound Infections.

This subject has naturally occupied a foremost position in the present war. The majority of modern surgeons, trained in the aseptic school, found themselves confronted by totally novel problems in the vast numbers of severe wounds, grossly contaminated by faecal bacteria, including the most dangerous anaërobes. From the first, both surgeons and pathologists set themselves to work to overcome difficulties which had never before been presented in bulk since the rise of aseptic surgery. And almost from the first two schools of treatment arose, the one condemning the use of antiseptics as a means of purging a wound of its bacteria and trusting in "physiological methods" of treatment, the other advocating germicides of one sort or another.

LIBRARY U. OF I. URBANA-CHAMPAIGN

The apostle of physiological methods was Colonel Sir Almroth E. Wright, the chief of the Bacteriological Department of the Medical Research Committee, who was liberated for service as a consultant at the front. He occupied a pathological laboratory at Boulogne, and commenced, with the assistance of a number of fellow-workers, mostly his own trained pupils, a laborious investigation of the conditions obtaining in wounds from the point of view of pathological physiology. Whatever view may be held as to the best treatment for infected wounds, which, for the surgeon, is a matter of practical experience, it must be admitted on all hands that the study carried out by Colonel Sir Almroth Wright and his colleagues at Boulogne was a brilliant and suggestive piece of work. Various new technical methods were devised for this study, the outcome of which has been published in detail. From a surgical point of view the methods of treatment to which it gave rise consisted essentially in the encouragement of a free flow of lymph into the wound, for which purpose hypertonic salt solutions were chiefly employed. Pursued to its most extreme degree, this method developed into the packing of septic wounds with tablets of solid salt, with or without the addition of sodium citrate; such treatment was, of course, temporary, the amount of salt used being reduced after a few days. Excellent results have been recorded by those who have employed this mode of treatment in selected cases. Sir Almroth Wright has devoted much attention to the problem of the continuous irrigation of wounds with saline solutions, and has devised methods by which very successful results have been achieved.

On the other hand, a vast amount of work on antiseptics in their application to wound surgery has been carried out by pathologists and surgeons both in England and at the front. The crude attempts at sterilizing wounds by single applications of such powerful germicides as carbolic acid have been largely abandoned, though applications of a mixture of equal parts of pure carbolic and camphor have proved useful in cases where the nature of the wound permits. The most successful results, however, have been obtained through researches into the properties of the hypochlorites. Two separate sets of researches on these lines have been supported by the Medical Research Committee and have proved fruitful, and largely identical in their practical outcome. Working in Edinburgh, Professor Lorrain Smith, with the aid of three colleagues, devised a combination of bleaching powder and calcium borate which proved exceedingly efficacious in the treatment of septic wounds; they published formulae for a solution which they termed "eusol," and a powder, "eupad," which have now been extensively used, and with marked success. Quite independently, Dr. Dakin, working at Compiègne, produced a very similar solution, equally successful in its application. On the surgical side he became associated with Dr. Carrel, and the collaboration of these two workers, who have introduced a special technique for the continuous irrigation of wounds with the hypochlorous solution, has issued in a method of wound treatment which has led to marvellous results, under which, when the bacterial flora of a wound has been lowered to a certain defined point, it is safe to perform secondary closure and suture. This method of treatment, which does not conflict with that by hypertonic saline, has become increasingly popular amongst surgeons at the front, and, in the judgement of many, is the most efficient method yet introduced for dealing with septic wounds.

Dr. Dakin's researches did not end with the introduction of the hypochlorous solution, for he proceeded later, in conjunction with Professor Cohen of Leeds, to study its mode of action in the presence of proteins. It was found that the hypochlorous acid acted, not, as formerly supposed, as an oxidizing agent, but by the formation of chloramines. Amongst the chloramines whose properties were investigated were found several of considerable disinfectant power, and one of them—toluene-sodium-sulphochloramide—has been introduced into medical and surgical practice on a commercial scale under the name of chloramine-T. This substance, though of fairly high germicidal value, is almost non-toxic, and has no action on albumin. It has thus been found of special value in dealing with wounds involving the mouth, and it has proved the most efficient drug, when atomized by a steam spray, in ridding chronic meningococcus carriers of their infection. It is, further, absorbed in notable amount by textiles, and chloramine gauze has been found to possess a much higher germicidal value than any other antiseptic gauze previously in use. Incidentally, Dr. Dakin found chloramine-T a useful reagent in the study of the chemistry of proteins, and he has been able to form cyanides from amino-acids.

Another important application of the hypochlorites has lain in the disinfection of hospital ships. The crowding of large numbers of cases, many of them suffering or convalescent from enteric fever or dysentery, in these vessels led to a good deal of secondary infection during the voyage. The process of generating hypochlorites by the electrolysis of sea water has long been known, and Dr. Dakin devised a simple plant for this purpose, using the ordinary ship's current. This was installed experimentally on the *Aquitania*, and gave such admirable results that the method is now widely employed. One of the advantages presented by the hypochlorites as disinfectants is their extreme cheapness: the saving in carbolic acid and cresol in one voyage of the *Aquitania* was estimated to exceed the cost of the electrolytic cell and its upkeep, and the efficiency of the disinfectant produced was so great as practically to abolish cases of secondary infection.

One other disinfectant introduced during the war which deserves special mention is flavine, now termed "acriflavine." This substance, originally prepared by Benda at Ehrlich's suggestion, for the treatment of trypanosomiasis, had never been subject to proper study as a bactericide. This study was undertaken for the Medical Research Committee at the Middlesex Hospital, by Dr. Carl Browning and several of his colleagues. The research included a number of acridine compounds besides flavine, and embraced also brilliant green and aniline dyes, but the properties of flavine place it almost apart from other germicides. Nearly all the chemical substances which destroy bacteria are inimical also to living tissue cells, and impair the phagocytic functions of the leucocytes. Flavine, according to Dr. Browning's report, is largely free from these objections; that is to say, it is effective as a germicide in dilutions which are harmless to the tissues, and do not impair the phagocytic powers of leucocytes. More than this, almost all other disinfectants are subject to the grave disadvantage that their activity is hindered or even abolished in presence of albumins; it is claimed for flavine that it is a more active germicide in serum than in distilled water. The clinical trials of flavine at the Middlesex Hospital appear to support these laboratory investigations, but at the moment the stock of flavine available is not sufficient for wider trials, though its commercial production has been begun.

It need hardly be said that the opportunities for studying the bacteriology of septic wounds which have so freely offered themselves have led to a large amount of research work, the most important, because the most novel, part of which has been the study of anaërobic infections. The universality of such infections has attracted attention to them in almost every pathological laboratory, and the opportunities for investigating gas gangrene in the base hospitals in France have been well utilized, though the results have, perhaps, been of surgical rather than pathological novelty. An important observation is that of Dr. Dale, who has brought forward evidence that the so-called "toxins" of certain of the anaërobic bacilli connected with gas gangrene are really salts of ammonia. Specific studies of the anaërobic infections of wounds have been carried out for the Medical Research Committee by several groups of observers in this country, notably by Drs. McIntosh and Fildes at the London Hospital, and by Professor Dean at Manchester; while at the Lister Institute Miss Robertson has been similarly occupied. Our knowledge of the classification and characters of these bacilli has gained much in precision and extent.

Tetanus.

In the early days of the war tetanus of a severe type was common amongst the wounded, and the control of this disease by the prompt administration of a prophylactic dose of antitoxic serum to all wounded men will rank as one of the triumphs of preventive medicine in the present war. Early in 1916 the War Office appointed a Committee for the Study of Tetanus under the chairmanship of Surgeon-General Sir David Bruce, C.B., F.R.S. This Committee has met at short intervals, and being furnished with the data as to all cases occurring in military hospitals

in England, is accomplishing good work in connexion with prophylaxis and treatment, to which the appointment of tetanus inspectors in all the different military commands has been of assistance. The practice of prophylactic inoculation has not only greatly diminished the incidence of tetanus, but in large numbers of cases has profoundly modified its nature and course when it does occur. The recognition of "local tetanus" as opposed to the generalized disease was first made by French observers as a phenomenon of partial protection, and their observations have been fully confirmed by the occurrence of similar cases in this country and amongst our wounded abroad. Every gradation has been observed between a tetanus strictly limited to the wounded limb and the general disease, and it has been found that the more localized the tetanus the better is the prognosis. With regard to the treatment of declared tetanus there is still considerable dispute as to the best route for administering the specific antitoxin. The War Office Committee has from the first advocated the intrathecal route, and has instigated experimental work relating to this matter, which is not yet sufficiently advanced for publication.

The Life-History of Bilharzia.

The presence in Egypt of large numbers of Imperial Forces was attended by grave risks of the outbreak amongst them of certain of the endemic diseases of that country, and not the least of these was infection by bilharzia. The complete life-history of this parasite was unknown, and had baffled Looss and other investigators, so that there was no knowledge of the special precautions that ought to be taken. In these circumstances the Medical Research Committee co-operated with the War Office and the London School of Tropical Medicine in sending out a special mission, headed by Dr. Leiper, to study the subject. This mission successfully solved, in a few months' work, the main problem involved, proving that the intermediate host of the worm is a fresh-water mollusc; and further work during 1916 has shown that the two main species of bilharzia in Egypt have distinct intermediate hosts: that of *Bilharzia mansoni* being *Planorbis boissyi*, while *Bilharzia haematobium* has two, and perhaps three, species of *Bullinus* (*B. contortus*, *B. dybowskyi*, and probably *B. innesi*) as intermediate hosts. Cheap and efficient means have been found for rendering infected waters safe, and have been brought into use in all military camps. For the first time the way is opened up for the eradication of this grievous infection from the country, a result all the more earnestly to be desired, since no means of destroying the worm has been found when once it has established itself in the human body.

Trench Foot.

Very large numbers of men were invalided from the Western front during the winter of 1914–15 with the condition at first regarded as frost-bite, but now commonly termed "trench foot." Professor Delépine investigated this subject at Manchester, while Professors Lorrain Smith and Ritchie with Dr. Dawson carried on a research for the Medical Research Committee at Edinburgh. It has been shown that "trench foot" is a minor state of frost-bite, the damage inflicted being usually short of immediate death of the tissues. The experimental work of Lorrain Smith and his colleagues upon the rabbit shows that the primary lesion is vascular, with a secondary inflammatory reaction when the subject is removed from the causal environment. The difference between this and true frost-bite is one of degree only, and the severer forms of trench foot end in gangrene. Professor Delépine has shown the importance of a layer of air surrounding the lower extremity in preventing trench foot, and has devised a simple and light bag of oiled silk which can be worn by those exposed to continuous wet and cold in the trenches, and which has proved a considerable safeguard.

The foregoing short account of what has been accomplished during the war by British pathologists is necessarily incomplete. Much that has been done may not yet be written about, and no attempt has been made to enter into full details as to that which is already public property. This slight sketch of some of the more important work which has been accomplished will suffice to show that in pathology, no less than in the other sciences, advances have been made, under the stress of national necessity, during the two years and a half of war which could hardly have been expected in twenty years of ordinary work; and although it has been "war work," it represents a solid contribution to science which will be valid for the years of peace to come.

BACTERIOLOGY AT THE FRONT.

BY

COLONEL SIR W. P. HERRINGHAM, C.B., M.D.,

CONSULTING PHYSICIAN.

BACTERIOLOGICAL investigation in hospitals of the front line has been a novel feature of this war. Nothing of the kind has been practised in any of our previous campaigns. It has been rendered possible by equipping motor vans as mobile laboratories. The first, which was sent out in October, 1914, had been a pleasure caravan. It was gutted and fitted with incubators and all the other apparatus of bacteriological work, and was followed by many others of the same type. They have been attached to a clearing station or a group of clearing stations, and the officer in charge is provided with a small motor car, so that he can go to any place in his area where his services may be wanted.

These officers perform three functions:

1. They examine all kinds of morbid products from the hospital wards, and thus aid in the diagnosis of enteric fevers and other epidemic diseases on the medical side, and of the various forms of infection that attack surgical wounds.

2. They examine contacts in cases of infectious fever and search for carriers both among the troops and in the civil population.

3. They investigate new forms of disease that appear among the troops in order to discover their causes and the means of prevention.

Instances of the first class of work are the examinations made of the blood and excreta in cases suspected of enteric fever, of malaria, or of dysentery, and of the cerebro-spinal fluid, or the nasal mucus where cerebro-spinal fever is in question.

In the first year of the war the diagnosis of enteric at the front was comparatively easy. But when, in January, 1916, the triple inoculation against typhoid and paratyphoid A and B came into use, it became much more difficult. Firstly, the culture of the bacilli from the blood is very uncertain in inoculated men after the first three days of fever, and, since the early symptoms are slight and are not distinguishable from those of many other fevers that prevail, few patients arrive at a clearing station within that time. Secondly, the triple inoculation so complicates the agglutination test that it is only after three or four trials and a comparison of the results that a conclusion can be reached. As this takes twelve or fourteen days it is only carried out at the front in the comparatively few cases that are retained in the infectious hospitals there, nor is it, even with the repeated examination of the excreta in addition, always possible to obtain bacteriological evidence in cases where the clinical symptoms render the diagnosis certain.

In the case of cerebro-spinal fever, Captain Ellis, of the Canadian Mobile Field Laboratory, established at the same time as Lieutenant-Colonel Mervyn Gordon at home the existence of different types of the meningococcus distinguishable by agglutination and absorption tests.

During 1915 cases were also observed in which, with acute symptoms just like those of cerebro-spinal fever, the cerebro-spinal fluid, though under high pressure, contained no polymorphs and no meningococci, but lymphocytes in excess. This condition we called lymphocytic meningitis. It was never fatal. Later on several cases of meningococcal septicaemia, which is a very acute and rapidly fatal disease, were discovered by the bacteriologists.

Certain cases of dysentery occurred and were accompanied by a considerable amount of non-dysenteric diarrhoea. A large amount of diagnostic work was carried out by the mobile laboratories of this area.

The next function of these officers is to discover the source of an infection, and to stop it from spreading. In cases of enteric the work was very elaborate. In the first place, a systematic search was made for recent or chronic

LIBRARY U. OF I. URBANA-CHAMPAIGN

carriers among the troops. Thus, in one regiment a carrier was discovered in the regimental kitchen. In another, which had lately received reinforcements, no less than 96 men had to be examined before the carrier was found. But the source of infection was not always in the troops. The part of Flanders that we held was a hotbed of enteric, and many cases were found in the civil population. The search for these, in which the bacteriologists were aided by the Belgian sanitary officer, Dr. de Wulf, and also by the Society of Friends, was very difficult. In one village cases of enteric occurred in three successive formations that were billeted there. No civil cases could be traced, until news was brought of a child that had been sent away to convalesce at a neighbouring farm. The clue was followed, and the family to which the child belonged were identified as the source of the outbreak. They kept an estaminet, and sold food to the soldiers. Many carriers of dysentery have also been discovered and isolated.

The conditions of warfare made it far less possible to obtain contacts of cerebro-spinal fever at the front where men are constantly moving, than it is at home where a man may be stationary for weeks.

The subject is extremely difficult, and even now the method of diagnosis that satisfies one bacteriologist is held insufficient by another. I do not remember any instance in which we could connect two cases of the fever as cause and effect, or as caused by the same infection. They have been very uncommon, even under the conditions at home.

As instances of the examination of new or little known forms of disease, I may mention trench fever,[1] investigated by Captain McNee; spirochaetal fever,[2] by Captain Adrian Stokes; gas gangrene;[3] and the histology of the prevalent nephritis, by Lieutenant Dunn.[4]

As these researches will no doubt be dealt with under their separate headings, it needs only to refer to them here as examples of excellent work done in the laboratories of the front and of the importance of this organization.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, February 12th, 1916. [2] *Lancet*, January 27th, 1917. [3] McNee and Dunn, BRITISH MEDICAL JOURNAL, 1917. [4] *Lancet*, November 18th, 1916, Medical Society's Transactions, and also report to Medical Research Committee by McNee and Dunn.

TRENCH FEVER AND ITS ALLIES.

BY

COLONEL SIR W. P. HERRINGHAM, C.B., M.D.,

CONSULTING PHYSICIAN.

IN the first winter of the war there were many cases of stiffness and pain in various parts, especially in the muscles of the back and shoulders, with some fever, and there were also a few cases which were thought to be influenza, but in the spring of 1915 our attention was drawn to the frequency of a form of fever which struck every one as novel. The men were often seized suddenly, perhaps when performing a duty, with a vertigo or faintness so severe as to drop them in their tracks. A severe headache, especially at the back of the eyes, and a pain in the back began almost at once. Occasionally there was pain in the left hypochondrium. When the men reached the clearing station they complained of much pain in the legs, especially down the shins. Many could not bear the pressure of the bedclothes. In some the pain was rather in the muscles of the thigh, and in a few it was felt in the calf. Along with these symptoms the tongue was furred, the appetite bad, nausea was not infrequent, and the bowels were constipated. There was no cough, and the lungs were unaffected. The pulse was from 70 to 80, and the heart was natural. The spleen was not enlarged, and there was no albuminuria. The temperature rose quickly, reaching 102° F. or more on the second day. Occasionally the temperature rose to 105° F., and was accompanied by stupor. It fell on the third and fourth to normal, and then in many cases rose again on the fifth or sixth day, to fall again on the ninth or tenth. This saddle-backed curve resembled that of the phlebotomus fever of the Mediterranean, and the symptoms were not dissimilar, though milder, but there was no phlebotomus in this country.[1 2]

As further cases were observed, it was discovered that the relapse might take place at different intervals, even after ten days of a normal temperature, but that for each patient the cycle was regular. Thus in one patient the cycle might be seven days, in another ten, and in another even thirteen days. The periods of normal temperature lasted five, eight, and eleven days respectively, and were interrupted by a sudden fever, which might rise to 104° F. and as quickly disappear. As the disease continued the fever rose each time to a gradually lower level, and the intervals might become longer.[3]

In a large number of cases there was only one bout of fever. Many had only one relapse, but if there was more than one there were frequently many, and such a patient might continue ill for many weeks.

Such charts as these, with a sharp and sudden rise, separated by regular and afebrile periods, were strongly suggestive of the life-cycle of some blood parasite, and every method was followed which gave hope of its discovery. Up to the present no such body has been found, but it has been shown that the fever can be communicated by the blood from a patient if injected into a healthy man, and, further, that the virus is connected with the red blood cells and not with the serum. It has been a common opinion that whatever the virus may be it is conveyed by the louse, and there are a few facts to support this.[4]

No case proved fatal, and the great majority made a speedy recovery, but some were left with irregularity of the heart, which persisted for a long time. Cases of recurrence after intervals of good health were not unknown; it was evident that one attack did not produce immunity.

Many drugs—including the salicylic acid compounds, and quinine by the mouth, and salvarsan, and antimony by injections—were tried. None had any effect upon the course of the fever. In a few cases aspirin, and in more morphine, relieved the pain temporarily.

Along with this relapsing form, which was called trench fever, there were others which showed no relapse, though the symptoms were the same. Some of them had a hog-backed curve, the highest points lying towards the middle of the curve, which fell to normal about the tenth day. Others had a low pyrexia, never rising much above 100° F., but lasting a fortnight or three weeks. In the summer of 1916 a number of cases of short fever were seen in which the spleen was enlarged. These cases were occasionally observed at other times. They were probably a special form.

Some thought that they could distinguish a special type which they called shin fever, but this could not, on wider investigation, be established. It should be added that pain in the shins was not peculiar to any fever. It was seen in typical cases of enteric.

Some bacteriologists found various infections in the blood of these cases, but their results were not confirmed.

The chief diseases from which these fevers had to be distinguished were one of the enteric fevers and influenza. It was not until repeated examinations, extending over some hundreds of cases, had been made that we felt justified in excluding the former. Influenza is so protean a disorder that its exclusion was still more difficult. There were in these fevers, however, no catarrhal symptoms, the *B. influenzae* was never found in the blood, and the cases occurred only at the front or among the personnel of hospitals where the cases were treated. It was not a general epidemic as influenza usually is.

REFERENCES.

[1] Graham, *Lancet*, September 25th, 1915. [2] Rankin and Hunt, *Lancet*, November 20th, 1915. [3] McNee, Brunt, and Renshaw, BRITISH MEDICAL JOURNAL, February 12th, 1916. [4] Davies and Weldon, *Lancet*, February 3rd, 1917.

BIOCHEMISTRY AND WAR PROBLEMS.

BY

H. D. DAKIN, D.Sc., F.R.S.

THE application of science to every department of modern warfare is universally appreciated. Without the co-operation of the engineer, the physicist, and the chemist, warfare could not approach its present destructive character. But, apart from these activities, the importance of which can hardly be over-estimated, a large amount of purely scientific endeavour has been devoted to the conservation of the health of those taking an active part in the present struggle. The object of the following notes is to indicate

a few striking examples of what may be termed constructive applications of biochemistry.

PURIFICATION OF WATER.

The supplying of a large army in the field with safe and palatable drinking water is obviously a problem of immense practical importance. The difficulties encountered, particularly when troops are living in typhoid-infected areas, were great, but the sanitary service of the army has every reason to feel proud of the great success it has achieved in this direction. The use of chlorine compounds for the sterilization of polluted waters has long been practised, particularly in typhoid-infected areas in America, but the application of the method on a huge scale to field conditions required additional experience and experiment. The care bestowed in the control of the army water supplies by both chemical and bacteriological methods has been fully justified by the results, and if the publication of statistics were permitted, it would appear that some other nations had still much to learn in this direction. While the excellent typhoid statistics of the British army are doubtless in large measure due to protective inoculation, the efficient supplementing of this procedure by the provision of safe water supplies is no inconsiderable factor.

ACCESSORY FOOD FACTORS (VITAMINES).

Questions of diet are of no less importance than water supply. In recent years biochemical studies have indicated the necessity of the presence of certain substances in relatively small amounts in order to make an otherwise ample diet adequate for maintenance or growth. The earliest experiments of this kind were made at Cambridge by Professor Hopkins and Miss Wilcox. They found that mice furnished with a diet containing liberal amounts of fat, carbohydrate, and protein, which were much more than sufficient to furnish the energy requirements of the organism, failed to sustain life if a particular amino-acid, discovered by Hopkins, was not a constituent of the protein. This heterocyclic amino-acid, tryptophane, systematically named indole *a*-aminopropionic acid, was found as a constituent of many proteins, but not all. It is absent, for example, from gelatine, this being one reason why gelatine is an incomplete protein food. Hopkins and Wilcox found that addition of small amounts of tryptophane to the inadequate diet just referred to was followed by marked improvement in the condition and duration of life of experimental animals. A most valuable discussion on the importance of individual amino-acid groupings in proteins for nutrition and growth has recently been published by Hopkins in his lecture at the Chemical Society, May 18th, 1916.[1]

Later experiments showed that young animals could not grow when fed upon so-called "synthetic" diets consisting of mixtures of pure proteins, fats, carbohydrates, and salts, although maintenance might be secured for a considerable time. But Hopkins[2] found that a substance or substances found in normal foodstuffs (for example, milk) can, when added to the dietary in astonishingly small amounts, secure the utilization for growth of the protein and energy contained in such artificial mixtures. The significance of these observations with regard to diseases such as scurvy, rickets, and beri-beri was at once apparent.

Late work by Hopkins, and a host of followers, has served to emphasize the importance for nutrition and growth of these small amounts of substances which are often called "accessory factors" or "vitamines." Some of the subtances which are found in milk, yeast, whole rice meal, and animal tissues, are extraordinarily potent in the relief of polyneuritis induced experimentally in birds by feeding on a "vitamine"-free diet of polished rice. The exact nature of these substances is still obscure, although Funk,[3] working at the Lister Institute, Suzuki in Japan,[4] Moore and co-workers,[5] Cooper,[6] and others, in England, have obtained partly purified basic products of high potency. The practical importance of these studies has been amply justified by the success obtained in the prevention of scurvy, beri-beri, and similar nutritional disorders among troops operating under conditions which render the abundant supply of fresh food difficult or impossible. By supplementing the diet available under such circumstances with small amounts of material rich in "vitamines," it has been possible to restrict the development of the disorders mentioned in a way that would have been impossible even a few years ago. A large number of experiments as to the most practical form of supplying the needed vitamines has been carried out under the direction of the authorities concerned, who were keenly alive to practical lessons to be learnt from the laboratory studies just referred to.

It is of interest to note that some recent experiments of Williams[7] upon the curative action of various substances on experimentally induced polyneuritis in birds appear to show that certain synthetic pyridine derivatives containing a betaine-like ring possess this property in high degree. A substance intimately related to the purin compound adenine has been isolated from yeast, and also found to exert curative action. The necessity for purin derivatives for the synthesis of nuclear substance *in vivo* is noteworthy in this connexion. It may reasonably be expected that the more intimate analysis of metabolic processes which is being made possible by the pioneer work of Hopkins will find many applications in the treatment and prevention of nutritional disorders.

WOUND INFECTIONS.

Few subjects have attracted more urgent attention during the present war than the question of the treatment of infected wounds. As every one knows, this problem has surpassed in difficulty anything which had previously been experienced, both as regards the frequency and malignity of wound infections. Apart from special surgical procedure and protective inoculation, with which we are not concerned at the moment, the problem has been chiefly attacked in two ways.

Hypertonic Salt Solutions.

The method advocated by Sir Almroth Wright demands the employment of salt solutions of varying concentration but of slight germicidal action. Hypertonic salt solutions are used to provoke an increased flow of lymph from the wound surfaces with the object of facilitating and accelerating the natural processes of repair. The other methods which are in vogue involve the use of more active chemical agents—antiseptics—with the aim of reducing infection by more or less direct germicidal action. There has been a great deal of discussion as to the rival merits of the two systems, but to some observers at least it would appear that the differences between the so-called "physiological" and "antiseptic" methods of treating wounds are not nearly so great as at one time appeared, and that the effects sought by the best exponents of the two methods have much in common.

Antiseptics.

At first, prime importance was attached to the search for the most actively germicidal substances as judged by their action on micro-organisms suspended in various media outside the body. With the aid of these substances much was expected in the way of rapid wound sterilization, but the results were mostly disappointing. The problem was evidently not to be solved in this way, and the idea that dirty lacerated wounds could be sterilized by isolated applications of powerful antiseptics had early to be abandoned. The exponents of physiological methods did genuine service in indicating the danger and futility of such a procedure, and it was soon realized that where, as was the rule, sterilization was not effected, the concomitant injury to living tissue by the unintelligent application of corrosive antiseptics might far outweigh any advantage gained. But at the same time it cannot be too strongly insisted that experiences of this kind cannot be taken as refuting the value of every kind of antiseptic treatment. With the desire to secure crucial experiments to prove the inutility of antiseptics, wounds have been extensively swabbed with pure carbolic acid with the avowed intention of giving the antiseptic every chance. Yet, in the light of the experience of the last thirty months, the finding of organisms in the discharge from any but trifling wounds treated in this way was almost a foregone conclusion, and proves nothing as to the efficacy of antiseptics in general when employed under proper conditions.

When it was realized that the immediate sterilization of badly infected deep wounds by a single application of a "strong" antiseptic, even when applied soon after the infliction of the wound, was rarely successful, attention was turned to the repeated or even continuous application

LIBRARY U. OF I. URBANA-CHAMPAIGN

of relatively mild antiseptic solutions, and here genuine success appears to have been obtained.

Hypochlorites.

Of the innumerable antiseptics which have been employed in the present war two appear to have been regarded with especial favour, and they have much in common. These are the calcium hypochlorite and boric acid mixture introduced by Professor Lorrain Smith under the name of "eusol,"[8] and neutral sodium hypochlorite solution, the preparation of which was described in this JOURNAL.[9] The composition of the latter solution has been modified by various writers in minor details without much essential change. Although the germicidal action of hypochlorites has long been made use of for water purification and other similar hygienic purposes, until recently they had seldom been used for surgical purposes, except occasionally for the removal of sloughs. One reason for this is undoubtedly to be found in the fact that commercial hypochlorite preparations commonly contain free alkali, and hence are intensely irritating. The presence of free alkali is guarded against in the preparation of the two solutions just mentioned by substantially the same method, which may be incidentally referred to as illustrating the application of a well-known physico-chemical principle. It has long been known that when a polybasic acid, such as phosphoric or carbonic acid, is partly neutralized by successive additions of alkali, a point is reached when the solution contains a mixture of acid and neutral salts which reacts approximately neutral to suitable indicators. To such a solution moderate additions of either acid or alkali may be made without changing the reaction of the solution, the only change being variations in the proportions of various salts. This mechanism, as Henderson and others have shown, is largely responsible for the maintenance of the essential neutrality of blood and other body fluids under changing conditions. In the case of the antiseptic solutions under consideration, the polybasic boric acid was chosen for adding to the alkaline hypochlorites, so that the resulting solutions were capable of maintaining neutrality. Using similar principles, Daufresne has developed a hypochlorite solution containing no boric acid but a mixture of carbonate and bicarbonate. Such solutions are referred to as "buffer solutions," indicating their ability to reduce the actual change of reaction due to the addition of either acid or alkali.

These hypochlorite preparations are probably used more widely than any other antiseptic solutions at the present time, not only in our own Army Medical Service but in the allied countries, and from recent reports it appears that the Germans have been making extensive use of them as well. They were both developed as the result of work carried out on behalf of the Medical Research Committee. The wide adoption of these antiseptics in preference to those more generally used prior to the war is significant, especially in view of the disfavour with which antiseptics in general were regarded a short time after the outbreak of the war, as a result of their comparative failure to meet the demands then made upon them.

This preference for the hypochlorite antiseptics as compared with many others appears to be supported by both clinical results and by laboratory investigations. The solvent action of hypochlorites on necrotic tissue is a great advantage when contrasted with the coagulating effect of many antiseptics on blood serum and wound exudates. The former action of hypochlorites permits the wound surface to remain moist and so removes obstacles to the outward flow of lymph, which is so readily checked by antiseptics which are protein precipitants. Moreover, the hypochlorites, by virtue of their strong oxidizing power, appear to react readily with the toxic products of bacterial activity—and indeed this action, as will be referred to later, has been used by Dean for the preparation of dysentery toxin of greatly diminished toxicity, but otherwise potent for the production of antibodies. The diminution in general toxaemia following the free use of hypochlorite in old, badly infected wounds, especially fractures, in which sterilization is incapable of attainment, is a common observation, as well as the increase in the toxaemia following its abandonment or replacement by some other solutions. Furthermore, from the experiments of Wright,[10] it appears that hypochlorites are preferable to antiseptics such as phenol or iodine, since they differ markedly from the latter in being less disturbing to a favourable balance between the antitryptic and tryptic effects in fluids such as are formed by wound secretion. Wright regards this as the probable explanation of why wounds treated with hypochlorite suppurate less and heal better than did the wounds treated in the earlier period of the war with the antiseptics then in use. The suggestion that antitrypsin plays an important part in the normal bactericidal properties of blood, as put forward by Wright and others, has an obvious connexion with the above opinion, and in this relation it may be recalled that hypochlorites, like many other active chemical substances, when injected intravenously into animals, produce first a fall and then a marked rise above normal of the antitryptic value of the blood serum.

Synthetic Dyes as Antiseptics.

The selective antibacterial action of certain synthetic dyes (crystal violet, malachite green, etc.) has long been applied by bacteriologists in the preparation of differential culture media. The work of Ehrlich and his school on the specific therapeutic action of certain dyes in protozoal infections is also well known. The special need created by the war for substances of low toxicity to the tissues of higher animals, but of high antiseptic potency, has led to the use of several dyes for the disinfection of wounds. Very good results have been obtained by using dyes of the triphenylmethane series (crystal violet, malachite green, brilliant green). Fildes, Rajchman, and Cheatle,[23] who were among the earliest workers to apply the disinfecting action of such dyes to wound treatment, used a mercury compound of malachite green, sprayed on to the wound surface in alcoholic solution, and obtained better results than with either malachite green or mercuric chloride alone. A recent publication by Browning[24] deals with a further development of the use of dyes as antiseptics, and describes results of extraordinary interest and promise, obtained with a dye of the acridine series, of which the trypanocidal value was studied some years ago by Ehrlich. This substance, "trypaflavin" (diamino-methyl acridinium chloride), has been found to have a high general antiseptic value by Browning, who, on account of this more general application, proposed to call it "flavine." Browning finds that, while the antiseptic action of all other substances examined, including the dyes mentioned above, is greatly diminished by the presence of blood serum, that of flavine is not only not diminished, but is conspicuously increased, even to five times its potency in water. This, taken in conjunction with Browning's further observation that flavine is harmless to the tissues, and even to the activity of leucocytes, in concentrations having a strong antiseptic action, awakens great expectations concerning its therapeutic value in various infections. Preliminary trials have already confirmed its efficacy in the treatment of septic wounds, and the results of the more extended trial, which will be carried out under the Medical Research Committee as soon as adequate quantities of the dye are available, will be awaited with interest.

THE CHEMISTRY OF DISINFECTION.

But the measure of success achieved by many surgeons in the treatment of infected wounds with hypochlorite antiseptics has been due to much more than the substitution of one antiseptic lotion for another. Granted that hypochlorites possess certain advantageous properties not shared by other antiseptics, their employment requires the observance of other essential conditions if success is to be obtained. The development of these conditions, apart from the necessary surgical interference, was based on laboratory work. The researches of C. J. Martin and Miss Chick have done much to supply accurate information as to the laws of disinfection. From studies on the rate of disinfection by mercuric chloride, silver nitrate, and phenol acting on *B. paratyphosus* and spores of *B. anthracis*, Miss Chick[11] concluded that a very complete analogy existed between ordinary chemical reactions and the process of disinfection, one reagent being represented by the disinfectant and the second by the protoplasm of the bacterium. In the case of the spores the process of disinfection proceeds with a reaction velocity in accordance with the well-known equation for a unimolecular reaction, if figures representing "numbers of surviving bacteria" are considered and taken as the equivalent of "reacting substance." In the case of *B. typhosus* departures from the simple law were noted owing to permanent differences

in resistance to the antiseptic among the individual organisms. The rate of disinfection in all cases was greatly increased by rise in temperature, the velocity being increased three to ten fold by an increase of ten degrees Centigrade.

If the act of disinfection be thus regarded as a chemical reaction proceeding with a definite velocity, the successful use of antiseptics will depend on the establishment of conditions such that the reaction may be pushed as far as possible towards completion in any given period of time. Increase in the active mass of antiseptic and rise in temperature will favour the course of the reaction, but in the case of wound treatment these factors are obviously limited by other considerations. In the case of hypochlorites, the maintenance of an effective mass of antiseptic in a wound cavity is a difficult problem on account of the ease with which these substances enter into combination with proteins and other compounds in the wound exudate. Of these products, those which contain active chlorine united to nitrogen retain their germicidal action while the others lose it entirely. It is for this reason that the technique employed by those who obtain really satisfactory results with the hypochlorite antiseptics requires such careful observance. The repeated renewal of hypochlorite solution in wounds which have received adequate preliminary surgical treatment is a practical necessity that is easily understood if the rate of its disappearance is borne in mind, but this has too often been overlooked by those who hope to find special curative action following infrequent administration of these antiseptics. The technique employed by Carrel and Dehelly in France and by Sir Berkeley Moynihan[12] and many others in England, by which frequently renewed quantities of hypochlorite—the amount varying with the character and surface extent of the wound—are injected into the cavity and its recesses by means of rubber supply tubes, is a natural consequence of the chemical properties of the antiseptic they employ. As in the case of the treatment of wounds with hypertonic salt solution and other irrigation methods the technique is of prime importance, and success or failure depends to a greater extent upon this than upon minor details in the composition of the solution.

The widespread adoption of hypochlorites for antiseptic purposes invited chemical studies as to their mode of action. Apparently there are great differences in the way antiseptic substances act. Miss Chick's experiments confirmed the view that the metallic ions resulting from the electrolytic dissociation in solution of salts such as mercuric chloride and silver nitrate are the real disinfecting agent rather than the salts as a whole, and this conclusion is in harmony with some unpublished results showing that some double cyanides of silver which do not dissociate normally have a surprisingly low germicidal action. Cooper,[13] working at the Lister Institute, concluded that the germicidal action of phenol is not due to a typical union of the phenol with bacterial protoplasms, as is probably the case with formaldehyde, but rather to a de-emulsifying effect upon a colloidal suspension of some constituent protein essential for the vitality of the organisms. In the case of hypochlorites direct chemical action upon bacterial proteins, and any other protein which may be in the medium, undoubtedly occurs, and the germicidal substances so formed may contain much active chlorine linked to nitrogen as NCl groups. A systematic study of many synthetic substances containing this grouping led to the conclusion that almost all of them possessed high antiseptic properties, and one of them, toluene sodium sulphochloramide, or chloramine-T, has been used on an extensive scale. Its manufacture was first undertaken in England, and it is now made by many firms here and abroad. Apart from the use of the substance for general antiseptic purposes, its stability permits its use in very dilute solution under conditions in which hypochlorites would be too irritating. One of the most interesting applications of this substance has been worked out by Colonel Gordon and published in this JOURNAL. Carriers of the meningococcus, when placed in an inhalatorium and subjected to the action of a steam spray carrying the antiseptic in fine suspension, have been freed from this organism in satisfactory manner, and the successful extension of the method to other infections of the upper respiratory passages seems likely. Here again, as in the use of antiseptics for wound treatment, details of technique in the presentation of the drug are of cardinal importance.

SYNTHETIC DRUGS.

Among the many tasks which confronted chemists at the outbreak of the war, few were more urgent than that of preparing adequate quantities of certain drugs for the supply of which we had previously been dependent on hostile countries. Much of this work has been done in a successful and unobtrusive way in the laboratories of chemical manufacturers, while in other cases the assistance of organic chemists on the staff of our universities has been freely and cheerfully given. It is unnecessary to go into details with regard to the individual products, which cover a wide range, but, as is well known, the demand for arsenical compounds of the type of salvarsan and various local anaesthetics such as novocain and eucaine was particularly heavy and has been well met. It will be recalled that the latter substance is an acetone derivative, and in this connexion reference may be made to the development in this country, since the war commenced, of the industrial production of acetone by a fermentation process. This new industry promises to be of great utility. Salvarsan and its congeners and the local anaesthetics are now produced in a thoroughly successful fashion not only in this country but also in Canada. The control of the quality of salvarsan offered for sale in this country has been cared for by the Medical Research Committee, while in Canada the manufacturers' product is tested in the laboratories of the Pathological Department of Toronto University.

An interesting investigation on the fate of salvarsan and neo-salvarsan has recently been published by W. J. Young.[14] This author finds that these substances, when injected intravenously into goats, give rise to the presence of arsenic in the blood plasma and corpuscles in a form which cannot be removed by dialysis but which can be precipitated with the serum proteins by tannic acid. A similar behaviour is shown by atoxyl. No such combination could be observed when inorganic arsenic preparations were injected, and it would appear as if the varying therapeutic effects of different types of arsenic preparations depended, at least in part, on whether non-dialysable arsenic appears in the blood. Careful studies of the rate of arsenic excretion following administration of salvarsan and neo-salvarsan have been published by Webster.[15]

Although so much remained to be done to supply existing demands, a few new therapeutic products of approved value have been introduced. Among these mention must be made of the introduction of emetine bismuthous iodide by H. H. Dale[16] for the treatment of carriers of amoebic dysentery. This substance was suggested by Du Mez as of possible value, and Dale's work has definitely shown that carriers who have long been treated without success with emetine administered hypodermically in the ordinary way, can be freed from infection by the new drug, which, unlike emetine itself, can be given by the mouth.

A new synthesis of β-iminazolethylamine, a substance which was shown by Barger and Dale to be one of the most physiologically active constituents of ergot, has come to light in a rather curious way. In studying the oxidizing action of the antiseptic chloramine-T upon various amino acids derived from proteins, it was found that many of these substances were converted into cyanides with one less carbon atom than the original substance. Histidine, for example, gave cyanomethylglyoxaline, and the latter substance, as was already known, gives the active β-iminazolethylamine on reduction.[17] The reaction promises to be of technical value for the preparation of this and allied physiologically active amines.

PHARMACOLOGICAL RESEARCH.

In relation to pharmacological research, reference must be made to an extraordinary investigation in the chemistry of the opium alkaloids recently published by W. H. Perkin.[18] The work mainly deals with cryptopine, an alkaloid occurring in such small quantities that 10,000 lb. of opium were needed for the preparation of 5 oz. of the hydrochloride. The breaking down of cryptopine, mainly by oxidation under carefully regulated conditions, with the formation of substances either of known structure or which were subsequently synthesized, and the deduction of the probable molecular arrangement of the parent alkaloid from the structure of these simpler derivatives, is a triumph

LIBRARY U. OF I. URBANA-CHAMPAIGN

of experimental skill and theoretical insight. Scores of new compounds were carefully characterized in the course of the work, which throws much interesting light not only on the structure of cryptopine and protopine, but on other related alkaloids. It is of course unnecessary to refer to the fact that it is to researches such as these that we owe inspiration and direction, not only in the work of the synthetic preparation of the natural alkaloids of therapeutic value, but in the artificial synthesis of new drugs.

Cushny[19] has lately made some noteworthy observations on the pharmacological antagonism existing between atropine and pilocarpine. These experiments were made on the salivary secretion, and showed that in different dogs a constant amount of atropine was necessary to oppose the action of a constant amount of pilocarpine, and in the same dog the ratio of the two drugs remained the same, irrespective of how the actual amounts injected might vary. It appears, therefore, that the antagonism proceeds according to the laws of mass action rather than those of simple chemical combination in definite proportions. The investigation is an interesting example of the application of physio-chemical methods to the elucidation of the mechanism of the action of drugs.

Antitoxic Serums.

Reference has already been made to the discovery by H. R. Dean and R. S. Adamson[20] that the toxicity of Shiga dysentery vaccines could be enormously reduced by the restricted action of hypochlorites and other oxidizing agents without lowering their immunizing power. This gratifying and rather surprising result has been abundantly confirmed, and points the way to a number of other allied problems of practical importance which might be successfully attacked, especially if an adequate analysis of the chemical reactions concerned should result from further investigation.

One result of the war has naturally been an enormously increased consumption of various antitoxic serums. The concentration of serums by the use of fractional precipitation of the contained proteins by salts such as ammonium sulphate has led to the preparation of high titre serums from which much of the inert material has been removed. In a recent communication from the antitoxin laboratories of the Lister Institute at Elstree, Miss Homer[21] has described a number of practical improvements in the methods originally developed by Banzhaf and Gibson, which promises to make the method easier to carry out and to give more uniform results.

Theoretical studies by Dale and Hartley[22] on the relation of anaphylaxis to different serum proteins offer some practical considerations. They show that each and all of the individual proteins of a serum can act as anaphylactic antigens, and that the ideal to be aimed at in concentrating the curative elements in a specific immune serum is simply the reduction of the ratio of total protein to antitoxic value. For the purpose of reducing serum reactions the elimination of albumin appears to be as important as that of the euglobulin when, as is usually the case, the pseudoglobulin is the fraction carrying the therapeutic power. Dale and Hartley find that the latent period of sensitiveness to albumin is relatively long compared with the globulins, and this may have a bearing on the successive crops of serum rash which have been recorded as following a single injection of serum.

Protection against Poisonous Gases.

In closing, reference must be made to an extremely important branch of biochemical work about which, for obvious reasons, little can be said. The introduction of gas warfare by an unscrupulous and inhuman foe at once led some of the ablest chemical and physiological investigators in the country to devote their energies to devising the best methods of protection against asphyxiating gas and lachrymatory shells. The ingenuity displayed by the enemy in employing every conceivable means of chemical attack has been steadily met by corresponding improvements in methods of protection. These researches, often conducted at considerable personal risk, have presented problems calling for rapid solution, which demanded the highest grade of scientific work, and it is unfortunate that more cannot at present be written of the admirable way in which these problems have been solved. No line of scientific endeavour is more appealing than that of giving to our own and allied soldiers the best possible protection against this barbaric form of attack, and the success that has been attained must be universally appreciated.

References.

[1] Hopkins, F. G.: *Trans. Chem. Soc.*, 1916, *109*, p. 629. [2] Hopkins, F. G.: *Journ. Physiol.*, 1912, *44*, p. 425. [3] Funk, C.: *Journ Physiol.*, 1913, *46*, p. 173. [4] Suzuki, V. T. Shimamura, and S. Odake: *Biochem. Zeit.*, 1912, *43*, p. 89. [5] Moore, B., and others: *Biochem. Journ.*, 1912, *6*, p. 234. [6] Cooper, E. A.; *Biochem. Journ.*, 1913, *7*, p. 268. [7] Williams and Seidell: *Journ. Biol. Chem.*, 1916, *26*, p. 431; *Proc. Soc. Exper. Biology and Medicine*, 1916, *14*, p. 25. [8] Lorrain Smith, Drennan, Rettie and Campbell: BRITISH MEDICAL JOURNAL, July 24th, 1915. [9] Dakin, H. D.: BRITISH MEDICAL JOURNAL, August 28th, 1915. [10] Wright, Sir Almroth: *Lancet*, September 16th, 1916. [11] Chick, Miss H.: *Journ. Hygiene*, 1908, *8*, p. 92. [12] Moynihan, Sir Berkeley: BRITISH MEDICAL JOURNAL, March 4th, 1916. [13] Cooper, E. A.: *Biochem. Journ.*, 1913, *7*, p. 175. [14] Young, W. J.: *Biochem. Journ.*, 1915, *9*, p. 479. [15] Webster, J.: *Analyst*, 1916, *41*, p. 231. [16] Dale, H. H.: *Lancet*, July 29th, 1916; *Journ. Royal Army Medical Corps*, p. 241. [17] Dakin, H. D.: *Journ. Biol. Chem.*, 1916, *10*, p. 319. [18] Perkin, W. H.: *Trans. Chem. Soc.*, 1916, *109*, p. 815. [19] Cushny, A. R.: *Journ. Pharm. Exp. Ther.*, 1915, *6*, p. 439. [20] Dean, H. R., and Adamson, R. S.: BRITISH MEDICAL JOURNAL, April 29th, 1916. [21] Homer, Miss A.: *Biochem. Journ.*, 1916, *10*, p. 280. [22] Dale, H. H., and Hartley, P.: *Biochem. Journ.*, 1916, *10*, p. 408. [23] Paul Fildes, L. W. Rajchman, and Surgeon-General Cheatle: A New Antiseptic Mixture for the Treatment of Gunshot Wounds and General Surgical Application, *Lancet*, July 24th, 1915. [24] C. H. Browning, R. Gulbransen, E. L. Kennaway, and L. H. D. Thornton: Flavine and Brilliant Green, BRITISH MEDICAL JOURNAL, January 20th, 1917.

The Croonian Lectures

ON

ADAPTATION AND DISEASE.

DELIVERED AT THE ROYAL COLLEGE OF PHYSICIANS, JUNE 14TH, 1917.

BY J. G. ADAMI, M.D., F.R.S.,
LIEUT.-COLONEL C.A.M.C.

LECTURE I.

Introductory: The Basal Problem of Evolution.

I can well imagine that in these critical days, had you honoured a civilian Fellow of the College with the invitation to deliver the Croonian Lectures, he would have found it difficult to offer to you material which he, and which you, regarded as reaching the standard attained by the long series of his predecessors. There is no Fellow of this College who does not find the war and its issues so all-pervading as to exclude full and uninterrupted consideration of other topics. Still less can one who has donned khaki and been given an administrative post do justice to the opportunity most graciously afforded to me. He could, it might be urged, select some branch of military medicine as his topic, but to do this while the war is in progress is to sacrifice perspective and afford an incomplete presentation. Administrative duties in the office have debarred me from sustained personal observation and research in the clinic or the laboratory. The time is not yet ripe to attack the vast mass of material bearing upon the incidence of disease in the army already collected by the Medical Research Committee at the British Museum. It will, in the first place, demand long months before that material is sorted and ready for statistical and other studies; in the second place, the policy of publication of studies of this nature during the continuance of the war may well be called in question; and, lastly, it has to be confessed that, taken as a whole, the material collected at the British Museum, while far in advance of any collected in any previous war, is nevertheless of value only for comparison with the statistics gathered in these previous wars. The nomenclature of disease employed—an abbreviation of that established and authorized by this College—is in many respects not sufficiently precise for a thorough analysis. There are, for example, many forms of acute nephritis and of valvular disease of the heart. The official nomenclature does not encourage any precise distinction between the various forms. My colleague, Captain G. Campbell, C.A.M.C., has afforded me evidence that gonorrhoeal endocarditis is more frequent in the army than in civil life; but the material collected—the index cards, medical case sheets, etc.—in itself gives no indication of this increase. In short, so far as I can see, the only way in which the material now being collected can be rendered valuable from a scientific point of view, is for specialists both here and overseas to make an intensive study of groups of individual

cases, sufficiently large to permit them to apply the results obtained to the sum total of the cases belonging to those groups which have been recorded.

This being so, I have almost inevitably been led to choose for these lectures the consideration of a subject which is as far as possible removed from war and its concerns, and to afford you not present studies, but a summing up of the work and conclusions reached gradually in the years that preceded the war. Taking this course, I must of necessity refer to and repeat data and deductions which I have employed in earlier writings. If, taking this course, I from time to time evince a less suave and a more militant spirit than that to which these walls have been accustomed, I must beg you to be lenient and to attribute my declension from grace to the environment of the last two years. For in so doing I must of necessity take up the cudgels on behalf of medical workers as against the upholders of what is to be regarded as the dominant biological teaching of our time. Indeed I have selected this subject of adaptation and disease, not merely because of its importance to us as physicians, but also because of its broader biological significance. The time is ripe, and more than ripe, for attention to be directed to the bearing of the investigations of the bacteriologist on the one hand, and of the student of immunity on the other, upon what are some of the most important problems of general biology. For some little time I have been impressed by the fact that the latter-day investigations in medical science are of the very highest significance to the general biologist, and that, with singularly rare exceptions, the professional biologist—be he zoologist or botanist—is superbly indifferent to them and to their bearing upon the basal problems of heredity and variation, and this notwithstanding the fact that investigations into heredity and variation are, and must always be, his greatest concern.

For this indifference or neglect there are, or may be, several extenuating circumstances. We ourselves are largely to blame in that we are more concerned with the bearing of our results upon our own medical work than with their wider biological significance. This wider significance, if it is referred to at all, finds incidental note. The titles of our articles, that is, are not such as attract the attention of the biologist, nor do we publish in the journals to which he is addicted. The *Journal of Pathology and Bacteriology*, the journals of *Experimental Medicine*, of *Hygiene*, of *Infectious Diseases*, of *Medical Research*, are as unknown territory to him as the *Quarterly Journal of Microscopical Science* or the *Proceedings* of the Linnean Society are to us. We would sooner think of writing a letter to the *Times* than to that academic go-between of men of science, *Nature*.

And then, again, just as in the old unhappy far-off days a Bart's man disbelieved that any good surgery could come out of Thomas's or George's, and the Thomas's or George's surgeon returned the compliment, just as the British medical man disbelieved such articles as appeared in the American medical journals, or, to come nearer to our own times, just as the Germans of late years, with rare exceptions, regarded themselves as the sole recipients of pathological truth, treating British and French pathologists in general as very Nazarenes, so, it has to be confessed, there is a tendency for the academic biologist to be indifferent to, if not actually to resent and throw discredit upon, the work of those who, not belonging to his particular class, are therefore to be regarded as of the nature of outsiders. This is not a revelation of the spirit of pure science, but a comforting demonstration that men of science are after all pure human beings. Underlying this spirit is a natural and in many respects wise caution in accepting the observations of workers with whose quality and standing the individual is unfamiliar. But this hesitancy may be carried too far.

If I speak with a little feeling, it is because I still cannot forget the reception accorded by zoological *confrères* to the most original, and at the same time most sound physiologist of his period, a Fellow of this College, my old teacher and friend Walter Gaskell, when he was led by his studies upon the functions of the nervous system—studies which have so profoundly influenced modern medicine—to trace its development, and doing this, after long years of close study of its comparative morphology, to reach conclusions regarding the origin of the vertebrata which were not in harmony with the doctrines of descent then currently accepted. So far as I, an outsider, could determine, each link in the chain of Gaskell's reasoning was supported by appeal to observed facts, and by microscopical studies of singular interest; so far as I, a pathologist, could test his conclusions, I found that incidentally they explained, as no other or earlier work had explained, the inter-relationship between the sympathetic system and the endocrine system, between the pituitary, thyroid, adrenals, and genital organs. Nor, so far as I can weigh evidence, can I find that any essential link in the chain has been shown to be out of place. Yet the attitude of the morphologists as a body was that of the Levite of the parable; his brother physiologists could not take up the cudgels on his behalf; it was for the morphologists to test and declare the value of the morphological evidence upon which his conclusions were based, and the morphologists in general declined to notice it, but, as though they regarded it as presumptuous for him, a physiologist, to enter their territory, they passed by on the other side. And the years followed the years, and Gaskell died feeling sore that the most sustained piece of work of his life had been side-tracked by those whom it should most have interested.

Do not misunderstand me, and think that I am making a specific attack upon zoologists and botanists. As I have pointed out, we of the medical profession are tarred with the same brush. All I would urge is that just as those of us who are most interested in the advance of medical science accept gladly the results and the discoveries of workers in all branches of science, applying them to the elucidation and treatment of disease, so, in return, when investigators into the problems of medicine make notable advances, these be accepted willingly and utilized by the workers in other branches. It is not a matter of what we owe to those other branches in the first place; that is freely admitted. The renascence of medicine in our generation is due to the labours of men like Ferdinand Kohn the botanist, Pasteur the physical chemist, and Metchnikoff the zoologist, but if the dwarf perched on the shoulders of the giant* sees further and sees more than does the giant, it is not well to neglect his observations on the ground that he is a dwarf.

THE NATURE OF VARIATION.

The supreme biological problem of our times has been that of the ways and means of evolution. The fact of evolution all thinking minds accept. But as to how evolution has been, and is being, brought about is a very different matter. There is still as much debate as there was in the year following the publication of the *Origin of Species*. Upon consideration, it will be seen that the fight truly centres upon the cause or causes of variation—whether the tendency to vary is something inherent in living matter, numerous variations being produced through this inherent tendency of which those that are best fitted for their environment alone survive and are perpetuated, or whether variation is primarily and essentially brought about by the influence of forces acting from without upon a relatively labile living matter—whether, that is, variability is primarily inherent, proceeding from within, or primarily acquired, proceeding from without.

This, I would emphasize, is the basal problem of evolution, but oddly enough it has been largely neglected, the fight through all the years waging around what after all is a secondary problem—that, namely, as to whether properties acquired by the parent are capable of being transmitted to and reproduced in the offspring. Long years prior to Darwin, you will remember, Lamarck propounded that they were, as did Erasmus Darwin and Lord Monboddo; Darwin wanted to believe that this was possible, but could obtain no clear evidence, and brought in finally a verdict of "non proven." Herbert Spencer made this transmission one of his principles of biology, but Weismann violently opposed the doctrine, carrying with him the bulk of latter-day biologists, until to-day Bateson, replete with his studies upon Mendelian properties, reaches the antipodal suggestion that when a new property manifests itself in any

* As might be expected, this metaphor was not original with the author of the *Anatomy of Melancholy*. I find that Firmin-Didot (Alde Manuce, Paris, 1875, p. 343) cites Haureau (*Histoire de la Philosophie Scholastique*, Paris, 1872) as deriving it, according to Johannes Sarisberiensis (*Metalogicus*, vol. iii, cap. 4), from Bernard of Chartres in the twelfth century.

LIBRARY U. OF I. URBANA-CHAMPAIGN

individual of any species it is not new, not due to addition, but to subtraction and loss of properties already possessed; there is nothing new under the sun, and in his opinion evolution—like a squid—progresses backwards; what appears to be a new property is on the contrary primaeval, is the epiphany of a property possessed by the forerunners of the species which all along has lain latent, present but unable to manifest itself in consequence of the coexistence of inhibitory factors.

That I may not be thought to exaggerate or misstate let me quote in the first place from his address on heredity delivered to the International Medical Congress here in London in 1913:

> Perverse as such a suggestion may appear, I do not think we should close our minds to the possibility that these dominants arise by a process of loss of some inhibitory factor. . . . Let me call your attention also to the inference which this suggestion would have on the conception of evolution. We might extend the same reasoning to all cases of genetic evolution, and thus conceive all alike as due to loss of elements present in the original complex.

That clearly this was not a passing fancy is shown by the address delivered by him at Melbourne in the summer of 1914 as President of the British Association for the Advancement of Science.

> We are even more sceptical (said Professor Bateson) as to the validity of an appeal to changes in the conditions of life as direct causes of modification, upon which, latterly at all events, Darwin laid much emphasis. . . . Abandoning the attempt to show that positive features can be added to the original stock, we have further to confess that we cannot often actually prove variation by loss of factors to be a real phenomenon.

Nevertheless this must be so, and he quoted the case of the "Coral King" Primula, given off from the "Crimson King," concluding that here "The salmon (pigment) must have been concealed as a recessive from the first origin of the variety," and continued:

> Variation both by loss of factors and fractionation of factors is a genuine phenomenon of contemporary nature. If we have to dispense, as seems likely, with any addition from without, we must begin seriously to consider whether the course of evolution can at all seriously be represented as an unpacking of an original complex which contains within itself the whole range of diversity which living things present.

And further:

> At first it may seem rank absurdity to suppose that the primordial form or forms of protoplasm could have contained complexity enough to produce the divers types of life. But is it easier to imagine that these powers could have been conveyed by extrinsic additions? Of what nature could these additions be? Additions of material cannot surely be in question. . . .

And he winds up:

> In spite of seeming perversity, therefore, we have to admit that there is no evolutionary change which in the present state of our knowledge we can positively declare to be not due to loss.

Now, Professor Bateson is scarce a believer in the multiple origin of animal and plant forms; we know, indeed, that years ago he traced man and all vertebrate forms from the invertebrates through an out-of-the-way animal, Balanoglossus; and incidentally, in his Melbourne address, he mentions this solution of the problem only to reject it. Wherefore, pushed to its logical conclusion, the Batesonian doctrine means this: that the primal unit, or units, of protoplasm, from which all living animal and plant forms have descended, possessed within it in a latent form the "Anlagen"—or, not to be beholden to our enemies, the originals—of every organ and distinctive portion of an organ or part, even down to the conformation and coloration of individual hairs and scales, and feathers and leaves, and petals and stamens, of all the manifold forms of life subsequently derived therefrom; that which was to outward seeming the most simple form of life was verily in constitution the most marvellously complex; and that, actually, what we regard as the higher forms of life are the lower, owing their development not to progressive accretions of properties, but to the reverse; so that "reversion," instead of being a degenerative manifestation, a loss of properties acquired by the species, is on the contrary a recovery of higher and completer powers. Did ever any exercise of mediaeval scholasticism lead to more perverse conclusion?

The truth seems to be that Professor Bateson and the Mendelians, so far as regards the problems of evolution, are working in a cul-de-sac. Valuable and fascinating as are their observations for the establishment and amplification of the law discovered by Gregor Mendel, of cross-breeding of members of a species, that law only deals with the interplay of allelomorphs, that is, with the combinations and permutations of what, for simplicity sake, may be termed positive and negative unit properties possessed by the species; it only establishes the extent of the variation possible *within the boundary of the species*, and granting the existence of a definite number of allelomorphs, the number of possible strains obtainable within the limits of the species. But here it stops—save that of late workers have recognized the possibilities of fractionation of allelomorphs, and so of increase in the number of permutations and combinations. Accepting Mendelian data, I fail to see how any amount of interplay between properties already possessed by the species will result in the production of individuals which are outside the species. At most we produce different strains of that species which, by cross-fertilization with other strains, produce individuals reverting to the usual type or types. If you invest in a kaleidoscope at a toy shop, if the mirrors are set at an angle of 60 degrees, no amount of rotation will produce other than a six-sided pattern, or increase the number of colours in the pieces comprising the pattern; only from without can new elements of other colour be added, thereby producing patterns of a new order; only from without can the angle of the two mirrors be altered so as to produce, say, a twelve-sided pattern. The interplay of allelomorphs is not evolution, nor is it capable of throwing light upon the progressive development of new species. When Professor Bateson, from the vantage ground of his studies of the last fifteen years or so, begins to lay down the law regarding evolution, I cannot but help being reminded of Bombus, the bumble-bee—I would not say "in vacuo bombinans," for that was said of a zoological monstrosity, and Professor Bateson is no Chimera, but, blundering out of the fields and hedgerows into a greenhouse, and bumping its head noisily again and again against the glass because of its incapacity to drive into that head the fact that transparency and penetrability are not necessarily associated phenomena.

Nor is he alone. It so happens that some eighteen months ago, at the request of a Fellow of this College, I found myself drawn into a lively discussion with the Nestor of British biologists. I had not sought the fight, but, once in, confess that I enjoyed the opportunity of measuring my lance against so doughty a knight. The discussion arose over a statement by the Fellow in question that the biologists of to-day had much to learn by turning their attention to the results being gained in medical laboratories. And, sure enough, after protesting with not a little vigour that the boot was on the other foot—that we medical men in our ignorance of biological progress were rediscovering and regarding as our own what had been gained by zoologists and botanists a generation or so previously—Sir Ray Lankester proceeded to justify absolutely my friend's original contention by urging that one fallacy in all Lamarckian doctrine* is that adopted by Herbert Spencer—namely, what he called "direct adaptation." There is really, he laid down, no such thing. The supposed mysterious, and as it were miraculous, property of direct adaptation is always due to survival by selection of organisms which varied in many directions—the production of corneous epithelium, of increased hairiness, etc., being favourable variations which hence have become inherent in tissues of all animals.

Here, then, we see the two foremost British biologists of our day, the one in doubt whether change in environment can be a direct cause of modification, and filled with these

* I confess that I do not like being dubbed a Lamarckian, and that because, as commonly accepted, Lamarckianism is supposed to deal purely with the direct acquirement of alteration in structure through use and environment, and Herbert Spencer, by using the term "direct adaptation," is largely responsible for this vulgar error. The phenomena with which we pathologists deal present modification of structure merely as a secondary change; our phenomena underlie structural alteration. But in justice to Lamarck it deserves note that he expressly lays down "whatever the environment may do, it does not work any direct modification in the shape and organization of animals. But great alterations in the environment of animals lead to great alterations in their needs, and these alterations in their needs necessarily lead to others in their activities. Now, if the needs become permanent, the animals then adopt new habits which last as long as the needs that evoked them," and it is the new habits, he points out, which induce the structural alteration. (I quote from Hugh Elliot's excellent translation of the *Philosophie Zoologique*—Lamarck, *Zoological Philosophy*. Macmillan, 1914, Cap. 7.) Granting this, I hold that the physico-chemical explanation which will be put forward in the course of these lectures is something more precise and more limited in its scope than the vague "habits" of Lamarck.

doubts, accepting as a postulate that positive features cannot be added to the original stock, whereby he is led to an utterly perverse hypothesis; the other equally denying that there can be external influences of such a nature that specific variation—that is, variation in particular directions—may be induced, and taking the stand that variation is multitudinous, the favourable variation alone having the opportunity to be propagated and reproduced.

Now, if there be one fact that is constantly being impressed upon the student of immunity and the worker in pathogenic bacteriology, it is that "direct adaptation"—that is, specific modification in response to a specific alteration in environment within limits which will presently be laid down—is one of the basal phenomena of living matter. Our studies make it impossible for us to be blind to the fact that environment is capable of exerting a profound influence upon living beings, bringing about modifications of function and even of structure in particular directions. But evidently our experience and the diverse observations upon which that experience is based are unknown to the academic biologists. It is for this reason that it has seemed to me a useful task here, under the shade of Harvey, to bring together and marshal in order the data bearing upon this matter as they present themselves to us.

THE METHOD OF ATTACK.

There are two ways by which problems of this nature are *a priori* most likely to be solved, namely, by experiments upon the very simplest and, again, upon the most complex forms of life. I see that Dr. Bayliss as a physiologist casts doubts upon the value of the former as compared with the latter,[1] pointing out that their very simplicity is in the majority of cases a disadvantage, and quoting Claude Bernard to the effect that the lower (unicellular) forms of life possess all the essential properties which exist in the (multicellular) forms higher in the scale, but possess them in a confused state, distributed as it were throughout the organism. The one organic cell fulfils a variety of purposes which in the higher organisms are relegated to distinct groups of cells. While freely admitting this contention as regards the study of function, it has to be pointed out that for problems of adaptation and heredity the unicellar organisms possess the supreme advantages of rapid reproduction, coupled in the very lowest forms (according to our present knowledge, or want of knowledge) with a complete absence of the disturbing influence of sex and conjugation. There is, that is, a greater likelihood of obtaining results, and the experiment becomes simpler where we can in the course of a few hours subject 100 generations to a particular alteration of environment, than when weeks, months, or years elapse before one new generation shows itself. In the latter case, to obtain results, either the alteration of environment must be made intensive to a degree that is likely to interfere with various vital functions, or, exhibited in a less intensive form, must act over unduly long periods. I know that certain biologists are unwilling to regard the products of asexual binary division of the bacteria, or the torulae of yeast, the results of budding, as true generations, and deny the right to regard the individual bacillus as an individual. One very distinguished biologist went so far as to declare to me that a long cultivation of a bacterial growth is "one continuous individual"—in other words, that not merely do all the millions of bacilli in a single colony, say of the *Bacillus tuberculosis*, constitute one individual, but that one individual *Bacillus tuberculosis* is spread all over the habitable world, and that tuberculosis and not the tubercle bacillus is the entity. This is an impossible position; it formulates that the "divisa" are "indivisum." The very idea of individual connotes independent existence, or if we take a wide survey and include forms like the compound myxomycetes, hydrozoa and polyzoa—potentially independent existence. When a bacillus grows and divides, and each half floats away, there is no longer one individual; and whether, as among the bacteria, the division is binary, or, as in man, one of the many billions of cells that constitute the body undergoes a similar binary division, and one of the products floats away and becomes fertilized, in both cases we deal with the development of a new generation. By the same process of reasoning, basing ourselves upon the doctrine of the continuity of the germ plasm, we might with equal logic declare that all living beings constitute one continuous individual!

And as regards the advantage in researches upon the bacteria of being freed from the perturbing factor of sex, let me interject that, starting with Weismann and his doctrine of amphimixis, but more particularly during the last fifteen years under the influence of the Mendelians with their studies upon cross-breeding, we have been inclined to lay far too much stress upon the part played by sexual conjugation in the production of variation. In nature, in general, the tendency, if not the function, of sexual conjugation is to preserve the mean, not to induce the extreme, to perpetuate the species rather than favour the variety; sexual conjugation only preserves and intensifies a variation when circumstances favour the segregation of individuals of the two sexes each possessing the variation, or, I would add, when those circumstances actually lead to the appearance of the variation in more than one individual in a particular locality. Even if a property be dominant, with indiscriminate mating, and without segregation, such new property is apt to show itself in fewer and fewer individuals in successive generations. In simpler language, turn a highly-bred mastiff or terrier or beadle loose in a canine population, and his descendants descend to plain yellow dog. It follows, therefore, that on the whole we are more likely to obtain results where this levelling action of conjugation is wanting.

I propose, therefore, in the following lectures to take up first the evidence of adaptation as affecting the pathogenic bacteria, next of adaptation as it affects man and the higher animals, and lastly, to discuss the application of the data brought forward to our conception of disease and disease processes on the one hand, of the evolutionary process on the other.

REFERENCE.

1 W. M. Bayliss, *Principles of Physiology*, 1915, p. 291.

LECTURE II.

ADAPTATION IN MICROBES AND THE EVOLUTION OF THE INFECTIONS.

(*Abstract.*)

IN his second lecture Colonel Adami asked whether it was not absurd to think that the infectious diseases now known to us had afflicted man from his first appearance on the planet. But if this were so, how had they originated?

After a rapid review of the present-day infections that were known to the Greeks and the Hebrews, and of the results of the late Sir Armand Ruffer's palaeopathological studies upon Egyptian mummies, the evidence of caries, osteo-arthritis, etc., in tertiary fossils, the matter of the antiquity of the bacteria was touched upon—Van Tieghem and Renault's findings in the coal measures, Drew's demonstration that chalk formations are due to the activity of the *B. calcis*, Garwood's similar observation of the part played by marine algae in the deposition of dolomite and oolitic formations, and Walcott's discovery of Cyanophyceae, forms closely allied to the bacteria, and of possible micrococci, in the Algonkian, the oldest of all known sedimentary and stratified rocks.

But if bacteria had been present from the beginning, this did not mean that the specific infections had been in existence for the same period. Zymotic phenomena must run parallel with geological. Examples were given of species which had remained unchanged over vast periods of geological time—for example, Lingula, the pearly Nautilus, Anaspides, Cerato lus, Limulus, and yet the vast majority of the fossils known to us were the remains of species which had developed and passed away.

So he considered it must be with infections. The reason why we could not recognize the descriptions of epidemics given by classical authors was not necessarily that they were fools and incapable of noting characteristic symptoms; more probably they described conditions no longer existing. It was known that in more recent times infections had come and gone. The trit st example was the sudor anglicus, or "sweating sickness." Many had made their appearance in comparatively recent times—for example, diphtheria, cholera, syphilis. In the course of the great war two new diseases had made their appearance—"trench fever" and "trench shin." But here a second principle might have to be considered: certain of these might have been present for an indefinite

LIBRARY U. OF I. URBANA-CHAMPAIGN

period endemic in a particular locality, and then, with the opening up of trade routes, have spread rapidly. Admitting this, the conclusions reached by a study of the geographical distribution of animals and plants must also be admitted—that is, that where a species (such as the rabbit or sparrow), when introduced into another continent, showed an immediate spread, the fact that it was not there before was an indication that it had arisen at a period subsequent to the separation of the one continent from the other. Whichever side was taken in the syphilis controversy, it had to be confessed that this disease was non-existent in early Egypt, or in the Rome of the time of Galen.

How, then, was the evolution of an infection to be pictured?

If every infection was due to the diffusion through the body of the toxins of one or other particular species of micro-organism, it deserved to be noted that pathogenic microbes did not form an order by themselves, but, on the contrary, were singularly diverse in their affiliations. With scarce an exception every genus of micro-organism had its representatives among the pathogenic microbes, or, conversely, every pathogenic microbe had closely related forms differing from it in little beyond the fact that the one was virulent, growing in or upon the tissues, the other non-virulent.

Next, these closely allied species were found suggestively either growing in the cavities and on the mucous surfaces of the body, or in the water and foodstuffs taken up by the individual. This state of affairs in itself strongly indicated that at some period or other pathogenic microbes had originated from those saprophytic on the body surfaces, or existing in the foodstuffs. This natural deduction had been opposed notably by the German school of bacteriologists, with the late Robert Koch at their head, who stood out for fixity of bacterial species.

It had to be admitted that on studying the bacteria two apparently opposite and contradictory facts were to be made out: on the one hand, they were extraordinarily conservative; not only was it the case that, given the same foodstuffs and the same general environment, their characters remained unaltered, but also within certain limits, if their environment were changed, they retained their old characters with some obstinacy. On the other hand, there were certain changes of environment which led to certain and definite changes in the properties of bacteria, and, acknowledging this, it was necessary next to study the orders of variation which might be exhibited by them. These orders were usually given as three—fluctuations, mutations, and impressed variations or modifications. Of these, the first, best indicated by the varying heights of members of the same family, did not specially concern the discussion.

Evidence was brought forward to show that in the bacteria at least what were usually considered as mutations, chance variations, were in truth impressed variations due to specific alterations in environment. Whereas under the ordinary conditions of experiment certain members only of a bacterial colony took on the property of fermenting a foreign or new foodstuff, this condition of experiment could be so altered that all the members of the colony could with absolute precision be made to acquire this new property. The experiment could be so arranged as to demonstrate that there was here no question of chance variation, of the survival of those forms, and those forms alone, which had exhibited variation in a favourable direction, no question, that is, of survival of the fittest, but that there was, within certain limits, direct adaptation in the Spencerian sense, direct equilibration between the organism and its environment. Certain experiments recently conducted by Major F. B. Bowman, C.A.M.C., with the typhoid bacillus, proving this point, were given in detail.

Similarly, if an example were needed of variation by loss of factors, there was the classical experiment of Pasteur and his lieutenants Roux and Chamberland, in which by exposing any culture of the anthrax bacillus over a given period to a high temperature of growth, with absolute precision the power of spore production is lost, and now for years—and hundreds of thousands of generations—grown under ordinary conditions, spore production does not manifest itself.

If this were true of other properties, it must be true regarding virulence. Methods were known by which the virulence and pathogenic properties of bacteria could be surely exalted or depressed. By passage of a virus through a succession of animals of one species the virulence for animals of that species could be rapidly intensified up to a certain point, while simultaneously by this procedure the virulence in respect to animals of another species could be reduced.

What was more, it was possible to take harmless non-pathogenic bacteria, and with absolute precision, and not by chance variations, convert these into highly pathogenic virulent forms. It was this direct adaptation evidently that explained the origin of the infections, and this demonstration had been given in London by two well-trained and capable observers, Thiele and Embleton, at University College. The process was most ingenious. A perfectly harmless soil bacterium, like the *B. mucoides*, was taken—a form which might be inoculated by the million into a rabbit or guinea-pig without setting up disturbance. First, by the principle introduced by Dallinger thirty years ago and more, this was gradually educated to grow, not at room temperature, but at body heat (Adaptation No. 1). Then use was made of the principle of anaphylaxis—of developing the first stage of immunity, that of greatly increased susceptibility. A small dose of the (dead) bacilli was injected into the tissues of the guinea-pig, and then eight to ten days later a second and larger dose of the living bacilli was given. At this stage the tissues were rendered so susceptible to the specific dissociation products of the particular bacterium that they were incapable of destroying them. Wherefore the bacilli, instead of being destroyed, multiplied, and became accustomed to grow in the tissues (Adaptation No. 2). And here was the point: Simultaneously they gained the property of virulence, of attacking and breaking down the tissues of their host. If now a culture were made from the tissues of this animal, and inoculated into a second guinea-pig, this without any previous anaphylactic stage became infected—the bacteria multiplied and killed it.

There was here, then, the mechanism, or at least a mechanism, whereby a harmless saprophytic microbe might occasionally in nature find the conditions under which it became pathogenic.

But this was clearly the evolution of a new property by direct acquirement—contrary to the hypotheses and dogmas of Professor Bateson and Sir Ray Lankester.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SOME FRIENDLY CRITICISMS.

WHILE in London lately I noticed that every man with a splinted arm carried the forearm in the position midway between pronation and supination, the palm of the hand lying against the body.

1. This is contrary to the best surgical teaching, which advocates the position of full supination for the forearm. An *x*-ray screening shows that the radius and ulna are most nearly parallel, and furthest from one another, in the supinated position. Every man with a fractured forearm, once said a leading surgeon, should have it so splinted that he can spit into the palm of his hand. An additional argument in favour of this position is that supposing rotation of the bones of the forearm be lost, by the radius and ulna uniting across the interosseous space, pronation can still be largely accomplished by lifting the arm at the shoulder; whereas a pronated hand cannot be helped by any similar movement.

2. Too little attention is paid in hospitals at the front to the stiffening of joints, often in bad positions, while wounds are healing. Men arrive home with knees flexed, feet extended and wrists dropped quite unnecessarily. This stiffness from disuse and adhesions causes considerable trouble to rectify.

3. Half the effort to secure a perfect antiseptic to replace others arises from the fact that those in use are inefficiently employed. Most syringes are furnished with nozzles which cannot reach to the bottom of many wounds and sinuses, while an irrigator nozzle is commonly shaped like a small carrot, so that the thick end plugs the wound exit and hampers any return flush. It is no wonder surgeons thus equipped slit open all sinuses.

4. When oxygen is administered to a man with respiratory embarrassment a terrifying cylinder, recalling a trench mortar, is brought to his bedside, and, after much struggling with the cocks, ice-cold oxygen is supplied to his lungs. The oxygen should first be passed into rubber bags in another room, and left to warm up to a reasonable temperature before it is taken to the bedside. By suitable pressure on the bag it may then be delivered to the patient without fear, fuss, or noise. I have never seen it administered otherwise in the South of France, nor correctly administered in England.

5. Guillotine emergency amputations in France require investigation by a competent committee, whose members know something of the after-troubles to which patients and surgeons are subjected in England in consequence.

Exeter. D. W. SAMWAYS.

A CLINICAL TEST FOR THE ESTIMATION OF THE PERCENTAGE OF GLUCOSE.

AN article bearing the above title appeared in the JOURNAL of July 4th, 1914, and as I have from time to time received many letters of inquiry and had time to reconsider some of its details, it may be interesting to enumerate the following points:

The main features, however, remain the same—namely, that by boiling equal volumes of liquor potassae and diabetic urine (previously confirmed by Fehling's test), constant colours are produced corresponding to the amount of glucose present. By treating in the same manner normal urines, to which accurately known quantities of glucose had been added, constant colours were also produced, so that a standard could be obtained for comparison.

To bring this method into a practicable and portable form, five glasses, the size of microscopic slides, were obtained, being the exact tints ascertained by experiment of equal volumes of urine containing known quantities of glucose and liquor potassae when boiled together. The glasses have labels attached showing the percentage of glucose to which the colours correspond, the number of grains per ounce, and parts per 1,000. For some intermediate tints the glasses can be superimposed upon one another, and the deep colours beyond the range of the set can be met by dilution and appropriate multiplication of the stated estimations.

Since writing the article, I have found that four glasses* are sufficient for all practical purposes; and if the colour produced at the first boiling is deeper than that of the 3 per cent. glass, it is better to make another analysis, with the sample of urine diluted, than trust to the difference in the tints of the 3 per cent. and 4 per cent. glasses, as the contrasts of colour are not sufficiently defined to give an accurate reading.

Samples should not be boiled with liquor potassae for more than eight or ten seconds, as the colour deepens with prolonged boiling. The original article contained the words "thoroughly boiled." This expression was misleading, and was corrected in my letter in your issue of September 26th, 1914. In these circumstances a holder for the test tube is unnecessary.

Again, although it is better to use exactly equal parts of the sample under consideration and liquor potassae, it is not absolutely necessary to do so, as I have found by experiment that by using one-sixth more of either the reagent or urine practically the same colour is given on boiling. A full teaspoonful, therefore, of each will suffice, and a pipette or a measure glass is not required. A square test tube gives a better reading but complicates matters, whereas every medical man has test tubes, liquor potassae and a spirit lamp. The diameter of the test tube must not exceed $\frac{5}{8}$ in. or be less than $\frac{1}{2}$ in. for obvious reasons.

Any one who may be interested in the matter might like to refer to a criticism in the BRITISH MEDICAL JOURNAL of March 16th, 1915, written by Dr. Mouillot (since deceased). He carried out, with the assistance of Mr. Leigh, the chemist at Duff House, Banff, fifty estimations, employing the method in which cuprous oxide is oxidized and weighed as cupric oxide in a Gooch crucible which is considered to be very accurate. On comparing the results obtained by the two methods Dr. Mouillot found them to approximate very closely, the mean error over the whole series being only 0.19 per cent. In some correspondence that passed between us he pointed out that although a general practitioner on an average seldom had more than two cases of diabetes a year, yet as a rule each of these cases was chronic, and required many estimations during treatment, and therefore an easy, quick, and reliable method at the bedside or in the consulting room without any complicated apparatus was much to be desired.

G. C. PARNELL, M.R.C.S.Eng.,
Consulting Surgeon to the Hospital and Home for Sick Children, Lower Sydenham, S.E.

* The set of glasses in a pocket case with full printed directions on a card can be obtained from Messrs. Down Brothers, St. Thomas's Street, S.E., or the Holborn Surgical Instrument Company, Ltd., Thavies Inn, Holborn Circus, E.C.

TREATMENT OF "BARCOO ROT."

I FOUND in Western Australia that barcoo rot was readily cured by giving a mixture containing 15 grains of potassium nitrate and 15 minims of spiritus aetheris nitrosi three times a day. Locally, the sores were treated with a weak ammoniated mercury ointment and covered up from flies and dirt. The idea, of course, is to get the kidneys to do their proper work. This in hot climates is usurped by the skin, not always quite satisfactorily.

Colchester. J. R. HICKINBOTHAM, M.B.

SUPPURATION IN GONORRHOEAL EPIDIDYMITIS.

IN his articles on "Diseases of the Male Urethra" Mr. Frank Kidd states that "gonorrhoeal epididymitis never suppurates," unlike that caused by the colon bacillus.[1]

While it is true that large abscesses do not form in gonorrhoeal epididymitis, unless secondary infection is present, it is nevertheless also true, as anyone who practises epididymotomy will bear out, that a few drops of pus are often present in gonorrhoeal epididymitis.

The simple operation of puncturing the epididymis with a tenotomy knife in the area of maximum pain and infiltration is an operation that deserves greater recognition than it receives. It is not to be used indiscriminately in every case, but in those in which infiltration and pain are severe and persistent. The justification for this small procedure is proved by the fact that (*a*) often a few drops of pus are evacuated, (*b*) pain is quickly relieved, (*c*) the infiltration subsides much more quickly than when conservative methods are used, and (*d*) stenosis of the vas may be obviated by timely removal of the inflammatory products under tension.

R. L. SPITTEL, F.R.C.S.,
Surgeon, General Hospital, Colombo, Ceylon.

EARLY FORMATION OF ADIPOCERE.

IN India several cases of early formation of adipocere have been recorded, especially by Coull Mackenzie (*Indian Medical Gazette*, 1889) and Major Moir, I.M.S. (Idem, May, 1897).

The accuracy of these observations has been disputed by many, notably by Dr. G. H. F. Nuttall of Cambridge (Idem, April, 1897). Waddell, in Lyons's *Medical Jurisprudence*, fifth edition, page 87, says: "It has been objected to these Indian observations that no analysis and microscopical examination of the alleged adipocere was made. Well-authenticated cases, supported by an authoritative chemical analysis, are still required to settle this question for India." Dr. R. S. Ashe recorded a case in which he sent some of the tissues to the chemical examiner, who only reported "very partial saponification had taken place"—after four days' burial and some days in transit. I was myself somewhat sceptical of the accuracy of previous observations, and in my own experience of many thousand autopsies adipocere was very rare.

The following should, however, satisfy the most critical:

Yakub Hatham, healthy male, aged 35, was assaulted and a heavy rock thrown on his back while lying at the bottom of a ditch. He died at 1 p.m. and was buried at 5.30 p.m. on September 11th, 1916, in the Mussulman Cemetery, Bombay. The soil was chiefly gravel and shale, almost at the sea level. There was an exceptionally heavy rainfall before and during the period of his burial.

His body was exhumed and I made an autopsy at 11 a.m., September 15th, 1916—three days twenty-two hours after death. There was little smell considering the decomposed aspect of the body. The stomach had ruptured from decomposition. The intestine was fairly well preserved. The spleen had

[1] BRITISH MEDICAL JOURNAL, January 13th, p. 43.

LIBRARY U. OF I. URBANA-CHAMPAIGN

become diffluent and lay like a quantity of soft soap in the peritoneal cavity. The heart, liver, and kidneys were of a pale colour and felt soapy and greasy. The pancreas looked and felt like soap, its outline well preserved. The muscles and tissues generally were partly turned into a soapy substance which stuck to the hands. On washing the hands at a tap without the addition of soap, this substance formed a greasy lather.

Lumps of a soapy substance, weighing 210 grains altogether, were removed from the region of the cheeks and temples and submitted for analysis to Major W. H. Dickinson, F.I.C., I.M.S., professor of chemistry in this university, chemical analyst to Government. These lumps looked and felt exactly like pieces of "old brown Windsor" soap.

Parts of the substance shaken up in water formed frothy "suds" at the surface. Selected lumps almost completely dissolved in alcohol, leaving a small deposit at the bottom of the tube. No structure could be recognized with the microscope in this deposit, except doubtful portions of small arteries. The supernatant alcoholic solution formed an opaque milky emulsion on the addition of water. Major Dickinson reported: "The substance sent is adipocere."

The dates given above are definite and were sworn to at the inquest and at trials in the police court and in the high court.

A. POWELL, M.B., M.S.,
Professor of Medical Jurisprudence,
Bombay University.

Reviews.

PROFESSIONALISM *VERSUS* ORIGINALITY.

ALL professions must be subject to rules of conduct, and such rules can only be propounded and enforced by the experience and authority derived from within. However desirable it may be from the outsider's point of view that these rules should be ignored when special circumstances arise, it has long since been obvious to the majority of thinking men that of the two evils laxity is more harmful than strictness. In a recently published work[1] Dr. HAYWARD, Inspector of Schools, has devoted his somewhat exuberant powers of inquisition to the shortcomings of professionalism as exemplified for the most part in the clerical, medical, legal, and pedagogical professions. In the second part of the book he extols the value and social importance of what he terms the "living man," by which title he indicates the man of original ideas in every walk of life.

Imbued with the absolute necessity for professional organization as the only means of maintaining and transmitting special knowledge, he runs a tilt against certain professional customs which often appear to outsiders to be mere examples of narrow-mindedness and jealousy.

If we may judge from the attacks upon medical customs, and apply the same train of thought to the other professions concerned, it is safe to infer that the writer has founded his strictures upon information derived from questionable sources. His quotations as to the doings of certain black sheep in the medical fold are derived from a work by an American writer not otherwise known to fame. A short experience of the work done under the aegis of, say, the Royal Society of Medicine, would doubtless alter the views expressed as to the moral status of the medical profession in general. Quotations from Molière, and from the writings of a well-known English author famous for the ingenuity of his paradoxical perversion of commonplace ideas, are interesting and amusing for armchair perusal, but they do not add much force to the arguments they are supposed to support. As regards the desirability of employing "living men" in various departments of public utility, the book appears to be singularly ill-timed in its appearance. Never in the history of the country has there been a more active and successful quest for men of exceptional knowledge and experience in every department of public life to take the lead in organizing our responses to the demands of the fighting forces in the field. As regards the profession with which the writer is himself familiar, his suggestions for improvement are much more practical than are those put forward for the guidance of the other great professions, of whose requirements in the way of reform he can only judge from outside evidence.

That reform is, and always will be, desirable in all human undertakings where all sorts and conditions of men are of necessity brought together, needs no emphasis, but it must be guided by practical as well as by merely theoretical considerations. Dr. Hayward's suggestions are interesting and his style of writing is amusing, but as a contribution towards the solution of a great problem they are by no means convincing.

NEUROLOGY.

EVER since the war broke out the study of gunshot wounds of the nerves has been prosecuted with great perseverance and success by the French neurologists. This fact is now again placed in evidence by a most practical and interesting book on the clinical forms of lesions of the nerves,[2] by Mme. ATHANASSIO-BENISTY of the Salpêtrière, with a preface by Professor PIERRE MARIE. It contains eighteen chapters, dealing with lesions of the various nerves of the limbs and head and with lesions of the chief nerve plexuses. The anatomical relations of the separate nerves and the various results of their lesions are set out most clearly and schematically, with numerous headings and subheadings. Excellent photographs and diagrams are supplied in large numbers. The chief points made by the writer are these: that each injured nerve has its own clinical individuality; that the vasomotor disturbances associated with lesions of the nerves are of great importance; and that these lesions often give evidence of involvement of the sympathetic nerve fibres. The book is clearly written, and contains evidence of the careful study of great numbers of cases. It is one that should be in the hands of all those who are responsible for the treatment of wounded soldiers, and to neurologists it should be indispensable. A second and companion volume is promised; it will deal with the nervous lesions themselves, their nature and their treatment.

A full and interesting account of the hysterical and reflex troubles produced by the injuries of warfare has been written by Dr. BABINSKI and Professor FROMENT.[3] Dr. Babinski, as is well known, prefers to use the term "pithiatism" in place of the word "hysteria" in describing all sorts of nervous disorders that can be cured by persuasion or suggestion. Among pithiatic symptoms he includes convulsive attacks, paralyses, contractures, tremors, choreiform movements of all sorts, disturbances of speech and respiration, disturbances of sensation; he excludes from this group, as not being curable by suggestion or psychotherapy, such symptoms as dermographism, tachycardia, erythemas of various sorts, and excessive perspiration. The bulk of the book deals with the numerous varieties of pithiatic (or hysterical) manifestations met with by the authors as results of the various traumatisms of warfare. Then follows a chapter on the pathogeny of these lesions; they are attributed to reflex action, in which term affections of the sympathetic nervous system (shown by certain vascular lesions) are to be included. Other chapters deal with the diagnosis and treatment of pithiatic lesions. The book is well written, argumentative rather than didactic in style, and fully documented. It will be read with interest by all who have to do with the protean and often intractable manifestations of hysteria seen in any of the combatant armies of to-day.

Professor ELSBERG's large and important-looking monograph on the surgery of the spinal cord and its membranes[4] is a record of his own experiences in this field, together with a moderate amount of neurological information. Part I, occupying 100 pages, deals with the anatomy and physiology of the spinal cord so far as the surgeon is interested in them, and the symptomatology of surgical spinal disease. Part II describes operations on the spine, spinal cord, and nerve roots, beginning with an account of

[1] *Professionalism and Originality.* With an Appendix of Suggestions bearing on Professional Administrative and Educational Topics. By F. H. Hayward, D.Lit., B.Sc., Inspector of Schools (L.E.A.). London: George Allen and Unwin, Ltd. 1917. (Demy 8vo, pp. 274. 6s. net.)

[2] *Formes cliniques des lésions des nerfs.* Par Mme. Athanassio-Benisty. Préface du Prof. P. Marie. Collection Horizon: Précis de Médecine et de Chirurgie de Guerre. Paris: Masson et Cie. 1916. (Cr. 8vo, pp. 233; 80 figures, 7 plates. Fr. 4.)

[3] *Hystérie-pithiatisme et troubles nerveux d'ordre réflexe.* Par J. Babinski et J. Froment. Paris: Masson et Cie. 1917. (Cr. 8vo, pp. 267; 8 plates, 26 figures. Fr. 4.)

[4] *Diagnosis and Treatment of Surgical Diseases of the Spinal Cord and Its Membranes.* By C. A. Elsberg, M.D., F.A.C.S. Philadelphia and London: W. B. Saunders Co. 1916 (Sup. roy. 8vo, pp. 330; 153 figures, three of them coloured. 21s. net.)

lumbar puncture; no mention is made of the use of either a local or a general anaesthetic before this puncture is attempted. Part III contains an account of the surgical diseases of the spinal cord and membranes and their treatment. It is clear that no expense has been spared in the production of Professor Elsberg's beautifully illustrated volume, which has all the characteristics of a practical surgeon's production.

A brief but luxuriously printed monograph on *Cerebellar Abscess*[5] has been written by Drs. FRIESNER and BRAUN, of New York. The first two chapters give an account of the anatomy and physiology of the cerebellum; particular attention is paid to the connexion between the cerebellum and the labyrinth, and the authors state that 98 per cent. of cerebellar abscesses are secondary to otitis. The third and fourth chapters deal with the etiology, pathology, and symptomatology of the condition, and have been based chiefly upon 86 cases collected from the literature since 1906. The fifth chapter contains a short account of the prognosis and operative treatment of cerebellar abscess; here, too, the authors support themselves largely on the literature of the subject. The book is well printed, and contains a number of handsome illustrations.

Dr. FRENKEL'S method of treating the ataxia in tabes dorsalis by means of simple exercises was first published in 1889. It depends upon the repetition of movements, not upon the improvement of muscular power; practice in the co-ordination of movements is the object aimed at by the author. Dr. L. FREYBERGER[6] has recently translated and modified Dr. Frenkel's book, adapting it to the requirements of medical practitioners who are interested in the details or the treatment rather than in the theoretical considerations underlying it. The book is divided into two parts. The first of these discusses the general signs, symptoms, and theory of the ataxia characterizing tabes dorsalis; no very definite conclusions are, or indeed can be, reached in this section, although it is full of interest to the physician and neurologist. The second part, occupying two-thirds of the volume, gives a full description of the various ways of educating ataxic limbs and muscles. Ample details are set out and the many illustrations are of great assistance to the comprehension of Dr. Frenkel's exercises. Little apparatus is required; a few pages at the end of the book contain some account of the treatment of various tabetic troubles with drugs. The book has no index and contains a good many misprints. It is a useful volume and should be in the hands of all practitioners of medicine who have to treat that singularly chronic nervous disease, locomotor ataxy.

THE SECOND SERIES OF THE "INDEX-CATALOGUE."

THE final volume of the second series of that monumental work the *Index-Catalogue of the Surgeon-General's Library of the United States Army* has just reached us. The history of this great enterprise has been so often told, and its value is so widely appreciated in this country, that when we say that Volume XXI of the second series is as complete, as accurate, and as clearly arranged as its predecessors, further praise is superfluous. The last volume contains also an exhaustive alphabetical list of the medical periodicals of the world, with the abbreviated titles employed throughout the *Index-Catalogue;* this alone occupies 233 pages. The catalogue itself consists, as usual, of a combined author index, and subject index. It includes more than 7,000 author titles, 2,000 subject titles of separate books and pamphlets, and more than 12,000 titles of articles in periodicals. The present librarian, Lieut.-Colonel C. C. McCulloch, jun., of the U.S.A. Medical Corps, contributes some interesting prefatory notes on the genesis, growth, and present condition of the Surgeon-General's library and its *Index-Catalogue*, which show clearly the immense service rendered to the medical profession throughout the world by the genius and industry of Dr. John S. Billings, "the principal upbuilder of the Surgeon-General's Library, and the creator of its *Index-Catalogue*," and Dr. Robert Fletcher. These two pioneers, now no longer with us, jointly devised the plan which has been followed throughout the work, and so placed medical libraries in their debt for all time.

[5] *Cerebellar Abscess: Its Etiology, Pathology, Diagnosis, and Treatment; including Anatomy and Physiology of the Cerebellum.* By I. Friesner, M.D., and A. Braun, M.D., F.A.C.S. London: W. Heinemann. 1916. (Med. 8vo, pp. 186; 10 plates. 16 figures. 12s. 6d net.)

[6] *The Treatment of Tabetic Ataxia by Means of Systematic Exercise.* By Dr. H. S. Frenkel. Second revised and enlarged English edition, by L. Freyberger, J.P., M.D. Vienna, M.R.C.P. Lond., Barrister-at-Law of the Middle Temple. London: W. Heinemann. 1917. (Med. 8vo, pp. 218; 130 figures. 12s. 6d. net.)

NOTES ON BOOKS.

THE thirty-fifth volume of the *Medical Annual*[7] has been published, and, like its predecessors, forms an excellent encyclopaedia of recent work in medicine, surgery, and allied subjects, with special reference to treatment. In spite of the many difficulties due to the war, each section has been dealt with in a very complete and readable fashion, with a plentiful supply of illustrations. As is the case with other medical periodical publications, the war occupies a large share of the present volume, and the great output of medical and surgical writings on this subject is adequately dealt with in the various sections. The first fifty-six pages of the *Annual* are given up to a summary of therapeutical progress, while the main part of the work comprises a review of progress in medical and surgical practice, each subject being dealt with by a contributor who has followed closely the year's happenings in his own department. The remaining part is devoted to miscellaneous subjects, such as State medicine, legal decisions, and new medical, surgical, and therapeutical appliances, together with a useful directory of medical institutions, homes, spas, etc., and a list of the principal medical books and new editions published in 1916. Altogether the new volume of the *Medical Annual* worthily maintains the high standard of previous years, and the index, as usual, is excellent.

In the JOURNAL of February 24th, 1917, appeared a long review of *Le traitement des plaies infectées*, by Dr. A. Carrel and Dr. G. Dehelly, who is one of his colleagues at Compiègne. A good English translation of this work has now been made by Captain HERBERT CHILD, and published under the title of *The Treatment of Infected Wounds.*[8] Sir ANTHONY BOWLBY contributes a short introduction to the English edition, in which he expresses the appreciation of British surgeons at the front of the value of what is known as Carrel's method, which, "whenever it has been thoroughly carried out, has accomplished all that is claimed for it by its author, and it has been of inestimable benefit to thousands of patients. It has also renewed faith in antiseptic methods." Sir Anthony Bowlby insists on the need for scrupulous attention to every detail of the method, and suggests that if it is to be fairly judged no change whatever should be made either in Dakin's solution or in the tubes for instilling it.

During recent years letters have appeared in the JOURNAL from Dr. WALTER G. WALFORD on the evil influence of tight collars. In a small volume entitled *Dangers in Neck-wear*[9] he develops his views on the far-reaching effects of neck constriction. No one can question his disinterested motive, and most will agree that soft, loose neck-wear is hygienic; but we doubt whether many will be convinced that all the diseases enumerated by Dr. Walford are even remotely connected with tight collars.

MEDICINAL AND DIETETIC PREPARATIONS.

Vitamogen.

VITAMOGEN is a concentrated food for infants and invalids manufactured by Messrs. Williams and Co., 24, Holborn, E.C., and claimed by the makers to be especially rich in vitamines and organic phosphorus. Examination of a sample supplied to us showed it to contain:

Proteins (nitrogen x 6.3)	22.4	per cent.
Ash	7.42	,,
Phosphoric anhydride (P_2O_5) in ash ...	2.40	,,

Qualitative tests also indicated the presence of considerable proportions of starch and reducing sugars. The food is quite palatable, and appears to be very suitable for the purposes for which it is put forward.

[7] *The Medical Annual: A Yearbook of Treatment and Practitioner's Index.* Thirty-fifth year. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 1917. (Demy 8vo, pp. 724; illustrated. 10s.)

[8] *The Treatment of Infected Wounds.* By A. Carrel and G. Dehelly; translated by H. Child, formerly surgeon, French Red Cross, Captain R.A.M.C.(T.Y.); with an introduction by Sir A. Bowlby, K.C.M.G., K.C.V.O., F.R.C.S. London: Baillière, Tindall and Cox. 1917. (Cr. 8vo, pp. 248; 6 plates, 97 figures. 5s. net.)

[9] *Dangers in Neck-wear.* By W. G. Walford, M.D. London: H. K. Lewis and Co., Limited. 1917. (Cr. 8vo, pp. 181; 14 figures. 4s. 6d.

LIBRARY U. OF I. URBANA-CHAMPAIGN

British Medical Journal.

SATURDAY, JUNE 23RD, 1917.

CO-ORDINATED RESEARCH IN WAR TIME.

WE have lately given a large share of the space now at our disposal to authoritative surveys of the development of British surgery at the front and on the lines of communication. This week Professor Andrewes and Dr. Dakin, undertaking a like duty on behalf of their own branches of science, sum up for us the achievements of pathology and biochemistry under the stimulus of war. It is an inspiring record of success accomplished in face of the difficulties and distractions of war time, and in the midst of an upheaval without precedent. How has this wonder come to pass? We think the answer will be found in Professor Andrewes's opening sketch of the growth of co-ordinated research in this country since 1913. Until that year "team work" in the United Kingdom was confined to independent laboratories. Institutions organized and equipped like the Lister Institute for collective investigation were few, and the excellent work they did was only loosely related to the same kind of work carried out in other centres, while the encouragement and direction given by the Government to the advancement of medical knowledge was negligible.

Important researches had, however, already been made at the Royal Army Medical College into various problems of military hygiene and pathology before the war burst upon us, and then the Medical Research Committee, set up under the Insurance Act in the preceding year, was in a position to be of the greatest service. The flexible organization of this committee enabled it to turn aside at once from the plans it had made for civilian research, and take over the collective solution of medical war problems by co-ordination of the efforts of individuals and groups of investigators.

Professor Andrewes describes the chief pathological problems met with during the war, the way in which they have been approached, and the measure of success attained. One of the first centres of joint investigation established for war purposes was the laboratory at Boulogne, presided over by the stimulating personality of Sir Almroth Wright. Cerebro-spinal fever, again, is a good instance of fruitful co-operation between the Army Medical Department and the Research Committee, centring in this case in the work, with which our readers are familiar, of Lieut.-Colonel Mervyn Gordon, R.A.M.C., at the Central Cerebro-spinal Fever Laboratory at home, and of Captain Ellis, Canadian A.M.C., with the Expeditionary Force. The latter carried on his researches in one of those outposts of investigation, the mobile field laboratory, which Sir Wilmot Herringham describes in the first of his two pithy contributions to our present issue. The enteric group of fevers has in the same way been brought under control through joint action by the Army Medical Service and the Medical Research Committee. In this matter great assistance was given, both at Oxford and at Wimereux, by Professor Dreyer, whose standardized technique for serum diagnosis has made it possible to collate the results of workers in every area.

Another instance of successful protective inoculation is that against tetanus. Thus Sir David Bruce has pointed out, in his periodical analyses of tetanus cases in home military hospitals, that, although the curative value of antitetanic serum has not been established, its protective value when administered in good time has been proved beyond a shadow of a doubt, making it one of the triumphs of preventive medicine. Sir David Bruce is chairman of the War Office Committee on Tetanus, and links up in his own person the activities of this body and of the Lister Institute of Preventive Medicine, of whose governing body he is also chairman. As was noted in our columns on May 26th (p. 696), the last annual report of the Lister Institute showed that its energies also had been diverted into war channels. It has produced immense quantities of serums and vaccines for the forces, its biochemists have studied the deficiency diseases, and, in association with the Medical Research Committee and the military medical authorities, it has engaged in continual inquiry into scientific problems arising out of the war; all this in spite of the fact that its director, Dr. C. J. Martin, and his assistant in the Department of Experimental Pathology, Sydney Rowland, were, at an early stage, taken away to serve as pathologists abroad, Lieut.-Colonel Martin with the Australian A.M.C., and Major Rowland with the R.A.M.C. in France, where, after doing most excellent pioneer work, he unfortunately succumbed last March to cerebro-spinal fever, the subject he was then investigating.

Throughout this country, and in the laboratories abroad, investigations which under former conditions might have been disjointed have now been linked up into collective schemes of research, all bearing directly upon urgent war problems. Furthermore, the lessons thus learnt will be available for purposes remote from war. It is fortunate indeed that, no matter what the motive may be that leads to its discovery, each new piece of knowledge, each fresh scientific application of a law of nature, is something laid to the credit side for the benefit of all, and may bear interest beyond the dreams of its discoverer. This is well brought out by Professor Andrewes in his review of the output of British pathology during two and a half years of war: he observes that the advance has been nearly tenfold greater than might have been looked for in ordinary times; and, although this has been due to the stress of war needs, "it represents a solid contribution to science which will be valid in the years of peace to come."

Nor has biochemistry lagged behind pathology and bacteriology in furnishing new and remarkable applications of science to the medical side of warfare. Some of the more striking achievements of this comparatively new department of research—from water purification to protection from the poisonous gases of the enemy—are set out by Dr. Dakin in his paper; and it will be noted how deftly the author passes over the large share which his own fruitful genius has borne in developing the chemiotherapy of wound infections. With regard to the lively discussions which have been carried on by exponents of the two rival schools of thought, Dr. Dakin makes a significant remark: he suggests that, in the view of some observers at least, the gulf between the so-called physiological and antiseptic methods of wound treatment is not nearly so deep as it seemed at one time, and that the results aimed at by the most competent representatives of each school have much in common. The same idea has doubtless been taking shape in the minds of many surgeons and pathologists during the

last twelve months or so, and it would be a great satisfaction to all if the gradual evolution of technique should bring together on common ground those whose differences once seemed irreconcilable. Everything points to a growing standardization in the treatment of infected wounds, based on eclectic principles.

POLIOMYELITIS.

THE epidemic of acute anterior poliomyelitis which occurred during the summer and autumn of 1916 in New York State has provided much material for investigation of this disease, and the latest addition to our knowledge comes from Flexner and his colleagues at the Rockefeller Institute of Medical Research.

The discovery of the filterable nature of the virus was made almost simultaneously by Flexner and Lewis, and by Landsteiner and Levaditi in 1909. In 1913 Flexner and Noguchi discovered, and obtained in culture from the filtered virus, organisms of a peculiar type which they termed globoid bodies. These organisms have been found in the lesions of poliomyelitis both in man and the monkey. Injected into monkeys they have in several cases reproduced the disease in its typical form, and have again been recovered from the lesions so produced. The organism, moreover, has been seen in and obtained in culture from the blood of a monkey infected with the filtered virus. The cultivation of the organism from the infected tissues is an uncertain and difficult process even in expert hands. The technique is based on Noguchi's method of cultivating the *Treponema pallidum*. Once established in saprophytic form outside the body, subculture is usually a much simpler matter, but as usual in the saprophytic state the pathogenic properties of the organism tend to disappear.

Morphologically the organisms are minute globular bodies, lying in pairs, chains, or masses, varying in size, but averaging about 0.2 μ in diameter, which is only just within the limits of vision. In subculture the growth has to be carried over in considerable amount, and this must be taken into account in considering the question of carrying infection in so-called pure cultures of the globoid bodies, especially as it has been shown that the cultures, like the original virus, may preserve their infectivity for many months.

It is interesting to note in passing that the globoid bodies, as figured by Flexner and Noguchi and by Amoss, are strikingly similar to certain very small forms obtained by Hort in cultures from the blood and cerebro-spinal fluid of cases of typhus and cerebro-spinal fever and also from the blood in scarlet fever as well as in the enteric group of diseases, these minute forms bridging, in his view, the gap between filterable and non-filterable organisms. The ordinary immunological reactions of the globoid bodies of poliomyelitis as worked out by Amoss on rabbits and monkeys are very indefinite. Practically no agglutinins are obtained, and complement fixation tests are negative. Moreover, the serum of human beings or monkeys convalescent from the disease gives no results in these respects. At present we can only say that the exact relation of these globoid bodies to the disease is far from clear. Other organisms, especially streptococci, have from time to time been found in the cerebro-spinal fluid, but these apparently are only secondary invaders, which have entered through the damaged meninges.

If now we turn to the filterable virus itself and the neutralizing or immunity bodies which are formed against it in the infected animal, or human being, we are on firmer and, for the present, much more productive ground. The filtered virus used experimentally is prepared from the affected portions of the diseased spinal cord and medulla. Kept under suitable conditions, this virus has been found to retain its infective properties for as long as six years. When inoculated intracerebrally in monkeys infection is practically certain and the mortality nearly 100 per cent. When the inoculation is made either intravenously or subcutaneously, or by means of plugs soaked in virus and packed into the nasal cavity, the infection seldom reaches the central nervous system unless the meninges have in the first place been injured in some way, as, for instance, by the introduction into the meningeal sac of some substance which would set up an inflammation or irritation. The injection of normal horse serum into the theca a few hours previous to injection of the virus into the blood is quite sufficient to admit of the virus penetrating into and infecting the central nervous system. The injection of an immune serum, however, does not allow infection to take place, presumably because it is able to neutralize the entering virus. Even the injection of physiological saline will sufficiently alter the meninges to allow infection to take place. These are the conditions governing the experimental infection of the nervous system, and they are fairly clear.

In human beings the relative incidence of the disease in an epidemic is low—1.59 per 1,000 in the New York epidemic—so that it would seem that there must be strong protective agencies at work in the normal body. At present we are very far from knowing exactly what these are. There is strong evidence that the upper respiratory passages constitute the chief portal of entry of the infection. Amoss and Taylor have shown that the secretions of the normal nasal and pharyngeal mucosa have the power to neutralize or render inactive the virus of poliomyelitis. This power varies in different persons, and from time to time in the same person. It is apparently diminished by inflammation of the mucosa. The extraordinary efficiency of the undamaged meninges as a barrier against the infection of the nervous system from the blood, as demonstrated in monkeys, has already been referred to.

Recovery in poliomyelitis is accompanied by an active immunity process. The presence of the immunity substance has been detected by experiments in which the active virus has been neutralized by the addition to it of blood serum from an infected animal or human being. This neutralization may be effected *in vitro* before injection or after the infecting inoculation. The immunizing substances begin to appear in the blood by the sixth day. They are apparently not formed locally in the nervous tissues. They are formed elsewhere in the body and are carried in the blood, but they can only pass through the meningeal barrier under certain conditions. Hence it becomes a matter of the greatest importance to ascertain how these protective bodies in the blood may best be brought into contact with the infected nerve cells. It has been shown that the neutralizing bodies gain access to the central nervous system under conditions similar to those which govern the entrance of the infecting virus to that system. If immune serum is injected into the blood it does not gain access to the meningeal sac unless the meninges have been inflamed or damaged in some way. Thus, in human beings in the early stages of the disease, before the meninges are much altered, the immune bodies present in the blood may not gain access to the diseased nervous tissues; and the same is true in the late stages when the meningeal barrier has again

LIBRARY U. OF I. URBANA-CHAMPAIGN

been built up. It has been shown that the injection of horse serum into the theca so alters the membranes that the immune bodies in the serum are enabled to traverse them and enter the meningeal sac. If we are able to administer the immune serum by the blood stream we can clearly give much larger doses, especially in children, than if we are limited to the intrathecal method alone. Thus by administering the immune serum both intrathecally and intravenously we ought to be able to ensure an abundant supply of the immune bodies reaching the injured nerve cells. It has been shown in the treatment of tetanus that the intravenous injection of the antitoxic serum gives good results (and in connexion with poliomyelitis Flexner has shown that the intrathecal injection of the immune serum is curative, in the early stages of the disease in infected monkeys), so that from all points of view both methods of administration seem to be indicated.

In a review of twenty-six cases of poliomyelitis treated with human immune serum in the recent New York epidemic, Amoss and Chesney[1] lay stress on the importance of early diagnosis. Lumbar puncture shows a marked pleocytosis of the cerebro-spinal fluid, usually over 100 cells per c.mm. There is also usually considerable increase of the globulin content. In many cases these signs of meningeal irritation precede the onset of paralysis. This is the period of the disease in which treatment offers the best chance of success, since, as was to be expected, the effect of the serum is more marked in preventing the spread of paralytic symptoms than in curing the paralysis once it is established. The bulk of these cases were treated within the first forty-eight hours after the onset of symptoms. The serum used was derived from human cases which had recovered from the acute stages of the disease. These writers consider that at least 50 c.cm. should be given in each case, partly into the theca and partly into the blood. The amount of serum to be given intraspinally depends on the age of the patient; 5 to 10 c.cm. is a fair dose for a child of 2 years, with 30 or 40 to be carried by the blood stream. In the bulk of their cases this latter was given subcutaneously, possibly partly on account of the difficulty of giving an intravenous injection in a small child. The serum from the convalescent patients was collected aseptically, tested for sterility, and used without inactivation or the addition of disinfectants. The possibility of conveying the infecting virus in the serum is not regarded as of any importance, because, in the first place, the virus has never been detected in the blood of human beings, and even if small quantities were present it would be neutralized by the amount of immune substances in the serum.

The further investigation of poliomyelitis is likely to form one of the most fruitful fields of modern research, and we look forward to the time when it will throw light on the very obscure questions of infection of the central nervous system; and more particularly on the relation of the meningeal barrier to the passage both of infective and curative substances from the blood into the central nervous system in such diseases as tetanus, cerebro-spinal fever, and, perhaps most important of all, cerebro-spinal syphilis.

THE HEALTH OF MUNITION WORKERS.

THE Health of Munition Workers Committee, which has published so many valuable memorandums, has now issued an interim report on industrial efficiency and fatigue, embodying the results of investigations made for it by, among others, Dr. H. M. Vernon, on output in relation to hours of work; by Captain T. H. Agnew, R.A.M.C., on the health and physical condition of male munition workers; and on the health of women engaged in munition factories, by Drs. Janet Campbell and Lilian Wilson.

Captain Agnew visited a considerable number of representative factories and personally examined nearly 4,000 men and boys. He provides an elaborate table of the physical defects and illnesses diagnosed, and brings the physical condition into relation with (*a*) the hours of labour, and (*b*) the kind of work done. The most interesting point studied is the relation between length of working hours and general health. Captain Agnew found that a distinction had to be made between workers engaged before the outbreak of war and war-time recruits to industry. In the former case, the factor of industrial selection had probably operated, those employed representing, in some measure, the physically select workmen. Among men and boys engaged since the war, there appeared to be a distinct relation between length of hours and physical condition. While 22.1 per cent. of men working less than seventy hours a week were classified by Captain Agnew as below his highest standard, the percentage rose to 31.4 in the case of men working seventy hours a week or more. Of the boys, 6.7 per cent. and 10.6 per cent. respectively were the percentages amongst those working less than sixty hours and those working sixty hours or more.

The chief points which, in Captain Agnew's opinion, needed attention were: (*a*) Reduction of excessive hours, especially when bad transit facilities make a substantial addition to the effective length of the working day; (*b*) provision and improvement of canteens; (*c*) provision of adequate washing accommodation, which was usually very defective; (*d*) improvement in first aid equipment; and (*e*) the insistence on hygienic qualifications of welfare workers.

Drs. Campbell and Wilson seem, on the whole, to be more satisfied with the conditions obtaining among women workers. Most of the inspectors, they state, "were agreeably surprised at the general physical condition of the workers." At the same time, they hold that their results emphasize the importance of adequate provision for the health and comfort of the workers, and make very similar practical recommendations to those of Captain Agnew.

In reading these and other reports contained in the volume, one is struck by the appositeness of the Committee's remark that, although many witnesses entitled to speak with authority on matters affecting the personal health and physical efficiency of munition workers have given evidence before them, the witnesses, with hardly an exception, have "been unable to point to any exact data in support or in disproof of their particular views." It is indeed obvious that the Committee and its investigators are in the position of pioneers, and that the existing means of preparing and interpreting the vital statistics of industry are as rudimentary as those for judging the general sanitary conditions of the country before the days of medical officers of health and the system of collating information which has been perfected by the labours of more than two generations of officials at the Local Government Board or the General Register Office.

The Committee concludes its report by emphasizing "the need for the establishment of some permanent organization for the collection of scientific data upon

[1] Reports of this and other investigations here mentioned will be found in the *Journal of Experimental Medicine*, April, 1917.

which alone can be based the right solution of many industrial problems intimately connected with the future prosperity and progress of the nation." This pronouncement should be had in mind by those delimiting the sphere of influence of the proposed Ministry of Health. Industrial health problems must of course be approached on the same broad scientific lines as any other health problems, but their solution involves various special considerations, and will need, *inter alia*, the compilation and analysis of health statistics of a specialized character, the want of which at present seriously hampers both the medical officer and the factory manager.

MALARIA IN FRANCE.

THE risk of the establishment of epidemic malaria in France, to which attention has been called on several occasions during the last couple of years, has again been considered by the Académie de Médecine. Professor Blanchard—than whom there is no more competent authority on the subject—acting on the instructions of the Under Secretary of State for Health in the Ministry of War, visited the Mediterranean coast of France last July, and reported the presence of malaria-bearing mosquitos. He also proved the presence of the bearer of yellow fever (*Stegomyia calopus*) in abundance on the French Mediterranean littoral, and even in the town of Nice. Professor Blanchard pointed out that at one time many areas in France suffered severely from malaria; that although the disease has now become rare, it has not wholly disappeared; and that there is a small focus of the disease in the valley of the Somme, and probably others elsewhere. Two species of anopheles exist in France—*A. maculipennis* and *A. bifurcatus*, both of them bearers of malaria. The fear is that the return of men invalided from Macedonia suffering from malaria, the introduction of Senegalese troops, and the importation of labour battalions from Annam and other eastern countries, may so multiply the opportunities for the anopheles to become infected that the disease will once more become established in many parts of France which have long been completely, or almost completely, free from it. Professor Blanchard said that the French troops in Macedonia had suffered much more severely than the British, the British having wisely looked upon the campaign in Macedonia as "a medical war," an expression which he quoted in the original, and described as not only picturesque but accurate. He expressed the hope that the autonomy recently granted to the French Army Medical Service may in future prevent the repetition of errors for which that service was very far from being wholly responsible. In August, 1916, and February, 1917, the Under Secretary of State issued directions to public health officials in France with reference to the precautions which should be taken in establishing hospitals or convalescent camps for men returned from malarial districts. He also consulted Professor Léger and Professor Laveran. Both Professor Blanchard and Professor Léger advised that the whole of France should be divided into areas, with a physician or zoological expert at the head of each, to study the question of mosquitos and malaria. This recommendation was made at the end of February, and a month later the Under Secretary of State appointed a commission, under the chairmanship of M. Laveran, to draw up a plan of campaign. No immediate action was taken, but it was hoped that the directors of each section would shortly be nominated. Meanwhile, however, the mosquito season is getting into full swing. The establishment by so high an authority as Professor Blanchard of the existence of *Stegomyia calopus* in abundance in certain parts of France is distinctly disquieting, and it appears that recently there was a small outbreak of yellow fever in the neighbourhood of Saint-Nazaire. It was started by certain cases occurring in a body of Senegalese troops which had not been subjected to a sufficiently minute medical examination before leaving Africa. It is assumed that the local stegomyia acquired the infection from them. At a later meeting of the Academy M. Netter sought to minimize the danger of either disease becoming established in France, mainly on the ground that malaria had died out, or almost died out, in France during the last half of the nineteenth century, but M. Blanchard adhered to the opinion that strict precautions should at once be put in force to prevent the recurrence of the disease, and that it was only subject to that condition that the risk could be considered small.

HOUSE-FLIES AND AMOEBIC DYSENTERY.

LIEUT.-COLONEL C. M. WENYON, R.A.M.C., Director of Research in the Tropics to the Wellcome Bureau of Scientific Research, and Captain F. W. O'Connor, R.A.M.C., have published in the *Journal of the Royal Army Medical Corps* (May, 1917) a memorandum issued in Egypt in April, 1916, on the important part played by house-flies in the spread of amoebic dysentery. During the acute dysenteric process only the free motile amoebae are to be found in the faeces, but as the acute symptoms abate encysted forms appear, which are passed in very large numbers; though they cannot withstand drying, they survive for a considerable period if kept moist. When one of these cysts is ingested in water or food it gives rise, under the influence of the pancreatic fluid, to four small amoebae, which grow into the adult form of *E. histolytica*, invade the tissues of the large intestine, and produce amoebic dysentery. A fly which has continuous access to human faeces will feed every few minutes and as often evacuate its intestinal contents, so that the amount of material passed though the gut of a single fly must be considerable, and within a few hours many thousands of cysts must have followed this course. Moreover, the cysts can survive in the gut of the fly for some hours, and may then be deposited. There is no entirely satisfactory means of establishing whether the cysts that have passed through the fly retain their vitality, but there is strong evidence that they do. This is afforded by the use of dilute eosin, which, it is believed, does not stain living cysts. The result of the application of this test was to show that the great majority were still alive, and therefore infective, after passing through the fly. The cysts do not withstand desiccation by a tropical sun, so that it seems improbable that dry dust can play an important part in their spread; but wind may distribute moist particles of the faeces or fragments only externally dry, or portions adhering to pieces of paper or leaves. Only a few destructive reagents were tried. Of these cresol seemed the best, and was found to be effective in the strength of 1 in 40 or 1 in 50, but it must have access to the cysts and therefore must be intimately mixed with the faeces. The flies on which the experiments were made were ordinary house-flies (Musca and Fannia), the blue-bottle fly (Calliphora), and the green-bottle fly (Lucilia); the passage of the cysts of *E. coli*, *E. histolytica*, and *L. intestinalis* was observed through all of them. Wild house-flies to the number of 200, caught at random in different localities in Alexandria, and kept without food in glass tubes, yielded evidence that they had been feeding on human faeces, for in the droppings of fifteen of them cysts of the three organisms mentioned above were found, and also the oöcyst of a coccidium and the eggs of various parasitic worms (*Taenia saginata*, *Ankylostoma duodenale*, *Trichocephalus trichiurus*, *Heterophyes heterophyes*, and the comparatively enormous lateral-spined egg of Bilharzia). All the infected flies came from near the cook-house of a hospital compound which was separated from a native village by a wall. The general conclusion is that flies must be reckoned as of very great importance in the spread of amoebic dysentery. Though it may be impossible to isolate and cure every carrier case in a large body of men,

LIBRARY U. OF I. URBANA-CHAMPAIGN

much can be done by the careful use of fly-proof latrines and covered receptacles, and the authors believe that with an efficient system of fly and faeces destruction, and arrangements for the prevention of flies coming into contact with excreta, amoebic dysentery, as well as many other intestinal disorders, would be very materially reduced, if not entirely eradicated.

PAYMENT OF MEDICAL OFFICERS IN V.A.D. HOSPITALS.

LAST week attention was called (SUPPLEMENT, p. 139) to the fact that application for payment for service at Voluntary Aid hospitals may be made by practitioners who so desire. The manner in which the War Office has dealt with this matter appears to be far from satisfactory. As long ago as June, 1915, a special form (P 62) was issued to the commands under authority of War Office letter 24/General Number/3952 (F 2), dated June 16th, 1915. The form was headed, "Claim for Payment of Civil Medical Practitioners at established civil hospital, voluntary aid hospital, or convalescent home," the place and month to be specified. The form was to show the name and qualification of the civil medical practitioner, the dates of his employment and the number of days, the average daily number of patients, the rate of payment, and the total due to him, with the number of authority of G.O.C. in command. The form, further, had space to specify the number of civil medical staff employed, the proportion of staff desiring remuneration, and the rate paid for maintenance, if any. The form was to be signed by the superintendent or commandant and to be receipted by the civil medical practitioner concerned. It would appear that the D.D.M.S. of the command in many cases—probably in most—did not intimate the existence of Form P 62 to the commandants of the hospitals. We learn, however, that in one command a letter was sent round to all the practitioners concerned, and that as a result a sum of 10s. a day was fixed as remuneration. Subsequently Dr. Howard Marshall, as we have already mentioned, took the matter up with energy, and ultimately published a letter in the *Times*, to which we have already called attention. It is possible that many civil practitioners may still prefer to give their services gratuitously at these institutions. But it seems difficult to find excuse for the failure to inform those concerned that payment was available if claimed; the more so as many hard-worked and not over-wealthy doctors were giving their services. It is by no means certain even now what scale of payment is offered. In one command it is stated to be 2d. or 3d. a day for each occupied bed. In another, as we have said, it appears to be 10s. a day without reference to the number of beds. Dr. Marshall contends that proper attention should be directed in all the commands to the existence of Form P 62, that a proper scale of remuneration should be worked out, and that payment should be made retrospective. We commend these proposals to the War Office, with the additional suggestion that matters such as this are best worked out from the beginning in conjunction with the central bodies representing the civil profession which they concern.

INFECTIOUS DISEASE IN 1916.

THE Local Government Board has published a report[1] by its medical officer on the incidence of notifiable infectious diseases in the sanitary districts of England and Wales during 1916. This statement is the sixth complete annual record of the kind, and is based on the weekly reports of medical officers of health and of the metropolitan asylum managers. A preliminary table gives the total number of cases of the chief notifiable diseases during the year and the sickness rate per 1,000 of population, exclusive of cases among sailors and soldiers. There were 12 cases of plague, 4 of typhus, 149 of small-pox, but no case of cholera. The sickness rates from infectious disease for 1916 and the preceding five years are also set out in tabular form. Taking the rates for the whole of England and Wales, including ports, we find that the incidence of enteric fever has steadily dropped from 0.38 per 1,000 in 1911 to 0.16 in 1916; diphtheria, puerperal fever, erysipelas, and poliomyelitis show little variation during the six years. The sickness rate from scarlet fever increased up to 1914, and has since diminished. Cerebro-spinal fever incidence among the civilian population, which shot up from 0.01 per 1,000 in 1913 and 1914 to 0.07 in 1915, fell to 0.04 in 1916. It is shocking to find that of ophthalmia neonatorum there were 7,613 cases, giving a rate of 9.69 per 1,000 births, as compared with 6,806 cases in 1915. There were 348,090 notified cases of measles and German measles in 1916; the Order requiring notification of these diseases came into force on January 1st. A special report on measles, containing separate returns for measles and German measles, is now in preparation in the medical department of the Board. Sir Arthur Newsholme also gives a table showing the incidence of pulmonary and other forms of tuberculosis since these became compulsorily notifiable throughout England and Wales; this shows a steady decline. The total number of cases of pulmonary tuberculosis notified in 1912 was 110,706, giving a rate per 1,000 of 3.03; in 1916 the total number was 72,479, giving a rate of 2.10. Other forms of tuberculosis showed a less marked decline. The report also contains full statistics of infectious disease in each sanitary district.

[1] 1917. Published by H.M. Stationery Office. Price 9d. net.

"RECALLED TO LIFE."

THE first number of *Recalled to Life*,[1] the approaching publication of which we announced a short time ago, has now appeared. It is a journal devoted to the dissemination of information as to the care, re-education, and return to civil life of disabled sailors and soldiers, and is edited by Lord Charnwood, with the assistance of Mr. Everard Cotes. We learn from Colonel Sir Walter Lawrence, liaison officer War Office and Ministry of Pensions, that the new periodical has the blessing of the War Office, the Pensions Ministry, and the Joint War Committee of the British Red Cross and the Order of St. John of Jerusalem. The appeal of the journal is to those who are actively engaged in the administration of hospitals and in the conduct of local pension committees and technical institutes, and, with this object in view, each number will contain an article or articles on the treatment of some particular kind of disablement. But judging from the first number it will be, for the most part, devoted to administrative questions. The first article in it is a memorandum on the treatment of the disabled, by Sir Alfred Keogh, the French text of which was presented to the Inter-Allied Conference on the treatment and training of disabled soldiers held in Paris last month. The article brings the story of the work done in this country down to a recent date and includes an account of the general organization of pension arrangements, and a description of a modern curative workshop, together with notes upon the after-care of the blind, the problem of the deaf, and the provision of artificial limbs; as published in *Recalled to Life* it is well illustrated by photographs showing the men engaged in the workshops at the Military Orthopaedic Hospital at Shepherd's Bush. Following this is the text of an address to the conference by Sir A. Griffith-Boscawen, M.P., Parliamentary Secretary, Ministry of Pensions. Captain Basil Williams contributes a very full and authoritative article on pensions, in which, after a short historical summary, he gives details of the arrangements now brought into force. The Intelligence Department of the Local Government Board has a report on work for disabled men in France and Germany. There is also a paper by Colonel Sir Robert

[1] London: John Bale, Sons, and Danielsson, Ltd. 2s. net.

Jones, C.B., on orthopaedic surgery in its relation to the war, in which he presents the objects of that department of surgery in a manner which will appeal to the layman. Finally, there are a number of shorter paragraphs and notes, including brief accounts of the work at the Roehampton hospitals, and at Erskine House Hospital (Glasgow), both for limbless men, and lists of the facilities for special treatment and of training classes for the disabled in various parts of Great Britain. The editor invites communications from hospital visitors, members of committees, and wounded men themselves, addressed to him at 322, Adastral House, Victoria Embankment, London, E.C. 4.

HEREDITARY RETINAL GLIOMA.

DR. A. HILL GRIFFITH read an interesting paper at the annual meeting of the Ophthalmological Society last month on hereditary glioma of the retina, a very rare condition, which is of more than ophthalmological interest. After careful search of all the available literature, in which he was assisted by colleagues, he has only been able to find records of six instances of gliomatous families. To these must now be added the two cases which Dr. Griffith himself met with in his wards at the Manchester Royal Eye Hospital some years ago. In each family the disease was transmitted from the mother to several of her children. In the first family the mother had her right eye removed in infancy for a growth, and four of her six live-born children have had double glioma of the retina. In the other family the mother had her right eye removed at the age of 2½ years for glioma, and of her three live-born children two have had single glioma and one double glioma. In none of these children was there the faintest doubt as to the nature of the affection; they were all typical examples of the disease. To the scientific student of heredity these remarkable families should be of great interest, and, although transmitted glioma may not be quite so rare an event as the records suggest, it is highly desirable that all cases should be fully investigated and placed on record. Of the eight instances of which information is given, two only were cases of transmission from the father, but, as Dr. Griffith points out, the father is seldom so available as the mother when a child comes before an ophthalmic surgeon, and the fact that he has lost an eye is accordingly more likely to escape record.

EDUCATION AUTHORITIES AND PUBLIC HEALTH REORGANIZATION.

IN the course of his presidential address, on June 8th, at the annual meeting of the Association of Education Authorities—the fourth occasion on which he has fulfilled this duty—Dr. H. B. Brackenbury touched upon the relation between education authorities and the proposed Ministry of Health. Speaking of the advisability in the future of leaving to other persons some of the work now supervised by education committees and closely connected with the actual work of the schools, he drew attention to the vastness of the educational field, the extensions opening out, and the necessity for concentration of energies. Among the series of proposals put forward by the Association of Directors and Secretaries for Education and the National Association of Education Officers was one that education committees would be responsible for the discovery and treatment of disease in children and young persons from the nursery school to the day they left the continuation classes at the age of 18; that this responsibility should extend to the children of paupers under the care of guardians, and to boys and girls attending schools aided by the local education authorities; that the administration of medical benefit under the Insurance Act for youths and girls from the sixteenth to the eighteenth year of age should be taken over, and that the education authority should also assume an important part of the duty connected with employment in factories, workshops, and mines, at present discharged by the Home Office. While acknowledging his admiration for the zeal and ability of education officers, Dr. Brackenbury felt sure that no appreciable number of members of education committees would wish to have these duties and responsibilities thrust upon them. He was equally confident that in the interest of the health of the community, and of the unification and simplification of the public services concerned therewith, the very opposite policy was the right one. The care of the physical health of school children was primarily, and mainly, a health problem, and only indirectly an educational problem, however important its educational relations might be. If those now engaged in exploring the national organization for prevention and treatment of disease came to the conclusion that it was in the public interest to place all health services, including the school health service, under one administration both centrally and locally, it would be the business of educational administrators to help in bringing this about. The excellent work of the school medical officers would be no less successful if this section became an integral part of a complete and co-ordinated health organization. Many and great difficulties might have to be overcome in setting up such a scheme, and he did not suggest that under present conditions the school medical service should be transferred to the control of the public health committees now existing. He hoped, however, that education authorities would watch developments with an open mind and with due regard to the problem as a whole.

A MINISTRY OF HEALTH.

AN official announcement was made at the close of last week that Lord Rhondda had accepted the vacant post of Food Controller, and he has now taken up his new duties at Grosvenor House. With regard to the proposal for a Ministry of Health, with which he has been prominently associated, Lord Rhondda made a statement on June 18th to the effect that, before leaving the Local Government Board, he had received an assurance from the Prime Minister that in respect to this matter and to the bill relating to child welfare the position would be safeguarded. He expressed the hope that this would allay the anxiety shown in many quarters lest his retirement from the Presidency of the Local Government Board might delay these measures of health reform. In the House of Commons, on the following day, Sir William Collins inquired whether the Government had reached a decision as to the establishment of a Ministry of Health; Mr. Bonar Law replied that he was not in a position to make a statement, and Sir William Collins then drew attention to Lord Rhondda's latest utterance on the subject; upon this Mr. Bonar Law said that the Government had certainly not come to any decision that it was possible to introduce any bill this session. The position, therefore, seems even less clear now than it did a short time ago; but a guess may be hazarded that the only measure likely to come before Parliament in the near future is the original one for maternity and child welfare, out of which small proposal arose the far wider question of reorganization of the health services of the country.

AT the meeting of the Académie de Médecine in Paris on May 29th Professor Kirmisson presented a copy of the volume entitled *Notes on Military Orthopaedics*, by Colonel Sir Robert Jones, published by the British Red Cross Society, and containing the series of articles written by him for this JOURNAL. M. Kirmisson, in making the presentation, said that the volume contained judicious observations on the application of the general principles of orthopaedic surgery to the treatment of war injuries, such as

LIBRARY U. OF I. URBANA-CHAMPAIGN

ankyloses, wounds of nerves, malunited fractures, and deformities of the feet. The operations recommended were clearly described, and the numerous diagrammatic illustrations made it easy to understand the details of each.

Medical Notes in Parliament.

The Promotion of Army Medical Officers.—In a written reply to a question by Mr. McVeagh, Mr. Macpherson said: "Promotions in the Royal Army Medical Corps, Regular, Special Service, and Territorial Force, up to the rank of major, are governed by a qualifying time period of service for each step in rank. Promotions above the rank of major are by seniority and selection. In the case of a temporary commissioned officer, promotion to captain is given after twelve months' service, and promotions to higher rank are given in individual cases as suitable vacancies arise, according to the officer's qualifications and the nature of the appointment for which such promotion is considered necessary. No differences other than those enumerated exist in the system of promotion in the different branches of the Royal Army Medical Corps." The promotions made in the special Territorial Force general hospitals, which were recently sent to France under special conditions to meet emergency, were all temporary and not considered prejudicial to the interests of the Medical Service, nor as causing injustice to other officers. The whole question of promotion generally in the Royal Army Medical Corps Territorial Force came within the purview of the Committee presided over by Mr. Churchill. In reply to a question by Sir E. Goulding, Mr. Macpherson added that the recommendations of the Committee were being sympathetically considered, and as soon as a final decision had been reached the report would be presented to both Houses with a note of the decisions. He trusted that this would be done very shortly. The Committee is concerned with promotions in the General Reserve of Officers, the Special Reserve of Officers, and with promotions in the Territorial Force.

Pensions for Officers.—Mr. Barnes, in announcing that the new Pensions Warrant for naval and military officers will be issued in a fortnight, has been able to promise that it shall operate retrospectively from April 1st.

Medical Re-examinations for Army Service.—Mr. Macpherson, in a number of written answers to questions on this subject on June 14th, said that he had no knowledge of alleged cases of disagreement between the classification shown on a man's medical history sheet and on his classification card. The proceeding was to attach to the medical history sheet a counterfoil of the classification card. This counterfoil was made out at the same time as the classification card which the man received. It was therefore extremely unlikely that mistakes were made. Figures were not yet available for the whole country, but in some localities the percentage of men who upon re-examination had been classified in A category had been low. In one district notorious for fraudulent rejection the percentage had been as high as 25 per cent. on the examinations conducted up to June 1st. All the suspected cases were called first in that area. The boards conducting those examinations were composed entirely of civilian doctors, with Territorial, or temporarily commissioned or retired presidents. They had been specially inspected by inspectors from the War Office, and their work had been reported as a model of careful examination. It is expected that a debate on the subject will take place this week.

Soldiers' Pay: Deductions during Hospital Treatment.—Mr. Pennefather inquired, on June 19th, as to grounds for the deduction of 7d. a day for maintenance and treatment from the pay of soldiers during the time they were in hospital. Mr. Forster replied that the stoppage was governed by paragraph 73 of the Allowance Regulations as modified by Army Order 25 of 1915, and Army Council Instruction 408 of 1917. No stoppage was made in the case of men suffering from wounds or disease due to service in the field. Mr. Hogge sought an assurance that a soldier in hospital from disease not due to his own fault should not be charged 7d. a day; but Mr. Forster replied he could not give that assurance. No stoppage was made when men were suffering from wounds received in action or from disease due to military service. It was within the discretion of the commanding officer, after taking all the circumstances into review, whether stoppage should be made in the cases of men suffering from diseases incurred in other circumstances. Mr. Pringle asked whether deduction occurred if a wounded man reported himself at his dépôt, and went into hospital again. Mr. Forster: It depends upon circumstances. If the man is suffering from the effects of wounds no deduction is made.

A Conscientious Objector.—Mr. Edmund Harvey asked whether Dr. J. C. MacCallum, D.P.H., tuberculosis officer for the county of Argyll, had been employed by the Home Office Committee on Employment of Conscientious Objectors, first at Wakefield and then as a labourer in the manufacture of manure; whether this employment had been terminated in consequence of a breach of workshop discipline; and whether he might not be employed, under whatever financial conditions might be imposed, on public health work. The Home Secretary said that the employment had been terminated not for one but for several breaches of discipline. The Committee on Employment of Conscientious Objectors had recommended his recall to the army. Dr. MacCallum had not applied for release to take up employment as a doctor, but he and members of his family had applied to the Home Office that he should be allowed to do ploughing and similar work for his relatives. Mr. Harvey, in a supplementary question, asked whether it was not uneconomical, in view of the shortage of doctors, to employ one in making mail bags and artificial manures. The Home Secretary replied that if application were made no doubt it would be considered.

Mentally and Physically Defective Prisoners.—Replying to Mr. E. Harvey, the Home Secretary said that the number of prisoners certified to be mentally defective during the year 1914–15 was 248, and the number during the year 1915–16 was 204. During imprisonment these persons were treated under special regulations. In each case the certificate of mental defect was sent to the Board of Control, with whom, together with the local authorities, rested the responsibility for dealing with these cases on their discharge. Sir George Cave added that, owing to the war, the number of able-bodied men received in prison had been much reduced, leaving a larger proportion, not a larger actual number, of physically or mentally weak. There had been no general increase of physically or mentally defective prisoners, and no modification was necessary on this ground in the prison method and regulations which already provided for appropriate treatment. Provision was made at all prisons for segregation and special treatment of mentally defective persons. Physically defective prisoners were employed, if fit for work, according to their capacity; if unfit for any work, they received suitable treatment in hospital or otherwise, as the medical officer directed.

Irish National Insurance.—In answer to Mr. Ginnell, Sir Edwin Cornwall stated that the total sum paid into, and the total sum paid out of, the Irish National Health Insurance Fund from July 15th, 1912, to March 31st, 1917, were £4,426,686 and £2,978,310 respectively, and the balance to the credit of the fund on the latter date was £1,448,376. The fund was under the control of the Irish Insurance Commissioners, subject to the powers of the National Debt Commissioners under Section 54 of the National Insurance Act, 1911, in which no alteration has been made. He was making inquiries as to what advances had been made for the purpose of the Housing of the Working Classes Act.

THE WAR.

CANADIAN MEDICAL LABORATORY WORK IN ENGLAND.

A CORRESPONDENT draws attention to the fact that the hygienic laboratory work of Folkestone has for more than a year been done free of cost and most efficiently by the bacteriologists of a Canadian mobile laboratory at present stationed in that town. This is, of course, in addition to their medico-military laboratory work. Besides the routine bacteriological diagnosis of diphtheria, typhoid, tuberculosis, and the examination of blood, pus, and other morbid products, the control of cerebro-spinal fever in the civilian population has formed a considerable part of the work, involving the examination of hundreds of naso-pharyngeal and other specimens and laborious agglutination tests.

This laboratory was first organized as the pathological department of Moore Barracks Canadian Hospital, Shorncliffe, but the quarters assigned to it were very soon found to be too cramped for good work. It was suggested by Colonel G. S. Rennie, A.D.M.S., Canadians, and A.D.M.S. Shorncliffe District, that this laboratory should undertake all the bacteriological work in connexion with troops stationed not only in the Shorncliffe district, but also throughout the Dover area, including Dover garrison. A house in Folkestone was converted into a laboratory, and Captain F. B. Bowman, C.A.M.C., who had been in charge at Moore Barracks, placed in command. The area whose laboratory needs are supplied includes not only troops stationed within a radius of twenty-five miles, but some fifty hospitals. The staff consists of six officers and seventeen other ranks. The Levick sprayer is in use at the present time amongst a body of 2,400 men at Dover, and nasopharyngeal cultures are being made weekly from

groups of men throughout the camp; a report on the value of this method will shortly be forthcoming.

The examinations done at this laboratory include Wassermann reactions, of which 5,000 have been performed during the past year, and a report on the subject has been made to the Medical Research Committee, with recommendations as to methods, manner of keeping records, etc. During the past eight months 120 pathological specimens have been cut, stained, and reported on. A collection of interesting naked-eye specimens is also being made. Chemical and bacteriological examinations of urine, faeces, sewage, and water samples are also made.

The laboratory is also used as a training school for officers and men in pathological and hygienic laboratory work. Officers who have been trained are now scattered throughout the various war zones, as well as in many hospitals in England. R.A.M.C. non-commissioned officers and men are sent here for training, and are examined at the end of the course.

During the past year a report was made to the Royal Society of Medicine by Captain Bowman on the cause and treatment of infectious stomatitis and gingivitis among troops. A summary was published in the BRITISH MEDICAL JOURNAL at the time. This was the first report made on the subject, and 300 reprints were ordered for distribution to army medical officers, and an additional 500 reprints are to be distributed.

An accurate card index and filing system is kept of all records, so that of the 50,000 reports that have been sent out from this laboratory, any one can be found at a moment's notice. Facilities have also been arranged for original research by medical and sanitary officers, who may be sent for that purpose, whether from the R.A.M.C. or the Canadian Corps; a much appreciated piece of research work for the Tetanus Committee on wound infections is at present in progress.

HONOURS.

A SPECIAL supplement to the *London Gazette*, published on June 18th, contains a list of appointments and awards to officers, non-commissioned officers and men for gallantry and devotion to duty in the field. The list includes the following medical officers:

To be Companions of the Distinguished Service Order.

Captain Ernest Stanley Stork, M.B., R.A.M.C., attached Yeomanry.

For conspicuous gallantry and devotion to duty. He displayed untiring energy and devotion to duty in evacuating a large number of wounded under heavy fire. He set a magnificent example of courage and determination.

Captain (temporary Major) Alfred Charles Foster Turner, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He attended wounds under heavy fire day and night without rest. He was ever present along the line from the A.D.S. to the most advanced trenches, and on several occasions faced enemy artillery barrages in order that reserves of stretcher-bearers might reach their objectives.

Captain William Ferguson Wood, M.B., R.A.M.C. (Special Reserve), attached Hrs.

For conspicuous gallantry and devotion to duty. Under most trying circumstances and heavy fire he collected and tended the wounded without rest or food. He frequently made dangerous tours looking for wounded men.

Bar to the Military Cross.

Captain James Alwin Colville Scott, M.C., M.B., R.A.M.C., attached Durham Light Infantry.

For conspicuous gallantry and devotion to duty. He behaved with great courage and coolness in attending the wounded under heavy shell fire. For two days he worked continuously, with an utter disregard for his own safety. By his efforts he was able to ensure the rapid evacuation of the wounded, and undoubtedly saved many lives. (M.C. gazetted January 1st, 1917.)

Military Cross.

Captain William Robert Aspinall, A.M.C., attached Field Artillery.

For conspicuous gallantry and devotion to duty. He displayed the utmost courage and devotion in tending the wounded under heavy fire, assisting them to places of safety until they could be evacuated. He showed the greatest gallantry throughout.

Temporary Captain Vincent Edgar Badcock, M.D., R.A.M.C., attached Highland Light Infantry.

For conspicuous gallantry and devotion to duty. He has behaved in a most gallant manner on several occasions in attending to wounded under intense shell fire, showing an utter disregard of personal danger, and setting a splendid example to all.

Temporary Captain James Harding Barry, R.A.M.C., attached London Regiment.

For conspicuous gallantry and devotion to duty. He showed the utmost coolness and bravery in going out under heavy machine-gun fire and assisting to bring in and attend wounded men. Throughout he set a splendid example to all

Temporary Captain Bertram Henry Barton, M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty. He worked continuously under very heavy fire, and succeeded in bringing in many wounded men. His devotion to duty saved many lives.

Temporary Captain Eric Biddle, R.A.M.C.

For conspicuous gallantry and devotion to duty. He showed great gallantry in supervising the removal of wounded from a heavily shelled area. By his untiring energy and disregard of personal danger he saved many lives.

Captain Richard Thompson Caesar, M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty. On taking over the line, the cellars of the village were full of wounded. He proceeded with bearers to search all the cellars and organized removal of patients. Although the shelling was heavy and practically continuous, he remained all day and succeeded in clearing the village of all wounded.

Temporary Captain John Donal Carroll, M.B., R.A.M.C., attached Royal Warwickshire Regiment.

For conspicuous gallantry and devotion to duty. An observation post had been hit, he immediately went to the spot and attended the wounded, although the enemy continued to concentrate heavy shell fire on the post.

Temporary Captain James Alphonsus Conway, M.D., R.A.M.C., attached Oxford and Bucks Light Infantry.

For conspicuous gallantry and devotion to duty. He worked indefatigably under heavy fire, and by his personal attention saved the lives of a number of men. He set a fine example to all ranks.

*Temporary Lieutenant A. Yeshwant Dabholkar, I.M.S.

For conspicuous gallantry and devotion to duty. Although himself wounded, he displayed great courage and determination in tending wounded men under heavy fire. He set a splendid example to those around him.

*Temporary Lieutenant Erach Ruttonji Daboo, I.M.S.

For conspicuous gallantry and devotion to duty. He went forward at great personal risk and dressed many wounded men under very heavy fire. He was himself wounded.

Temporary Captain Oswald John Day, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He worked continuously under very heavy fire, and was responsible for the evacuation of a large number of wounded.

Captain Walter Elliot Elliot, M.B., R.A.M.C.(S.R.), attached Devonshire Regiment.

For conspicuous gallantry and devotion to duty. He worked continuously throughout the night tending the wounded under heavy fire. His devotion to duty saved many lives.

Captain Henry William Evans, M.B., R.A.M.C.(S.R.).

For conspicuous gallantry and devotion to duty. He showed the utmost bravery and zeal when commanding a stretcher-bearer division. He directed the bearers and tended the wounded in the open. By his exertions he secured the efficient clearing of the wounded over very long distances.

Captain Alfred George Timbrell Fisher, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. The advanced dressing station of which he was in command was destroyed by shell fire, and, although himself severely shaken, he succeeded in forming a fresh dressing station.

Temporary Captain Frederick George Flood, M.B., R.A.M.C. (S.R.).

For conspicuous gallantry and devotion to duty. He displayed great courage and determination in tending the wounded under very heavy fire. His disregard of personal danger inspired all ranks. He has previously done fine work.

Captain Arthur Stuart Hebblethwaite, M.B., R.A.M.C., attached London Regiment.

For conspicuous gallantry and devotion to duty. He organized and trained a detachment of stretcher-bearers and supervised their operation under heavy fire. All casualties were cleared within a short time of the completion of the operations. This was due to the excellent training and example set by this officer.

Captain Ronald Lennox Henderson, A.A.M.C., attached Infantry.

For conspicuous gallantry and devotion to duty. He displayed great courage and determination in tending the wounded under very heavy fire. His devotion to duty saved many lives.

Temporary Captain Daniel Kennedy, R.A.M.C., attached Lancers.

For conspicuous gallantry and devotion to duty. He tended the wounded under very heavy machine gun and shell fire, to which he was continuously exposed. It was owing to his bravery and untiring devotion that many lives were saved.

Captain William Duncan Kirkland, Australian A.M.C., attached Field Artillery.

For conspicuous gallantry and devotion to duty. During hostile shelling two ammunition dumps were set on fire, also causing several casualties. He immediately went to the assistance of the wounded, and, regardless of heavy shell fire and numerous explosions, dressed their wounds. He has at all times set a fine example.

*Temporary Captain John Low, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He brought forward his bearer subdivision and established a dressing station under heavy fire, thereby relieving the regimental aid posts. He worked continuously for thirty-six hours.

Captain Gilbert Moore, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He was in command of the evacuation of the wounded for several weeks on an advanced front. He displayed skill in working his dispositions, and personally superintended the evacuation under heavy shell fire.

Captain William Fraser Munro, M.B., R.A.M.C.(S.R.).

For conspicuous gallantry and devotion to duty. He worked continuously for forty-eight hours under very heavy fire, and was responsible for the evacuation of a large number of wounded. He set a splendid example to all ranks.

* The names marked with an asterisk appeared in the *London Gazette* dated either March 17th or April 26th. 1917.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Captain Stanley Vincent O'Regan, A.A.M.C., attached Infantry.
For conspicuous gallantry and devotion to duty. He worked continuously throughout the day tending to the wounded under very heavy fire. He set a fine example to all ranks.

Captain John Dover Proud, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He worked continuously for forty-eight hours under heavy fire and succeeded in bringing in many wounded men.

Temporary Captain Arthur Wilmot Raymond, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He organized and led a rescue party to dig out some men partially buried by the explosion of a shell in a captured enemy gun pit. He set a splendid example of courage and determination.

Temporary Captain Arthur Paul Saint, R.A.M.C., attached King's Royal Rifle Corps.
For conspicuous gallantry and devotion to duty. He displayed great courage and determination in tending the wounded under heavy fire. His devotion to duty saved many lives.

Temporary Captain Humphrey Meigh Stephenson, R.A.M.C., attached Rifle Brigade.
For conspicuous gallantry and devotion to duty. He tended the wounded under heavy fire, and showed a complete disregard for his personal safety. He set a magnificent example throughout.

Temporary Captain James Williamson Tocher, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He displayed great courage and determination in attending to wounded for many hours during an intense hostile bombardment. He set a fine example to all ranks.

Temporary Captain Frank Muir Walker, M.B., R.A.M.C., attached Royal Horse Artillery (Lieutenant C.A.M.C.).
For conspicuous gallantry and devotion to duty. He has displayed the utmost gallantry and devotion to duty when under heavy fire, particularly when he went through a heavy barrage to some wounded men, and tended them in the open for an hour.

Temporary Captain Thomas Arnold Watson, M.D., R.A.M.C., attached King's Royal Rifle Corps.
For conspicuous gallantry and devotion to duty. He displayed great courage and determination in tending the wounded under heavy fire. His devotion to duty saved many lives.

Captain Hugh Alexander Wyllie, A.A.M.C., attached Infantry.
For conspicuous gallantry and devotion to duty. He tended the wounded continuously for two days under heavy fire. He set a splendid example of courage and determination.

Captain Charles Owen James Young, M.B., R.A.M.C., Special Reserve.
For conspicuous gallantry and devotion to duty. He went out under heavy shell fire and attended several wounded men in the open. He has on previous occasions shown fine disregard of personal danger in the face of heavy fire.

The D.C.M. has been conferred upon one sergeant in the R.A.M.C.; the Military Medal upon 64 non-commissioned officers and men of the R.A.M.C., and 14 of the A.A.M.C.; and the Meritorious Service Medal upon six members of the R.A.M.C., and two of the A.A.M.C.

A supplement to the *London Gazette*, issued on June 14th, announces the names of recipients of rewards for gallantry and meritorious service on the occasion of the mining of a hospital ship. Major Robert Thornton Meadows, R.A.M.C., receives the D.S.O.; the Order of the Royal Red Cross—first class—is conferred upon Miss Katherine Conway Jones, Matron of the T.F.N.S.Res.; and that of the second class upon two Sisters of the Q.A.I.M.N.S. Four men of the R.A.M.C. receive the Meritorious Service Medal in recognition of devotion to duty on the same occasion.

MENTIONED IN DISPATCHES.

The following medical officers are included in the list of medical officers brought to the notice of the Secretary of State for War for distinguished services rendered in connexion with the operations at Shaiba in April, 1915: Captain A. N. Thomas, I.M.S.; Lieutenant N. S. Jaton, I.M.S.; Temporary Lieutenant W. B. Patel, I.M.S.; Assistant Surgeon M. J. Nicholas, I.S.M.D.; and Senior Subassistant Surgeon Azhair Husain.

CORRECTIONS.

The following correction in the announcement in the *London Gazette* of January 1st, 1917, is announced: Military Cross Award—For Captain Charles Beverley Metcalfe, A.A.M.C., read Captain James Beverley Metcalfe, A.A.M.C.

The undermentioned officers granted rewards in the Honours Gazette of June 4th are now correctly described: Lieut.-Colonel Chester Fish McGuffin, D.S.O., C.A.M.C., Temporary Captain James Robertson Mitchell, M.C., M.B., R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

MAJOR W. G. PORTER, D.S.O., R.F.A.

Major William Guthrie Porter, D.S.O., Royal Field Artillery, was killed in action on June 9th. He was educated at Edinburgh University, where he graduated B.Sc. in 1898 and M.B. and Ch.B. in 1902; also studying at Berlin, Freiburg, Greifswald, and Paris, and taking the F.R.C.S. in 1906. After filling the posts of surgical tutor, house-surgeon, and house-physician in the Edinburgh Royal Infirmary, and of clinical tutor in the ear and throat department of that infirmary, he went into practice in Edinburgh as specialist on the ear and throat. He held the appointments of surgeon to the Ear, Eye, and Throat Infirmary, of surgeon to the ear and throat department of the Edinburgh Royal Hospital for Sick Children, and of aurist to the Edinburgh Royal Institution for the Education of the Deaf and Dumb. For several years past he had held a commission in the 2nd City of Edinburgh Battery R.F.A.(T.F.), in which he attained the rank of captain on February 16th, 1913. He had recently received the D.S.O. and been promoted to major.

CAPTAIN L. E. CLARK, C.A.M.C.

Captain L. E. Clark, Canadian Army Medical Corps, was reported as killed in action, in the casualty list published June 15th.

CAPTAIN F. J. H. T. FRERE, M.C., R.A.M.C.

Captain Frederick John Henry Tobias Frere, M.C., R.A.M.C., was killed in action, aged 27, on June 9th, while attending to the wounded in the first line trenches. He was educated at the Durham and Newcastle School of Medicine, and graduated M.B. and B.S.Durh. in 1913; afterwards he acted as house-surgeon of Newcastle Royal Infirmary. He joined the Special Reserve of the R.A.M.C. as lieutenant on August 12th, 1914, and was promoted to captain after a year's service. He served in the Gallipoli campaign, where he gained the Military Cross. His younger brother, Second Lieutenant Lionel Frere, East Yorkshire Regiment, was killed in action in September, 1915. Both brothers were well-known Rugby football players.

CAPTAIN O. HAIRSINE, M.C., R.A.M.C.

Captain Owen Hairsine, R.A.M.C., was killed in action on June 7th, aged 26. He was the youngest son of Mr. H. S. Hairsine, of Hampstead, and was educated at the Middlesex Hospital, taking the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1914. He entered the Special Reserve of the R.A.M.C. as lieutenant on November 29th, 1913, and joined for duty on August 8th, 1914. He received the Military Cross on January 14th, 1916. He had served in the retreat from Mons.

CAPTAIN D. R. KING, R.A.M.C.

Captain Douglas Reid King, R.A.M.C., was killed in action in the beginning of June. He was the son of the late Mr. John King, of Helensburgh and Cove, and was educated at Larchfield Academy and at Glasgow University, where he graduated M.B. and Ch.B. in 1914. He entered the Special Reserve of the R.A.M.C. as lieutenant on May 1st, 1913, and joined for duty on September 15th, 1914. He was mentioned in dispatches in 1915, and received the Military Cross on June 3rd, 1917.

Died of Wounds.

CAPTAIN W. A. SMITH, R.A.M.C.

Captain William Alexander Smith, R.A.M.C., died of wounds received during the recent fighting. He was the son of Mr. William Smith, of Gowanlea, Hatton of Cruden, and was educated at Robert Gordon's Technical College, Aberdeen, and at Aberdeen University, where he graduated M.B. and Ch.B. in 1904. After filling the post of junior house-surgeon at the North Riding Infirmary, Middlesbrough, he went into practice at Wesham, near Kirkham, Lancashire, where he held the appointment of medical officer of No. 2 district of the Fylde Union, till he took a temporary commission in the R.A.M.C. He went to the front last February.

Wounded.

Colonel A. W. N. Bowen, R.A.M.C.
Lieut-Colonel A. E. Hodder, R.A.M.C.(T.F.).
Captain C. H. Carlton, R.A.M.C. (temporary).
Captain W. M. Cox, R.A.M.C.(T.F.).
Captain E. D. Gairdner, R.A.M.C.(T.F.).
Captain A. C. Giles, R.A.M.C. (temporary).
Captain P. Hudson, R.A.M.C. (temporary).
Captain W. B. Loveless, R.A.M.C. (temporary).
Captain A. J. McCreadie, R.A.M.C. (temporary).

Captain J. Macmillan, R.A.M.C.(T.F.).
Captain J. Marshall, New Zealand Medical Corps.
Captain H. C. D. Miller, R.A.M.C. (temporary).
Captain J. D. Milne, R.A.M.C. (temporary).
Captain O. de Muth, R.A.M.C. (temporary).
Captain J. J. Sinclair, R.A.M.C. (temporary).
Captain R. W. Smith, R.A.M.C. (temporary).
Captain C. Witts, R.A.M.C. (temporary).
Captain K. J. Yeo, R.A.M.C. (temporary).
Lieutenant F. G. Hack, R.A.M.C. (temporary).
Lieutenant A. G. H. Smart, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Bolster, Richard, M.C., Major Royal Artillery, elder son of the late Surgeon-General T. Bolster, R.N., killed June 4th. He resided at Meopham, Kent, joined the Reserve of Officers, R.F.A., in August, 1916, became acting major in October, and received the Military Cross on January 1st, 1917.

Dighton, Leslie Probyn, Sergeant 13th Company, 2nd Canterbury Battalion, New Zealanders, youngest son of Dr. A. Adair Dighton, Cheltenham, killed June 7th, 1917, at Messines. He was late manager Neuchatel Asphalte Company, New Zealand.

Graham, Henry Balfour, Second Lieutenant Black Watch (Royal Highlanders), younger son of Lieutenant-Colonel R. Balfour Graham, V.D., R.A.M.C., of Leven, Fife, killed May 8th, aged 23. He was educated at the Academy and University of Edinburgh, and had previously been wounded in September, 1915. His first commission was dated October 3rd, 1914.

Lewis, Cuthbert Preston, Second Lieutenant Royal Engineers, B.Sc., A.R.C.S., only son of Dr. Preston Lewis, of Brixton Hill, S.W., killed June 8th, aged 26.

Mackintosh, Donald, Lieutenant Seaforth Highlanders, aged 21, reported killed in action on April 11th. He was the only son of Colonel Donald J. Mackintosh, C.B., medical superintendent of the Western Infirmary, Glasgow, and Assistant Director of Medical Services for the Lowland Divisional area of Scotland. He was educated at Glasgow Academy, St. Ninian's, Moffat, and Fettes College. He was wounded in April, 1916, while serving with the Seaforth Highlanders. He had previously been reported wounded and missing, and at the end of May was reported as killed in action on April 11th. He was one of the officers recently awarded the V.C.; the act of heroism for which the award was made being officially recorded as follows:

For most conspicuous bravery and resolution in the face of intense machine gun fire. During the initial advance he was shot through the right leg, but though crippled he continued to lead his men and captured the trench. In the captured trench Lieutenant Mackintosh collected men of another company who had lost their leader and drove back a counter-attack. He was again wounded, and although unable to stand he continued nevertheless to control the situation. With only fifteen men left, he ordered his party to be ready to advance to the final objective, and with great difficulty got out of the trench and encouraged his men to advance. He was again wounded and fell. The gallantry and devotion to duty of this officer were beyond all praise.

Tonking, David Wilson, Second Lieutenant (acting Captain) Duke of Cornwall's Light Infantry, and attached to the Royal Warwick Regiment, son of Dr. John H. Tonking, of Trevu, Camborne, Cornwall, died of wounds May 29th, aged 25. He got his commission on May 9th, 1915.

Watthews, Harold, Lieutenant West Riding Regiment, third son of Dr. Watthews of Holmfirth, Yorkshire. He received his commission in March, 1915, and was promoted to lieutenant in November, 1915, while still in his eighteenth year. He proceeded to France in February, 1917, and was killed in action on June 7th.

Woodforde, Hector Sidney Ridout, Private, 12th Battalion Australian Imperial Force, third son of Dr. Woodforde, of Goondiwindi, Queensland, killed February 25th. He was educated at Toowoomba Grammar School, Queensland.

MEDICAL STUDENT.

Holt, John Heber Goulburn, son of John Edward Holt, of Flixton, near Manchester, Private, Manchester Regiment, died of cerebral haemorrhage on June 7th, while training at Harrowby Camp. He was educated at Manchester Grammar School and Manchester University, where he was a medical student.

Second Lieutenant Ivan H. McCaw, Royal Irish Rifles, son of Dr. John McCaw of Belfast, has been wounded in the neck, shoulder, and right arm. He joined the Ulster Division in France in June, 1916, and took part in the battle of the Somme in July, 1916. Prior to receiving his commission he was a second year student in the Medical Faculty of Queen's University.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

NOTES.

THE ARMY MEDICAL SERVICE AT THE ANCRE.

IN his dispatch describing the operations of the British armies in France from the middle of November, 1916, to the opening of this year's offensive on April 9th, with the victory of Arras, Field Marshal Sir Douglas Haig makes the following reference to the work of the medical service during the operations on the Ancre:

The fighting on the Ancre and subsequent advance made large demands upon the devotion of our medical services. The health of the troops during the period covered by this dispatch has been satisfactory, notwithstanding the discomfort and exposure to which they were subjected during the extreme cold of the winter, especially in the areas taken over from the enemy.

MIDDLESEX MILITARY GENERAL HOSPITAL.

We are informed that the officer personnel of the unit authorized by the War Office to be raised at the Middlesex Hospital "Mobilization Centre" by Lieut.-Colonel Sir James K. Fowler is complete. A supplementary list has been formed from which vacancies will be filled as they arise. This list remains open. Many offers which could not be accepted have been received from men beyond the limit of age for service abroad.

Nurses and V.A.D.'s trained at the Middlesex Hospital are still required for service with this unit. The age limit is 45 years. Applications should be addressed to the Lady Superintendent, the Middlesex Hospital, W.

EDUCATIVE CONVALESCENCE FOR WOUNDED SOLDIERS.

A meeting to promote the interests of educative convalescence for wounded soldiers in the Heritage Craft Schools for Cripples at Chailey was held on June 14th at King's College, University of London. Sir A. Pearce Gould, vice-chancellor, who presided, said he knew of no place better designed than Chailey to re-establish mental and physical health. Nothing was so valuable alike to the tired and convalescent as some place which afforded a view of far-stretching country. The provision of artificial limbs was in itself of little value unless the men were taught to use them, and in this connexion the wholly important thing was not mere technical instruction, but the spirit of the men themselves. The instruction came from boy cripples, who had themselves surmounted the very infirmity with which the disabled man was newly faced; thus the teaching was infused with hope. Among the other speakers was Mrs. Scharlieb, who said that the Chailey treatment was the best means of saving disabled men from idleness and discontent, and thereby from moral peril.

England and Wales.

LECTURESHIP IN OPHTHALMOLOGY, LIVERPOOL.

MR. THOMAS H. BICKERTON, Honorary Consulting Ophthalmic Surgeon to the Royal Infirmary, has been appointed by the University to the lectureship on ophthalmology, in the place of Mr. Edgar A. Browne, who recently resigned the post. Mr. Bickerton has been asked by the Committee of the Royal Infirmary to continue his duties as ophthalmic surgeon until after the war.

CONTROL OF VENEREAL DISEASE.

The second annual meeting of the National Council for Combating Venereal Diseases was held at the Queen's Hall, London, on June 13th. Lord Sydenham presided, and the principal speaker was Lord Rhondda, then President of the Local Government Board, who brought with him a message from the King expressing satisfaction at the steady growth of public opinion in favour of the movement, and congratulating public health and hospital authorities on what they had already achieved in organizing measures for the treatment of venereal diseases. Lord Rhondda said that schemes for the diagnosis and treatment of venereal diseases had been submitted by 102 out of 145 local councils in England and Wales; the schemes submitted covered a population of 26 millions out of the total of 36 millions, and the number of councils whose schemes had been approved up to the present was 68, covering a population of 20 millions. Work had been started at fifty-two hospitals, and it was estimated that the free treatment provided at these hospitals would serve a population of about 16 millions. In the first five months of the present year 6,000 new cases had been treated in the London clinics alone, and in one of the big towns outside London 1,000 new cases had been treated. A legislative measure had recently been passed into law which rendered the treatment of venereal diseases by unqualified persons illegal. It was not a heroic measure, he said, but was intended merely to supplement the work done by the

LIBRARY U. OF I. URBANA-CHAMPAIGN

hospitals and local authorities. Sir Alfred Keogh spoke on the incidence of the diseases in the army. This group of diseases, he said, was often spoken of as though it was peculiar to the army, because it was only in the army that it had been possible to study these diseases statistically. It was perfectly true that many years ago these diseases were more common in the army than among the civil population, but this was certainly not the case now. The admission rate in the army to hospitals in the United Kingdom for these diseases was 90 per 1,000 in 1905, and in 1913 it had fallen to 50 per 1,000; in India during the same period the admission rate had fallen from 154 to 52 per 1,000. The consequences of these diseases in impairing the efficiency of the armies in the field were still serious, and it had to be remembered that many admissions to hospitals for other complaints should really come under the heading of syphilis, which at least had aggravated the other condition. In the army in France the admission rate for these diseases now was 21 per 1,000; in Egypt 32 per 1,000, and at home 48 per 1,000. The Lord Mayor of Liverpool then described what was being done in his own city, where, he said, lectures had been given to thousands of men and women, and practically all the general hospitals had established wards for treatment. The midwives were being taken into co-operation, and if they detected a venereal condition at the birth of a child they were paid to bring the mother to the hospitals to be thoroughly treated. Fallen women in the prisons were also encouraged to go straight to the hospitals on their release, and the majority voluntarily did so. Other speakers were Mrs. Creighton and Sir Malcolm Morris; the latter declared that as a council they were opposed to the whole policy of artificial prophylaxis; the prophylaxis they believed in and did their best to support was of the moral kind.

MATERNITY AND CHILD WELFARE IN LONDON.

At the meeting of the London County Council on June 19th the question of delegating to borough councils certain powers and duties at present vested in the County Council, including the local control and supervision of midwives and the inspection of lying-in homes, again came up for consideration. The M.O.H. for Lewisham had prepared a scheme of local control and inspection, and the council of that borough, supported by certain others, passed a resolution in favour of delegation. The County Council, however, expressed the view in March last that, so far as powers under the Midwives Act were concerned, such delegation would not make for efficiency or economy in administration. The views of the Public Health Committee on the proposals as affecting the services with which it is concerned were not at that time forthcoming. The Public Health Committee now reported with regard to the inspection of lying-in homes and the powers under the Children Act relating to infants and young children nursed and maintained for reward that it would be unfortunate to discourage a serious attempt on the part of a borough council to deal comprehensively with this important matter, and expressed the opinion that if it were known that the Council was prepared to consider sympathetically such requests from borough councils it would be an incentive to those councils to raise their public health standard. The committee suggested, therefore, that the Lewisham Council should be authorized to act according to its scheme for one year as an experiment, all such concessions to be conditional upon a satisfactory maternity and child welfare scheme being approved by the Local Government Board and the appointment of an adequate staff for the carrying out of such a scheme. Two letters from the Local Government Board were put in, stating that the department would only grant powers of inspection of midwives and lying-in homes to local sanitary authorities which had satisfactory schemes of maternity and child welfare; as the Lewisham Borough Council had such a scheme and had appointed the necessary staff for carrying it out, it seemed that it would be an advantage to delegate powers in this case. The Midwives Act Committee of the County Council adhered to its opinion against delegation, and in view of this difference between the two executive committees concerned, the Council, to avoid controversy, agreed to the postponement of further consideration until after the war, when a definite reply will be given to the Lewisham and other borough councils which have approached the County Council on this matter.

Scotland.

MEDICAL BUREAUX IN EDINBURGH.

THE Edinburgh Panel Committee has resolved, with the full approval of the Scottish Insurance Commissioners and the Burgh Insurance Committees, to establish a system of medical bureaux throughout the city in order that the medical needs of insured persons left without their doctors may be fully met. Down to May, twenty-eight out of a list of eighty-two insurance practitioners resident in the city area, with a panel list of over 23,000 insured persons, were on military service. These were attended by a certain number of doctors, the arrangements being made partly by the doctors themselves before leaving and partly by the Panel Committee. This method worked fairly well, though some of the doctors were undoubtedly overtaxed. When, however, another ten insurance doctors, making a total of over 46 per cent. of the available doctors, with a further panel list of 15,000, were called up, it was felt that the present system could not go on any longer, and that something more must be done to meet the emergency. After full consideration it was then decided that a system of bureaux should be set up at once, whereby a more equal distribution of the extra work could be carried out without putting undue strain on any individual doctor, and thus avoiding the risk of further depletion by the breakdown of some of the older men here and there.

Arrangements have been made to open three bureaux on Monday, July 2nd—a Central at 12, Archibald Place, an Eastern at 4, Dalziel Place, London Road, and a Western at 8, Henderson Terrace, Dalry—for consultations each evening, and for the receipt of messages for visits. The bureaux will be staffed by a number of experienced women clerks who will undertake all the clerical work. Provision is made for the receipt of night messages by the caretaker at the Central Bureau, and telephone facilities have been generously granted by the chief constable and firemaster at the various police and fire stations. The consultations will be given by a rota of doctors, two at each bureau, their turn being once a week, so far as it can be arranged. It is hoped that by the hearty co-operation of the doctors involved in doing their share in this emergency measure, and by strict attention to the necessary rules on the part of insured persons, the administration of the bureaux will run smoothly and be a complete success.

CURATIVE WORKSHOPS.

The orthopaedic department of the First Scottish General Hospital, Aberdeen, is established at Oldmill, and now provides 250 beds. This total, it is announced, is to be increased at an early date to 500. The institution has a massage and electrical department, and a medical officer in charge of each. The *Scotsman* announces that the electrical equipment and the equipment for movement exercises is now practically complete, that a new ward of 50 beds has recently been opened, and that an installation of whirlpool baths is shortly to be set up. The curative workshops are already in full operation. The men are, if possible, put to work at their old trade, though a certain number are being instructed in new crafts where the nature of their injury interferes with the resumption of their former trade. It is hoped to utilize the services of a number of disabled men in outdoor work, such as gardening and nursery work. The appeal for funds for equipment of the orthopaedic department has met with a generous response in the districts of Scotland served by the institution at Oldmill, but further subscriptions are desired. They may be sent to the honorary secretary of the branch of the county or city in which the subscriber lives, or to the treasurer of the fund, Mr. William Smith, Canada House, 201, Union Street, Aberdeen.

THE eighth Pan-American Medical Congress will be held in September, 1918, in Buenos Aires.

Correspondence.

QUO VADIS?

SIR,—I have recently received two communications—one headed National Health Insurance and the other Doc. 19 of the Insurance Acts Committee; the former purported to be an account of what our Association has done for panel practitioners in the past, the latter gives reasons, and very convincing ones, for prophesying the approach of a fight every whit as strenuous as that of 1911, to meet which the first document gives something more than a sketch of the Association's plan of campaign, which may be briefly described as a strike, though it is disguised under the name of a general refusal on the part of insurance practitioners to renew their contracts.

The only tangible fact I can find as to the work of the British Medical Association for panel practitioners is that the effort of the Association succeeded in obtaining one and a half million of extra remuneration, and the irony of the situation as it turned out was that this extra remuneration was sufficient to cause the defeat of the avowed and official policy of the Association, which was "that work under the Insurance Act is derogatory to the honour and interests of the profession," through its sufficiency to tempt the weaker brethren to break their pledges, but it was not enough to salve the "honour and interests" of those who accepted work on the panel, for they have been dissatisfied with their lot ever since they worked under the Act.

I now wish very earnestly and seriously to put two questions to every member of our Association.

Question No. 1: If the solemn pledges of 1911 were cast aside on a little monetary temptation, will not the pledges given in the next fight be cast aside with equal facility in the hour of temptation? The only possible answer I can see is "Yes," unless the Association can guarantee the givers of the pledge against monetary ruin.

Question 2: Is it probable or even possible (under our constitution) that our Association can be in a position (*a*) to advocate a strike and (*b*) to support the strikers while on strike? The answer to (*a*) seems to me to be in the negative, but our legal adviser might be able to give a more certain reply. The answer to (*b*) seems to me also to be in the negative, judging by the experience of the 1911 fight.

Out of all this or beyond it comes the further consideration whether we wish to see the British Medical Association converted into a trade union, for nothing short of a trade union with trade union discipline and freedom from the law can ensure obedience to pledges and money enough to support a strike. I understand that panel practitioners have one if not two trade unions registered as such, and surely the advocacy and support of a strike is the business of such a union, and not of the British Medical Association.—I am, etc.,

London, W., June 19th. FRED. J. SMITH.

THE CO-ORDINATION OF BRITISH MEDICAL POLICY.

SIR,—As an active and loyal member of the British Medical Association, it gives me great pleasure to read the letter from Dr. Gordon in the JOURNAL of June 9th. It shows that a spirit of organization and reconstruction is abroad, and that the profession are realizing the necessities of the situation. It also shows that there are others beside myself who recognize that the Association is not sufficiently equipped for the coming struggle.

Dr. Gordon admits that the Association is "unsatisfactorily organized." He expresses the belief that "the Association . . . will fail us again," and yet he avers that "we must rely on the British Medical Association." Many, very many, in the profession will subscribe to all this. Hence the growth of what he terms "certain (much smaller) associations." He then proceeds to suggest remedies of a screwing up or patching nature to enable the Association to cope with the "intrigues of interested politicians." Before commencing hostilities it is imperative that we should discover the character of the enemy, and nothing can be clearer than his own words, namely, intrigues of politicians interested in the security of their own positions (he cannot mean that they are interested in ours). Now I had the honour recently to head a deputation to a member of Parliament responsible for a Government department. As we were leaving the room this gentleman said: "You are quite right, gentlemen, to organize upon a trade union basis. I am a politician myself, and I can tell you that the only argument which carries any weight is the question of *votes*." Herein is the weakness and the cause of "failure" of our Association. It cannot influence a parliamentary election in the slightest degree. If it were to attempt to do so its charter would bring down on it certain grave disabilities. Yet we are told that unless it can influence the elections it will fail as before.

What, then, is the answer to the riddle? No internal reorganization will compensate for the want of physical force, which, as Dr. Gordon admits, is the basis of trade unionism. This, then, is the answer: A separate medical trade union should be formed (in fact, is formed), and this union should take up the fight at the point where the Association begins to fail. This union will then, with its funds protected by the Trades Union Acts, step into the political arena, take its place on all the political platforms all over the country, provide fighting funds and fighting men in every constituency to oppose non-sympathetic candidates or support favourable ones, turn every doctor's surgery into a political committee room until the politicians are compelled to recognize that here at last is a force that will have to be reckoned with. This is political action in contradistinction to the old methods of resolutions and memoranda. Dr. Gordon admits we must fight politically. Does he realize what this means? Does he contend that we are to enter the political arena less well equipped than our opponents?

He somewhat pathetically talks of "sympathetic collaboration" on the part of the Legislature. Does he really suppose that Parliament, as now constituted, cares one jot about an "association of cultivated persons," or would pay the slightest attention to their representations in the face of the pressure from lay trade unions and friendly societies who can affect the votes?

I thoroughly agree when he says that we must rely upon our great Association, but I would not rely on it alone.

By all means let the Association "purge itself of trade unionism." The rise of other associations gives it the opportunity to do so. Let it plume itself upon its "scientific and social position," but let it beware lest in the coming struggle it will find itself without heavy artillery. It should therefore encourage and co-operate with a union which is able to supply what it evidently lacks, and which it seems unable or unwilling to provide for itself. There is great need for *two* associations.—I am, etc.,

Hampstead, June 12th. W. COODE ADAMS.

Part-time State Medical Service.

SIR,—I think that attention ought to be drawn to the scheme of part-time State medical service so ably outlined by your correspondent, Dr. G. E. Haslip, in the JOURNAL of June 2nd, p. 747. If by adoption—say at the next Annual Representative Meeting in July—some such policy could be presented as that of the British Medical Association, we should be in a strong position to assist the new Ministry of Health by upholding the legitimate financial claims of the profession and at the same time carrying out the noblest aspirations of medical science—namely, the provision of means for securing the continued welfare and happiness of the English nation.—I am, etc.,

Hove, June 17th. W. AINSLIE HOLLIS.

AUXILIARY HOSPITALS IN SCOTLAND.

SIR,—In the article on military hospital economies published in your issue of June 16th you draw attention to the position of the existing auxiliary military hospitals, and express the view that they need further efficient inspection, so as to obviate several drawbacks which you consider are due to the present system of management.

I cannot speak from any personal knowledge of the English hospitals, but I can say most confidently that the criticism levelled against them does not hold good as regards our Scottish Auxiliary Red Cross hospitals. All of these have been established by the Scottish branch of

LIBRARY U. OF I. URBANA-CHAMPAIGN

the British Red Cross Society with the approval of the Scottish Command, and are all known as Auxiliary Red Cross hospitals. There are no V.A.D. hospitals in Scotland, but V.A.D. members serve in them, as well as in the military hospitals.

I have just returned from visiting thirty-three of these auxiliary hospitals in the North-East of Scotland, and I am satisfied, and I believe the Scottish Command is also satisfied, that the patients are not kept in them too long, that there is a regular visitation of all the cases over thirty days, and that the patients in them are well fed and economically so. In the district I refer to the hospitals carry on their work at a grant of 2s. per day in the majority of the cases. Few are given the 2s. 6d. grant, and in two cases only is 3s. a day paid. In the two latter the extra sum has been sanctioned because of special hospital treatment that is being given.

As regards the staffing of the Scottish Auxiliary Hospitals, I am satisfied that if this is looked into it will be found that none of them keep any medical men from active service, and that they are attended by medical men who are either over military age or are considered necessary for work in the district. A very regular system of visitation has been arranged, and is carried out from the central hospitals.

Further, in Scotland the country has been divided into four districts, and for each of these a Commissioner has been appointed, whose duty is to take charge of the auxiliary hospitals and report regularly to the Scottish Command about them. Three of the Commissioners are medical men, and in the case of one district, where the Commissioner is not qualified, a Medical Assistant Commissioner has been appointed. This system has been found to work well, and I am convinced that only suitable cases are sent to each hospital, that the trivial cases are discharged as soon as possible to Command dépôts or to their own dépôts for return to the army, and that by means of the cards issued with each patient the treatment started in the central hospital from which the patient has come is continued. Any patients not making satisfactory progress are suitably dealt with, and cases requiring any special treatment, orthopaedic or otherwise, are at once transferred to centres where this can be carried out. Speaking generally, I am of opinion that our Scottish Auxiliary Hospitals are playing a very useful and important rôle in the care of the sick and wounded, and that they would emerge satisfactorily from any inquiry.—I am, etc.,

GEORGE THOS. BEATSON, M.D.,
Chairman, Scottish Branch B.R.C.Soc.

Glasgow, June 19th.

*** Sir George Beatson has sent us a copy of the Commissioner's weekly statement on Red Cross work in the North-Eastern District of Scotland, containing a letter dated June 17th, 1917, from the A.D.M.S. of the Eastern District, who, at the end of his week's tour of inspection of the Red Cross hospitals in the N.E. district, records his high opinion of their excellent management. "Where there are so many hospitals the conditions naturally vary, some being better than others, but in all cases a very high standard of excellence has been maintained. The staff is capable and attentive." In conclusion, he asks the Commissioner to convey to all concerned his "appreciation and admiration of the excellent work done in this area in the interests of the soldiers, and of the high degree of efficiency that prevails."

THE GRIEVANCES OF TERRITORIAL MEDICAL OFFICERS.

SIR,—I have read the letter of "O.C." in the BRITISH MEDICAL JOURNAL of June 2nd, but I do not see how his suggestion would work. He says that if his suggestion were adopted, "captains would obtain their majorities at the end of nine years' service, and majors be promoted lieutenant-colonels at the end of twelve years' total service." It is laid down in T.F. Regulations, para. 102, that lieutenants will be eligible for promotion to captain after three and a half years' service, and captains will be eligible for promotion to major after eight and a half years' service *as captain*—that is, after twelve years' total service. I see how "O.C.'s" scheme would accelerate the promotion of captains to major by three years, but I fail to follow him when he says, "majors would be promoted lieutenant-colonels at the end of twelve years," because promotion to lieutenant-colonel is rather different. "There will be a fixed establishment of lieutenant-colonels. Promotion to this rank will be by selection to fill vacancies from majors who have qualified" (T.F. Regulations, para. 102); "have qualified" meaning, have passed Examination D. (written) (T.F. Regulations, para. 281).

Promotion before this war was practically on the same footing for all R.A.M.C. officers, whether they were Regular, Special Reserve, or Territorial, and it is a trifle difficult to see any very good reason why the "temporary" officer should be "pushed up" more rapidly; he did no soldiering before the war, why should he then be selected for special favour now? The other suggestions in "O.C.'s" letter are reasonable.—I am, etc.,

June 10th. TERRITORIAL FORCE.

SIR,—The leading article in the JOURNAL of June 9th on the "Position of the Territorial medical officer who is *à la suite* of a Territorial general hospital" correctly represents the belief of the officers concerned.

Members "in the field" who get their JOURNALS will welcome any reference to the R.A.M.C.(T.F.), for they are treasuring the hope that the Association is still holding a brief for their interests. It will be within the recollection of all that in September, 1914, these officers were invited to offer themselves for general service, and many willingly, and at great personal sacrifice, sent in their names, and were accepted for such service.

Letters have been published in the JOURNAL from time to time which have raised the hopes of Territorial medical officers that something would be done with regard to their promotion; and they are hoping that the Association will use its influence and organization in this direction, for there is no question about there being a good cause of grievance.

Let it be remembered that:

1. These officers were originally selected from distinguished members of the profession (Para. 75, T.F.Reg.).
2. Some of them have been in France for between two and three years.
3. They are men of considerable experience.
4. Some have given up everything, even to the selling of their practices, in order to devote themselves entirely to their country.
5. They are of the same rank as men who, obtaining a commission as early as possible, have been qualified only one year.
6. There is no captain in the Regular R.A.M.C. of a date earlier than 1909.
7. When they were given their commissions as captains they were eligible for promotion to the rank of major after eight and a half years' service (Para. 102), this paragraph being amended in January, 1916, to twelve years.
8. Although otherwise eligible for higher positions they find themselves passed over, and see officers otherwise their juniors given these positions.

The Territorial officers R.A.M.C. are looking to the British Medical Association to do all in its power to obtain some satisfactory solution to this question of promotion.

It may not be possible nor to the interests of the service to promote all; but surely preferential treatment might be given to those who have given up everything and have been in France for, say, over two years, and have been original members of their units?

Nor would this adversely affect those members of the same unit who are doing duty at home, for those in the field are presumably out for the duration of the war; and some have even given up their residences in the area of their units.—I am, etc.,

June 13th. A LATE REPRESENTATIVE.

*** If our correspondent will refer to the SUPPLEMENT of May 19th, p. 116, he will find the text of an additional memorandum submitted by the Naval and Military Committee of the Association to Mr. Churchill's Committee pointing out that there was a widespread feeling that Territorial medical officers do not receive the sympathetic treatment they deserve and making a series of specific suggestions. Among the suggestions made was one

having reference to the promotion to the rank of major of those who prior to the outbreak of war held the rank of captain in the R.A.M.C.(T.F.) and another recommending that there should be a representative on the staff of the Director-General A.M.S. specially to deal with the questions affecting Territorial medical officers. On June 13th, 1917, Colonel J. Raglan Thomas, V.D. (late A.M.S., T.F.), accompanied by the Deputy Medical Secretary, appeared before the Departmental Committee on Promotion and gave evidence in support of the memorandums already submitted to the Committee by the Association (see SUPPLEMENTS, March 17th, 1917, and May 19th, 1917). The various points put before the Committee were very favourably received, and it is hoped to publish a fuller note on the matter at an early date.

INTRAVENOUS INJECTIONS OF TARTAR EMETIC IN MALARIA.

SIR,—Immediately after reading Sir L. Rogers's account of the treatment of malaria with intravenous injections of tartar emetic,[1] we tried this method on six cases of malaria—three of benign tertian and three malignant. In none was any diminution in the number of parasites, gametozoa or schizonts, apparent. In one—benign tertian—the number of gametozoa was greatly increased. In none was the course of the fever favourably affected.

In the first case the initial dose was half a grain. In the remaining five cases we began with 1 grain (0.08 gram). This dose usually caused severe headache with a feeling of fullness in the head.

As with Low and Newham, our cases resulted in disappointment, and astonishment that one in Sir L. Rogers's position should have published his preliminary report on such scanty evidence. In a case of rat-bite fever we gave three doses of 1 grain (0.065 gram) of tartar emetic on alternate days with no improvement. The symptoms cleared off after two doses of salvarsan.—We are, etc.,

A. POWELL, B.A., M.B., M.S.,
Professor of Medical Jurisprudence, Bombay.
F. D. BANA, M.B., M.R.C.S., D.P.H.,
Medical Officer, Wadula Dispensary, B.P.T.

Bombay, May 11th.

WAR EMERGENCY FUND
OF THE ROYAL MEDICAL BENEVOLENT FUND.

SIR,—We beg to support the urgent letter of appeal to this Fund which appeared in the last week's medical journals.

This Fund was instituted by the Royal Medical Benevolent Fund last year to afford assistance to members of the profession who, in consequence of having joined the Army Medical Service, find themselves in temporary difficulties.

We very strongly commend the claims of this Fund to the generous support of both the profession and the public.—We are, etc.,

FREDERICK TAYLOR,
President, Royal College of Physicians.
W. WATSON CHEYNE,
President, Royal College of Surgeons.
W. H. NORMAN, Surgeon-General, R.N.,
Director-General of the Medical Department of the Navy.
ALFRED H. KEOGH,
Director-General, Army Medical Service.
WILLIAM OSLER,
Regius Professor of Medicine, University of Oxford.
T. CLIFFORD ALLBUTT,
Regius Professor of Physic, University of Cambridge.
JOHN TWEEDY,
Past-President, Royal Medical Benevolent Fund.

11, Chandos Street, Cavendish Square, W.1, June 16th.

CHLORINATED WATER AND TRENCH NEPHRITIS.

SIR,—In his *Materia Medica*, Lauder Brunton, referring to the action of large doses of p tassium chlorate, given medicinally, says that it produces "haematuria with blood casts and diminished secretion of urine, many of the renal tubules being filled with plugs of blood"; and Allbutt and Rolleston refer to a "toxic haemoglobinuria produced by chlorate of potassium."

These conditions are well known. Is it not possible that the "trench nephritis" that has become so prevalent amongst our men at the front is due to some analogous action by the calcium hypochlorite used in sterilizing the drinking water? I have suspected this for a long time and would be glad of any suggestions.—I am, etc.,

Brighton, June 14th. W. A. CHAPPLE, Major R.A.M.C.

[1] BRITISH MEDICAL JOURNAL, January 6th, 1917, p. 6.

The Services.

FLEET SURGEON ROBERT H. NICHOLSON has been awarded a Greenwich Hospital pension of £50 a year in the vacancy caused by the death of Deputy Inspector-General Alfred W. Whitley.

Surgeon-General W. R. Edwards (I.M.S.), C.B., C.M.G., has been appointed an Honorary Physician to the King, vice Surgeon-General Sir Benjamin Franklin, K.C.I.E., deceased.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examinations indicated:

THIRD M.B.—*Part I (Surgery and Midwifery)*: H. R. Bickerton, A. J. Copeland, E. T. D. Fletcher, H. Gainsborough, A. R. Jennings, J. B. S. Lewis, A. H. Pearce, S. Riddiough.
M.C.—A. M. Zamora.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN Ordinary Council was held on June 14th, when Sir Watson Cheyne, President, was in the chair.

Diploma of Fellowship.

Diplomas were issued to three candidates found qualified at the recent examination.

Licence in Dental Surgery.

Diplomas of the Licence in Dental Surgery were granted to sixteen candidates found qualified at the recent examinations.

Tribunal Concerning Pensions.

Mr. Bilton Pollard was elected to serve on a tribunal which it is proposed by the Ministry of Pensions to set up for the consideration of appeals by discharged disabled soldiers and sailors with reference to the grant of gratuities in place of pensions.

Vacancies on the Council.

A meeting of the Fellows will be held at the College on Thursday, July 5th, for the election of three Fellows into the Council in the vacancies occasioned by the retirement in rotation of Mr. W. Harrison Cripps and Mr. V. Warren Low, C.B., and by the death of Sir Frederic Eve. The following are the candidates: Mr. Cripps, Mr. Low, Mr. H. B. Robinson, Mr. H. B. Grimsdale, Mr. F. J. Steward, Mr. James Sherren, and Fleet Surgeon P. W. Bassett-Smith.

Vacancy on the Court of Examiners.

The President reported that Mr. L. A. Dunn's term of office on the Court of Examiners would expire on the 25th of July next, and that the vacancy thus occasioned would be filled up at the Ordinary Council on July 26th.

Examiners in Anatomy and Physiology for the Fellowship.

The following were appointed for the ensuing year:

ANATOMY.—R. W. Reid, G. Taylor, W. Wright, W. H. Clayton Greene.
PHYSIOLOGY.—G. A. Buckmaster, J. B. Leathes, H. W. Lyle, F. A. Bainbridge.

Examiners under the Conjoint Examining Board.

ELEMENTARY BIOLOGY.—W. G. Ridewood, G. P. Mudge.
ANATOMY.—J. E. S. Frazer, A. Thomson, F. Wood Jones.
PHYSIOLOGY.—C. M. Hinds Howell, G. A. Buckmaster.
MIDWIFERY.—H. R. Andrews, C. H. Roberts, J. S. Fairbairn, G. F. Darwell Smith.
PUBLIC HEALTH.—*Part I*: J. W. H. Eyre. *Part II*: F. N. K. Menzies.
TROPICAL MEDICINE AND HYGIENE.—*Bacteriology*: J. W. H. Eyre. *Diseases of Tropics*: C. W. Daniels.

AT the second medical convention recently held at Pernambuco it was stated that the annual mortality from tuberculosis in that city is 66 per 1,000, a rate greater than that of all other preventable diseases combined. The Pasteur Institute, which was founded in 1899, has up to the present successfully treated 3,340 persons bitten by rabid dogs; the annual average is about 200.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Obituary.

WE regret to announce the death of Dr. W. BEZLY THORNE, which took place in London on June 11th. He studied at St. Bartholomew's Hospital, and qualified in 1869; soon afterwards he started practice in South Kensington, a neighbourhood which was just then becoming fashionable. He soon acquired a very large connexion through his energy, skill, and charming personality. He took the degree of M.D.St.And. in 1888, and became M.R.C.P.Lond. in 1891. About this time he introduced the "Nauheim" treatment of diseases of the heart and circulation into England, and soon had so large a special practice that he gave up general practice and eventually settled in Harley Street, where he remained, practising as a physician and specializing in cardiac complaints, till his death. He was only ill for a few days, remaining at work almost to the last. His family was intimately connected with the medical profession. He was a brother of the late Sir Richard Thorne Thorne, K.C.B., Medical Officer to the Local Government Board in England, and had two other brothers and four nephews in the profession—all of these, with the exception of one, were students of St. Bartholomew's Hospital.

DR. WILLIAM HALL CALVERT died on June 16th in a nursing home in London in his 57th year. He was the son of the late Rev. Wm. Calvert of the United Presbyterian Church, North Berwick, and received his medical education at the University of Edinburgh and Vienna. He graduated M.B., C.M.Edin. in 1882, and M.D. in 1889. He had contributed several papers to our columns, including those on epidemic jaundice as a sequelae of influenza in 1894, on diversity of action on the pupil and eye accommodation of morphine and atropine in combination when administered by the mouth and hypodermically in 1895, and on the treatment of caries near elbow and wrist-joints without excision or amputation in 1896. He was the author of *The Further Evolution of Man* and contributed an article on Darwinism to the *Westminster Review* in 1911. While in practice at Melrose he held the appointments of parochial medical officer, medical officer of the Infectious Diseases District Hospital, and medical officer of the Post Office. He took great interest in the work of the British Medical Association, and had served the office of secretary of the South-Eastern Counties Division of the Edinburgh Branch from the reconstitution of the Association in 1902 to 1908.

INSPECTOR-GENERAL ROBERT BENTHAM, R.N., who died recently at Ealing, aged 70, received his medical education at University College, London, and took the diplomas of L.R.C.P. and S.Edin. in 1868. He joined the medical service of the Royal Navy, and reached the rank of Deputy Inspector-General in September, 1901; he served at the Plymouth Hospital from 1902 to 1904, and was in charge of the Malta Hospital from 1904 to 1907; he retired in March, 1907, with the rank of Inspector-General of Hospitals and Fleets. He was formerly the representative of the Royal Naval Medical Service on the Central Council of the British Medical Association.

DR. WILLIAM LE PAGE, who died recently at his residence in Guernsey, was the son of Mr. William Le Page, and was born in 1841. After a preliminary education at Elizabeth College he studied at the University of Durham, and took the diplomas of L.R.C.P.Edin., L.R.F.P.S.Glas., and L.S.A. in 1876. He was a surgeon lieutenant-colonel in the Royal Guernsey Militia, and had held the offices of surgeon to St. Peter Port Hospital and the Castel Hospital, and physician to the Castel Lunatic Asylum.

DR. ALEXANDER HUTCHISON MCCRACKEN, of Falkirk, died suddenly on June 8th, aged 52. He was a native of Kilcreggan, and was educated at the University of Glasgow, where he graduated M.B., C.M. in 1892. He started practice in the south of Scotland, but removed to Falkirk over twenty years ago. He was a member of the Stirling Branch of the British Medical Association.

MR. ALFRED WINKFIELD, of Oxford, who died suddenly on May 3rd, was a student at St. Bartholomew's Hospital, and took the diplomas of L.S.A. in 1860 and F.R.C.S.Eng. in 1869. In his early days he was a keen cricketer and an excellent lawn tennis player. He held the post of M.O.H. for Oxford from 1872 to 1892, when he was succeeded by the present occupant, Dr. Ormerod. He was honorary surgeon to the Radcliffe Infirmary, and in 1902 the University of Oxford conferred the honorary degree of M.A. upon him. He had been unwell for a week before his death, but he had been out on the day previous.

Medical News.

SIR E. COOPER PERRY, physician to, and superintendent of, Guy's Hospital, has been elected Vice-Chancellor of the University of London, in succession to Sir Alfred Pearce Gould, who has held the office for two years.

DR. A. F. STANLEY KENT, professor of physiology in the University of Bristol, will open a discussion on fatigue and alcohol, at a meeting of the Society for the Study of Inebriety, at 11, Chandos Street, Cavendish Square, W., on July 10th, at 4 p.m.

MISS FAY LANKESTER, Secretary of the National Health Society, 53, Berners Street, London, W., has published a leaflet on after-war professions for women, in which she points out the excellent openings offered to well-educated and well-trained women by public health work. Special training for this career is arranged by the National Health Society, the course of instruction lasting from four to six months.

ON June 18th the Secretary's Office, Ministry of Pensions, was removed from Great George Street, to Westminster House, Millbank, S.W.1, to which address all correspondence should now be sent. There will be no change in the addresses of the offices of the Ministry at Chelsea Hospital, S.W.3 (Award of Soldiers' Pensions); 45, Grosvenor Road, S.W.1 (Widows and Dependants); and 33, Baker Street, W.1 (Issue Office).

AS already announced, the Baby Week organized by the National Baby Week Council will be held from Sunday, July 1st, to Saturday, July 7th. The Queen has consented to be patron, and to open the exhibition at the Central Hall, Westminster, on July 2nd, at 2.15 p.m. At 3 o'clock that day there will be a meeting of health workers at the Guildhall, to which Her Majesty will send a message. On July 3rd a mass meeting for mothers will be held at the Central Hall, Westminster, and on July 4th conferences on the present position of midwifery work in urban and rural areas. On July 5th Judge Neil, of Chicago, will address a mass meeting in the same place. On July 6th the annual conference of the Parents' National Educational Union will take place at Bedford College, Regent's Park. On July 7th there will be an infant welfare competition. The exhibition will remain open from Tuesday to Saturday between the hours of 10 a.m. and 10 p.m.

THE total number of students of medicine in the five universities of Switzerland during the winter semester 1916–17 was 1,901. They were distributed among the several universities as follows: Bâle had 215, among whom were 12 women; there were 47 foreign students, of whom 2 were women. Berne had 411, among whom were 45 women; there were 168 foreigners, of whom 29 were women. Geneva had 512, of whom 110 were women; there were 333 foreigners, of whom 90 were women. Lausanne had 248, of whom 35 were women; there were 97 foreigners, of whom 23 were women. Zürich had 515, of whom 89 were women; there were 182 foreigners, of whom 42 were women.

AT the annual meeting of the Society for the State Registration of Trained Nurses, held on June 7th, with Mrs. Bedford Fenwick, the president, in the chair, Major W. A. Chapple, M.P., gave an address on the general position with regard to the Nurses' Registration Bill, of which he is in charge. He said that there were now no opponents of the principle of State registration, and even the leaders of opposing interests realized that the reform was bound to come. Before medical registration, the condition of things in the medical profession had been as chaotic as it was in the nursing profession at the present time, and the general community was just as indifferent. State registration would bring about a great change in the nursing profession; the whole curriculum of training would be altered. A resolution was passed unanimously endorsing the action of the central committee in insisting on the direct representation of organized societies of

nurses on the professional governing body defined by the Nurses Registration Bill, and thanking the Committee for keeping faith with these societies in regard to this principle during its negotiations with the College of Nursing. The society has received from America a message from the National League for Nursing Education, expressing appreciation of its aims and efforts and approval of the principles for which it is contending.

THE Executive Committee of the British Science Guild has published its eleventh annual report. The important work undertaken by the Guild has been noted in these columns on several occasions. During the past year the committee has observed many signs of awakened interest in the national significance of scientific method and work. Until the war compelled attention to be given to all matters affecting national efficiency little heed was paid to the warnings of those who foresaw the consequences of the neglect of science by the State. The British Science Guild now has the satisfaction of noting an increased demand by responsible bodies for the co-operation of science with industry, education, and administration—a reform which the Guild has urged for the past twelve years. Thus the Royal Society has set up a conjoint board of members of scientific societies; a committee on the neglect of science in the public schools at the senior universities and in examinations for public services has been formed; and an education reform council, with representatives of science and industry and commerce as well as of education, has been brought into being. The board of scientific societies formed by the Royal Society sent a deputation to Lord Crewe, as chairman of the committee of the Privy Council for scientific and industrial research in December last, and learnt that the Government had decided to form a new department for this work (BRITISH MEDICAL JOURNAL, May 12th, 1917, p. 635). The medical committee of the Guild, of which Sir Ronald Ross is chairman and Sir Alfred Keogh deputy chairman, found its work during the past year somewhat impeded owing to the absence of many of its members on war service, but several meetings were held. The eleventh annual meeting of the Guild was held on April 30th, 1917, at the Mansion House, when Lord Sydenham delivered to the large audience an interesting address on national reconstruction.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

DR. JOHN DRUMMOND (Liverpool) asks for suggestions as to treatment in a case of poker spine in a man 30 years of age. The disease first showed itself in January, 1915, with pains and stiffness in the legs. The back is now immobile. There is no pain except during efforts to bend. The upper part of the spine is flexed forward, with decided flattening of the chest; the breathing is abdominal. There is some slight stiffness in the right hip-joint, otherwise, beyond some muscular wasting, there is nothing abnormal in any of the limbs. No history of gonorrhoea or syphilis.

INCOME TAX.

R. G. N. writes: "Having earned and unearned income, both of which added together leave me in a position to claim abatement, which portion of income would the claim come under?"

*** The point is specifically dealt with in Section 19 (2) of the Finance Act, 1907, which provides that the abatement must be set against the earned income first, and our correspondent can therefore claim against the unearned income only in respect of the excess—if any—of the appropriate abatement over his earned income.

A. V. C., writing from France, explains that his practice is being conducted by practitioners "who see the patients at their own homes, and to whom I pay a certain rate." Can he deduct from his receipts anything for the cost of maintaining his residence in his absence?

*** The matter is not free from difficulty, and there may, therefore, be some difference in practice in different localities. On the whole we incline to the opinion that it could not be maintained that any appreciable portion of the cost is incurred in maintaining property occupied in conducting the practice. But at the same time there is a good deal to be said for the contrary opinion, for example, that for the maintenance of the practice as a distinct entity a recognized practitioner's house and "brass-plate" is necessary. Our correspondent might do well to place the facts before his local surveyor of taxes, and urge the above reason in support of his claim.

GAUZE PLUGGING.

FIFTY writes: I am at present on a hospital ship. There are four other medical officers besides myself. Wounded men are received on the ship in France and conveyed to England. On the way many of the wounds have to be dressed. Some wounds are extensive, and without exception they are plugged with gauze. An orderly and I spent over half an hour on one occasion dressing one man's wounds. This was due to the difficulty of getting the gauze out of the wounds. The patient suffered much pain during the process in spite of a liberal use of hydrogen peroxide. Surely some better method could be devised. My fellow medical officers complain. We think perforated celluloid or gutta percha tissue might be put next the raw surfaces. We would be glad of suggestions and opinions.

ANSWERS.

THE LAST ILLNESS OF FREDERICK THE GREAT.

C. E. M.—Frederick the Great was attended in his last illness by Christian Gottlieb Selle, the leading Berlin physician of the day. Theden, Frese, and other army doctors were at hand, but he does not seem to have consulted any of them. The King suffered from gout, and in January, 1786, asthma, dropsy, erysipelas, and obstinate insomnia supervened. Selle was called in, and from the first regarded the royal patient's condition as desperate. Frederick lost faith in him, and dismissed him on June 4th. He then invited Johann Georg Zimmermann, author of the once famous treatise on solitude, then court physician (to our George III) at Hanover, to visit him. Zimmermann was no more successful than Selle, but the King's illness was beyond the power of physic, and it was aggravated by an inordinate appetite for highly spiced foods, which he indulged without restraint. On July 10th Zimmermann left Berlin. On August 16th the King's condition became so much worse that Selle was sent for by express, and remained till the end, which came on the morning of August 17th, 1786.

LETTERS, NOTES, ETC.

"THE DAILY GRAPHIC" AND ASYLUMS FOR THE INSANE.

DR. R. H. STEEN, Medical Superintendent of the City of London Mental Hospital, near Dartford, Kent, writes: For some time past the *Daily Graphic* has been publishing articles vituperating public asylums and every one connected with them. On June 13th this newspaper prints a long article, entitled "Heroes in Asylums." Nearly one-half of this is taken up with the correspondence of a person who writes: "I have been detained by the Lunacy Commissioners ever since December, 1905, as a lunatic." Further on it states that a patient was visited by a *Daily Graphic* representative, who we must suppose is an expert, and who could find nothing the matter except "twitching of the nerves (*sic*) and a highly-strung manner which is typical of nervous patients." This kind of nonsense is read by many, and if no reply is made the public naturally say that "silence is consent." Writing to the *Daily Graphic* has been tried, but the paper does not seem to believe in the principle of *audi alteram partem*, as the letter is not inserted. I am writing therefore to crave the indulgence of your columns and to state that the article in question contains numerous inaccuracies, to put it as mildly as possible. In the *Times* on the same day a coroner is reported to have stated that it was a scandal that so many insane patients were discharged from asylums.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

LIBRARY U. OF I. URBANA-CHAMPAIGN

THE TECHNIQUE OF NERVE SUTURE.

BY

S. ALWYN SMITH, D.S.O., CH.M., F.R.C.S.EDIN.,

TEMPORARY MAJOR, R.A.M.C.,

ORTHOPAEDIC SURGEON IN CHARGE, WELSH METROPOLITAN WAR HOSPITAL, CARDIFF; LATE SURGEON IN CHARGE, GRANVILLE CANADIAN SPECIAL HOSPITAL, RAMSGATE.

THE experiences of nerve surgery here related were gained while acting as surgeon in chief at the Granville Canadian Special Hospital in Ramsgate.

This series of fifty cases covered a period of eight months in 1916. I regret that I was unable, owing to the demands of the military situation, to follow up the majority of my cases, as they were invalided to Canada at varying times from six weeks to six months after operation.

I desire to point out certain details of the operative technique, and, in addition, some of the general considerations of the treatment upon which stress is being laid by the profession at the present time. It has been possible to follow a few cases till results of operation began to manifest themselves, and full reports of six cases are appended. Cases A and B are complete lesions of the musculo-spiral nerve. Case C is an incomplete lesion of the external popliteal. Case D is an example of axillary aneurysm complicated by incomplete lesions of nerves of the brachial plexus. Case E is reported to show an exaggerated form of traumatic neuritis; Case F is one of complete anterior crural paralysis, anatomically unsuitable for suture, showing the results of tendon transplantation.

Cases of peripheral nerve lesions require uninterrupted treatment for a considerable length of time. This can only be obtained in suitable institutions, fully equipped, in order to be able to carry out the various forms of treatment required. On this account nerve suture work should only be done by surgeons attached to hospitals that can hold their cases so that they may be treated to finality. Tendon transplantation is often available in cases where nerve suture has failed, and no man should be finally discharged until the question of its advisability has been debated. I have transplanted the primary flexors of the wrist to the primary extensors in several cases during the last year where nerve suture had failed or was contraindicated, and good results were obtained.

At the outset it is necessary to emphasize the point that surgery must go hand in hand with massage, electrical and postural treatment in nerve suture cases. Any institution where nerve surgery is performed must be adequate to deal with the case in all these particulars. The break in the treatment due to cases being sent from Ramsgate to Canada is unfortunate, but at present unavoidable. It would appear that the close co-operation between a surgeon and a neurologist is of importance. I was fortunate in having Major Colin Russel of Montreal as my co-adjutor, and was much helped by his enthusiastic support in the combined treatment of these cases.

All cases of complete lesion should be sutured as soon as they are diagnosed, provided they are fit for operation.

Cases due to bullet wounds that have healed rapidly may safely be operated upon within three weeks from the time the wound is healed. Wounds due to shrapnel or high explosive require a longer period, more especially when there has been bone involvement, destruction of tissue, with consequent scar formation, or when fine metallic bodies are present. These cases often take long in healing, and it is a good working rule to wait for at least three months after the wounds have well healed. Undue haste may be followed by sepsis on account of the latent infectivity that remains for a considerable period in this type of wound. I have operated on several such cases three months after healing, and have encountered small sequestra from healed comminuted fractures, small metallic fragments, and large areas of scar tissue. If a suspicious wound be swabbed with iodine and alcohol before the nerve is dissected out, and a small cigarette drain inserted for forty-eight hours after operation, no untoward accidents should occur.

In a series of fifty cases with a maximum length of time between wound and operation of eleven months, a minimum of three months, and an average of five and a half months, all healed by first intention. This high average length of time was due to the fact that the majority were due to shell wounds, and that all were transfers from general or convalescent hospitals in this country.

PRELIMINARY ELECTRICAL EXAMINATION.

On admission the average case is tested on three different occasions at intervals of a few days, during which time the daily conservative treatment by massage and electricity is instituted with whatever postural treatment is indicated, deformities being overcome at the earliest possible moment. The paralysed muscles are tested to faradism and galvanism, and on the nature of the response to the latter the diagnosis is usually made. It was found in a long series of cases that the results of the varying contractions produced by the anodal and cathodal opening and closing currents are somewhat variable. Great stress is laid on the sluggish reaction to galvanism and on the increased amount of current required to produce it.

Throughout the series all complete lesions, verified at the operation, displayed loss of irritability and a sluggish response to galvanism, and all cases failed to react to faradism, and the sensory disturbances were anatomically constant.

Cases showing prompt response to galvanism of some muscles and sluggish response in others supplied by the suspected nerve should be watched for improvement or otherwise, as a partial lesion combined with scar tissue infiltration may reasonably be expected to exist. Should no improvement occur within six weeks operation is indicated. The progress of such cases should be carefully watched, as the sensory disturbances vary considerably, and referred pain may occur on account of traumatic neuritis. Psychogenetic paralysis, of which a number of cases have been seen, can invariably be diagnosed by the stocking type of anaesthesia, the exaggerated deformity of the limb, combined with the brisk reaction of the alleged paralysed muscle groups to the faradic current.

CONSERVATIVE TREATMENT.

Conservative treatment is instituted at once, and must be continued without interruption—except during operative convalescence—for a long period of time, as on its persistence depends to a large extent the outcome of the case. Daily massage to the paralysed muscles is given for twenty minutes, with fifteen minutes of the galvanic current sufficiently strong to produce a fairly marked response. Should trophic conditions be present, as are constantly found in lesions of the median, ulnar, and sciatic nerves, "eau courante" or contrast baths are given as an adjunct to massage. Marked swelling and cyanosis of the fingers or toes, with sweating of the involved skin area in some cases, and friability of the nails, are the usual symptoms. Baths are contraindicated where trophic ulcers or whitlows are present.

Where marked trophic disturbances have existed for some time in combined nerve lesions—especially if complicated by osteomyelitis—conservative measures are of little avail and the question of amputation arises. This has been necessary in two cases; both showed complete lesions of median and musculo-spiral nerves, compound comminuted fracture of the radius with osteomyelitis, and discharging sinuses. Trophic ulcers of a persistent type were also present. Amputation through the forearm was done in each instance. A curious phenomenon is sometimes seen in post-operative cases of nerve lesion, generally three to six months after suture. Reactions to faradism remain negative, and reactions to galvanism become more and more difficult to obtain. Voluntary power may shortly appear in one or more of the paralysed muscles. In fact, a paradox sometimes is present, as the muscle has voluntary power but the electrical reactions are practically non-existent—no reaction to faradism and reaction to galvanism obtained with the greatest difficulty, and then, perhaps, with a small electrode only (see Case A).

POSTURAL TREATMENT.

The paralysed muscle groups must never be allowed to become overstretched by their opponents, or contractures will occur. The overstretching of a paralysed muscle, devoid of tonicity, if allowed to persist, may render the muscle incapable of contraction even after nerve conductivity is re-established.

I do not intend to describe at length the various splints devised to carry out this treatment, as they are well

known from the writings of Colonel Sir Robert Jones. In lesions of the musculo-spiral nerve the wrist and fingers should be kept hyperextended, lesions of the sciatic and popliteals require the foot to be kept at a right angle.

In cases in which there is damage to the cords of the brachial plexus or to the nerve trunks from which they are formed, individual appliances will be required to meet each case. The commonest injury that we have seen in this region is that which involves the anterior primary divisions of the fifth and sixth nerves, due to wounds in the neck. Here an appliance is required to keep the arm abducted and rotated outwards, the elbow flexed, the forearm supinated, and the wrist and fingers extended.

The long cock-up splint used for musculo-spiral lesions should have a thumb-piece to keep the thumb extended and abducted. The splint should be bent transversely in the centre of the palm to allow the hand to rest with the metacarpo-phalangeal joints flexed a little. This is to prevent the hyperextension that has been found to occur in these joints in long-standing cases, due no doubt to the hand slipping in the splint. Slight movement of the finger joints may be permitted by the masseur during the daily treatment. These movements increase the circulation in the part and prevent the formation of adhesions. Under no consideration, however, must undue stretching of the paralysed muscles be permitted at any time. Some cases of metacarpo-phalangeal stiffness have been brought to my notice presumably as the result of continued immobilization in a hyperextended position, but the alteration to the splint which was suggested by Colonel Sir Robert Jones has prevented recurrence of this complication.

OPERATIVE PROCEDURE.

Before deciding on operative interference it is necessary that contractures of joints distal to the lesion, involving muscles supplied by the paralysed nerve, be duly corrected. Remarks previously made regarding the nature of the wound are applicable here.

Analysis of Cases.

Total cases	50
Nerves operated on	58
End-to-end suture	40
Catgut bridge	2
Nerve graft	1
Partial and scar cases	15
Covering of fascia lata "sleeve"	44
Obtained locally	2

Standing orders call for preparation of the skin of the thigh of the same side, from groin to knee, as well as at the site of operation. This is for the removal of the flap of fascia lata destined to act as the "sleeve," which is described later.

Relative Frequency of Lesion to Individual Nerves.

1. Ulnar	23	
2. Musculo-spiral	13	17
Posterior interosseous	4	
3. External popliteal	8	
4. Median	4	
5. Sciatic	2	
Internal popliteal	2	
6. Cords of brachial plexus	1	
Musculo-cutaneous	1	

As will be seen, more than one nerve was injured in several cases.

It is advisable in all arm cases to use a side table so that the arm may be abducted to a right angle and remain steady in that position. Where there is marked scar tissue formation it is advisable to make the incision in the line of the nerve above and below the scar, and to pick the nerve up at the upper and lower level where it lies in its true anatomical relationship with surrounding structures. The advantage of this procedure is obvious as it is a tedious task searching for a nerve imbedded in scar tissue. These nerves are often destroyed for a distance of one to three inches, so that large dissections are required above and below the site of injury to make up shortage sufficient to give end-to-end apposition. Whenever end-to-end suture can be obtained by any means nothing should be left undone to bring it about.

A catgut bridge was used on two occasions in large gaps where other means failed to get end-to-end apposition. The gap should be joined by chromic catgut sutures, and the whole covered in by a fascial "sleeve." However carefully the sleeve covers in the gap the chance of its becoming filled with blood clot, which organizes to form fibrous tissue, appears very considerable. If the gap is long it would seem that the operation defeats its own end. A case of reoperation where primarily, as far as one could judge, the nerve ends had been so joined showed dense scar intervening between the cut ends. In one case of lesion of the ulnar nerve in the forearm four inches were missing from the nerve when the ends were prepared. The nerve ends were grafted into the median. The result of the operation I do not know.

In dissection the nerve should be isolated above and below the fibrous tissue as before stated. The nerve should be carefully loosened from its bed at these points and a length of half-inch tape or cut gauze gently placed beneath it. Haemostats are attached to the ends of these tapes and so loops are formed on which gentle traction may be exercised while dissection of the nerve from above and below is made. This dissection will be found to be easy and without danger to surrounding structures. The use of the loops prevents the nerve being pressed on during dissection by the indiscriminate use of forceps. Where dissecting forceps need to be used a special type made by Messrs. Schaerer of Berne is useful. The end of each blade is shaped to half a circle and covered with fine rubber tubing, so that the nerve can be held without pressure. Three sizes of forceps are available.

Scar tissue should be dissected in the neighbourhood of the lesion after the nerve ends are isolated and freed. Stimulation of the nerve by means of the faradic current is now undertaken—above and below the lesion where dissection has not produced anatomical loss of continuity, below the lesion only where this loss exists. A Bristow coil with metronome interruption appears the most suitable apparatus—a pad can be placed on some part of the body away from the seat of operation. The nerve is now stimulated in the whole of its circumference by means of a single sterilized electrode—a long silver probe is advised by Mr. Bristow of the London Military Orthopaedic Hospital; I have also used a twin electrode with success. The faradic current thus applied will readily determine as to whether the lesion is complete or partial if applied to healthy nerve above the block. In the vast majority of cases no reaction is obtainable in complete lesions when the electrodes are applied below the lesion, as the lower end degenerates in a few days.

Should the lesion be complete the preparation of the ends for suture should be the next step.

If definite nerve bulbs are found these should be cut transversely at distances of one-eighth of an inch until healthy nerve tissue is encountered. The fibrous end of the nerve should be held with mouse-tooth forceps and the cross sections made with a sharp knife, almost but not quite through the nerve. This plan obviates undue handling of the nerve, which is only touched by the forceps at its fibrous end. When healthy nerve is recognized by the protrusion of the bundles, the last made section is completed. On no account should nerve sections be made with scissors, which cause crushing of the fibrils. The nerve sections are sent to the laboratory, and slides are made as a routine.

The amount of shortage in the nerve can now be gauged, and steps taken to make this good, so that end-to-end suture can be accomplished. The shortage can be overcome in four ways:

1. By flexion of intermediate joints.
2. By free dissection of the nerve for a considerable distance above and below the lesion.
3. By translation of the nerve path to a straight line.
4. By dislocation of the nerve.

The first and second only are applicable to nerves of the lower extremity; the third is applicable to the ulnar and musculo-spiral, and the fourth is referable only to the ulnar at the elbow-joint. By these various means a gap of over two inches has been readily overcome.

I have chosen the example of an ulnar nerve lesion in the forearm for the purpose of description of the closing stages of the operation as it is in this situation that the worse types of nerve shortage occur. The nerve must not be unduly pulled upon, although a certain amount of gentle traction is permissible if necessary, as there is little doubt that the sheath is shorter than the nerve fibres.

LIBRARY U. OF I. URBANA-CHAMPAIGN

With regard to shortage in the ulnar nerve free dissections must be made to the middle of the upper arm and the nerve is dislocated from its tunnel behind the internal condyle and brought to the centre of the antecubital fossa. The nerve must be dissected high enough up the arm to enable it to be brought in a straight line from the axilla to its normal position in the forearm. The new course of the nerve causes it to lie between the superficial muscles of the forearm behind and the fascia and fat superficially. In making the dissection great care and gentleness must be exercised, and the sheath must not be injured. Careless and rough handling of the nerve is to be deprecated. The procedure is obviously not applicable to a nerve where it is giving off muscular branches.

Objections may be raised to the cutting of the nerve from its blood supply for such a distance. It has been shown clinically in cases of fracture in the region of the elbow with bone overgrowth interfering with the ulnar nerve, that the operation of free dissection with dislocation causes no ill effects as evidenced by loss in conductivity. Here the nerve must be similarly deprived of its blood supply.

The aponeurotic band between the two heads of the flexor carpi ulnaris must be divided with care as one wishes to conserve the branches to this muscle and to the ulnar head of the flexor profundus digitorum which come off at this level.

Where the lesion is below the level of the middle of the forearm it is sometimes convenient to free the nerve with a dissector beneath the muscle, and to push the upper segment upwards, bringing it out through the opening made between the two heads of the muscle. This was done on two occasions without damaging the two nerve branches before mentioned. This method is quicker and causes less trauma than the full dissection of the flexor carpi ulnaris, which is the only alternative. The bringing of the ulnar nerve superficial to the flexor carpi ulnaris in the upper half of the forearm lengthens it by more than half an inch. By these means almost any gap that is likely to be encountered in ulnar nerve lesions may be overcome, and the cut end of the nerve should now come together without tension.

A temporary stitch of fine catgut is placed through the nerve ends with a fine non-cutting needle at a distance of about half an inch from each extremity. This stitch aids the surgeon in the permanent suture. The nerve is sutured by means of the finest domestic sewing needle and the finest white sewing silk obtainable. I would advise the use of the No. 9 "calyx" self-threading needle, which is obtainable in drapery establishments. A continuous stitch is put round the nerve, involving nothing but its sheath. This will be found to be easy as, despite the protrusion of the bundles, the sheath is capable of being stretched. It is important that eversion of the sheath edges be brought about, and very fine and accurate stitching is necessary to produce this result. This eversion will minimize the risk of subsequent interstitial fibrous formation. The catgut "stay" stitch is now removed and the whole circumference of the suture examined. An autogenous graft of fascia lata is now removed from the thigh. The outer side of the thigh about its centre is opened by means of a semicircular incision involving the skin and subcutaneous fat. This flap is now turned down and the fascia lata is seen. A parallelogram of fascia is now removed, varying in size with the calibre of the nerve it is desirous to cover. It is well to err on the large side, as the fascia tends to contract on separation and the "sleeve" must be easy fitting. I use the term "sleeve" advisedly to emphasize the fact that an easy fit is essential and the covering should bear the same relationship to the nerve that a sleeve does to the arm. The fascia when removed from the subjacent muscle will be found to strip quite easily on account of the areolar tissue that exists between the two. This side must be the one in contact with the nerve.

It will be found advisable to grip the corners of one long side with mosquito forceps. Two similar haemostats are placed beneath the nerve and these grip the corresponding corners of the other side of the flap. The flap is now drawn beneath the nerve and the haemostats brought into apposition at the upper and lower ends. An end-to-end suture of the long edges is done with chromic catgut, leaving long ends at the top and bottom. A tube of fascia now envelops the nerve with a length of catgut at either end. By this means the "sleeve" can be slid up or down the nerve until its centre covers the suture line. The "sleeve" is now anchored to adjacent tissue both top and bottom with the catgut ends before mentioned.

I have emphasized this method as some such scheme will be found to save time on account of the marked propensity for curling up that the fascial flap always displays.

The reason for the preference of fascia lata over local fascial flaps is twofold, namely: (*a*) The amount of areolar tissue present on the inner side of the fascia lata. This appears to prevent strong fibrous union to the subjacent nerve sheath. (*b*) Latent infection may lurk in tissues in the region of the initial wound where suppuration has existed.

The disadvantages of a second wound appear to be slight, for if the hole in the fascia lata be well sutured with chromic catgut and the patient kept in bed for fourteen days, the risk of a quadriceps hernia is remote. I have no experience in the use of Cargile membrane as a covering. It is well spoken of by some of my colleagues. As I have had no trouble in any of my cases, I hesitate to begin using a foreign body where an autogenous graft is available.

All cases of complete nerve lesion do not show the bulbous ends previously described. After dissection, the nerve sometimes appears normal to the eye. On palpation, the fibrous block is generally recognizable, as it feels harder than normal nerve. Should faradic stimuli fail to pierce the block, it is advisable to divide the nerve at its hardest point and then to section each end until healthy nerve is reached. Where interstitial fibrosis is present one feels a grating sensation on the knife when making the section of the nerve.

Where there is much destruction of nerve and translation is not available, as in the median and sciatic, it is sometimes necessary to dissect out fibrous tissue from between the nerve bundles instead of sectioning until healthy nerve is reached. This is done in order to procure end-to-end apposition when it cannot be otherwise obtained. A fine-bladed knife, such as a von Graefe, will be found useful, and careful dissection is necessary.

Partial lesions require careful dissection, as it is probable that two or more bundles retain their conductivity. All scar tissue must be removed from the site of lesion until healthy bundles are seen. A wedge-shaped gap is now found to be present, and some dissection of the nerve from its bed will be necessary to coapt the edges of this gap without tension. When the suture is complete the nerve displays a bulge at this level. In one of the cases in the series the nerve after dissection showed that only one bundle retained conductivity, and the gap of destroyed nerve tissue was very wide. Here a complete section of the nerve with end-to-end suture was made. It was felt that on account of the wide gap strangulation of the remaining bundle would occur if the case were treated as a partial lesion.

Some cases display no damage to the nerve bundles, but nevertheless the lesion is apparently complete. When the scar tissue is removed the calibre of the nerve is much lessened, and it may even be quite flattened. Occasionally the nerve will be seen to bulge at the seat of injury immediately the constricting bands are divided (Case D). It is advisable to divide the nerve sheath longitudinally in one or more places at the site of the lesion, and to cover the area with a sleeve of fascia lata. This is to counteract adaptive contracture of the sheath that has probably occurred.

Referred pain occurs solely in partial lesions due to scar pressure from without or within the nerve sheath. Free removal of all fibrous tissue is necessary, both surrounding the nerve itself and also between the individual nerve bundles, and a fascial sleeve must be used. Case E is of interest in this respect in that it shows what occurs to the fascial flap after it has remained *in situ* for some time.

Where flexion of joints has been necessary to procure end-to-end anastomosis, six weeks should elapse before any extension is permitted, and this should be very gradually brought about.

In the suturing of small nerves a straight needle is often a disadvantage. This applies especially to the posterior interosseous, which, in my experience, is the most difficult to suture. It is possibly better practice to transplant tendons at the outset instead of suturing this nerve, especially if the damage has occurred after the supinator

brevis has been pierced. The flexor carpi radialis can be attached to the three extensor tendons of the thumb and to that of the index finger, and good results have been quickly obtained. "Calyx" needles are not made in curves, and I found it impossible to obtain self-threading, curved, non-cutting needles of sufficient fineness. Sir Edward Rigg, C.B., an authority on metallurgy, has given me great help in showing me how to make one's own curved needles.

By the careful drawing of the temper of "calyx" or other domestic needles, they may be bent to any desired curve without losing their point, strength, or resiliency. The needles are heated on a metal plate by means of a spirit lamp. The plate must be sufficiently large to prevent any of the gases of the flame coming into contact with the needles, which must be constantly kept in motion whilst being heated. The needles are heated beyond the straw stage to a light blue, and then they are rapidly transferred by forceps to a cold plate of metal. Here they immediately turn dark blue. By means of a specially made pair of pliers, whose blades are concavo-convex and graduated, any desired curve may be wrought on the needle. I mention this point in case others find the same difficulty in obtaining suitable needles.

AFTER-TREATMENT.

I wish to emphasize the fact that peripheral nerve lesions require prolonged after-treatment. This should be given in institutions suitable to the purpose at which the soldiers can attend as out-patients. The institution should be equipped with complete therapeutical establishments, and also with curative workshops. These workshops are used for functional re-education. Where needed, arrangements should be made for professional re-education, which should go hand-in-hand with the military orthopaedic treatment. The full consideration of this matter, which is provoking much discussion in military circles at the present time, does not come within the scope of this paper. The matter is being diligently and thoroughly taken up by the Pensions Minister.

Complete Lesions.

CASE A.

Capt. T. Gunshot wound through centre of upper arm (left), December, 1915.

Preliminary examination showed sluggish reaction of all muscles supplied by the musculo-spiral nerve, with the exception of the triceps; larger galvanic current required than on corresponding muscles of the other arm. No response to faradism. Treatment for six weeks by massage and galvanism, and long cock-up splint.

Operation (April 30th, 1916).—Exposure of left musculo-spiral nerve from where it perforates external intermuscular septum. Nerve found bound down on the mesial aspect; all adhesions freed. Two bulbs lying within half an inch of each other and attached together by fibrous tissue were found. The bulbs were separated and sectioned until healthy nerve fibrils appeared. End-to-end suture with fine silk. Junction covered by fascia lata "sleeve." After-treatment: Massage, "eau courante" baths, galvanism, and long cock-up splint.

November 1st. Reaction to galvanism very sluggish and difficult to obtain; strongest current and fine button electrode required—this after several attempts. No reaction to faradism. Voluntary power in supinator longus and extensor carpi radialis longior appearing.

December 5th. Voluntary power beginning in extensor carpi ulnaris; short cock-up splint substituted.

January 7th, 1917. No reaction to faradism in extensors of wrist and fingers. Reaction to galvanism so slow and weak as to be scarcely perceptible.

March 12th. Strong voluntary power in primary extensors of the wrist. Voluntary power in extensors of fingers beginning; can extend fingers with wrist slightly hyperextended. On home service at present.

CASE B.

Pte. S., Canadian Infantry. Admitted August 31st, 1916. Gunshot wound of outer side of right arm 2 in. above the elbow, emerging at back of arm midway between elbow and shoulder, on June 3rd, 1916. The humerus was not touched. Drop-wrist came on immediately; there is loss of sensation over the radial side of the dorsum of the hand. Extensors of wrist and fingers do not react to faradism, and only sluggishly to galvanism, with the exception of the extensor carpi radialis, which responds promptly.

Operation (September 25th).—A 5-inch incision over the course of the musculo spiral nerve on the outer side of the humerus was made. The nerve was exposed, and a block of fibrous tissue found. There was no conductivity to faradism, either above or below the lesion. Nearly an inch was removed, healthy fibrils obtained, and end-to-end suture performed. "Sleeve" of fascia lata used to cover the junction; wound closed with catgut and clips. Long cock-up splint applied. After convalescence, conservative and postural treatment continued.

March 9th, 1917. Supinator longus and extensors of wrist and fingers do not react to faradism; reaction to galvanism slow and weak. The patient has voluntary power in supinator longus and extensor carpi radialis longior, and slight voluntary power in extensor carpi ulnaris. Treatment continues.

Incomplete Lesions.

CASE C.

Cpl. W., C.M.R. Admitted January 17th, 1916, with history of shell wound of left thigh on December 8th, 1915. Immediately after being wounded was unable to flex ankle or extend toes. Two days later phlebitis supervened. For two weeks after the injury a numb feeling was complained of all over the foot and up about the knee-cap. Wounds in thigh not healed. Foot kept at right angle with a Thomas rectangular shoe.

February 16th. Tibialis anticus and peronei react to condensed current. All muscles react to galvanism promptly, and with small current. Partial lesion of external popliteal diagnosed. Patient walks with boot and fixed posterior iron to prevent foot-drop.

May 16th. Voluntary power returning in anterior tibial group; no power in peronei.

June 14th. Peronei and extensor communis digitorum do not react to faradism. Tibialis anticus has regained voluntary power.

July 21st. No improvement.

August 7th. Voluntary power of anterior tibial group has quite gone. Muscles react poorly to galvanism. Operation advised.

Operation (August 10th).—An 8-inch longitudinal incision in mid posterior line of left thigh from level of tuber ischii. The great sciatic was isolated at the lower level of the gluteus maximus. The sciatic was found to divide into the popliteals at a high level. Both trunks were imbedded in scar tissue, especially the external one. The external popliteal was dissected from the scar tissue, but the sheath appeared intact, and palpation could discover no hard points on the nerve. Conductivity to faradism was poor but complete, much inferior to that of the internal popliteal, from around which all fibrous tissue was removed. A longitudinal incision was made in the sheath of the external nerve 1½ in. long; a "sleeve" of fascia lata covered the nerve at this point.

September 14th. Regaining voluntary power in anterior tibial group; can voluntarily flex the ankle.

September 26th. Invalided to Canada.

February, 1917. A letter from the patient states that he has continued to improve, and is very pleased with the result.

CASE D.—*Incomplete Lesion complicated by Aneurysm.*

Pte. K., Canadian Infantry. Admitted April 6th, 1916, with a history of shell wound, September 22nd, 1915. A shrapnel bullet entered the posterior fold of the left axilla, and emerged through the pectorals on the right side about two inches to the mesial side of the anterior fold of the right axilla. In the left axilla there is an expansile swelling as large as a hen's egg. There is little loss of sensation in any part of the arm. There is complete wrist-drop and inability to flex and to separate the fingers. Voluntary power in the triceps; the supinator longus and extensors of wrist and fingers do not react to faradism, and but slowly to galvanism; reaction is more easily obtained by the anodal than by the cathodal closing current (ACC>CCC). The muscles of the median and ulnar distribution show marked weakness and voluntary power is all but lost; react promptly to galvanism.

Operation (April 27th).—(*a*) Ligation of first part of axillary artery. (*b*) Eight-inch incision over line of the vessel. Axillary border of pectoralis major divided and reflected. All nerves of the plexus lying anterior were found to be closely adherent to the sac and were obviously stretched. Nerves stripped from sac wall. Sac opened and clot turned out. Sharp haemorrhage checked. Sac excised with difficulty and vessel tied above and below. The musculo-spiral nerve was found in its position at the back of the sac and tacked down to it. Scar tissue removed from the nerve, which was found constricted and flattened, but on division of the constricting band expanded slightly.

May 29th. Extensors of wrist and fingers react fairly to galvanism. Voluntary power has returned in median and ulnar distribution. Circulation in arm and hand well compensated. Invalided to Canada with symptoms of musculo-spiral lesion only.

CASE E.—*Incomplete Lesion of Great Sciatic Nerve with Traumatic Neuritis, Causing Great Pain, so that Patient was Bedridden for Fifteen Months.*

Pte. C., Canadian Infantry. Admitted March 27th, 1916, with history of shell wound of lower third of left thigh on April 25th, 1915. Complains of extreme constant pain in foot and leg ever since being wounded.

Previous Operations.—(1) Foreign body removed in France. In other hospitals: (2) Removal of scar tissue from sciatic nerve, June 2nd, 1915; (3) removal of scar tissue from sciatic nerve, September 6th, 1915; (4) removal of scar tissue from sciatic nerve, and nerve wrapped in saphena vein, January 1st, 1916.

No improvement in the pain followed any of these operations, and the patient has never been out of bed, as he cannot bear to have the leg touched, it is so hyperaesthetic. The leg is flexed on the thigh to 45 degrees, and there is bad foot-drop with

LIBRARY U. OF I. URBANA-CHAMPAIGN

ntracture of the tendo Achillis. Marked hyperaesthesia to tton-wool stimulation on the sole and on the outer side of the ot.

Fifth Operation.—Division of tendo Achillis and forcible ex-nsion of the knee with the hope of stretching nerve fibres and minishing pain. Scar was felt to stretch in the popliteal ace. Slight alleviation of pain for two days, but it recurred.

Sixth Operation (May 24th).—Removal of scar, freeing nerve d fascial "sleeve." Both popliteal nerves were found sur-unded by large areas of fibrous tissue. Both nerves were ed from scar as much as possible, and this extended for 3 in. ove their junction. The nerves felt hard and fibrous, but to ch an extent that further treatment seemed contraindicated. scial sheaths taken from both thighs 6 in. by 2 in.; invested th popliteals and the sciatic like a pair of trousers. All three rves injected with 5 c.cm. normal saline above and below the leeves." Temporary relief was obtained for a week but the in afterwards recurred.

June 18th. Pain as before and foot oedematous.

July 4th. As patient continues to lose weight and is very pressed it was decided to sacrifice the "sciatic" nerve. This account of the length of time the patient has been in bed fteen months), although there is voluntary power in extension the ankle.

Seventh Operation (July 6th).—Excision of sciatic nerve at the nction. Four inches removed, which included repair work of eration No. 6, with fascial covering.

July 10th. All pain gone; anaesthesia in foot.

September 19th. Patient invalided to Canada; boot and iron prevent drop-foot.

Microscopical Report on Nerve Section.—Several large bundles nerve separated by much dense—in places hyaline—con-ctive tissue, in which are imbedded groups of inflammatory lls and also foci of endothelial cells laden with brown pig-ent; old haemorrhage. In all nerve bundles there is con-lerable destruction of fibrils and their sheaths, often with placement fibrosis. In parts at the periphery of the section layer of connective tissue is seen, in some parts separated m, and in other parts attached to, the subjacent connective sue covering the nerve bundles. The section shows to what tent interstitial fibrosis may occur when the nerve sheath is maged. Conversely, it shows the uselessness of dissecting the rve from surrounding scar when on palpation the nerve feels the least degree hard or nodular. The layer of connective sue referred to above consists of the fascial flap that had en put in position six weeks previously. It shows that the leeve" does not unduly adhere to the nerve sheath.

CASE F.—*Tendon Transplantation in a Case where Nerve Suture was Impossible.*

Pte. L., Canadian Infantry. Admitted December 24th, 1915, h history of having been hit by a bullet in the left groin on vember 16th. The bullet emerged posteriorly in the region the left sacro-iliac joint. Wounds closed on admission.

The left thigh is markedly atrophic—two inches less in cumference than the right. Cannot extend leg on the thigh, l cannot raise the patella. The quadriceps muscle does not ct to faradism, and only sluggishly to galvanism. Matted nds and adhesions causing a marked mass felt on palpation left pelvis. Thomas's walking knee-splint applied; massage l galvanism.

May 17th, 1916. No voluntary power in quadriceps; no ction to faradism, and only sluggishly to galvanism. Appa-tly a complete lesion of the anterior crural. Suture contra-icated for anatomical reasons. Tendon transplantation ised.

Operation (June 16th).—Vertical incision twelve inches long outer side of popliteal space. Biceps isolated and separated m head of fibula. From a corresponding incision on the er side the semitendinosus was separated from its insertion. channel was made between the deep fascia and the neurosis of the vasti through a 4-inch vertical incision in suprapatellar region. The tendons were brought through opening to the patella from their respective sides. Each don was fixed to the patella by means of a tunnelling process, ich fixed them subperiosteally on the anterior surface. ured with No. 3 chromic catgut; wounds closed.

September 16th. Walking well; full extension possible ntarily, and 45 degrees flexion of knee permitted.

September 26th. Discharged in England.

THE June issue of the *Edinburgh Medical Journal* is irely given up to the medical and surgical aspects of ld welfare, and forms the second collective report on s subject published by our contemporary. Dr. Claude t deals with infectious diseases; Dr. Norman Walker l Dr. R. Cranston Low with dermatology; Mr. J. V. erson and Dr. H. M. Traquair with diseases of the eye; J. S. Fraser with diseases of the ear, nose, and throat; l Mr. J. H. Gibbs, who is an able exponent of the views Dr. Sim Wallace, with the prevention of dental disease. ch of these subjects is treated from the immediate nt of view of child welfare. Dr. J. Hally Meikle con-utes a chapter on medical inspection and supervision chool children in Edinburgh; and Dr. and Mrs. Leslie ckenzie write on administrative institutions and regu-ons, and certain legal aspects of the subject.

C

OBSERVATIONS ON CHLORAMINES AS NASAL ANTISEPTICS.*

BY

E. K. DUNHAM, M.D., AND H. D. DAKIN, D.Sc., F.R.S.

(Report to the Medical Research Committee.)

THE valuable results obtained by Gordon and Flack[1] on the use of chloramine-T, zinc sulphate, and other antiseptics for the treatment of meningococcus carriers among soldiers, led us to undertake some experiments on the influence of certain antiseptics on the total bacterial count of the nasal secretions of apparently normal individuals. It would appear that such experiments might furnish information which could be utilized in a practical way for the treatment of certain types of carriers. On submitting our results to Colonel Gordon he expressed the opinion that they possessed some interest in relation to the carrier problem, and we are thus led to record a short account of them.

The problem of destroying pathogenic organisms in the nasal cavities and upper air passages by direct disinfection is a difficult one. There are, undoubtedly, many carriers with anatomical abnormalities of the nose, pharyngeal vault, and tonsils, precluding immediate contact with solutions used either as sprays or gargles. In such cases there is little if any prospect of any antiseptic proving effective. On the other hand, the fact that the chloramines do not cause precipitates or coagula in secretions or exudates is favourable to their acting upon micro-organisms contained in these fluids. Experiments made by Gordon and Flack on meningococcus carriers among soldiers, in which they used a solution of chloramine-T[2] reduced to a very fine spray with a current of superheated steam, have given decidedly encouraging results.

Our first experiments were merely modifications of those of Gordon and Flack, and were made on the normal noses of healthy individuals. A high-pressure jet of air replaced steam, and the fine spray so produced was inhaled from a double cone of celluloid, which obviated the use of a closed chamber. The coarser droplets from the spraying nozzle were caught by diaphragms and returned to the reservoir from which the antiseptic solution was drawn, thus effecting a considerable saving.

With this apparatus, using a 0.5 per cent. solution of chloramine-T and sufficient salt to make it approximately isotonic, we found it possible to secure a very considerable reduction of the bacteria in the nasal secretions, occasionally obtaining sterile agar plates with the swabs used for collection. It was necessary, however, to continue the treatment for half an hour to attain this. Such a protracted treatment militates greatly against the method; it is probable that the concentration of the antiseptic actually present at a given time is insufficient to act promptly. The use of more concentrated solutions seems unwise, because it would be likely to prove irritating in many cases. We therefore turned our attention to other means of prolonging the time of contact without increasing the concentration, and finally had recourse to the use of an oily medium.

Chloramine-T, while freely soluble in water, is practically insoluble in oils. But the corresponding dichloramine (toluene-*p*-sulphodichloramine, $CH_3.C_6H_4.SO_2NCl_2$, to which we now propose to assign the abbreviated name of dichloramine-T), though very sparingly soluble in paraffin oil, is quite readily dissolved in eucalyptol. The resulting solution can be subsequently diluted with paraffin. In this way a reasonably bland oil solution, containing as much as 2 per cent. of the dichloramine, can be obtained. It is with such solutions of different strengths that our second series of experiments was made.†

---

* "Chloramines" are substances containing chlorine linked to nitrogen, almost all of which possess marked germicidal properties. Hitherto the most widely used member of this group is sodium-toluene-para-sulphochloramide, $CH_3.C_6H_4.SO_2Na.NCl$, which is known under the name of chloramine-T and also a variety of trade names. The related dichloramines contain the NCl_2 group and are mostly sparingly soluble in water, but more readily soluble in organic solvents. A study of the germicidal action of these bodies will be found in the *Proc. Roy. Soc.*, B. 89, p. 232, 1916.

† It may be worth noting that Captain Sweet and Dr. Lee, at our suggestion, have investigated the use of a similar mixture containing 5 per cent. of dichloramine-T as a surgical dressing for infected wounds. The results will be published shortly and are said to be distinctly encouraging.

It should be noted that both of these oils combine with chlorine, and in order to obtain reasonably stable solutions it is important to reduce their avidity for this element by previous chlorination. The manner in which this was done and the mode of preparing the dichloramine solutions used are described below.

When the oil solution of dichloramine comes in contact with aqueous liquids a part of the chloramine passes into the latter. The former, therefore, serves as a reservoir from which the chloramine can be drawn to maintain a certain concentration of active antiseptic in the watery medium with which it is in contact. Experience showed that the active chlorine contained in the antiseptic was not exhausted after two hours, when a 2 per cent. oil solution was sprayed into the nose. By the use of this method, therefore, the action of the chloramine could be maintained without discomfort for a much longer time than when aqueous solutions alone were used. There is, however, one disadvantage in the use of oil alone. It is not as efficient in removing inspissated secretions as are watery solutions. Our choice has therefore been to cleanse the nose with an aqueous spray or irrigation, and then to apply the oil with a spray as thoroughly as possible.

The main results of our experiments with aqueous and oil solutions are summarized below.

I. Experiments with Aqueous Chloramine-T.

Experiments were made with a 0.5 per cent. solution of chloramine-T, inhaled through the nose as a fine power spray. Inhalation of this mist is not irritating, but causes a prompt increase in nasal secretion. For this reason, a control sample of the secretion was not taken until one minute after beginning treatment. All the samples for bacteriological examination were collected with sterile swabs of absorbent cotton, which were immediately immersed in a small quantity of a sterile solution of sodium thiosulphate to arrest any further action of the antiseptic. The whole swab, together with the thiosulphate solution, was then used in making agar plate cultures. After from two to four days' incubation, the number of colonies appearing on these was counted.

In Table I the average of the six experiments in which the periods and mode of treatment were the same is given, and, for comparison, a similar experiment in which normal salt solution replaced that of chloramine-T.

The treatment included two periods of fifteen minutes each, with a pause of from thirty to forty minutes between. Samples for bacteriological examination were taken at intervals of five minutes, necessitating an interruption of about one minute in the application of the spray. This lost time is excluded from the table.

Table I.—*Aqueous Chloramine-T and Neutral Salt Solution.*

	Number of Colonies Derived from Sample.					
	First Period.			Second Period.		
Time of treatment:	5 min.	10 min.	15 min.	5 min.	10 min.	15 min.
0.5 % chloramine-T (control, 43.240)	1,331	707	526	439	153	17
Normal salt solution (control, 55 738)	12,352	121,620	13,587	2,137	10,055	34,339

II. Experiments with Oil Solutions of Dichloramine.

Applications of the oil solution of dichloramine-T to the nose were made with an atomizer designed for paraffin oil, and from ten to twenty vigorous compressions of the bulb used for each nostril. The strength of solution and intervals of time between applications varied considerably. A brief preliminary treatment with an aqueous solution of chloramine-T was frequently employed to cleanse the nasal passages, and the oil was then not applied until the augmented secretion had subsided. The manner of collecting and examining samples of the secretion was identical with that already described, save that no sample bacteriological test was made less than half an hour after the application of the antiseptic, and the interval is usually an hour or longer.

While these experiments were in process there were no

Table II.—*A Few Representative Results with Oil Solutions.*

Treatment Employed.	Applications of Oil between Tests.	Time of Test, from Beginning of Treatment.	Number Colonies Agar Plat
I. 0.5 % aq. chloramine-T followed by 2 % dichloramine-T in oil	0	0	42,240
	1	30 min.	9
	0	60 ,,	0
II. 1 % dichloramine-T in oil	0	0	1,150
	1	1 hour	590
	0	1.5 hours	1,750
	0	2 ,,	140
	0	3 ,,	145
	0	5 ,,	39
	0	7 ,,	135
III. 0.25 % dichloramine-T in oil	0	0	625
	1	0.5 hour	860
	0	1.5 hours	155
	0	3 ,,	150
	0	3.5 ,,	25
IV. 1.5 % dichloramine-T in oil	0	0	16,104
	1	1 hour	175
	1	3.5 hours	1
	0	6 ,,	9
V. 0.1 % aq. chloramine-T followed by 1.5 % dichloramine-T in oil	0	0	105,600
	2	1 hour	10
	1	2 hours	12
	1	3 ,,	3
	0	4 ,,	10
VI. 0.5 % aq. chloramine-T followed by 1.3 % dichloramine-T in oil	0	0	1,800
	2	1 hour	0
	2	4 hours	0
	0	5 ,,	20
VII. 1.25 % dichloramine-T in oil	4	1 hour	15
	0	1.5 hours	370
	0	2.5 ,,	665
	3	17 ,,	0
VIII. 0.5 % aq. chloramine-T followed by 1.3 % dichloramine-T in oil	0	0	6,129
	1	1 hour	8,960
	4	4 hours	87
	0	20 ,,	1,980
	1	22 ,,	59
	1	24 ,,	3
	1	26 ,,	1
	1	27.5 ,,	20

precautions taken to exclude intercurrent access of b teria to the nose from the air, and in those of lon duration the subject of the experiment frequently w out of doors and was exposed to the dust of the stre On three occasions, oil sprays taken just before retiring night resulted in sterile swabs on rising the next morni without further treatment. In these cases the nose w normal and perfectly free, and there is good reason believe that the oil had reached all parts of the na passages.

The weight of oil ejected from the spray with vigorous compression of the bulb was approximat 18 mg. The total amount of antiseptic solution int duced into and finding lodgement in the nose was the fore very small—never over 15 mg., usually very mu less. Bearing in mind the extent of surface treated, a that the presence of the oil precludes immediate acti of all the antiseptic, it is evident that the germici efficiency of the dichloramine-T is of a high order.

As already stated, the incentive to these studies w to learn the adaptability of the chloramines used to t treatment of carriers. The results briefly summarized Tables I and II warranted the belief that this applicati was worthy of trial.

Not ourselves having opportunity to treat carriers, t undertaking has been assumed by others, and is now progress. There were no available meningococcus carri in the neighbourhood of our work, but some observati have been made upon those carrying pneumococci diphtheria bacilli, the latter mostly young children infants and difficult to treat. The results obtained up the present time are decidedly encouraging, but too f in number to warrant definite conclusions. We vent however, to append an outline of the treatment suggest although fully aware that clinical experience may indic that it might well be modified in certain particulars.

Use of Chloramine-T and Dichloramine-T in the Di infection of the Nasopharynx of Carriers.

In the light of the experience hitherto gained, it see important to follow as closely as possible the follow procedure:

LIBRARY U. OF I. URBANA-CHAMPAIGN

1. Cleanse the nose with salt solution or with 0.25 per cent. aqueous chloramine-T solution, either by spraying several times, using the handkerchief between applications, or by irrigation. The same chloramine-T solution should also be used as thoroughly as possible as a gargle.

2. After this preliminary cleansing, and when the augmentation of nasal secretion has subsided, apply the oil solution of dichloramine-T with an oil atomizer, endeavouring to reach all parts with an abundant supply of the oil. It is not certain that the oil introduced in this way continues active for more than two hours. For intensive treatment it should be renewed at the end of that time. In any case, it would seem important to repeat spraying with the oil at such intervals as to make at least four oil treatments daily at about equal intervals of time.

The first few applications of the oil sometimes occasion sneezing, but the nose appears to acquire a tolerance of the treatment, and subsequent applications cause no inconvenience.

As with all antiseptics, there are three factors governing success which must be constantly borne in mind: (1) There must be good contact with the parts to be acted upon; (2) there must be an adequate concentration of the antiseptic; (3) this must be maintained an adequate length of time. When the concentration is of necessity restricted, the time of action must be correspondingly prolonged. It is to attain this last desideratum that the treatment with an oil solution is recommended, but even so the actual amount of antiseptic applied to the nasal mucosa is not very considerable, although larger in quantity and in a more persistent form than could be tolerated in aqueous solution.

METHOD OF PREPARATION.

The preparation of the substances employed in these experiments is as follows:

Dichloramine-T, $CH_3.C_6H_4.SO_2NCl_2$. This substance was first prepared by Chattaway,[3] and the following details are based on the method employed by him.

Bleaching powder (350 to 400 grams) of good quality is shaken with two litres of water on a shaker for an hour, and then the mixture allowed to settle. The supernatant fluid is siphoned off and the remainder filtered. Powdered toluene-para-sulphonamide, 75 grams, is then added to the whole of the hypochlorite solution and shaken till dissolved. The solution is filtered if necessary, placed in a large separating funnel, and acidified with acetic acid (100 c.cm.) added in portions. About 100 c.cm. of chloroform is then added to extract the dichloramine, and the whole well shaken. The chloroform layer is tapped off, dried over calcium chloride, filtered, and allowed to evaporate in the air. The residue is powdered and dried *in vacuo*. It is sufficiently pure for most purposes without recrystallization, and it is not necessary to use a pure toluene-para-sulphonamide in its preparation, as objectionable impurities likely to be present are removed in the preparation of the dichloramine.

An alternate method of preparation is as follows:—Toluene-para-sulphonamide (50 grams), water (500 c.cm.), crystallized sodium acetate (100 grams), and chloroform (100 c.cm.) are placed in a flask, which is immersed in cold water, and the contents treated with chlorine gas to saturation. If necessary, more chloroform is added to dissolve the dichloramine completely. The chloroform is separated in a funnel, washed with a little water, dried over calcium chloride, filtered, and allowed to evaporate. The crystalline residue of pure toluene-para-sulphondichloramine is powdered and dried *in vacuo*. The yield is practically the theoretical.

Preparation of Chlorinated Eucalyptol for Use as Solvent.

Eucalyptol (*British Pharmacopoeia* or *United States Pharmacopoeia*), and not eucalyptus oil, must be used. Five hundred c.cm. is treated with 15 grams of potassium chlorate and 50 c.cm. concentrated hydrochloric acid for twelve hours or longer; it is then well washed with water and with sodium carbonate solution. After this the water is tapped off and 15 grams of dry sodium carbonate is added to the oil and the whole allowed to stand for twenty-four hours. It is then filtered, dried with a little solid calcium chloride, and is then ready for use.

Preparation of Chlorinated Paraffin Oil for Use as a Diluent.

To 500 c.cm. of commercial liquid paraffin oil 15 grams of potassium chlorate and 50 c.cm. of concentrated hydrochloric acid are added and the mixture exposed to light, preferably sunlight, for several hours. It is then transferred to a separating funnel and washed successively with water, a solution of sodium carbonate, and again with water. The opalescent oil is then tapped off, solid calcium chloride added in small quantity, and about 5 grams of animal charcoal. On subsequently filtering through paper a clear, slightly yellowish oil is obtained, which is ready for use.

Preparation of the Oil Solution of Dichloramine-T.

Dissolve 0.2 gram of the dichloramine-T in 2 c.cm. of the chlorinated eucalyptol without heating. When solution is complete, add 8 c.cm. of the chlorinated paraffin oil. Mix well, and the solution is ready for use. This solution contains 2 per cent. of the dichloramine-T. It is relatively unstable, and should be discarded as inefficient as soon as a distinct precipitate makes its appearance (toluene-para-sulphonamide). An opalescence or moderate cloudiness is not evidence of material deterioration. It is a safe rule not to use the completed oil mixture more than three or four days after its preparation. Strong light and heat undoubtedly hasten the rate of deterioration.

An alternate method, when considerable quantities are required, is to prepare a stock solution, 10 per cent. of the dichloramine-T in chlorinated eucalyptol, and to dilute this with chlorinated paraffin oil, 1 : 4, as needed for immediate use. The eucalyptol solution should be kept in a cool, dark place, and under these conditions will suffer little deterioration within a month.

REFERENCES.

[1] Lieutenant-Colonel M. H. Gordon: Disinfection of the Nasopharynx of Meningococcus Carriers, BRITISH MEDICAL JOURNAL, July 1st, 1916. Also a later article by the same author and Captain Martin Flack, published in the same JOURNAL. [2] H. D. Dakin, J. B. Cohen, and J. Kenyon: On Chloramine, its Preparation, Properties, and Use, BRITISH MEDICAL JOURNAL, January 29th, 1916. [3] *Trans. Chem. Soc.*, 1905, vol. lxxxvii, p. 145.

CLINICAL NOTES ON A CASE OF FIBROID DISEASE OF BURSAE.

BY

CAPTAIN MANFRED MORRIS, R.A.M.C.(T.F.).

FIBROID HYPERPLASIA occurring in bursae and false bursae is of interest rather from the point of view of etiology than of treatment. My attention was lately drawn to this condition by a case of widespread fibrosis occurring in many bursal sites.

In January last there was admitted to the Surgical Division of No. — General Hospital a patient, aged 53, an engine-room artificer in the Royal Navy. He complained of piles and inability to sit down owing to the pain caused by tumours in his buttocks. On examination the patient had four external haemorrhoids and large solid masses over the tuberosities of both ischia. These masses were as large as fetal heads, the right one being somewhat larger than the left. The tumours were irregular in outline, adherent to skin, and felt fixed to deeper structures.

On palpation they gave a non-fluctuant, hard, almost cartilaginous sensation to the hand. The skin over these masses was red, tender, and beginning to be inflamed. Further examination of this patient showed smaller tumours of similar consistence and physical signs occupying situations over the olecrana, the tubercles of both tibiae, the third piece of the sacrum, and one small mass as large as a walnut on the ulnar aspect of the base of the left thumb. The patient complained chiefly about his piles, and at a preliminary operation I ligated these. Convalescence was normal, the patient being encouraged to lie in the prone posture as much as possible to give the skin over the buttocks a chance to recover. Fourteen days later I decided to operate on the masses in the buttocks. The disability caused by these was purely mechanical. *X*-ray examination showed no bony changes in the pelvis and hip-joints. The tumours were represented by dim shadows mapping out their outline, which appeared to be continuous with the tuberosities of the ischia. The patient was placed in the prone position, with sandbags across the sterno-clavicular articulation and pelvis, so as not to embarrass respiration, and given chloroform. Curved incisions were made over the masses, which were found to be extremely dense and adherent. Their capsule was very vascular, and adherent to surrounding tissues. It was soon obvious that it was impossible to shell out these tumours, so they were removed by morcellement, triangular wedges being cut out till the masses

were removed. The tumours extended down to, and, as far as one could judge, were continuous with the periosteum over the tuberosities of the ischia along their whole length. The ensuing large cavities were flushed out with hot saline and obliterated with buried catgut sutures, the wounds being closed with interrupted silkworm gut. The smaller tumour over the sacrum was enucleated without any difficulty. The patient made an uninterrupted recovery, and was discharged to a convalescent home. He states that he lately sat down at a concert on a hard form for one and a half hours—a thing he has been unable to do for thirty years.

To the naked eye the masses appeared fibrous and avascular throughout. There was no obvious lamination or cavity in the tumours, which appeared to derive their blood supply from their capsules. It appeared remarkable that masses of such size and such a poor blood supply could survive without undergoing some obvious degenerative changes. Captain Campbell kindly examined these specimens for me, and reported that the tumours were typical fibromata. There has thus to be considered a case of widespread fibrous changes occurring in bursae in normal positions and a fibroma occupying a situation not as a rule where one finds a normal bursa—I refer to the tumour of the left thumb.

The commonest changes in bursae set up by chronic irritation causing inflammation are seen in the bursitis of the occupation diseases known as housemaid's knee, miner's elbow, and weaver's bottom. These conditions are respectively an inflammation of the bursae in the prepatellar, olecranon, and ischial tuberosity situations. The condition starts as a hydrops. The bursae, irritated by prolonged pressure, secrete an excess of synovial fluid, Nature's method of forming a more efficient water cushion. Secondary infection, haemorrhage, deposition of fibrin substance, and thickening of the wall of the bursa may ensue.

The tumours in this case are unlike this condition. The youngest tumour is the small one in the thumb and the one removed from the sacrum; neither of these appears to have started as a hydrops or a haemorrhage. It is therefore unlikely that the larger ones started as either of these two conditions, afterwards undergoing solidification. The patient's occupation is not one that, so far as can be seen, is likely to give rise to bursitis. He has been at sea working in engine-rooms for thirty years, and apart from some cramping, does not do very sedentary work or work that throws prolonged strain on the situations involved. It appears, therefore, that the theory that the patient's occupation caused this condition can be dismissed.

The question now arises if this condition may be due to tubercle, syphilis, or gonorrhoea. Tubercle can be immediately dismissed. It is impossible to imagine chronic masses of this size without the presence of caseation or giant cell formation. In discussing the probable venereal origin of this condition we must go back to 1887. In August of that year the patient developed a "running" which ceased after three weeks. He denies chancre, sore throats, rash, or other syphilitic manifestations. Almost immediately after cessation of this urethritis he was admitted to hospital in Bombay with what he describes as rheumatic fever, and states that he was in hospital till January, 1888. He has suffered from rheumatic pains since, but has never been in hospital again with them. Twelve months after the illness he noticed that lumps were beginning to grow over the buttocks and elbows. At first as large as peas, they gradually and insidiously grew, till at the end of thirty years they have reached their present size. His only previous illness was typhoid fever in 1883, in Constantinople. The tumours have caused no pain or trouble, apart from those of the buttocks, which have prevented the patient from sitting down. Captain Mackey reports that the patient has a strongly positive Wassermann reaction. Must we look upon the fibroid changes in these bursae as being of a syphilitic or gonorrhoeal origin?

In thirty years the only syphilitic changes are these large deposits of fibrous tissue, without, as far as can be found, there having been any other syphilitic or gummatous manifestations taking place. Gonorrhoea certainly produces inflammation of synovial membrane, and therefore could produce a bursitis. I think it unlikely that it could produce the condition we are considering.

Taking into consideration the histology of these masses—the fact that one of them has probably occurred in tissue other than synovial membrane—it seems probable, as Erichsen points out, that we have to consider a case in which the tissues have developed a tendency to undergo fibrous hyperplasia, the changes taking place chiefly in the synovial walls of bursae. Admitting the syphilitic taint and the gonorrhoeal history, the rheumatic pains similar to the pain felt in nodes, I look upon these masses as primary non-malignant growths of fibrous tissue.

BRONCHOSCOPY IN THE TREATMENT OF ASTHMA.

By W. S. SYME, M.D., F.R.S.E.,

SURGEON, EAR, NOSE, AND THROAT HOSPITAL, GLASGOW; EXTRA-ACADEMICAL LECTURER ON DISEASES OF THE THROAT AND NOSE, GLASGOW.

Among the patients who come under the care of those engaged in the special branch of rhinology and laryngology there are always a certain number who complain of asthmatic attacks of a more or less definite character. In most of these patients the asthma is not severe, and is rather of the nature of difficulty of breathing caused by nasal obstruction, or at any rate of an interference by this obstruction with the co-ordinated movements of which regular respiration is composed. There are others in which asthma, and sometimes severe asthma, is associated with a nasal affection of which obstruction is not a prominent feature. In accessory sinus disease, and especially in maxillary antral disease, asthma is not infrequently complained of. The cure of the sinus disease is, as a rule, followed by disappearance of, or at any rate by marked alleviation of, the asthmatic attacks. The relation of the sinus disease to the asthma is probably complex, and depends on the intermittent obstruction which the discharge from the sinus causes, the irritation of the discharge on the upper air passages, and possibly the action of the products of suppuration on the higher nerve centres.

In speaking of asthma one of course recognizes that it is not a disease but a symptom, and that for its proper study an inquiry into practically all the organs of the body would be necessary. Even in what is known as pure spasmodic asthma the problem is not simple. The respiratory apparatus is not alone at fault. There is also a susceptible condition of the central nervous system which in the present state of our knowledge cannot be more definitely described. It is evident, therefore, that in the proper treatment of asthma there is room for the co-operation of the specialist and the physician. Treatment applied to the air passages alone has, then, limitations and is empirical.

Not every case of asthma associated with a nasal or sinus affection is cured or even appreciably benefited by the effective treatment of the nasal or sinus condition. Moreover, in many cases there is no nasal abnormality, if one may say so, though it has been cynically said, "It's a poor nose a nasal surgeon can't find something wrong with." The nasal treatment of asthma, or in other words the treatment by cauterization of the nasal septum, has in my experience given only temporary benefit.

During the past two years I have treated eight cases of asthma by the direct application of silver nitrate solution to the lining of the bronchi with the aid of the bronchoscope. The ages of the patients ranged from 10 to 53. Except in the youngest, in whom chloroform was used, the treatment was conducted under cocaine anaesthesia with a preliminary hypodermic injection of omnopon or morphine and atropine. The position of the patient was that which I prefer for bronchoscopy—lying on the left side with the head thrown back. The bronchoscope is introduced, and a mixture of cocaine and adrenalin is applied to the mucous membrane in advance of the tube as far as the openings of the secondary bronchi. The entrance to the secondary bronchi and the main bronchi are then swabbed with a 10 per cent. solution of silver nitrate. I have been specially careful to apply the solution to the regions of the bifurcations, because it seemed to me that the mucous membrane at these places was hyperaemic, and, at any rate, one would expect the air current to impinge most strongly at these points, and the reflex to be most active there. The idea underlying the treatment is that in asthma one factor in the causation is an exaggeration of a normal reflex. When an irritative substance, such as an irritating gas, touches the lining of the bronchi and larger branches, the smaller bronchi and bronchioles are by reflex action contracted for protective purposes. In attempting to weaken this reflex in asthma by applications to the peripheral pole, it is not implied

LIBRARY U. OF I. URBANA-CHAMPAIGN

that the hypersensitiveness is at that part. Probably it is, as has been previously observed, central in the main. Silver nitrate solution suggested itself because it is commonly used in irritative conditions of the higher parts of the respiratory apparatus, and because it leaves a coating of silver chloride or albuminate, and so its action is prolonged.

A fairly acute reaction follows the application, as would be expected, and the breathing is somewhat laboured for a day or two, during which the patient is kept in bed.

From the short notes of the cases treated, which are appended, it will be seen that the method is worthy of an extended trial. Indeed in several of the cases, and those severe, the results have been surprisingly good—quite, I am bound to say, beyond my expectation.

CASE I.

Male, aged 44. Severe spasmodic asthma of many years' duration. Has had various forms of treatment, including residence abroad, but without benefit. Lately the attacks have been more frequent and very severe, occurring every night and often requiring morphine. He came under my care two years ago. He was then treated by the method described and the treatment was repeated on four occasions, the last being over ten months ago. At that time he reported that he had not had such a good year for years. Now he reports that he has been practically free from asthma for the past year. He is busily engaged in Government work, and once he had to pass through a workshop where there were gas fumes, and, as a result, he had a slight attack of asthma, which is the only one he has had in the period. His general appearance reflects the improvement in his asthma.

CASE II.

Male, aged 53. Frequent asthmatic attacks, especially in frosty weather. He was treated on one occasion eighteen months ago. The interesting point in his case was the discovery of a web formation in the shape of a firm band at the entrance to the right bronchus. He reports that his asthma has not benefited.

CASE III.

Male, aged 10. Bronchial asthma. This boy had severe bronchial asthma for several years. There was no nasal or nasopharyngeal abnormal condition. Treated under chloroform more than a year ago. The mucous membrane of the bronchi, especially of the left, was oedematous. There was trouble with the anaesthetic and the applications of the silver nitrate were not so systematically carried out. For some time afterwards the breathing was better and he had no definite asthmatic attack, but now the asthma has returned. His father was advised to bring him back to have the treatment repeated, but has failed to do so.

CASE IV.

Male, aged 35. This man, a railway employee, had suffered from severe spasmodic asthma for years. He had been treated in various ways, by nasal cauterization among others, but without benefit. Latterly he had become so much worse that he was rendered unfit for work for about a week every month and was in danger of losing his post. More than a year ago he was treated by this method, the applications being made on two occasions with an interval of a week. He reports that with the exception of one attack, which kept him away from work for a day, he has been quite free from asthma. He certainly looks much improved in health.

CASE V.

Female, aged 24. First seen August 18th, 1916. During the previous four months she had had an attack of severe spasmodic asthma every fortnight. Treated September 15th. She reports that she has been quite free from asthma since.

CASE VI.

Female, aged 53. Bronchial asthma of some years' duration. Successfully operated on for right maxillary antral disease, but without benefit to the asthma. Treated September 15th. This was followed by a somewhat prolonged, though not severe, bronchial attack. She reports that she has been free from asthma for months.

CASE VII.

Female, aged 24. Spasmodic asthma and paroxysmal sneezing for two or three years. Four severe asthmatic attacks recently, lasting for some hours. Treated September 19th. A small warty growth was seen on the wall of the left bronchus low down. She reports that she has had several asthmatic attacks during the winter, but for the past two months has been free.

CASE VIII.

Female, aged 18. Has suffered from severe spasmodic asthma since four years of age. Latterly the attacks recurred about every second week and left her unfit for work for a day or two. Her tonsils, which were enlarged, were enucleated without benefit to the asthma. Treated by the application of silver nitrate with the aid of the bronchoscope on January 19th, 1917. She reports that she has been quite free from asthma since and quite well in health.

A NEW CULTURE MEDIUM FOR THE GONOCOCCUS.

(Preliminary Note.)

BY CAPTAIN D. THOMSON, R.A.M.C., M.B.,
CH.B.EDIN., D.P.H.CANTAB.

THE following work was carried out in the laboratory of the Military Hospital, Rochester Row, London, S.W., under Lieut.-Colonel L. W. Harrison, D.S.O., R.A.M.C., and I wish to express here my keen appreciation of his encouragement and help.

There has been a great need recently for a satisfactory culture medium for the gonococcus, not only for diagnostic purposes, but also for the manufacture of gonococcal vaccines. The media chiefly employed so far, namely, trypsinized pea extract and blood agar, have the following defects:

1. The growth is by no means profuse.
2. The medium is not clear and transparent, the trypsinized pea extract being yellowish and opaque, and the blood agar opaque and dark red. The whitish and translucent gonococcus growth is not seen clearly on such media.
3. For vaccine purposes blood agar is very unsatisfactory because the water of condensation at the bottom of the tube contains a dark brown débris of broken-down red cells. The gonococcus emulsion mixed with this water of condensation is in consequence coloured and full of débris, which renders it difficult to standardize.
4. The emulsion obtained from the trypsinized pea extract cultures, though yellow in colour, is quite satisfactory from this point of view. This culture medium, however, does not appeal to me as a natural one, and it is possible that after frequent subculture the gonococcus may lose its antigenic properties and become less potent for vaccine purposes. At any rate, it seems reasonable to suppose that the best medium would be one which was as natural as possible.

My first attempt was to remove the great disadvantage of the blood agar (a natural medium) by using human blood *minus* the red corpuscles—that is, plasma. It was found that the gonococci grew as well on plasma agar in the proportion of 1 of plasma to 4 of agar as they did when the corpuscles were present.

The growth, however, was, as in the case of the blood agar medium, not profuse, but after some further experiments very strong growths were obtained with a similar medium made up as follows:

1. Prepare nutrient agar (2.5 per cent.) in the ordinary way with bouillon and Witte's peptone (1 per cent.), and render it + 6 acid.
2. Instead of adding to this 0.5 per cent. sodium chloride as is usual, add all the salts natural to the human blood (as in Ringer's solution)—namely: Sodium chloride 9 grams, calcium chloride 0.25 gram, and potassium chloride 0.42 gram per litre.
3. Add glucose 2.5 per cent. This addition in some manner renders the growth much more profuse.
4. The nutrient agar with salts and glucose is then tubed, about 4 c.cm. being added to each test tube.
5. The sterile tubed agar is melted in boiling water, and after allowing it to cool to about 50° C., add 1 c.cm. of human plasma to each tube and mix thoroughly by rolling the tube between the palms. Allow the medium to solidify in a sloping position.

For plating, the contents of three tubes may be added to a Petri dish.

Method of Obtaining Human Plasma.

In all venereal hospitals blood is frequently drawn off from the veins of syphilitic* patients into test tubes for the Wassermann test. In consequence, the source of human plasma is always available.

When a supply of plasma is required, draw off three-quarters of a test-tube-full of blood with all sterile precautions. Have a sterile centrifugal tube ready, containing 2 c.cm. of a 2 per cent. solution on sodium citrate. Fill up this centrifugal tube with the freshly drawn blood. Plug it with a sterile cork (keep the corks in alcohol and burn off the alcohol before plugging) and centrifugalize. When the corpuscles are driven down, pipette off the supernatant plasma with a sterile 10 c cm. pipette and add 1 c.cm. to each tube of agar as indicated above. If the test tube of blood is three-quarters full there is sufficient left for the Wassermann test after filling the centrifugal tube.†

The medium is therefore as easy to prepare as the blood agar itself, and it is certainly less trouble to make than the trypsinized pea extract. It has none of the disadvantages mentioned above. It is beautifully clear and transparent,

* It is immaterial whether the patient is being treated or not with arsenic or mercury.

† I usually get 6 to 7 c.cm. of plasma from each centrifugal tube.

and it is as natural as possible. The growth is very profuse, even after eighteen hours, and the emulsion obtained is white.

When counting a vaccine, a culture not more than one day old should be used, since after this time many of the gonococci begin to autolyze, and the count would be too low. After making up standard emulsions of, say, 1,000 and 500 million gonococci per c.cm., the strength of other emulsions can be estimated directly by diluting and matching them with the standard.

I hope to publish later results showing the antigenic power of vaccine prepared on this medium.

A NOTE ON THE VALUE OF BRILLIANT GREEN AS AN ANTISEPTIC.

BY

CAPTAIN C. H. S. WEBB, M.S., F.R.C.S., R.A.M.C.

THE comparative novelty of the use of brilliant green as an antiseptic for the dressing of wounds is the excuse I submit for the following notes.* Since May, 1916, I have been using and observing the effects of a solution of brilliant green in the treatment of wounds that have passed through my hands at a casualty clearing station. On the whole, I am favourably impressed with the good results obtained from its use.

The brilliant green is dissolved in normal saline solution in the strength of 1 in 1,000. At this strength it can be used as a lotion, and gauze soaked in it can be applied to the wound as a dressing. It is non-irritant to the tissues, and I have applied it to the peritoneum, the meninges, the synovial membranes, and practically all other varieties of tissue without harmful effects. The less vascular tissues are stained green by its use—for instance, the cuticle of the skin, the edges of fascia or aponeurosis, and sometimes bone. But where it has been in contact with the more vascular muscle or subcutaneous tissue no staining occurs. Dead and necrosed portions of muscle are stained green, and this fact is sometimes of use in distinguishing such necrotic tissue.

After being in contact with the tissue, the dye gradually becomes transformed into a leuco-derivative, and the hitherto green-dyed gauze in contact with the wound becomes white to the depth of several layers. Granulation tissue rapidly forms in the wound, and to emphasize this statement I believe that the formation of granulation tissue is more rapid and more "virile" in character under the influence of a dressing of brilliant green than with other antiseptics—for example, eusol.

The most striking results are seen in the cut surfaces of muscle. The muscle rapidly becomes bright red, and the formation of a highly vascular granulation tissue takes place. In thirty-six to forty-eight hours the muscle may be covered with firm, "dry," bright red granulation points, which present none of the shreddy, sodden look of the granulations under a eusol dressing. The surface of the wound is drier, and the pus formation is smaller in amount and thicker in consistency, than in a similar wound dressed with eusol.

At a casualty clearing station it is almost impossible to formulate other than approximate conclusions concerning the merits or demerits of any antiseptic. The obstacles against obtaining any exact judgement are as follows:

1. The cases have been handled before, and other antiseptics have been applied—that is, at the field ambulance.

2. The cases do not stay long enough for any extended observation, before being transferred to the base.

3. Those cases that do stay and on which more lengthy observations can be carried out, are of the more severe type, many having mortal wounds.

4. The difficulty of obtaining news of the subsequent history of the case after it has left the casualty clearing station.

However, by a method of comparison of selected cases, as nearly as possible similar in nature and extent of injury, it is possible to estimate the relative merits of two or more antiseptics, as judged by clinical standards. By such means I have tried to compare brilliant green with eusol, and I believe that the green is the better antiseptic of the two.

Latterly I have been using the green in conjunction with "salt" tablets. It has been my experience that the usefulness of the "saline pack" is enhanced by the inclusion of some antiseptic in the dressing. The combination of the "saline pack" with the green solution during the first few days of the wound has, I think, given better results than the use of one or other alone. It can also be used after the method of Carrel—½ oz. to 1 oz. of a 1 in 1,000 solution being syringed down a tube or series of tubes leading into the depths of the wound. It is not so irritant to the skin edges as the hypochlorite solution.

SUMMARY.

1. Brilliant green is undoubtedly an active and efficient antiseptic.
2. It is non-irritant.
3. It acts well in the presence of serum.
4. It possesses very definite "auxetic" properties.
5. It stains dead tissue green, and in this way may aid the surgeon in determining what to excise.
6. As it is soluble in "saline" it can be used in conjunction with the "salt pack."
7. It can be used after the method of Carrel.

* The potent antiseptic properties of brilliant green were drawn attention to by Browning and Gilmour (*Journ. Path. and Bact.*, vol. xviii, 1913, p. 144), and this substance was first employed as an antiseptic in the treatment of wounds by Leitch (BRITISH MEDICAL JOURNAL, February 12th, 1916); its action under clinical conditions has also been very favourably reported on by Ligat (BRITISH MEDICAL JOURNAL, January 20th, 1917), and Hodgson-Jones (BRITISH MEDICAL JOURNAL, 1917, i, p. 455) has recorded excellent results in the rapid healing of indolent ulcers under the use of an ointment of 1 to 2 per cent. brilliant green in paraffin. Further investigations by Browning, Gulbransen, Kennaway, and Thornton (BRITISH MEDICAL JOURNAL, January 20th, 1917) have shown that concentrations of brilliant green which are highly bactericidal for organisms, such as staphylococci, in the presence of serum, do not interfere with the process of phagocytosis; in this respect brilliant green is much superior to mercury perchloride.

FLIES AND BACILLARY ENTERITIS.

BY

WILLIAM NICOLL, M.A., D.Sc., M.D., D.P.H.,

LATE ERNEST HART MEMORIAL SCHOLAR OF THE BRITISH MEDICAL ASSOCIATION, AND GROCERS' COMPANY RESEARCH FELLOW IN SANITARY SCIENCE.

(From the Lister Institute of Preventive Medicine, London.)

IN view of the rapidly approaching summer campaign, it seems advisable to draw attention again to the ever-present dangers from flies during the "season." So much has been written on the subject that it might seem almost invidious to direct attention again to our commonest and most familiar domestic pest.

The matter has received thorough treatment by the Local Government Board, and has been taken up to some extent by independent observers. By far the most comprehensive series of observations is that by Graham Smith,[1] extending over a number of years. In his *Flies and Disease* we have the nucleus around which to group further incidental observations and theories.

The limit of the house-fly's potentialities as a disease carrier has not yet been ascertained, and it might with some degree of safety be affirmed that the spread of almost every disease with which is associated an infectious discharge or exudation of one sort or another may be furthered and accelerated by house-flies. Such diseases are common, and not a few of them are well known to reach their maximum incidence at or about the height of the fly season. On the other hand, in no case has the house-fly been definitely proved to be the exclusively specific carrier of any particular disease. In the majority of cases it is merely the most assiduous and most effective. So far as I am aware, the house-fly is not in any case the actual "intermediate host" of any disease-producing organism occurring in man. It appears, however, to be a true intermediate host of at least one parasite of the horse (*Habronema muscae*).

During the course of my tenure of the Ernest Hart Fellowship, I was able to show[3] that flies had considerable potentialities as disseminators of parasitic worms, and I was led to make investigations on the bacterial flora associated with flies, and in particular on the occurrence of certain organisms pathogenic to man.

In a recent paper (1917) I published the results of a series of experimental investigations on the relation of

LIBRARY U. OF I. URBANA-CHAMPAIGN

flies to the spread of typhoid fever. Some years previously (1911) I published the results of a general investigation of the natural bacterial flora of the house-fly (*Musca domestica*), and noted the occurrence of certain enteritis-producing bacteria such as Morgan's No. 1 bacillus and *B. paratyphosus* B. The flies from which these bacilli were obtained, captured in houses in Battersea, London, were not allowed access subsequently to any possible source of infection, so that there can be no question that they were actually carrying these bacilli when captured.

The first paper was published as a preliminary report before the investigation was completed. During the following summer further observations were made along similar lines, and about 2,000 flies were collected from houses where cases of diarrhoea or dysentery, either in children or adults, were actually present and had recently occurred. The houses were designated by Dr. G. Quin Lennane, M.O.H. Battersea, and in each a recently sterilized balloon trap was left usually for two days, sometimes for only twenty-four hours, and occasionally for three days. During transit each cage was kept as free from contamination as possible. There can be little doubt that while the cages remained in the houses in which they were deposited they were the object of some curiosity and probably considerable handling, but this does not invalidate the results obtained from the later examination of the contents of the cages.

In the laboratory the flies were removed from the cages by sterilized muslin bags. A simpler but somewhat slower method was to place the cage under a large bell jar into which a little chloroform had previously been poured. The flies were sorted into batches of about half a dozen, and each batch was thoroughly washed first in peptone broth, and then in saline, followed by immersion for twenty to thirty minutes in lysol or other disinfectant. They were then washed free from the disinfectant with sterile water, and dried by passing over a flame, and dissected; the entire alimentary canal was removed, and placed in a few drops of sterile peptone broth and thoroughly mashed up. A small loopful of this emulsion was then spread on three successive MacConkey plates (neutral red bile-salt agar), and incubated at 37° C. for about twenty-four hours. From each plate all the non-lactose fermenting colonies were removed, and inoculated separately into peptone broth.

In dealing systematically with the results, the table drawn up by Morgan and Ledingham[2] was used with slight modifications (suggested by the authors themselves). One of the chief difficulties encountered was the occurrence of slow lactose fermenters. In every case, however, the action on lactose was observed over a period of at least ten days, and such cultures as gave equivocal reactions were subcultured and re-examined. A certain proportion of these slow lactose fermenters which gave reactions somewhat resembling those of the typhoid-dysentery group are excluded from the present results.

On the other hand, there is the difficulty that certain strains of bacteria may be "trained" or "acclimatized," and, though at first unable to ferment lactose, may do so in the course of time, or after repeated subinoculation. Throughout the whole course of these experiments I had the advice of Dr. W. J. Penfold, who was at that time engaged in the special study of bacterial variation. A certain proportion of these equivocal strains were submitted to him for independent examination. In addition to those slow lactose fermenting bacilli a considerable number of true non-lactose fermenters occurred. They were subdivided into two classes, according as their reactions showed affinity with those of the typhoid-dysentery group or not.

Altogether 216 separate forms were isolated. Of these 89 were representatives of Graham Smith's Group C; 40 belonged to Group H; 34 to Group G; 20 to Group A; 13 to each of Groups B and I, and 7 to Group D. Groups E, F, J, K were entirely unrepresented.

These results accord fairly closely with Graham Smith's, who found a large preponderance of organisms of the type of Group C, while those of Groups H, G, and B were relatively much less frequent. As in my experience, Groups E, F, J, and K were entirely unrepresented, while Groups A and D occurred rarely, and Group I not at all.

In analysing the various groups some difficulty was experienced in following Graham Smith's classification, because in several cases salicin was not available. With this exception the results obtained are closely comparable with those of Graham Smith.

In Group A the organisms found were Nos. 1, 5, and 6. No. 6 was that most frequently found in flies by Smith, while it was also found most frequently in the faeces of diarrhoea cases. Nos. 1 and 5 are the most common types in normal children. In Group B all the varieties belonged to Subgroup B *a*, and the most commonly occurring members were Nos. 7 and 8, the latter being those most frequently associated with diarrhoea cases.

Group C is one of the largest and most important, and its representatives were by far the commonest in my experience. The most frequent types were C *a* and C *g*, 7 and 8; C *a* 8 and C *g* 8 were those most commonly found by Graham Smith, and this has been the experience of several other investigators. In my experience C *a* and C *g*, 11 and 12 were fairly common. Other types were extremely uncommon. Nos. 2, 3, 4, 5, 6, 10 were not encountered in any of the groups or subgroups. This is in accord with Graham Smith's findings, apart from the fact that he found C *g*, 5 and 6 fairly commonly.

Group D is exceedingly uncommon, and only a single representative—namely, D *d* 17—was found. It has been found only once in flies, and exceedingly rarely in children. In Group G, type G *a* 8 was twice as common as any other. Nos. 6, 9 and 12 were the only others met with. In Group H, which contains a considerable number of relatively infrequent types, half a dozen different varieties were encountered, for the most part referable to the Subgroups *a* and *g*. Finally, in I the varieties isolated were—*a* 10 and *c* 10.

From this short summary it may be judged that these results, while much less extensive and comprehensive than those of Graham Smith, follow his fairly closely. They serve to show, in the first place, that the non-lactose-fermenting bacterial flora of the fly's intestine is, within a certain range, fairly distinctive, and moreover, that in flies captured in dysentery or diarrhoea areas the bacterial flora is considerably altered in character, the forms found tending to approximate to certain more or less definite types, which appear to be associated with the disease in children—or rather, perhaps, with the conditions which accompany or give rise to the disease.

Of the bacteria which have been specifically identified with the disease, none is better known, probably, than Morgan's No. 1 bacillus (G *a*). Whether this be the actual causal organism or not, there can be little question that it is a fairly common inhabitant of the intestine of flies, particularly during the summer months.

The occurrence of *B. paratyphosus* B in flies in the natural state is of considerable importance. It may be, however, that, as appears to be the case with *B. typhosus*, it is only a fortuitous inhabitant of the fly, and that in ordinary circumstances it is more or less rapidly eliminated.

The chief point to be determined in regard to the relation of flies to enteric diseases appears to be whether the pathogenic bacteria ingested by flies are eventually excreted without appreciable loss of virulence. It has been shown that in the case of *B. typhosus* the bacilli may be excreted by the fly for a short time, and that such bacilli may retain their serological properties and characters to such degree as to render them indistinguishable from virulent organisms of the same kind. It is, however, hardly to be expected that the short sojourn of, it may be, forty-eight or twenty-four hours or less in the fly's intestine can have much effect upon the pathogenic properties of the bacteria. Were it otherwise, one might at least expect some change, even though slight, in their biological properties. This matter, nevertheless, appears to be worth some further investigation.

CONCLUSIONS.

It has been fairly conclusively proved:

That under experimental conditions flies can readily carry and disseminate certain pathogenic organisms.

That these organisms are not infrequently met with in flies under natural conditions, particularly in association with outbreaks of infectious diseases.

That organisms producing bacillary enteritis are to be met with not infrequently in flies under natural conditions.

That a considerable number of organisms resembling

enteritis bacilli occur frequently in flies in the natural state, and that the utmost care is necessary in discriminating between these and the true enteritis-producing organisms.

REFERENCES.

[1] G. S. Graham Smith (1913): *Flies and Disease: Non-bloodsucking Flies*, Cambridge University Press. [2] H. de R. Morgan and J. C. G. Ledingham (1909): The Bacteriology of Summer Diarrhoea, *Proc. Roy. Soc. Med.*, II (Epidemiological Section), pp. 133–158. [3] W. Nicoll (1911): On the Part played by Flies in the Dispersal of the Eggs of Parasitic Worms, Reports to the Local Government Board on Public Health and Medical Subjects, N.S., No. 53, pp. 13–30. [4] W. Nicoll (1912): On the Varieties of *Bacillus coli* associated with the House fly (*Musca domestica*), *Journ. of Hygiene*, xi, pp. 381–9. [5] W. Nicoll (1917): Flies and Typhoid, *Journ. of Hygiene*, xv, pp. 505–523. [6] R. A. O'Brien (1911): Report on an Investigation of the Bacterial Content of the Faeces of Young Children, Fortieth Annual Report Local Government Board for 1910–11, App. B., pp. 367–373.

The Croonian Lectures

ON

ADAPTATION AND DISEASE.

DELIVERED AT THE ROYAL COLLEGE OF PHYSICIANS, JUNE 21ST, 1917.

BY J. G. ADAMI, M.D., F.R.S.,
LIEUT.-COLONEL C.A.M.C.

LECTURE III.

ADAPTATION TO DISEASE-PRODUCING AGENCIES IN THE HIGHER ANIMALS.

(*Abstract.*)

FROM the data brought forward thus far the following conclusions can reasonably be drawn:

1. The evidence is abundant and conclusive that bacteria are capable of being modified by alterations of environment of certain orders.

2. The modifications conform with Herbert Spencer's "direct adaptations."

3. It can be shown that not some, but all, the microbes subjected to particular orders of alteration of environment exhibit the particular modifications: the hypothesis of "chance variation" in one direction with survival of the fittest is incapable of explaining the phenomena.

After calling attention to two examples of direct adaptation in protozoa higher than the bacteria, namely, the conversion of negative into positive chemiotaxis in the myxomycete, Fuligo, and Musgrave and Clegg's observations upon the accustomance of entamoebae from the intestine to new bacterial and tissue foodstuffs, it was pointed out that the overwhelming studies of the last quarter of a century upon immunity afford the deepest insight into the processes involved in direct adaptation in the higher animals. There is a vast literature upon the subject. Some of the most notable achievements in science of our generation have been in this particular province. The names of Pasteur, Koch, Ehrlich, Metchnikoff, Almroth Wright, are household words. Every intelligent being knows something about tuberculin, diphtheria antitoxin, phagocytosis, and typhoid inoculation. Yet no single general biologist has dealt seriously with the significance of these discoveries in relationship to adaptation and evolution.

Typical examples were afforded demonstrating that immunization of the individual is direct adaptation. The cases of the phytotoxins, abrin and ricin, were considered in the first place. Both are intensely poisonous in minute doses. Against both the animals of the laboratory can be immunized so that they can withstand 500 or 5,000 times the lethal dose; the blood serum of the immunized animals contains bodies which neutralize the toxin. Evidence was given showing that the cells of the body of the immunized animals elaborate and discharge the antitoxin in great excess over the amount of toxin originally introduced; that they continue to elaborate this for weeks and months after the introduction of the toxin. We deal with the acquirement of a new property which cannot possibly be regarded as the calling into activity of a property previously possessed; the acquirement is something positive; there can be no alternative hypothesis of loss of inhibiting factors; no possibility of ascribing the new property to the persistence of a chance variation. Antiricin can be produced in rabbit or mouse with absolute certainty, and there is here no alternative explanation of the survival of the fittest.

The parallel examples of the production of diphtheria and tetanus antitoxins were then taken up, and next it was shown that the cells which absorb and fix the toxins produce the antitoxins. Following this, the more widespread bacteriolytic immunity developed against members of the typhoid-coli group, cholera spirilla, micrococci, etc., was studied and shown to be an acquired power of digestion of unfamiliar proteins, especial reference being made to Pfeiffer's reaction. Nor is the acquirement of necessity temporary in the individual. It may last for months and even years. Reference was made to the agglutinating powers of the blood of those recovered from typhoid fever months and sometimes years after complete convalescence.

This continued production exemplifies what Weigert and Fraser Harris had referred to as the "law of inertia." In the order of events here discussed the lecturer held that the activity once started continued too long to be comparable with physical inertia or momentum; there seemed to be the setting in motion of a serial or cyclic series of intercellular reactions and counter-actions, the one action starting the other. He preferred, therefore, to employ for the present the non-committal term of "the law of habit."

Numerous examples were given of the working of this law of habit in association with morbid states of various orders in man, of the survival of symptoms long after the agent causing the symptoms had disappeared, particular reference being made to the tics, hysterical and neurotic manifestations; the continued production of antitoxins and bacteriolysins was of the same order; he held that this same law explained the metaplasias and neoplasias.

As to the *inheritance* of these acquired conditions in the higher animals, he pointed out the restrictions induced by conjugation and amphimixis, the difficulties introduced in mammals by the intrauterine existence of the fetus, and in man by social customs. Two conditions have to be taken into account—namely, those of indirect and direct (or identical) inheritance.

Regarding indirect inheritance, it has to be observed that the germ cells are not so sacrosanct as to be insusceptible to influences affecting the body at large. The germ cells have to absorb foods and grow. If the lymph contain soluble substances the germ cells are not precluded from absorbing and being affected by them. And that this does occur is well shown by the studies upon the effects of paternal intoxication with lead, mercury nitrate, products of the tubercle bacillus, abrin, etc., the mother not being exposed to the poisons. In all these cases reduction in the number of pregnancies is noted, with increase in the number of stillbirths, liability to death within a few days after birth, and the production of an impoverished and highly susceptible offspring, but a small proportion of the progeny reaching maturity. Lustig and Watson (with abrin), Carrière (with tuberculin) note, in addition, an increased susceptibility on the part of the offspring towards the specific poison.

Of all these observations the most clear and decisive are those of Professor Stockard, of Cornell University. He subjected male guinea-pigs daily for a period to the fumes of alcohol, and mating them with normal females obtained but five living litters from twenty-four matings, and of the twelve offspring, seven died in convulsions soon after birth; the survivors, when two months old, were half the size of control guinea-pigs of the same age. When now the nervous and undersized members of this second generation were mated, even when unrelated and never themselves exposed to alcohol, their offspring tended to be still more degenerate, and to show gross deformities. Mating together unrelated members of this third generation, in the few examples observed, gave even more unfavourable results. In other words, two alcoholized great-grandfathers influenced the progeny down to the fourth generation.

We have here the most precise evidence of the inheritance of acquired defects, evidence that fits in wholly with our routine medical experience of the danger of marriage in families which exhibit like nervous or other defects. With these experiments before us it is absurd to postulate that defects of these orders are atavistic, due to properties

LIBRARY U. OF I. URBANA-CHAMPAIGN

which have been always possessed by some one or other strain introduced into the family. We must recognize that infection of one or other order, and intoxication, are capable of telling upon the parental germ plasm, and are capable of leading to the acquirement of conditions of defect. To us as medical men it is a minor point whether there is inheritance of the exact defect seen in the parent primarily subjected to the particular influence. At the same time it is not a little interesting that alcohol, lead, and bacterial toxins particularly affect the nervous system in the adult or adolescent, and that these acquired defects are peculiarly liable to influence the nervous system in the offspring.

"Parallel induction" of defects in body and germ cells have been noted of later years, and are being accepted, by an increasing number of zoologists and botanists interested in experimental embryology. The recent work of Kammerer upon *Salamandra maculosa* was cited in this connexion.

Instances of direct inheritance of acquirements are, and must be, rare and limited to cases in which the influences which, affecting the body cells, modify their internal secretions, and through these internal secretions so tell upon the germ cells and their metabolism as to set up similar defects and similar disorders of the internal secretions in the offspring. We know, as a matter of fact, that the endocrine organs as a class have a profound influence upon the generative organs and upon growth, and, from general experience, that metabolic disorders—gouty and "rheumatoid" states, defect and excess of internal secretions—are heritable. The results of medical research strongly support Darwin's earlier contention that congenital variation is to be attributed to the action or influence of changed conditions upon the parental body, and through it upon the reproductive germs. At the same time they indicate the existence of a limited group of cases in which the Lamarckian principle is exemplified, namely, that of identical inheritance of conditions acquired by the parent.

Thus at length, after long years of vague wanderings in the wilderness with not a little heavy fighting, we have, if mixed metaphors be permitted, conquered our Vimy Ridge, and although for a time held up, can indulge in a Pisgah view, and see when and how the next advance is to be made.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF ENTEROSPASM.

I HAVE read with interest the article by C. H. Whiteford, in the JOURNAL of March 24th, entitled "A case of enterospasm in which the portion of intestine involved was of unusual extent." In the *Middlesex Hospital Journal* for October, 1916, I recorded a case of enterospasm in a boy of 18.

This patient was suddenly seized with acute pain in the epigastrium while at tea, and, on examination, I found him to be suffering from profound shock, with a pulse rate of 120, temperature 99°, and abdominal distension. A history of attacks of acute indigestion during the past two years was obtained. An examination of the abdomen revealed absence of liver dullness and immobility of the muscles of the anterior abdominal wall on respiration. There had been no vomiting. As it was considered possible that some abdominal catastrophe had taken place, it was decided to perform an exploratory operation without delay. On opening the abdomen in the middle line, immediately above the umbilicus, distended coils of intestine forced their way through the wound. An examination of the small gut showed that some portions were collapsed, simulating the condition found in the intestine distal to a mechanical obstruction, while other portions were dilated. No evidence of blockage of the lumen of the gut was discovered. The stomach was dilated, and the gall bladder distended to the size of a "William" pear. As the condition of the viscera was considered to be due to a functional lesion rather than an organic one, it was decided that further operative interference was inadvisable.

The day following the operation the patient commenced to vomit pure bile in large quantities. The vomiting lasted for twenty-four hours. The pulse-rate, previously maintained at over 100, decreased, and the abdominal distension gradually disappeared. Apart from considerable difficulty in getting the bowels to act, convalescence henceforth was uninterrupted.

Paresis of the duodenum probably accounted for the distension of the gall bladder and the biliary vomiting, following operation. It is possible that this vomiting might have been prevented had the gall bladder been aspirated.

As Dr. Whiteford points out in his article, these cases of enterospasm occur in neurotic subjects, but it is most likely that undigested and irritating foods, such as fruit seeds, may act as an exciting cause.

A. CLIFFORD MORSON,
Temporary Surgeon R.N.
H.M. Hospital Ship *Karapara*.

A METHOD OF PREPARING AND USING CATGUT.

IN this process the catgut is rolled, inserted in a tube containing the sterilizing solution, and the tube is closed so as to be air-tight. One lot of tubes are small, for ligation; the others about double the length, for suture. These tubes are controlled during operation by the surgeon, thus avoiding waste of time or material, as in the ordinary way of passage from attendant to surgeon, and the risk involved in such handling. The tubes are conveniently about 2 by 9 and 2 by 16 cm. long, with screw top, corks, and screw-on metal caps. The central part of the cap is removed, leaving just the peripheral portion. This arrangement prevents the corks coming out when the gut is drawn from the tubes. There are two suture tubes, one containing raw and the other chromic gut. The tubes are closed by cork or ether proof rubber stoppers.

The sterilizing solutions used for gut are ether, chloroform, absolute alcohol, or petrol. Any one of these is a powerful germicide and will render gut sterile in twenty-four hours. These have the great advantage, besides, of being volatile and therefore soon leave the catgut after withdrawal from the tube and before insertion of the gut into the tissues. Thus one or other of these substances satisfies a desideratum that I had been looking for in that it has the advantage of germicidal solutions (sterilization) without their serious disadvantage (retention in gut after removal with irritant action of contained chemical upon tissues). Another advance in the aseptic technique.

I have been using ether as the sterilizing solution of choice. This substance proves lethal to the ordinary pyogenic germs in a very short time, as I have demonstrated. All that is required to sterilize the gut is simply to insert it in ether and leave there indefinitely; it can safely be used after twenty-four hours, probably much sooner. In winding the gut reels are avoided, as they would take up too much space and render the glass tubes unnecessarily bulky to hold in the hand whilst working. The gut can be conveniently wound on a bandage roller. I use a nickel plated one with a thin rod carrying two circular discs to regulate any desired length of spindle; the spindle is to be long and thick enough to readily fit the tube. The end of the gut next the rod of the roller (that is, the commencing end) is left long, so that when the gut is drawn off the roller this end can be threaded through the cork by a straight needle, and the gut roll unwound from the core outward, the other end of the hank of gut ending on the outside of the spindle. This method of rolling takes up the minimum amount of space and enables the gut to be withdrawn readily. The ligature tubes contain one roll, the suture tubes about three rolls of different and convenient sizes. When the tubes are corked and the caps screwed on they are kept in an air-tight glass receptacle containing an antiseptic such as alcohol, petrol, etc., or an aqueous or spirituous solution of biniodide and sodium bicarbonate tablets, in which they remain immersed when not in use. For this purpose I use petrol, which is efficient and cheap, but its inflammable nature must not be forgotten. After using the tubes they are washed free of blood, etc., and replaced in the receptacle. The cap of the latter may be like those of the tubes (screw on). A container holding two long tubes and six small is convenient for carrying about, but larger ones would be required for hospital use. If non-volatile disinfectors are employed in the container the ordinary catgut jars may be used. The advantage of volatile solutions here also is that they evaporate, and therefore do not get on the hands to irritate the tissues.

As to the sterilization of the gut, the process is simplicity itself. Nothing else is required after rolling but

immersion in ether, or one of the other volatile solutions mentioned. In tying, the ligature tube is held in the surgeon's hand, which facilitates speed in tying and economy in the use of gut. The tube being sealed no blood or virus can get at the contents—an improvement which favourably contrasts with the crude metal cylinder with a longitudinal slit and a bulky reel. The suture tube can also be manipulated by the surgeon, which saves time, and it can be used as a tractor on the free end of the thread and to keep it out of the way after the first knot is tied.

It should be observed that the solutions mentioned in no way damage the catgut, so that its strength, thickness, and pliability remain the same; whilst the dryness of the gut after withdrawal from the tube is a great help in ligating.

With regard to the tubes, the ordinary one in which drainage tubing is sold is a very convenient size for the sutures, whilst tubes about half the length serve well to hold in the hand in ligaturing.

This apparatus can be supplied by the Holborn Surgical Instrument Co., Ltd.

Sydney, N.S.W. G. S. THOMPSON, F.R.C.S.

ELECTROLYSIS IN OPEN SUPPURATING WOUNDS.

THE importance of the treatment of sinuses by electrolysis, as described by Dr. C. Russ in the EPITOME of May 19th (para. 54), should not be lost sight of. It is the ideal treatment for wounds penetrating the knee-joint and will supplant all methods of dealing with this class of injury which hitherto has taxed the skill of a surgeon as no other surgical case. The electrical reaction of the knee as tested by Mr. Baines's method with the galvanometer will at once indicate the point when the treatment is carried too far. It is a treatment not only eminently suited for wounds of the knee but also thecal abscesses and tuberculous sinuses, and would save the sacrifice of many a limb as well as preserve the usefulness to a far better degree than the usual method of free incisions. Its painless application is its strongest recommendation.

London, W.C. D. N. COOPER.

Rebiews.

MILITARY ORTHOPAEDICS.

THE word "orthopaedic" conveyed to many members of the British public before the war a vague idea of "something to do with the feet," an idea undoubtedly encouraged by the common practice of our colleagues in America of spelling the word orthopedic. Now, however, that military orthopaedics bulk so large in the medical press, and when so many thousand beds are devoted to this branch of surgery, even the average man must know a little more than before. In our issue of July 8th, 1916, we described the work that was being done in Vienna in the treatment and training of disabled soldiers, and only recently (May 26th) published a paper by Dr. Colin Mackenzie describing the organization which deals with this branch of surgery in this country. The Vienna Central Military Orthopaedic Hospital is in charge of the well-known orthopaedic surgeon, Professor HANS SPITZY, who has found time in the midst of his labours to publish, in collaboration with Dr. ALEXANDER HARTWICH, a book on military orthopaedic surgery,[1] in which he sets out the lessons taught him by a year's experience of war. The subject is divided into two parts—A, *Der Orthopäde im Felde*, and B, *Der Orthopäde im Hinterlande*, which last expression we take to mean anywhere behind the fronts.

A useful section is devoted to the treatment of unwounded men for such troubles as flat-foot, metatarsalgia, "foot swelling" (or injury of metatarsal bones), distortions, achillodynia, rider's bone, and so on. Some of these ailments may seem too trivial for notice, but they play a not unimportant part in unfitting men for duty. In the period 1870–1882, of upwards of 10 million men liable for service in the Austro-Hungarian army 2.2 per cent. were rejected for flat-foot alone. "Foot swelling" (Fussgeschwülst), about which so much has been written in Germany before the war, was practically unknown in our small army. Although it is not synonymous with fracture of metatarsal bones, this injury is very often present. When the surgical statistics of the war come to be made up, it will be interesting to learn whether it has become common in the British army now that it numbers millions of men of a less select physique than formerly.

For protection and maintenance of correct position during transport of wounded Professor Spitzy favours plaster-of-Paris bandages and splints, and gives directions for the application of them to various types of injury. This method has, we believe, not found much favour in our service for some obvious reasons, but the hints here given would be useful to any one who might have to apply it.

As was to be expected, Part B occupies the greater portion of the book, and, like most German works of the kind, it is divided into a "general" and a "special" part, of which the first deals with general principles and methods, while the second treats of their application to various conditions and parts of the body.

Dr. Spitzy earnestly counsels all surgeons working in military hospitals to remember that good functional results are what they should aim at, and that many bad results would be avoided if more care were devoted to seeing that unnecessary or too tight bandages and splints were not persisted with, and to giving passive and active movements as early as possible. This is a true saying. As to the necessity for prolonged treatment in special institutions, he declares that of those men who have been prematurely discharged from hospitals in order to make room for newly wounded, three-fourths will ultimately become a burden on the State.

In the space at his disposal he has found it impossible to go into much detail of treatment, and therefore this book can only be considered as a guide to principles, but some points are worthy of note. In speaking of arthroplasty Spitzy says truly that at the best a pseudarthrosis and not a restoration of the natural articulation is to be hoped for. Considering his reputation in the treatment of nerve injuries, Dr. Spitzy is rather disappointingly brief in the section devoted to this subject, both in the general and the special parts of the book, but what he does say is practical and to the point. In such a work, of course, there is no room for the discussion of results of nerve suture, etc., even if the time were ripe for it. For the gradual treatment of contracted elbow, finger, and knee joints the simple apparatus of Schede is figured and recommended. Speaking of malunion of fractures of the forearm, in which the radius and ulna are united by callus the author makes the wise reflection that before undertaking an operation of which the result must be uncertain, it is well to inquire carefully whether the movements of supination and pronation are necessary in the patient's occupation. The use of specially shaped "pathological" tool handles is recommended for invalids whose hands are partially crippled, and illustrations of some of these are given.

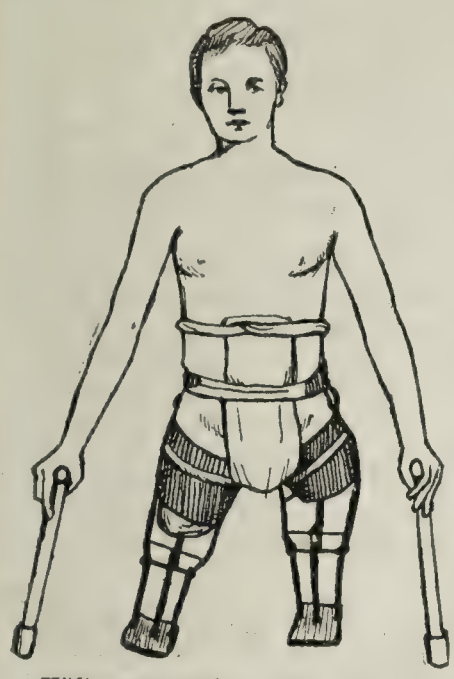
The short directions for operations on adherent or shortened tendons are suggestive and useful. Injections of lard between the skin and other surrounding parts and the tendon are recommended in order to prevent the renewal of adhesions.

Amputations and artificial limbs are discussed in a chapter of forty-eight pages. In the lower extremity, what are called *immediatprothesen* are generally used in Austria, as they are in Belgium and some other places. This term is applied to temporary peg or patten legs, which are fitted by means of gypsum or other buckets to the stump as soon as the amputation wound is healed. The advantages of this proceeding are multiple. In the first place, the patient's health is improved by early locomotion and the nutrition of the stump becomes more like the normal. In the second place, crutches can be abandoned and such troubles as crutch-palsy avoided. Thirdly—and this is not the least of its advantages—shrinking of the soft parts of the stump is produced by the pressure of the bucket, so that by the time the adjustment of a permanent artificial limb has become advisable, the stump will have

[1] *Orthopädische Behandlung Kriegsverwundeter.* Von k.u.k. Oberstabsarzt Prof. Dr. Hans Spitzy, Kommandant des k.u.k. Reservespitals No. XI (orthopädisches Spital, und Invalidenschulen), und k.u.k. Assistenzarzt Dr. Alexander Hartwich, Wien. Mit 144 Textabbildungen. Berlin and Vienna: Urban and Schwarzenberg. 1915. (Demy 8vo, pp. x, 214.)

LIBRARY U. OF I. URBANA-CHAMPAIGN

settled down into a more or less permanent form. This shrinking of the stump, which occurs as soon as the bucket or socket is worn, is one of the chief troubles of the artificial-leg maker, for even six months after amputation such a rapid change may occur that a bucket may have to be lined or a new one made before the patient has had the limb as long as a month. We have not as yet heard of the adoption of temporary peg legs on a large scale in our service, but it is to be desired in the interests of economy of time and money and of efficiency.



Höftman's patient with his first (immediate) substitutes. By degrees these props are lengthened until the normal length of limb is reached.

Many men who have undergone double amputation, even of the thighs, quickly learn to walk well; when, however, the thigh stumps are short, great difficulty is experienced in gaining control and in balancing. Professor Spitzy prints an illustration of a case of this kind, which was treated by Höftman, by the application of temporary pattens only a few inches high. When the patient had learnt to walk on these, which were easily controllable, owing to the shortness of the levers, they were lengthened to the full extent by two or three successive stages.

The book contains nothing novel as regards artificial arms or arm stumps, but ingenious dodges are illustrated for developing the muscles of these stumps, and Professor Spitzy reminds us of the great usefulness of forearm stumps without the intervention of any appliance whatever.

EVOLUTION IN THE LIGHT OF HEREDITY.

IN the first of the four lectures which comprise Professor T. H. MORGAN'S *Critique of the Theory of Evolution*[2] the traditional evidence for that theory is revalued. The author points out the fallacy of concluding that, because organisms or structures can be arranged in a line extending from the very simple to the complex, they have arisen in the same order. He also discredits the current interpretation, that embryonic stages common to animals on different levels of evolution represent adult ancestral stages—the so-called "biogenetic law" of recapitulation. But he does not dispute the view that the common features of the embryonic morphology of, say, the mammal and the bird indicate a common ancestry, and so far favour the evolutionary doctrine.

The author's experiments in the sphere of inheritance have convinced him that "new characters are continually appearing in domesticated as well as in wild animals and plants, that these characters are often sharply marked off from the original characters," and that "whether the differences are great or small they are transmitted according to Mendel's law." Adaptive and non-adaptive characters are, he states, inherited in precisely the same way, and evolution has consisted largely in introducing new factors that influence characters already present in the animal or plant. In the third lecture of the series the cellular basis of heredity is illustrated and its mechanism explained on the basis of the author's investigations with regard to the wild fly (*Drusophila ampelophila*). The identification of genetic factors and their localization in the chromosomes has in this species been carried to a point which may surprise many readers, and appears to justify the author's contention that the mechanism of heredity has been discovered and its problem solved. Substantially, Professor Morgan's position may be described as a return to the Darwinian or mechanistic view of evolution and a rehabilitation of natural selection as a positive evolutionary factor. Not that he believes that a beneficial mutation renders a species more likely to mutate again in the same direction, but that individuals advantageously modified have a superior survival value, while their descendants stand a good chance of inheriting the increment and at least a "sporting" one of carrying it further in the required direction. We trust that our brief account of these important lectures will send many readers to the volume itself, which demands and deserves careful study.

[2] *A Critique of the Theory of Evolution*. By T. H. Morgan. Princetown: University Press. London: H. Milford. 1916. (Post 8vo, pp. 207; 95 figures. 6s. 6d. net.)

NOTES ON BOOKS.

THE *Handbook of Massage for Beginners*[3] gives a good brief account of the subject. The fifteen chapters into which the book is divided give descriptions of what the masseuse hopes to effect by the practice of her art, the way in which to do it, and the special details required for the treatment of various lesions by massage and movement. The last chapter, which is also the longest, gives an outline of the uses of electricity in medicine.

Dr. DHANJIBHAI HORMASJI MEHTA, of Baroda, has forwarded to us a copy of his translation into the Gujerati tongue of the little work on Indian ambulance training,[4] by Colonel R. J. BLACKHAM, C.I.E., R.A.M.C. The translator has been an active ambulance worker for the past sixteen years, during which time he has undertaken many such translations.

[3] *Handbook of Massage for Beginners*. By L. L. Despard. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton. 1915. (Post 8vo. pp. 253; 88 figures. 6s. net.)

[4] *Prathmic Madad Karanaraone Shikshan*. Baroda: Published by the Author. 1916. (1 rupee.)

THE MESOPOTAMIA COMMISSION.

[FIRST NOTICE.]

THE report[1] of the Special Commission appointed by an Act of Parliament in August, 1916, to inquire into "the origin, inception, and conduct of operations of war in Mesopotamia, including the supply of drafts, reinforcements, ammunition, and equipment to the troops and fleet, the provision for the sick and wounded, and the responsibility of those departments of the Government whose duty it has been to minister to the wants of the forces employed in that theatre of war," was issued on June 27th.

The chairman of the Commission was Lord George Hamilton, a former Secretary of State for India, and the other members were the Earl of Donoughmore, Lord Hugh Cecil, M.P., Sir Archibald Williamson, M.P., Mr. John Hodge, M.P., Commander Josiah C. Wedgwood (late R.N.V.R.), Admiral Sir Cyprian Bridge, G.C.B., and General Sir Neville Lyttelton, G.C.B. The report is divided into twelve parts. There is a separate report by Commander Wedgwood, which differs from the report of the rest of the Commission, rather, it is said, "in emphasis than in substance," and three appendices, one containing the report of the Vincent-Bingley Commission, dated June 29th, 1916, frequently quoted in the report of the Parliamentary Commission; a memorandum by Sir Beauchamp Duff, then Commander-in-Chief in India, dated July, 1916, replying to the Vincent-Bingley report; and a report by Colonel P. Hehir, C.B., I.M.S., on the medical arrangements during the siege of Kut-el-Amara.

The first part of the report of the Parliamentary Commission is a preface dealing, among other matters, with the physical and climatic peculiarities of Mesopotamia and the condition of the Indian army on the outbreak of war. The second part relates the origin of the Mesopotamia expedition, the next seven parts deal with the military operations, the tenth is wholly devoted to the "medical breakdown," and the eleventh to a discussion of the causes contributing to the errors of judgement and shortcomings of responsible authorities. The twelfth part summarizes the findings and conclusions, and makes certain recommendations.

GENERAL CONCLUSIONS.

The general findings of the Commission are as follows, and it is important to bear them in mind in attempting to

[1] Cd. 8610. Price 2s. net.

form an opinion as to their effects on the medical arrangements and the responsibility for them.

1. The expedition to Mesopotamia was a justifiable military enterprise, but one of such a character that it required, during its inception and development, the most careful watching and preparation.

2. The division of responsibility between the India Office and Indian Government, the former undertaking policy, and the latter the management of the expedition, was, in the circumstances, unworkable. The Secretary of State, who controlled the policy, did not have cognizance of the capacity of the expedition to carry out the policy. The Indian Government, who managed the expedition, did not accompany developments of policy with the necessary preparations, even when they themselves proposed those developments.

3. The scope of the objective of the expedition was never sufficiently defined in advance, so as to make each successive move part of a well-thought-out and matured plan.

4. The attempt in India entirely to control and regulate the wants of the expedition from Simla was an administrative mistake, and representatives of the Head Quarters Staff with wide powers should from the first have been stationed at Bombay, the port of embarkation and disembarkation to and from Mesopotamia.

5. The Commander-in-Chief himself, or his representatives acting as liaison officers, should from time to time have visited Mesopotamia with a view to keeping the Head Quarters Staff in touch with the needs of the expedition. In consequence of such want of touch, the military authorities at Simla did not appreciate or realize the difficulties of campaigning in Mesopotamia, and from such lack of knowledge failed to make sufficient provision for surmounting the difficulties and drawbacks.

6. The successive advances from Basra to Kurna, Kurna to Amara, and from Amara to Kut were sanctioned as being necessary for the protection and consolidation of positions already taken, and were therefore of a defensive character.

The Commission states generally that "the weightest share of responsibility lies with Sir John Nixon," the general officer commanding in Mesopotamia, "whose confident optimism was the main cause of the decision to advance" to Baghdad, but adds that other persons responsible were: "In India, the Viceroy (Lord Hardinge) and the Commander-in-Chief (Sir Beauchamp Duff); in England, the Military Secretary of the India Office (Sir Edmund Barrow), the Secretary of State for India (Mr. Austen Chamberlain), and the War Committee of the Cabinet," for the errors of judgement to which they were parties, and which formed the basis of their advice and orders with reference to the advance on Baghdad.

Deficient Equipment.

The general armament and equipment, it is stated, "were on a scale intended for an Indian frontier expedition, were not up to the standard of modern European warfare, and quite insufficient to meet the needs of the Mesopotamia Expedition." These shortcomings, the report continues, "were the natural result of the policy of indiscriminate retrenchment pursued for some years before the war by the Indian Government under instructions from the Home Government, by which the army was to be prepared and maintained for frontier and internal use." During the period for which the Indian Government was responsible, though there was no general breakdown in the commissariat of the expedition, discomfort and want were at times experienced through lack of transport, and illness arose from serious deficiency in diet. The ration originally supplied to the Indian troops was deficient in nutritive qualities, and a serious outbreak of scurvy ensued; it is added that, though the ration has twice been improved, it still requires careful attention as to the adequacy of its nutritive powers. It is further stated that "the wants of the expedition received meagre attention and illiberal treatment at the hands of the Simla authorities during the years 1914–1915."

Deficient River Transport.

A deficiency of river transport existed from the time the army left tidal waters, and became very serious as the lines of communication lengthened and the numbers of the force increased, but down to the end of 1915 the efforts made to rectify the deficiencies were wholly inadequate. River hospital steamers—an urgent requirement for the proper equipment of the expedition—were not ordered until much too late, and the proceedings in connexion with the fulfilling of orders for river craft by the Director of the Royal Marine in India and the India Office in London were far from satisfactory.

Deficient Medical Provision.

The section of the report dealing with the treatment of the sick and wounded is long and full of details into which we cannot now enter, but in its general conclusions the Commission says that the medical provision for the Mesopotamia campaign was from the beginning insufficient, that there was a lamentable breakdown after the battle of Ctesiphon, and after the battles in January, 1916, but that there was an amelioration in March and April, 1916, and "since then the improvement has been continual, until it is reasonable to hope that now medical provision is satisfactory." The main causes of the defects of medical provision causing avoidable sufferings to the sick and wounded, which during the breakdown in the winter of 1915–16 were most lamentably severe, were in respect of the provision of (*a*) river hospital steamers, (*b*) medical personnel, (*c*) river transport, (*d*) ambulance land transport. To these main causes are to be added, in respect of the operations in January, 1916, (*e*) the absence of the medical and supply establishments of the 7th Division, and (*f*) the premature efforts to relieve Kut, in consequence of the erroneous estimate of supplies in that place.

The general findings under this head are (*a*) that the limitation of medical preparation and the low standard of medical treatment in the Indian army at the outbreak of war were the natural outcome of the policy of limiting the general military preparations of India before the war in the interests of retrenchment pursued for many years by the Home Government and the Government of India; (*b*) the failure of the Secretary of State to force at an earlier period an investigation into the treatment of the wounded in Mesopotamia; and (*c*) the failure of the Viceroy to take sufficiently strenuous and peremptory action. The following paragraphs are in full as follows:

(*d*) A more severe censure must be passed upon the Commander-in-Chief, for not only did he, as Commander-in-Chief of the army in India, fail closely to superintend the adequacy of medical provision in Mesopotamia, but he declined for a considerable time, until ultimately forced by the superior authority of the Viceroy, to give credence to rumours which proved to be true, and failed to take the measures which a subsequent experience shows would have saved the wounded from avoidable suffering.

20. There has been misuse of official reticence as to medical defects and the sufferings of the sick and wounded.

21. While the protective and sanitary work of the medical administration has in certain directions and at some periods (notably under Colonel Hehir) been commendable, yet there has not been generally sufficient promptitude in taking the precautions dictated by modern science for the protection of the troops against disease.

22. Throughout the campaign, with insignificant exceptions, the executive and regimental medical officers and personnel have devoted themselves with unremitting kindness, zeal, and industry to the care of the sick and wounded with such means as were at their disposal.

The Parliamentary Commission endorses the finding of the Vincent-Bingley Commission that Surgeon-General Hathaway, senior medical officer of the force with Sir John Nixon, "did not represent with sufficient promptitude and force the needs of the services for which he was reponsible, and, in particular, failed to urge the necessity for adequate and suitable transport for the sick and wounded with that insistency which the situation demanded." The Parliamentary Commission adds, however, as regards river and land transport, that while it was the duty of Surgeon-General Hathaway to urge its necessity, it was actually the duty of the Quartermaster-General's department and of Sir John Nixon's staff to see that it was provided.

The following paragraph from the findings and conclusions of the report may most conveniently be quoted in full:

18. The officer directly responsible for the deficiencies of medical provision in Mesopotamia is, however, the Director of Medical Services, India. This appointment was held at the beginning of the war by Surgeon-General Sir William Babtie, who held the office between March, 1914, and June, 1915, but was away from India for six weeks in February and March, 1915. He was succeeded by Surgeon-General J. G. MacNeece on July 8th, 1915, and the latter proceeded home on sick leave on April 15th, 1916. Sir William Babtie in his evidence before us impressed us as an officer of ability and knowledge, but we do not think that he brought these qualities sufficiently to bear upon the task before him. He accepted obviously insufficient medical provision without protest, and without any adequate effort to improve it. He cannot therefore be held blameless.

Surgeon-General MacNeece did not give evidence before the Vincent-Bingley Commission, but he appeared before us. He

LIBRARY U. OF I. URBANA-CHAMPAIGN

was, in our opinion, an officer thoroughly desirous of fulfilling the duties assigned to him, but he was a man of advancing years and diminishing strength, unequal to the position he was called upon to fill, and his administration appears to us to show no signs of the vigour and efficiency that were required.

In the body of the report lengthy references are made to Sir William Babtie's responsibilities, and it is said—

The gravamen of the criticism which we feel bound to pass on Sir William Babtie is that, knowing the Army Medical Service in India to be organized only for frontier warfare, knowing the provision of the field ambulances and hospitals to be deficient, and knowing the medical personnel to be insufficient, he yet made no adequate efforts to improve these defects so as to equip the Mesopotamian Expedition in a manner suitable for campaigning in an unhealthy tropical climate against an enemy who was in alliance with and supported by the foremost exponents of modern warfare.

In other parts of the report it is stated that the stretchers and riding mules, the only land ambulance transport with the expedition, were inadequate, so that army transport carts were the only vehicles available for the sick and wounded where land transport was necessary. Padding for these carts was not always available, and "when padded they were cruel and dangerous for certain classes of wounded." The concluding paragraph with regard to this division of the subject is as follows:

Surgeon-General Babtie's omissions in regard to the Mesopotamian campaign are all the more remarkable because of his promptitude and firmness in pressing war provisions on the Indian Government which were necessary for the overseas expeditions generally. Thus, on the outbreak of war, he urged the formation of a fleet of ocean hospital ships, the construction of hospital trains, and the expansion of the Army Bearer Corps. It may be that, as we have noticed in other phases of the expedition, Mesopotamia was in medical matters also regarded as a "small side show," and did not for that reason receive proper attention to its special and unique requirements. At any rate, and for whatever reason, Surgeon-General Babtie's administration was marked by serious faults, for which he must be blamed, and the importance of which cannot be minimized. But we recognize that the shortness of his experience as Director of Medical Services when the war broke out, and the fact that he had to work in an atmosphere very unfavourable to reforming innovation, must be regarded as diminishing the weight of the censure he deserves. He is undoubtedly a man of great ability; and, having regard to all the circumstances, we desire to say that the faults of his administration were not, in our judgement, such as to prove him unfit for important, responsible administrative posts.

(To be continued.)

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

The Possibilities of Coal Gas.

Though those who lay by their cars and apply for a refund of part of their 1917 licence fees on or before July 1st can secure a substantial rebate, nevertheless it is certain that no medical men in civil practice would benefit by such an arrangement. At this juncture it is quite impossible to dispense with a car if the individual practitioner has been in the habit of employing one. At the same time a medical man may not be able to secure more than a gallon of petrol a day; many have to be content with less. Unfortunately a gallon is nothing like sufficient for the average need. Most doctors travel more than twenty miles a day, which is a good average petrol consumption except in the case of the so-called light car, which would give a matter of about thirty-five miles to the gallon. It is to be assumed that no doctor will be giving up the use of his car merely on the grounds of his inability to get adequate fuel supplies. What most medical men are concerned with is how to secure adequate instead of inadequate fuel supplies, particularly in face of the fact that their work tends to increase all the time. Alternative spirits have been looked on askance in these notes, on the grounds, first, that they have not been sufficiently tested; and, secondly, that there have been no guarantees as to continuity of supply. As it is not for medical men to experiment with their cars, since reliability is the essence of the matter for them, the advice given was timely, for subsequent experiences have proved that all manner of alternative fuels have ruined engines. Of course the use of them does not even tempt the medical man to-day, because purchases of alternative fuel have to be endorsed on his petrol licence. As the cost of most of them is practically the same as that of petrol, the wise man will take out his rations in the approved article.

No Experimenting Involved.

For years before the war town gas had been used for the bench "running-in" tests of car engines at factories. About a year ago its possibilities as a fuel for motors actually in vehicles to travel along the high road began to be discussed. To-day, as far as utility motor vehicles are concerned, there are examples of them running on town gas in almost every part of the country. Inasmuch as, next to actual goods carrying, the medical man's motor car is in a sense as absolutely a utility vehicle as any type that can be named, it follows that this development is of appreciable interest to him.

The average medical man's car has been of the type generally styled the touring variety. In nine cases out of ten it is equipped with four seats, of which in most cases it is essential that two only should be used, one for the accommodation of the doctor and the other for his motor man. At a push the motor man can be dispensed with.

This question of seating accommodation is mentioned because at the moment there are only two methods of carrying town gas. One is to compress it in steel bottles, such as are used for compressed air to start air craft engines, and for oxygen. That would be a convenient method as regards smallness of compass, but when very high compressions are used there is always the possibility of such bottles detonating. Setting that aside, however, we come to the fact that to carry in such container the equivalent of three gallons of petrol only would require cylinders totalling a weight of 16 cwt., therefore that method is ruled out as frankly impossible. Instead of great compressions we must seek rather to provide accommodation for a considerable bulk of town gas on the given motor vehicle. It is easy to do this in the case of the car with covered coachwork. For example, the town gas motor bus service instituted on a 75 mile route between London and Eastbourne witnesses the choice, not of heavy gas containers, but of bulky ones as being the only alternative container for the type of gas being used. All that is necessary is merely a bag of two layers of canvas with a rubber insertion to render it water and gas tight; the capacity is about 450 cubic ft., the whole apparatus being strapped on the roof of the char-à-banc. It extends along the whole of the roofing; the shape of it at any moment indicates how much margin of gas remains to run the vehicle. To drive one of these heavy machines from London to Eastbourne and back, a distance of 150 odd miles, requires approximately 4,000 cubic ft. of gas; therefore in this case there have to be several stoppages on the road to replenish the fuel supply. When the only alternative to encountering such delays is to enjoy no facilities whatever for making such a journey in such a fashion one must put up with the periodical halts. The price of gas on that road varies from 3s. 3d. to 5s. 10d. per 1,000 cubic feet. It is found in practice that it takes 18 shillings' worth of gas to make the double journey, thus effecting a saving of £1 2s., or a handsome margin over 50 per cent. on the price of petrol for utility motor vehicles even were it available. In other parts of the country—I recall an example at Kidderminster—a lorry of the 3½ ton sort has a gas container of the same description over the cab above the driver's seat; because it has no cover over the length of the vehicle, which is of the open lorry variety. Nevertheless, the scheme does admirably. Elsewhere in the Midlands a Ford car with four light uprights to carry a collapsible container sufficient for seventeen runs on give-and-take roads with "six up" can be replenished at a war time cost which represents a great economy on the use of liquid fuel.

Great Saving of Cost.

It must be borne in mind that years before the war, even when petrol was obtainable at 10d. a gallon, it was cheaper for the manufacturers of motors to do the running-in tests on town gas. Even at the war time price of 3s. 3d. per 1,000 cubic feet of town gas the cost works out at the equivalent of petrol, if it were obtainable, at 10d. a gallon only. Theoretically, one gallon of petrol is equivalent to 273 cubic feet of coal gas. Owing to evaporation and leakage, in most cases in practice it is found that 250 cubic feet of town gas does the work of one gallon of petrol. Here it must be added that in many parts of the country, notably in the Midlands, gas costs appreciably less than 3s. 3d. per 1,000 cubic feet, which volume, in practice, is equivalent to a 4 gallon charge of petrol. Town gas gives

approximately 85 per cent. of the power obtainable by the use of the best petrol.

Nearly all the corporations that manufacture town gas are improvising arrangements for supplying it to users of utility motor vehicles. Provided the passenger car owner equips his vehicle with a gas container, it is open to him to fill it from the same source in like fashion. In certain cases a flexible fabric tube, such as is used on balloon grounds for filling sphericals, is employed; but the more general and practical way is to fit on the curb near the given gasworks a simple upright containing valve and meter gear, so that the exact amount of gas supplied can be measured, even as in certain parts of America you pull up by the roadside, drop coins into a slot, and pump petrol direct into your car without stopping at a garage or shop of any sort.

In the case of the medical man's motor vehicle of the covered limousine or three-quarter landaulette type, it is possible to put a gas container, motor char-à-banc style, on the roofing, and so have a charge for a very respectable mileage, because, of course, these lighter private machines consume nothing like the quantity of motor fuel that a char-à-banc or utility vehicle requires. For these reasons, too, the great demand for petrol for the army might be met in part by requiring all taxicabs, and even the bulk of omnibuses, to be run on town gas, thereby incidentally rendering a more adequate supply of machines available to the public despite the liquid fuel shortage. Indeed, it may well be that in the fullness of time this will be found one of the means of checking the almost disproportionate demand at the moment for steam utility motor vehicles, which, while admirable in many respects, are distinctly unsuitable for latter day road traffic.

Even the argument that to use town gas for motor service, including purely passenger work, is unpatriotic, falls to the ground in face of the fact that the more demand there is in this respect the greater the production of benzole, toluol, and kindred substances which form the basis of various high explosives necessary in ever-increasing quantity to win this campaign.

THE CHEAP AND SIMPLE GAS CONTAINER.

From the average medical man's point of view, the question is one of getting a container made which will fit into the back seats of the ordinary four-seater touring car, occupying the floor space as well as the back seating accommodation. The great saving effected by the use of town gas against the minimum cost of motor spirit should soon pay for the price of such a container, which could be strapped in, and therefore taken out at will as easily as a collapsible hood can be put up or down. Many of these types of cars are equipped with what is called a tonneau cover, placed over the back seating space when not in use, to cover luggage and protect it from rain when the back seats are not occupied by passengers during a tour. If a tonneau cover were employed the gas bag need not even be strapped in. It will be perceived that town gas is a form of fuel the carriage of which, incidentally, does not involve weight that represents tyre wear and tear as well as power to propel it, but that, instead, gas tends to lift a fraction of the weight of the car.

If the gas container on a four-seater touring car were made so that it would be held in position by a tonneau cover, then the medical man's position would be this—that if on occasion he had absolute need to use the back seats, he would remove the tonneau cover, take out the flexible gas container and, instead, fill up his petrol tank from his licence rations, running his car on petrol.

NO ENGINE ALTERATION NECESSARY.

This is a great point to have in mind, as the horse-power produced by town gas is appreciably little less and calls for no alteration either to the engine or the carburrettor scheme. All that it is necessary to do is to fit a gas feed pipe to a point just above the engine throttle. An ordinary cock near the engine controls the supply, which is regulated by a lever coupled to the throttle valve lever, whereby the gas supply is increased or diminished, in accordance with the engine speed. The car can be run on petrol and coal gas alternately without any alteration. In a few months the medical man would save himself the cost of having a suitable gas container made. But at the moment no type has been standardized for private vehicles.

The demand is so obvious and abundant, and so many firms are established in businesses that could easily produce such an article, that it may be taken for granted that at no distant date some enterprising makers will come forward with standardized containers, particularly when we have in mind that, on the one hand, motor users all over the country have quite inadequate fuel rations, and have in the past actually been destroying their engines by running them on unsuitable alternative fuels, whereas it is foreknown that no harm can come to the engine by using coal gas. On the other, scores of thousands of professional and ordinary passenger car owners all over the country have had to lay by their cars because no further supplies of spirit are available. Thus, folk will gladly regain the use of their cars on almost any terms, particularly if resident in the country. Therefore, at the moment, in face of the possibilities of coal gas, it seems to me doubtful whether the majority of owners will lay by their cars and claim a refund on their licence fees when the lapse of a few months may give them town gas as a means of utilizing their cars all through the winter months, when such facilities are specially to be appreciated.

Everything, therefore, points to the fact that, in face of the large demand for gas containers, some of even the biggest rubber firms will shortly be producing the necessary article. For a passenger car it is easy to provide in small compass a sufficient charge of gas to run twenty or more miles; while in the covered variety of cars, such as limousines, it should be possible easily to provide sufficient for thirty or more miles. Inasmuch as town gas is manufactured all over the country, even if long journeys have to be undertaken it will be easy to secure supplies, particularly in face of the fact that most gas manufacturing corporations are already providing facilities for supplying such new style customers. The average medical man's work consists of journeys of twenty miles or less, so that the relative smallness of containers will not prove prohibitive, especially as gasworks are rarely a score of miles apart.

THE PRESENT AND THE FUTURE.

While the average medical man is not deprived of the whole use of his car, at the moment he has nothing like adequate fuel supplies for his needs. Apart from this, anything which economizes his running costs is a notable relief in days when war prices have attained abnormal proportions. Therefore, alike during and after the war, we may look for town gas to be used as a motor fuel for a great many purposes.

It may be that after the war alternative fuels will be available in great quantities to relieve the demand for petrol; nevertheless, the cost of producing them would appear to be permanently greater than that at which town gas can be manufactured and supplied for the same service. If holders for the accommodation in the back of a four-seater touring car of the average type employed by medical men were designed to contain 250 cubic ft. of coal gas, or the equivalent of a gallon of petrol, such cars would be able to run anything from fifteen to twenty-five miles on a single charge, and light cars up to thirty-five miles. Thus, for the average medical man's work, as for station work and shopping, such a supply would be practicable.

Recharging is as expeditious as it is simple, while the new market thus already opened for town gas is one which no producer will fail to cultivate for lack of the necessary enterprise to arrange the most convenient and expeditious supply arrangements.

The post-war price of petrol will obviously exercise an enormous influence on determining whether coal gas continues to be used after the campaign; but we must, besides, remember that it is extremely unlikely that the use of town gas on motor vehicles will be specially taxed. In any case, the post-war demand for motor spirits will be sufficient on the part of the wealthier classes, because it is one which necessarily gives a longer range of travel, while for aircraft engine work there will be ever-growing demands for petrol or benzole. So town gas will probably remain untaxed, particularly in face of the fact that the greater the demand for it the greater the various by-products of ever-increasing value to the dye and other industries which it is essential to develop in this country, alike from the points of view of economy, providing labour, and of preventing the export of money for acquiring such goods from at present enemy peoples.

LIBRARY U. OF I. URBANA-CHAMPAIGN

British Medical Journal.

SATURDAY, JUNE 30TH, 1917.

RE-EXAMINATION OF EXCEPTED MEN.

JUDGING not only from the statements on platforms, but from comments in the newspapers, it would appear that the debate in the House of Commons last week on the calling up for medical examination of excepted men has produced a somewhat confusing effect on the public mind. The indictment made by the mover and seconder of the motion which brought on the debate was directed against the War Office and the constitution and work of the medical boards, and many casual readers have undoubtedly gathered the impression that the last named have failed in their duty. This is not the case.

As a matter of fact the indictment was an indictment of the House of Commons itself for passing the Military Service (Review of Exceptions) Act, which came into force last April, without sufficient consideration and without the introduction of safeguards which are now considered to be necessary. The Act gave the Army Council authority to require certain classes of men excepted from the operation of the Military Service Act, 1916, to come up for examination on a date to be notified to them. The Act applied to members of the Territorial Force not suited for foreign service, to men who had left or been discharged from the naval or military service in consequence of disablement or ill health, and to men previously rejected on any ground, provided that a man should not be required to submit himself to re-examination within six months of his previous and last rejection or discharge, unless the Army Council considered that there was ground for the opinion that the previous rejection or discharge was obtained by fraud. The Act did not apply to a man engaged in agriculture whose work was certified to be of national importance, nor to any officer or man discharged in consequence of disablement certified by the Admiralty or the Army Council to be the result of wounds, including injury from poisonous gases, or in consequence of neurasthenia or allied functional nerve disease certified by a special medical board to be the result of naval or military service. The interpretation put upon the terms of the Act involved the issue of notices to a million or a million and a quarter men, although the War Office did not expect to get more than 60,000 men for the fighting ranks ("A" men) and another 60,000 for other categories, who would release men now employed behind the lines. Incidentally, the Under Secretary of State for War said that it required one and a half men to keep one man in the trenches.

The allegation was that the notices were sent out not only to men who had obtained fraudulent rejection, not only to men who in the past had been carelessly examined, and not only to men who, there was reason to believe, had improved in health, but also to the halt, the lame, the blind, the mute, the mad, and even the dead. This last is a picturesque statement which has produced more effect than it is worth when the difficulty of tracing addresses is remembered. If any men disabled in the war had been passed into the service it was a mistake, Mr. Macpherson said, and they would get their discharge; but he pointed out that the notice sent to a man contained a form which he could fill up, stating his claim that he was not liable to receive the notice; if he sent this form duly filled up to the recruiting officer he would hear no more about it. We have reason to know that this did not always happen and that the form has been returned with an intimation that the recruiting officer attached no value to it. Mr. Macpherson added that the Government was now prepared to say that all men who had served abroad and had been discharged from the army but came compulsorily under the Act, if they made a claim, would at once be finally discharged—that is to say, every soldier disabled by wounds or discharged through sickness or ill health abroad would be excepted.

This may have been the original intention, but if so it was not clearly expressed; the official statement now made will do something to relieve the situation, for it is easy to see that the almost simultaneous issue of such an enormous number of notices put a very great strain on the organization of the medical boards. Mr. Macpherson said that men had been examined at the rate of 15,000 a day; this would give a total of between 600,000 and 700,000 examinations since the Act came into operation. The recruiting medical boards, though not constituted to deal with a sudden influx of work on this scale, have risen well to the occasion, in spite of the depletion due to the demands of the army for medical officers to serve in the R.A.M.C., and steps were taken where experience proved it to be necessary to strengthen the boards or to increase their numbers.

The organization of the recruiting medical boards in relation to the Military Service Acts had come under review towards the end of 1916, and in December of that year Colonel James Galloway, C.B., physician to Charing Cross Hospital, who had been serving as a consulting physician with one of the armies abroad, was called home and appointed Inspector of Recruiting Medical Boards in the Directorate of Recruiting. As our readers are aware, he has inspected not only the permanent medical boards but many of the temporary boards established throughout the country, and has discussed with their members the medical problems arising. Before the Review of Exceptions Act was passed the War Office had issued additional instructions, and later on, before the Act came into force, steps were taken to obtain the full complement of medical examiners for each board, and to establish new boards where necessary; but difficulties were inevitably encountered in finding a sufficient number of men to undertake the work, owing to the heavy demands on the profession by the navy and army, and the need for maintaining as adequate attendance as possible for the civil population. The difficulties, however, were to a large extent surmounted by the good will of the civil members of the profession, who consented to serve as members of the examining boards; some such members give whole-time service, but the majority, we believe, give part-time service, serving in rotation as required. When the new Act came into force, the boards became very busy all over the country; in many places they were hard worked; at a few the number of men coming forward for examination was larger than the boards could examine with any approach to doing satisfactory work, and special steps were taken to enlarge the boards and to reduce the number of men coming up on any one day.

The responsibility now thrown upon medical examining boards is very great. Under the old conditions of our small standing army, a recruiting

medical officer was required to determine only whether a man was fit for general service or not; gradually, as the numbering of the people has proceeded and the comb has become finer, medical examining boards have been instructed to make a much closer classification. Men passed into category A are classed as fit for general service—that is to say, fit to be trained as soldiers at once or after a period of preliminary physical training. Everybody else would have been rejected under the system applicable to the old army, but now there are other categories. First of all, category B, which is divided into three classes: B 1, men who can be employed abroad in garrison duty, or B 2, as labourers on roads, railways, and so forth, or B 3, in sedentary employment, such as clerks, storekeepers, bootmakers, tailors, and so on. The next category is C, men suitable for service at home, in which is now included North-West Europe; this, again, is divided into three categories: C 1, garrison duty, C 2, labour, C 3, sedentary. The next category is that of men relegated to the reserve—that is to say, men whose existing disability is so considerable that the board believes that it would be useless to re-examine them again for six months. Next there is the small category of men in whom the examination is not completed because they are suffering from some transient illness; they are sent away to be called up for re-examination after an interval of a month or two, when it may be expected that they will have recovered. Finally, there is the category of men permanently unfit for service. Thus we have at the lowest estimate nine categories, leaving out that of men whose examination is not completed owing to transient illness, and into one of these it is the duty of the medical board to put every man.

To determine this point the medical examination must be careful and discriminating, and must involve much greater expenditure of time than when the class of men called up contains a large proportion of those presumably fit. We are fully prepared to accept Colonel Galloway's assurance, quoted to the House of Commons by Mr. Bonar Law, when he said that though there must be errors from time to time among the number of decisions arrived at by the medical boards, and cases in which difference of temperament of the men under examination and the medical examiners give rise to friction, he had everywhere been struck by the patience and courtesy shown by members of the medical boards in cases where these qualities had been subjected to severe strain. If we take the estimate above, founded on Mr. Macpherson's figures, that 600,000 men were examined in something like six or seven weeks, it is obvious that a very small proportion of mistakes will make an imposing total. If, for the sake of argument, we assume that mistakes were made in 1 per cent. of the cases, we should have a total of 6,000 aggrieved men, or at the rate of 10 to each member of the House of Commons; so that Mr. Asquith's statement that some members found many such complaints in their letter-bags is not surprising. But we do not believe that the mistakes have amounted to anything like 1 per cent. That, nevertheless, there have been cases of hardship, partly due to the wholesale calling up of men who, when seen, were obviously unfit, and partly due to the small percentage of the mistakes made by medical boards, no one would care to deny, and the Select Committee appointed by the House of Commons is instructed to recommend measures for preventing or diminishing all such cases of grievance. Although this body does not strike us as being particularly well chosen, it may probably be trusted to get at the facts and to make recommendations which will save the House of Commons from making similar mistakes in the future. For that purpose it should welcome assistance from the small committee, appointed by the Council of the British Medical Association at its meeting on June 27th, to watch over medical interests in this matter.

Dr. Galloway's testimony to the medical boards is thoroughly well deserved. Mr. Bonar Law said that in Dr. Galloway's opinion these medical boards, the members of which are almost entirely civilian, though some of them hold temporary army commissions, are rendering a great service to the country and are not getting credit for it.

THE MESOPOTAMIA REPORT.

"IN introducing the Indian Financial Statement for 1915-16 Sir William Meyer, the Finance Member (of the Council of the Governor-General of India) stated 'our chief economy occurs under the Military Services,' and, though the war had already been waging for more than eight months, he budgeted for a military expenditure half a million less than the corresponding expenditure for the previous year." This is a quotation from the report of the Parliamentary Mesopotamia Commission, and in another part of the report we find the same Finance Minister objecting to providing a railway in Mesopotamia, on the ground that he was "somewhat sceptical as to the line being at all so remunerative as represented, at any rate for some time to come. . . . We have at present no right to act as if we were certain of getting Mesopotamia or a very considerable portion of it after the war" (*sic*). Again, we read: "Pertinacity in pressing or multiplying the requisitions from Mesopotamia upon the Simla authorities was resented," and the following remarkable illustration is given: "General Cowper was Adjutant-General and Assistant Quartermaster-General of the Mesopotamia Force. In January, 1916, he, being the officer responsible for the transport, became seriously alarmed at the increasing difficulties which the shortage of transport created in the employment of troops for the relief of Kut. In consultation with General Money, Chief of the General Staff, he drafted a telegram in which they stated plainly that unless they got adequate shipping transport and personnel to man such transport, Sir Percy Lake, who had recently assumed command of the force, would have to abandon the idea of relieving Kut. They purposely had recourse to this language as they considered the position—to use General Cowper's own words—'so frightfully serious.' Sir Percy Lake carefully considered the telegram, and transmitted it after some alterations. In reply, Sir Percy Lake received a personal telegram from the Commander-in-Chief at Simla, severely rebuking him for the wording of the telegram, and the Commander-in-Chief added these words: 'Please warn General Cowper that if anything of this sort again occurs, or I receive any more querulous or petulant demands for shipping, I shall at once remove him from the force, and will refuse him any further employment of any kind.'"

These passages deserve to be preserved for the wonder and instruction of succeeding generations. They go a long way to explain much of what is most distressing in the report of the Mesopotamia Commission, and it seems to us that Sir William Meyer's name should have appeared among the long list of officials and politicians whose failure to rise to the occasion is the

LIBRARY U. OF I. URBANA-CHAMPAIGN

subject of its animadversions. The Commission, indeed, in discussing Sir William Babtie's short period of administration as Director of Medical Services in India, refers to the atmosphere which he found at Simla—"very unfavourable to reforming innovation"—as diminishing the weight of any censure he may deserve. The whole report confirms the exactness of Sir Victor Horsley's summary of the facts in the letter[1] which he wrote to the Editor of this JOURNAL ten days before his lamented death at Amara. He said that the appalling failures in the medical arrangements in Mesopotamia were due to the utterly defective transport, and that these failures were bound up with the question of the present extremely unsatisfactory relation between the Financial Department of the Indian Government and the Medical Services; he went on to express the fear that the case of the responsible medical officers in Mesopotamia might be prejudiced, by which we understood him to mean that there would be an endeavour to make the Medical Services the scapegoat, to bear the sins of other departments.

The Parliamentary Commission, however, has been comprehensive in its distribution of blame, so comprehensive, indeed, inasmuch as it includes Mr. Asquith's War Cabinet, as well as the Governor-General and Commander-in-Chief in India, the Secretary of State for India, and the Military Secretary of the India Office at home, that it may mobilize forces which will be interested to make the medical services the scapegoat. We confess to seeing some signs of this in the lengthy discussion on Sir William Babtie's alleged failure to beard the finance minister of the Government of India and in the severe censure passed upon Surgeon-General Hathaway. The main grounds for this censure are that he did not represent with sufficient promptitude and force the needs of the medical services for which he was responsible, and, in particular, failed to urge the necessity for adequate and suitable transport of the sick and wounded with that insistency which the situation demanded. The Commission observes that though it was the duty of Surgeon-General Hathaway to urge the necessity of improving transport for sick and wounded, it was actually the duty of the Quartermaster General's Department and of the staff of the general officer commanding to see that it was provided. Further, it is only right to remember that the primary responsibility for sending the force to Mesopotamia unprovided with means either for preventing or treating disease, or any adequate transport for the wounded, rests on the Government of India. The Commission condemns the "misuse of official reticence as to medical defects and the sufferings of the sick and wounded." It is clear that this condemnation is well founded, and that Surgeon-General Hathaway must take a large share of the blame. There was an optimistic telegram on December 7th, 1915, and though the responsibility for its terms has not been completely fixed, it must be interpreted as expressing Surgeon-General Hathaway's view at that time. He appears also to have failed to inform the D.M.S. in India of "the often deplorable conditions of the hospitals at Amara and Orah," or of the deficiency of vegetables, fresh meat, etc., and he reported in February, 1916, that the water for drinking and cooking was absolutely safe, whereas the Commission finds that "the defects in water supply caused considerable illness in the forces, and necessitated a large expenditure before it was remedied."

[1] BRITISH MEDICAL JOURNAL, August 19th, 1916, p. 251.

We assume that the defects disclosed by the Commission as having occurred during the earlier part of the operations in Mesopotamia have been remedied, although there are passages in the report which show some hesitation, and there are facts within our knowledge which make us doubt whether there may not be need for immediate action to increase, at any rate the equipment, of Indian medical units sent out of the Peninsula.

An important part of the report deals with the defects of military medical organization in India, and makes certain recommendations with which and with other matters arising out of the report we hope to deal later, but we may at once say that some of the defects mentioned have been pointed out again and again in our columns and in numberless reports pigeon-holed in the offices at Simla. Many men who have served in various capacities under the Government of India, including among them some who have held very eminent positions, do not hesitate to assert on their return to this country that the Government of India is rotten at the core. The report of the Parliamentary Commission on Mesopotamia goes very far to support this statement, and we hope that if and when the report is discussed in Parliament the debate will be directed mainly to fundamental considerations, and that energy will not be frittered away in personal recrimination.

CARE OF THE DISABLED SOLDIER.

IN recent articles on military orthopaedics we have made it plain that the country, in accepting responsibility for the welfare of disabled sailors and soldiers, undertakes the definite duty of restoring them, as far as is humanly possible, to a state of efficiency in which they will be neither a burden to themselves nor to the community. The obligation incurred by the State towards those who have been maimed in its defence does not cease with the granting of a pension at the moment when military medicine and surgery have completed their task. It would be a calamity if these men on discharge from the army were encouraged to lead an idle life on a pension, or to wander into blind-alley occupations in which they could not hold their own in competition with the great number of able-bodied men who will return to civil life after the war. The main object, therefore, of the organizations which we now have in this country is to help these disabled men to help themselves. To understand the nature of the problem and the means already taken for solving it nothing could be more useful than the memorandum on the treatment of the disabled soldier prepared by Sir Alfred Keogh for the inter-allied conference recently held in Paris. This general survey of the field has been published in the new periodical *Recalled to Life*,[1] which we noticed in last week's JOURNAL. In this country the well-being and future efficiency of the discharged and disabled soldier have been entrusted to the care of two organizations—the Pensions Ministry, which fixes rates of money payment to meet varying degrees of disability, and the Statutory Committee of the Royal Patriotic Fund Corporation, which provides for the after-care of soldiers handicapped by disease or injury contracted on military duty. The local committees of the latter body, by uniting after-care with duties in relation to the payment of pensions, link up the two organizations, and are thus collectively the pivot of the whole system. The pension question having been entrusted to the Ministry of Pensions, and the primary curative treatment being undertaken by the military and auxiliary hospitals, the duty of industrial re-education, employment and general after-care of the discharged men devolves upon the local committees, whose activities are co-ordinated by

[1] London: Bale, Sons and Danielsson. (2s. net.)

joint committees established for each area. In order to secure continuity of effort representatives of the local committees come into touch with the disabled soldier before he leaves hospital. With regard to the curative industries which form so valuable a part of the work of orthopaedic hospitals, Sir Alfred Keogh is emphatic in insisting that these are essentially treatment; they often pave the way for industrial re-education, but primarily they are a form of mechano-therapy in which the patient takes a willing and intelligent part. Re-education proper is thus deferred until the man on discharge from hospital comes under the care of the local committee. Here the co-operation of employers of labour, and teachers in technical institutions, is of the utmost importance.

ANTHRAX AND SHAVING BRUSHES.

THE Local Government Board has published a report by Dr. Francis Coutts on an inquiry into cases of anthrax suspected to be due to the use of infected shaving brushes.[1] Most of these were cases of external anthrax, but in a few the disease seemed to be generalized from the onset. In nearly every case the lesion was situated in the shaving area of the face and neck. Suspicion fell at once on the shaving brush, and in some of the brushes examined living anthrax bacilli were found. In an early case investigated by Dr. Elworthy the infection was clearly proved to be due to the use of a recently purchased cheap shaving brush of imitation badger hair with a bone handle. Virulent anthrax spores were found in this and in several unused brushes of the same pattern purchased from the same shop. All the brushes were traced back through the tangle of trading arrangements to one wholesale dealer and were found to have been manufactured in a single factory. Dr. Coutts, in association with Dr. Collis, of the Home Office, showed that the bristles used in making these shaving brushes consisted for the most part of Chinese horsehair, posing as goat's hair, which had not been disinfected before being manufactured into brushes. The remaining unmanufactured hair from the same source was found to be largely infected with anthrax spores. Dr. Eastwood is still investigating the precise conditions which must be fulfilled to ensure sterilization of horsehair, and the Local Government Board is considering what administrative action is needed to secure that hair used in the shaving-brush industry is satisfactorily sterilized before manufacture. As four further cases of anthrax were traced to brushes of foreign make it will be necessary also to secure that imported brushes are similarly free from infection. Dr. Coutts's interesting report shows that although the danger of anthrax from infected shaving brushes is limited in extent, it constitutes an appreciable risk which ought to be removed.

STUDIES OF INTESTINAL DISEASES FROM THE MEDITERRANEAN.

THE Medical Research Committee has published under one cover two further reports[2] upon investigations in the United Kingdom of cases of intestinal diseases received from the Eastern Mediterranean. The first of the new reports gives an account of the work done by Dr. Paul Fildes and others working at the Royal Naval Hospital, Haslar, upon a large number of men, mostly healthy convalescents, arriving from abroad with histories of having suffered from intestinal disturbance. They were examined to find whether they had had any infective intestinal disease, and whether they might be safely returned to duty without risk of infection to others. Agglutination tests were relied on almost entirely. Owing to the inherent fallacies in these tests no exact conclusion could be reached, but it seemed probable that at least one-third of the men examined had had typhoid, or one of the paratyphoid fevers, while at least 11 per cent. had had bacillary dysentery. The number of carriers among these men was small. Dr. Fildes, in conclusion, testifies to the value of antityphoid inoculation in greatly diminishing the number of typhoid infections. He is of opinion that by the methods of inoculation in use in the navy the incidence of typhoid may be reduced in the proportion of three to one in the first year after inoculation, but that after one year no effective protection is given. The second report gives details of special studies undertaken by Captain S. R. Douglas, Captain L. Colebrook, and Dr. Parry Morgan on the clinical and bacteriological aspects of dysentery, in the beds under the direction of the Medical Research Committee at St. Mary's Hospital, London. This work aimed at elucidating a limited number of cases by very thorough inquiry, with a view to supplementing the observations made elsewhere on the ordinary lines. The close proximity of ward to laboratory permitted systematic research for many possible causes of the disease beyond the classical types of infection. It is noteworthy that of the twenty-nine cases so studied only three gave evidence of infection by the classical dysentery bacilli. Other bacterial types foreign to the normal intestine occurred in much higher proportion. These were systematically investigated, and the pathogenicity of at least five of them was established. From this the Committee draws the conclusion that these less familiar bacteria are not only capable of causing intestinal disease but may have played an important part in the Gallipoli epidemic. It is satisfactory to note that the treatment of these infections by appropriate vaccines, made from the abnormal faecal bacilli, was followed by rapid improvement.

[1] H.M. Stationery Office. 1917. New series, No. 112. Price 6d. net.
[2] Special Report Series, No. 6.

ARMY MEDICAL REPORT, 1913.

IT is impossible to feel any very strong interest in many of the details in the *Report on the Health of the Army for the Year 1913*,[1] but though circumstances have changed so greatly in the intervening years in contains some observations of present importance. The Director-General is able to point out that enteric fever, dysentery, alcoholism, tuberculous and venereal diseases, all gave lower ratios in 1913 than in the previous year. The increased use of salvarsan in the treatment of syphilis resulted in a still further considerable decrease of 5½ days in the average duration of each case of this disease. Inoculation against enteric fever continued to give overwhelming proof of its efficacy. A noteworthy instance was afforded in Mauritius, where, of a garrison of 1,166 non-commissioned officers and men, all but 77 were inoculated; the only two cases of enteric fever which occurred were among these 77 men. Over 93 per cent. of all European troops serving in India had been inoculated. In the 5th (Mhow) Division the percentage had reached 97.8, and there were some British infantry units in which every non-commissioned officer and man had been inoculated. Practically in every garrison all Indian cooks, mess servants, and others having anything to do in handling food, were inoculated as a routine matter. Of the 85 cases of enteric fever in 1913, 61 occurred among the inoculated and 24 among the non-inoculated. There were 8 deaths among the inoculated, and 8 among the non-inoculated. Among the non-inoculated the admission-rate for enteric fever was 5.3 per 1,000 of non-inoculated strength, and the death-rate 1.76. The ratio of admissions per 1,000 of inoculated strength was 0.9, and the ratio of deaths 0.12. Combining enteric and paratyphoid fevers, the admission-rate among the inoculated was 2.1 per 1,000 of strength, while among the non-inoculated it was 5.5, the corresponding death-rates being 0.15 and 1.76. As the protective influence of primary inoculation is greatly lessened after two years, reinoculation after that time is urged. Some infantry battalions in India had not had a case of enteric fever for over two years, and it was ascertained that in these units Indian cooks were not employed and inoculation had been adopted by all ranks almost universally. A review of all the circumstances surrounding

[1] Cd. 8445, price 2s. 6d. net.

LIBRARY U. OF I. URBANA-CHAMPAIGN

enteric fever in European troops in India led to the conclusion that the progressive decline in the prevalence of the disease was due to the high proportion of men protected from infection by anti-enteric inoculation, to the detection of "carriers" in barracks, to the elimination of convalescents by sending them to special enteric dépôts in the hills, to the practice of night-soil incineration, and to consistent effort to improve the sanitary condition in barracks and their surroundings.

TETANUS LIGHTED UP BY OPERATION.

WE have received notes of a case which illustrates the danger of disturbing old wounds. A man was wounded in France in September, 1916, by shell fire, a compound fracture of the right radius being produced. He probably received a prophylactic injection of antitetanic serum at the time when he was wounded, but there is no documentary evidence of this. In April, 1917, more than two hundred days after injury, the wound was firmly healed but the radius still remained ununited. An operation for bone grafting was now undertaken, but a prophylactic injection of antitoxin was not given. Six days later tetanus set in, and in spite of vigorous treatment the man died after an illness of only three days. Apparently anaërobes lurked in the depths of the tissue, or shortly after the operation the wound became very septic. The case is an example of the peculiar danger which attaches to compound fractures, and also the importance of giving a prophylactic injection of antitoxin before disturbing an old wound. The surgical treatment of wounds has an important bearing on the incidence of tetanus, and some medical officers in military hospitals at home are dissatisfied with the condition in which wounds treated by the salt and allied methods reach them. It contrasts unfavourably, it is said, with the clean, sweet-smelling condition of those treated by the old Listerian method of antiseptic dressings such as the double cyanide of mercury and zinc gauze, or iodoform.

SYNTHETIC SUNSHINE.

THERE seems to be no English equivalent for *esprit de corps*, a phrase we must have borrowed from the French some long time ago, for it does not appear to be in common use by them to-day. Nor do we know any English equivalent for *genius loci*, defined by the *Concise Oxford Dictionary* as the "presiding deity, associations, etc., of the place." Yet both sentiments may be developed in their most intense form on British soil; witness the first in the regiment, and the second in school or college. Both are as capricious in their growth as an alpine plant in the lowlands. They will not gather strength in one place where everything seems favourable to them, and luxuriate where they have apparently little encouragement. Why should both be strong in a territorial general hospital, designated by a number, established in a building devoted to quite other purposes until August, 1914, and staffed by men the majority of whom had never seen or heard of the rest before that fateful month? Yet that the sentiments are strong in the 3rd London General Hospital is proved not only by the monthly periodical conducted by the staff, but by a portly quarto for a copy of which we are indebted to the literary editor, Lance-Corporal Ward Muir, R.A.M.C.(T.). The volume is entitled *Happy Though Wounded*,[1] and opens with an article by the O.C., Lieut.-Colonel Bruce Porter, whose portrait, after a bronze bust by Lieut. Derwent Wood, who turned aside from his military duty of making masks for facial disfigurements to model forms the frontispiece. Like the *Gazette* of this hospital, the new volume is very strong on the artistic side, and of all the sketches by Private Nevinson we remember have seen, none exceeds in sardonic humour his mathematical diagram of hospital stores marked "urgent." There is a delicious little drawing of a "complained of fish" incident, by Private J. H. Dowd, and, to cut this part of the subject short, let it be said that there are as many pictures as pages, but some of the photographs chosen show how badly good photographs show up when mixed with drawings. In spite of the fact that the literary editor is only a lance-corporal, while the artists are lieutenants and sergeants, the literary pages reach as high a standard as the drawings, and there are some moving poems and one or two excellent stories. All the writing and all the drawings have been done in the hospital, and the volume is sold for the benefit of its benevolent fund.

[1] *Happy Though Wounded!* The Book of the 3rd London General Hospital. London: Country Life, Limited. 1917. (Cr. quarto, pp. 142. 6d. net.)

THE "KEW BULLETIN."

WE recently commented on the suspension by the Government of the publication of the *Kew Bulletin*, on the ground that it is not essential. The British Science Guild has now sent a communication on this subject to the Secretary of the Treasury protesting against the taking of such action without consultation with economic botanists and others concerned with the commercial aspects of plant products. The suspension of the *Kew Bulletin* is particularly regrettable at a time when every effort should be made to promote the development of the plant resources of the empire. The memorandum briefly summarizes the useful purposes served by this publication during the thirty years of its existence, and goes on to say that without knowledge of these functions and an intimate acquaintance with what the *Bulletin* has accomplished in providing information not accessible in any other form as to the capabilities of the various parts of the empire for the cultivation of plants of economic importance, no Government official is capable of deciding whether the *Bulletin* is an essential publication or not. The guild urges, therefore, in the interests of imperial development, that the Government's decision be submitted to a competent tribunal which will take into consideration not only the shortage of paper, but also the value of what is printed on it. We have already given our opinion on the false economy of suspending the *Kew Bulletin*, and we are glad to learn from the statement by the President of the Board of Agriculture that the matter is now being reconsidered by the Publications Committee, and that he hopes it will be possible to resume publication of this valuable periodical.

THE HALF-YEARLY INDEXES FOR 1917.

THE usual half-yearly indexes to the JOURNAL, to the EPITOME, and to the SUPPLEMENT have been prepared, and will be printed. They will, however, not be issued with all copies of the JOURNAL. Any member or subscriber who desires to have one or all three of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C.2. Such copies will be dispatched shortly after the middle of July.

THE next meeting of the Oxford Ophthalmological Congress will take place at Keble College, Oxford, on Thursday, July 12th, and Friday, July 13th. Papers will be read and discussions will take place in the department of human anatomy in the university museum, where scientific and commercial museums will also be held. The first day will be devoted to a discussion on the correction of errors of refraction, to be opened by Dr. George M. Gould, of Atlantic City, U.S.A., and Lieut.-Colonel R. H. Elliot. The morning of the second day will be given up to addresses and demonstrations, while in the afternoon cases will be shown and discussed at the Eye Hospital, and short papers will be read. The Master of the Congress is Mr. Sydney Stephenson, the deputy master Mr. Philip H. Adams, and the honorary secretary, Mr. Bernard Cridland, Salisbury House, Wolverhampton.

Medical Notes in Parliament.

Medical Re-examinations of Excepted Men.

PARLIAMENTARY COMMITTEE OF INQUIRY APPOINTED.

THE working of the Review of Exceptions Act was debated in the Commons on June 21st, Mr. Pringle moving to reduce the War Secretary's salary in order to raise the whole question of the conduct of the tribunals, the decisions of medical boards, and the action of the War Office in the matter generally. The discussion occupied the sitting, but early in it Mr. Macpherson promised the appointment of a Parliamentary Committee of Inquiry, and Mr. Pringle at the close withdrew his motion. He said he regarded the attitude of the Government as "a plea of confession and avoidance," and expressed the hope that the terms of reference and the names of the Committee would be announced at the earliest possible moment.

Mr. Pringle complained in the first place that the military authorities had, by their conduct, outstepped the objects of the measure. The bill was passed on the assumption, he said, that there were available for military service men who had in the past been improperly rejected, either on account of the "complacency of medical officers," or on account of malingering; there was also a third class of men—those whose health had materially improved since their former examination, and who should be available for military service. His contention in this regard was that the recruiting authorities had shown no discrimination in the way in which men had been called up. In nearly every area in the country notices had been sent, not only to all who might come within the descriptions he had given, but the authorities had also called upon the halt, the lame, the blind, the mute, the mad, and even the dead, to appear before these examining boards. His second complaint was that when men called up were admitted to re-examination they were, as a rule, treated with the utmost harshness. If they presented evidence regarding their medical condition their certificates were systematically ignored, and often torn up in their faces. The examination itself, he said, was of a perfunctory character. It was true that there were usually three medical officers present, but in the great majority of cases the decision rested with the military officer, who was chairman of the board. Mr. Pringle further alleged that men who were passed in lower categories in the labour units were frequently subject to re-examination by travelling boards and passed in the higher categories. Having stated that he could, if desired, produce a mass of correspondence in support of his allegations, Mr. Pringle submitted that practically in every area in the country there was testimony that the authorities were acting "with wanton cruelty and inflicting hardships which were not only a matter of serious consequence to the men, but which were also having very important and mischievous results in relation to the actual conduct of the war."

The motion to reduce the War Secretary's salary was seconded by Sir Godfrey Baring, chairman of the appeal tribunal in Hampshire, which, he said, had had between four and five thousand cases. Their confidence in medical boards had, he declared, been very soon rudely shaken, and he went on to give a number of cases to justify this view. He quoted three of men passed by the medical board at Winchester for Class A, sent up to the Central Medical Board, and totally rejected for military service. He said he could give innumerable cases where men had been passed A 1 and B 1, garrison duty abroad, who, in a few weeks, when their health could not possibly have deteriorated, had been entirely rejected or reduced to a very low category by the Central Medical Board. He hoped that if the War Office had any scheme to call up men who had been classified B 3 and C 3 in order to see if some form of military training would improve their physique and improve their health, it would immediately be abandoned. Without casting any reflection on the honour or integrity of the chairmen of the district medical boards, who were members of the Royal Army Medical Corps, he thought it must be evident that men who were dependent on the War Office for their professional advancement must wish to do what they thought the War Office required. He believed that these men thought that what the War Office required was quantity and not quality, and he pleaded for a definite statement that it should be quality and not quantity that the Army Council should seek. He said he would like to see a larger number of civilian doctors made chairmen of medical boards.

Mr. Macpherson (Under Secretary for War) asked the House first of all to remember the grounds upon which the Review of Exceptions Act was passed. There had been many cases in which men had been rejected by a recruiting sergeant without seeing any medical officer. Others had been rejected through fraud—bribery, impersonation, doping; chemical and bacterial maiming were some of the artifices employed. Recently in one city no fewer than 25 per cent. of the men re-examined under this Act proved to be "A" men. A third ground of rejection had been that men had attempted to enlist in select corps where the social standard was high. They were rejected on personal grounds, but these grounds were described as medical. There was the fourth ground of rejection—namely, of being invalided out of the service on account of ill health. On the re-examination of a million or a million and a quarter of men they had not expected to get more than a hundred thousand, and when amendments were introduced into the bill they reduced that estimate to sixty thousand. As a result of the examinations so far conducted he understood they might hope to get, when these examinations were completed, sixty thousand "A" men and sixty thousand for other categories. In speeches delivered all over the country the suggestion was conveyed that all these men who were called up were intended to be used for fighting purposes in the trenches. It required "one and a half men" in other capacities to keep one man in the trenches. He further complained of insinuations that men who were suffering from wounds or poisonous gas and neurasthenia were called up for service. In the Statutory Order sent to every man liable to be called up for re-examination the exemptions were clearly and simply stated. Further, the Government was now prepared to say that all men who had served abroad, and had been discharged from the army, but were now coming compulsorily under this Act, would be finally discharged if they made a claim. Thus every soldier who was disabled by wounds or discharged by sickness or ill health abroad would be excepted under this Act. Mr. Macpherson went on to deny that secret instructions had been given to medical officers, and challenged Mr. Hogge, who had alleged that they had been given, to produce them. [Mr. Hogge said he had seen them, and asked for a pledge of complete immunity for men concerned if he produced such instructions.] Mr. Macpherson reaffirmed that only a single instruction had been given, and that was contained in the Army Council Order. He proceeded to read a great part of it, the substance being that every consideration should be given to every man called up for re-examination. This instruction was sent, he said, to all medical officers. Examinations had been going on at the rate of about fifteen thousand men a day, and these enormous numbers had to be coped with by a very much depleted staff of capable medical officers. Mr. Macpherson described the procedure adopted in the appointment of a medical board. If the board was in a rural district the President asked the local doctors to assist him, and the board was invariably composed of no fewer than the President and two men; the average board consisted of the President and four men; and at least three doctors passed each individual case through their hands. If it happened to be an important centre and not a rural area, the local Medical Executive War Committee found the personnel of the board and formed the panel, and in that case, too, he understood that the medical board invariably consisted of the President and at least two men, sometimes the President and four men. The person under review had the power, after he had been examined by the medical board, of appearing before the tribunal, which might give permission for him to go before a special medical board. There were three of these boards—in Edinburgh, Leeds, and London—presided over by distinguished surgeons. Recently the War Office had also appointed inspecting officers. They had the advantage of having at head quarters the services of Colonel James Galloway, senior physician at Charing Cross Hospital, and they had travelling inspectors under General Burney; one of these had visited every medical board in the country. The Director of Recruiting had himself gone and inspected the board at Manchester. In conclusion, Mr. Macpher

LIBRARY U. OF I. URBANA-CHAMPAIGN

said that the Government had looked most carefully into all cases submitted to it, but was quite willing to appoint a small Parliamentary Committee to examine into the working of the Act. All it asked was that in common courtesy they should have the opportunity, before coming to the House, of investigating the cases which were brought to notice for the first time within the walls of the House.

Mr. Asquith said that no member of the House could recall the contents of his letter-bag during the last six weeks without feeling that the 120,000 men had been got by means which had excited widespread displeasure and indignation. He did not make any charge against the War Office, and he was glad that the circular which the Army Council issued was going to be made public. It seemed to him to have been well conceived and well expressed, but all their experience showed that in matters of this kind the best intended and the best expressed instructions, and, indeed, the best paper safeguards that could be invented would not in circumstances such as these prevent the recurrence of gross local and personal cases of hardship. As showing the difficulties of dealing with men brought up for re-examination, Mr. Asquith quoted the experience of the appeal tribunal for the county of London of the results of medical re-examinations for the five months ended May 9th, 1917. This important tribunal sat in five or six committees, and it was a significant fact that the total number of cases brought before them during the five months did not exceed 490 or, roughly, 500 appeals. These 500 cases must be the residuum of thousands, perhaps of tens of thousands, of decisions by the tribunal of first instance. It was an inevitable drawback to a system of this kind that the men who came before the tribunal of first instance, through ignorance, through want of means, through want of time, through want of advice, for a hundred other reasons, were unable, even in some of the cases of the greatest hardship, to reach the tribunal of appeal at all. That was inevitable. Of the 500 appeals to which he had referred, in 28½ per cent. of the cases there was no alteration. In little more than 10 per cent. the category in which the man had been placed was raised; in 60 per cent. of the cases the category was lowered, and in nearly 20 per cent. of that 60 per cent. not only was the category lowered but the man was either referred back or rejected altogether. In that "nearly 20 per cent." the man was in effect declared to be a person who ought not to have been sent into any category of any sort. Mr. Asquith went on to say he should be the last person that would cast any reflection on the members of the Royal Army Medical Corps. He knew what an admirable and well-qualified body they were, but in these matters it was important not only to have competence but to give confidence, and he thought it was desirable that, as far as possible, the presidents of these boards should be independent and private medical men.

Mr. Bonar Law, taking up the complaint as to the crush of persons waiting to be examined, said that as soon as it was discovered the War Office tried to deal with it, and he quoted a telegram sent to all centres throughout the country on May 12th. He denied that men who were specially excluded under the Act had been called up for examination, and quoted the printed notice sent to each man affected by the Act to show that it was open to men to fill up the certificate on the back, when their attendance for the reasons stated should not be required. Mr. Law went on to relate to the House the opinion that had been given to him by Dr. Galloway after an inspection of medical boards. It was as under:

> There must be errors made from time to time among the large number of decisions arrived at by these medical boards. There must be cases in which differences of temperament of the men under examination and of the medical examiners give rise to friction and cause for complaint. But on occasions too numerous to mention I have been a witness to the patience and courtesy shown by members of the medical boards in cases where these qualities have been subjected to severe trial.

Mr. Law added that he was not disposed in the smallest degree to speak on behalf of the Government in a spirit of apology. He was satisfied that at no time had any of the work of the War Office been done so conscientiously, and he doubted if it had been done more efficiently.

Mr. Herbert Nield, K.C., said that as chairman of an appeal tribunal during the last fifteen months his efforts had been directed to preventing the military getting men who were obviously unfit and whose destination was the hospital after a very short time.

Sir William Collins was not sure that attempts were not being made to obtain more at medical examinations than was possible. It was not necessary to justify the services, the heroism and the valour of the Royal Army Medical Corps. But medicine and surgery were at their best when doing what he regarded as their legitimate work rather than when they were pressed into the service of Acts such as this Review of Exceptions Act. Medicine flourished best in the atmosphere of free inquiry, and it appeared at its worst when it had to be forced into strict official method, and was dominated by military orders and instructions. It was absolutely impossible to expect something like a five minutes' examination, whether by one, two, or three medical men, to secure in any degree of certainty a satisfactory assurance that an individual was suffering either from any latent or patent disease, or to give guarantee that he would in the future be fit for general service—fit, that was to say, in many cases for a kind of activity totally different from that which he was doing in the past. The mere physical strain undertaken by a recruit when he joined very often was in itself the means of bringing out a physical weakness not previously ascertained, and the guarantee in the official military formula, "Fit for general military service," was one which he thought no medical authority would have suggested; it was framed in language which scientific authorities would not justify. Sir William Collins said that in the instructions (No. 640) referred to by the Under Secretary for War there was a passage in regard to the certificates that Mr. Macpherson did not mention:

> Certificates granted by practitioners and consultants are to be carefully scrutinized, and lists are to be prepared showing the names of the doctors who, in any districts, grant large numbers of certificates. These lists are to be forwarded to the Secretary, War Office, from time to time, so that appropriate investigation may be undertaken as to the methods by which such certificates are obtained.

It was sometimes surprising that when a medical man, who was a civilian doctor, was taken, and told, on the authority of the War Office, that his opinion was almost sacrosanct, yet when as the family doctor of a patient he gave a certificate based upon his own particular knowledge of the case that was treated almost with contumely and disrespect. Sir William next referred to a possible explanation in regard to the passing at the present time of some previously rejected, namely, the change in the standard of fitness laid down. In September, 1915, instructions were issued which purported and were stated to be for the duration of the war, and the test of vision was laid down as $\frac{6}{24}$ in each eye without glasses. In May, 1916, another instruction was issued, and there had been a great deal of misunderstanding as to the previous instruction, which was not couched in clear language, but the order was repeated in the same form and emphasized. In February, 1917, the standard laid down in September, 1915, was cancelled, and a different standard of vision was set up, providing that if a man's vision is $\frac{6}{24}$ in one eye without glasses, and his right eye can be brought up to $\frac{6}{12}$ with glasses, he will be considered fit for category A. There should be greater security as to the composition of medical boards. The boards often had upon them in the provinces good medical men, but they were men who could not be expected to be universal specialists, and they were not to be expected to give opinions of a determining character as to the particular diseases, some of which were only ascertainable with the most careful investigation and research. There ought to have been greater opportunities of access to the special medical boards, and not only on the authority of the tribunals; if medical re-examination was to go on there ought to be greater opportunities for the medical boards, whether in the country or elsewhere, to have resort to the best obtainable medical service.

In the further debate, Sir Ryland Adkins gave his experiences as a member of an appeal tribunal that had decided 3,000 cases. One grievance felt very deeply in many parts of the country, he said, was that where a man was passed into the army B 3 or C 3 there was no guarantee that he would be left in those categories. He asked that there should be some rehearing by a tribunal or independent authority before a man was moved up into other

categories. He also urged the appointment of civilian doctors as chairmen. Mr. Sutton, one of the Labour members for Manchester, gave some melancholy cases of men whom he had seen at his own house after they had been passed into some category or other. He said that although the category was low, it was a disgrace that it should have been decided to take some of these men into the army. There were men who were practically paralysed all down one side and could not close one hand —they had been passed in C 3. He related other cases of a different kind which had come under his notice. Mr. Hogge insisted that men who could not be put in higher categories were being put in C 3 category to be examined when, how, and as often as the authorities pleased. Referring to another matter, Mr. Hogge said that a physician to the King Edward VII Sanatorium in Wales had reviewed 4,000 tuberculosis patients and had sent the names and results of the examination to the recruiting officer in that area. In spite of that, every one of the 4,000 men had been called up by registered letter to be examined under the Review of Exemptions Act. Mr. Snowden, while criticizing the operation of the Act, paid tribute to the prompt and courteous attention with which Mr. Macpherson had met his communications. The Under Secretary for War obtained reports for him in cases of alleged grievance, but in a great many cases he (Mr. Snowden) believed that those reports were without proper foundation. Mr. Needham spoke of complaints he had received from men who, going before a medical board, were told that their medical history sheets were of no use, as the cases were being gone over again. Mr. Montague Barlow referred to several of the cases taken at Hulme Town Hall; and Sir H. Elverston referred to certain other cases. Mr. Kiley also mentioned a number of distressing cases which had come under his notice. The various speakers, however, generally agreed that as a committee was to be set up these matters could most properly be brought before that body. Mr. Clem Edwards suggested that much of the indignation in the country was due to the fact that there were hundreds of thousands of young unmarried men who could be spared. Having spoken first of young unmarried men in munition works who, he held, were dispensable, Mr. Edwards referred to numbers of young unmarried men in the mines. He reckoned that there were 573,000 men of military age who were badged in the mines of this country. Of that number 157,835 were unmarried and under 25 years; 34,727 were unmarried and between 25 and 30; just over 8,000 up to the 32nd year were unmarried; and there were 5,200 under 41 unmarried. In East Glamorgan coalmines there were between 6,000 and 8,000 men who were working at other industries when the war began. He suggested that the Government should call for young unmarried men in batches. He was confident they would come in with alacrity, though they could not be got to volunteer individually, and he insisted that the conditions of coal-mining would admit of their being spared easily. In these circumstances, as already said, Mr. Pringle withdrew his motion.

The Select Committee is constituted as follows:

Mr. Shortt, K.C. (Newcastle-on-Tyne), Recorder of Sunderland, chairman.
Mr. Pringle (N.W. Lanarkshire), a barrister.
Sir Godfrey Baring, Bt. (Devon, Barnstaple), Chairman of the Isle of Wight County Council and Hampshire Appeal Tribunal.
Mr. Caradoc Rees (Carnarvon, Arfon).
Mr. Cochrane (South Shields).
Mr. Montague Barlow (Salford, South), a barrister and man of business.
Mr. H. Nield, K.C. (Ealing), Chairman of the Middlesex Tribunal.
Colonel Walter Faber (Hampshire, West).
Colonel J. Gretton (Rutland), Chairman, Bass's Brewery.
Mr. J. E. Sutton (Manchester, E.), Agent, Lancashire and Cheshire Miners' Association.
Mr. Hugh Law (Donegal, W.).
Mr. J. J. Mooney (Newry), barrister.

The reference to the Committee, as finally agreed upon on June 26th, is that it shall consider (1) the instructions issued by the War Office with regard to the administration of the Military Service (Review of Exceptions) Act, 1917; (2) the method, conduct, and general administration of medical examinations under the Military Service Acts, and to make recommendations.

The Committee at a preliminary meeting on June 27th decided to sit in public and to proceed very rapidly with its inquiry.

Casualties Among Medical Officers.—Mr. MacCallum Scott asked how many medical officers had been killed and wounded, respectively, since the commencement of the war. Mr. Macpherson: The numbers of Regular (including temporarily commissioned) and Territorial officers have been as follows:

Killed in action	137
Died of wounds	58
Died of disease	62
Wounded	707
	964

Figures for Colonial officers were not readily available.

R.A.M.C. Officers' Acting Rank.—Captain Wright asked why appropriate acting rank was given to officers of the Royal Army Medical Corps recently sent overseas with special territorial general hospitals, who were by special arrangement to serve for a minimum period of three months, and to be relieved when necessary, when similar appropriate acting rank had been refused to officers of the same corps occupying similar positions in territorial hospitals in France who had been serving in His Majesty's Forces before the war and continuously on mobilization, and in some cases for over two years at the front, and who were subject to no such special arrangements as to minimum period of service or relief? Mr. Macpherson replied that when a general hospital was mobilized at home appropriate rank was given to the superior officers of the unit, but it had been decided that acting promotions need not be given in the case of vacancies occurring in units serving abroad. The question of acting promotions in such cases was under consideration.

Medical Students.—Replying to Mr. MacCallum Scott, Mr. Herbert Lewis (the Parliamentary Secretary to the Board of Education) said that on June 21st the number of medical students in medical schools receiving grant from the Board of Education in 1913-14 and in 1916-17 were 3,483 and 1,981 respectively. The returns did not distinguish between men and women students. The figures did not include the medical schools at Oxford University, Guy's and Middlesex Hospitals, Bristol University, or the University Colleges of Nottingham, Reading, Southampton, and Cardiff, with regard to which the Board was unable to supply similar information. In reply to a further question, Mr. Munro said that the number of medical students attending Scottish universities before and during the war were as follows: In the year before the war 2,367 men and 236 women, in the present year 1,510 men and 696 women.

Nervous and Mental Disorders in Soldiers.—Mr. Macpherson informed Mr. King that Sir Robert Armstrong-Jones, late Medical Superintendent of Claybury Asylum, was employed as a consultant physician in cases of nervous and mental disorders among soldiers in the London district and Aldershot Command. He had no duties in connexion with ex-soldiers.

Soldiers Suffering from Mental Disorders.—In reply to a question, Mr. Barnes said that during the war certain classes of lunatic soldiers defined in an Army Council instruction are retained in the army. Broadly, those so treated were those whose mental trouble may have been produced by war strain. A soldier so retained was credited with his pay. In reply to a question by Sir George Toulmin, Mr. Barnes said that the cost of maintenance in the case of a discharged soldier under detention in an asylum was chargeable against his pension under the Lunacy Act of 1890 and the Royal Warrant of December, 1914. It had been arranged that a discharged disabled man should, while in an asylum, be treated on the footing of a private patient, his maintenance being paid for by the State. An extra payment of 3s. 9d. per week was made to the asylum authorities to enable them to provide suitable clothing and other amenities for the man, and 2s. 6d. was given to the man himself for personal comforts. Under Article 6 of the new Warrant and Order in Council, special provision was made for the maintenance of the family and dependants of a man whose disability was due to war service.

British Prisoners in Turkey.—Answering Mr. Brooks, Mr. J. Hope said he was afraid there was no doubt that while the British officers now in Turkish hands as a result of the surrender of Kut were, on the whole, well treated, the conditions of the other ranks was very far from satisfactory. The United States Embassy and Consulates in Turkey were able, before the rupture of relations between the United States and that country, to send considerable quantities of clothing and comforts to our prisoners. The Netherlands Minister, who was now in charge of our interests, fully realized the importance we attached to all possible steps being taken to improve the lot of our prisoners of war in Turkey.

Tetany.—Sir George Greenwood asked a long question with reference to experiments on animals performed by Professor Noel Paton and Dr. Leonard Findlay. Mr. Brace replied that certificates for the experiments were duly submitted, and Sir George Cave's predecessor, after consulting the Advisory Committee, decided not to disallow them. The purpose of the experiments was to investigate and, if possible, to ascertain the cause of the disease known as "tetany." He understood that the cost of the investigation was in part defrayed by the Medical Research Committee.

LIBRARY U. OF I. URBANA-CHAMPAIGN

THE WAR.

THE WAR COLLECTION OF PATHOLOGICAL SPECIMENS AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

SINCE January, 1917, when two notices of this collection appeared in the JOURNAL,[1] the specimens on exhibition from the seat of war in France have been largely increased. In the first of the notices referred to the organization adopted for the collecting of the material was fully detailed, and, as was then stated, the duty of selecting from it such specimens as were of interest for permanent preservation was entrusted by the Council of the College to Mr. S. G. Shattock, F.R.S. (the Pathological Curator), with the assistance of Mr. C. F. Beadles (the Assistant Pathological Curator) and Captain Raymond Johnson. The chief part in the dissection of the specimens has fallen to Mr. C. F. Beadles.

It may fairly be said that at the present time the various forms of injury of the different viscera, with the exception of the brain, are amply, not to say exhaustively, displayed. In front of each of the specimens a printed description and brief history is placed, so that the whole of the material is available for examination and study.

Heart.

Amongst the specimens of the heart, are perforating wounds caused by missiles, and perforations of the pericardium with little or no injury to the heart itself. In some the missile is shown within one or other of the ventricles; in one, a shell fragment lies in the right ventricle without there being any perforation of the heart; the missile reached the auricle by the inferior vena cava in the neighbourhood of the liver, and thence passed through the auriculo-ventricular orifice into the ventricle, in the apex of which it now lies. Two specimens show results of cardiorrhaphy; in one, the missile was removed from the interior of the ventricle, death occurring four days later.[2] In the other case a superficial wound of the myocardium was sutured, and a branch of the coronary artery ligatured, the patient living twenty-four days afterwards.

Arteries and Veins.

Many additions to the injuries of the arteries and veins, and their results, immediate and remote, have been made—arterial haematoma, traumatic aneurysm, arterio-venous aneurysm, and aneurysmal varix. Indeed, every known lesion of this class is now represented in the collection.

In one instance the traumatic aneurysm (of the peroneal artery) was due to injury of the vessel by a splinter of the fractured fibula.

Two examples of rupture of the inner and middle coats, without rupture of the external, are contained amongst the series of artery specimens.

The specimens of injuries to the vascular system include three or more of perforations of the inferior vena cava; in one of these cases the patient survived for twenty-four hours.

Lungs.

Amongst the lungs are displayed examples of perforating injuries with their accompanying intra-alveolar haemorrhage, the lodgement of missiles in the organ, and the secondary results of haemothorax, and infective pleurisy with collapse of the lung from effusion—occurrences, of course, fully known and treated of in past and modern works on military surgery. In one or two, fragments of fractured rib and of clothing are impacted at the site of injury.

Abdominal Organs.

The perforations of the liver demonstrate the "explosive" effects of missiles at high velocity, and the comparatively slight effects produced by those at low; some show the local necrosis and bile staining about the site of injury.

The various forms of injury sustained by the kidney, stomach, and intestines are likewise fully represented.

In a certain number of instances the missiles causing the lesions are preserved with them, either *in situ* or separately, whether bullets or shell fragments or shrapnel.

[1] January 13th, p. 54, and January 20th, p. 97.
[2] Gray, BRITISH MEDICAL JOURNAL, 1915, ii, p. 561.

Results of Operations.

Besides the organs obtained after death, it is perhaps more pleasing to direct attention to a certain number which show the parts removed in successful operations. These include pieces of arteries excised in cases of arterial haematoma and traumatic aneurysm. In some instances a corresponding portion of the damaged vein has been removed with that of the artery, without the supervention of gangrene. To these must be added specimens of successful excision of extensive portions of the upper end of the humerus; of the scapula without the rest of the limb; of the kidney, the spleen, and of perforated portions of the small intestine, some of considerable length, for multiple perforations.

Method of Preparation.

All of these specimens have been prepared by the modern method—namely, the use of formol, followed by alcohol—and are mounted in 50 per cent. glycerin. They are thus shown in their natural colours, in most cases excellently preserved by reason of the use of a formol solution immediately after their removal, and the rapid transport of the material to the College.

For the prevention of rusting of steel fragments in the glycerin mixture, the device of Mr. Shattock has been adopted—namely, the addition, in small quantity, of a solution of crystalline sodium carbonate to the fluid.

Selection of Specimens.

In making this selection from a much larger number of specimens the object kept in view has been their scientific or educational value, and not a mere display of numbers. Morgagni's classical maxim, indeed, will always remain true: *Non numerendae sed perpendendae sunt observationes.*

Apart from gunshot injuries, excellent specimens are, moreover, on view, of gassed lung, illustrating the widespread oedema due to the rapid exudation from the capillaries into the alveoli. The action of the formol has in such circumstances coagulated the exudate before the organ was divided, a point necessary to bear in mind in studying the preparations.

Typical examples of the acute parenchymatous nephritis known as trench nephritis are also included amongst the conditions attendant upon modern warfare.

In conclusion, it should be added that there is in preparation for exhibition, and in part already displayed, a considerable collection of macerated bones illustrating fractures, which has been skilfully prepared at Cambridge, from cases in the 1st Eastern General Hospital.

The whole collection is open for inspection in the Museum of the Royal College of Surgeons from 10 a.m. to 6 p.m. (Saturdays 10 a.m. to 1 p.m.).

SOUTH AFRICAN WAR.

In the previous descriptive article (January 20th) it was said that only two specimens, both in the possession of the College, were obtained from the South African war. Dr. Lionel Sells (District Medical Officer, Uganda Medical Staff) calls attention to a third specimen prepared by himself from a case of amputation of the thigh performed by Major Fenwick at No. 2 General Hospital, Pretoria. This specimen is now in the Museum of St. Thomas's Hospital, London (No. 1126.) The fracture of the femur was caused by a Mauser bullet at close range; an unsuccessful attempt was made to save the limb, but five weeks after the injury amputation was found necessary.

"A DAY'S WORK."

CAVENDISH LECTURE BY CAPTAIN ANDREW MACPHAIL.

CAPTAIN ANDREW MACPHAIL, M.D., C.A.M.C., of McGill University, Montreal, delivered the Cavendish Lecture before the West London Medico-Chirurgical Society on June 22nd. He began by acknowledging his personal indebtedness to three previous lecturers—first, Sir Jonathan Hutchinson, who directed his steps towards the London Hospital, where he learnt the master truth that nothing pertaining to humanity is alien from the practice of medicine; next, Sir Frederick Treves, from whom he learned the purity of surgery; and, finally, Sir William Osler, who had given to medicine in the New World a fresh direction and an upward turn. For his own part, he had been concerned lately less with books and laboratories than with horses and men, and this must be his excuse for wandering outside the domain of science. But he would be bold enough to look even science in the face. We were at war, not only against

flesh and blood, but against principalities and powers, and one of these latter was the unmitigated scientific spirit of the enemy. The German worked in science as in war, throwing out saps underground, living and moving and having his being in darkness, whereas science with us was only a part of life and a development from it. The pursuit of science was the pursuit of truth, but the German cared nothing about the pursuit; he was all for the result, and thereby he had shut himself out from the world of imagination and had lost insight and sympathy. When all was said and done, we lived, not by truth, but by illusion, and the human heart created those illusions which alone made life tolerable. The human race had nourished itself, not upon science, but upon fiction, myth, and miracle, and still found its fulfilment, not in formulas, but in religion. Even to science the scientific spirit was fatal; it became dogmatic and then sterile.

For once, therefore, he would depart from the tradition of science which invested the Cavendish Lectures, and take instead a day's work in the field. The day he had chosen was last Easter Monday, when the Canadians, in the hardest bit of fighting they had had for two years, took Vimy Ridge. The task was set them in January and performed in April. By a piece of good fortune it fell to his division to act at the point of the spear. No verbal description could make intelligible all the events of that day; it must be left to the artist by an infinity of small touches to create a picture of what really took place on that great cliff, shaped like a dog's hind leg, from whence the Canadians drove the enemy into what once was the sea bottom in the space of 468 minutes according to schedule. It was not easy to visualize an army division, one of the finest creations of human genius. Every man on the 300 or so acres which a division occupied was made to feel that he himself was carrying on the war; and so he was, for if he failed he jeopardized the entire army. The burrowed area was mysterious enough at first, but a man got to know it, even as a worm knew its own cheese, and the underground plan was easier to follow than were some of the streets of London. The medical arrangements for the day had all to be made and rehearsed according to plan. No one system suited all engagements, and a system must be designed to make good in the case of defeat as well as in the case of victory. Accordingly two months were spent in excavating underground posts, shoring up roofs and walls, and fitting the place with racks for stretchers; and nearly all this work was done by the medical personnel under the supervision of a sapper.

Captain Macphail then followed the progress of a wounded man from the field. After the preliminary attention from the regimental medical orderlies, the man was sent to the first-aid post under the charge of the regimental bearers, who had their advanced head quarters two hundred yards from the parapet. Here careful dressings were applied by the medical officer, and then by means of hand or wheeled stretchers the wounded man was taken to a dressing station a mile or perhaps two miles in the rear, where all the dressings were examined and, if necessary, renewed. From this point he was taken still further back by motor ambulance, and at the main dressing station the casualties were taken over by the R.A.M.C. convoy.

Of the wounded themselves in detail little was seen at the front; they were only seen in the mass as they were sent on their way. It was first possible to see them in detail at the base or in England, and then to estimate the wreck of war and the pity of it. By 6 o'clock on the dawn of that bleak Easter Monday the wounded were coming in; by 7 the prisoners were marching down in companies; by 8 the supply trains were going up; and by 9 the whole world was alive with men and horses and motors, and the very roads were spewing up their stony entrails. All was over by 2 in the afternoon, and before darkness fell the field was clear. So rapid was the evacuation from the front that cases began to accumulate at the advanced dressing station, where the men lay in fifties and hundreds, well protected by blankets, by the side of the road, and the newly fallen snow covered them. A general who happened to pass by thought that this was due to the breakdown of the medical service, until it was explained to him that the cause was really the expeditiousness of those arrangements, and that otherwise the men would have been lying on the field itself. By midnight all the cases had been cleared from the casualty clearing station at head quarters, and the ambulance trains were on their way to London. At the later battle of Messines Ridge, which began at midnight, the ambulance trains were rumbling over Charing Cross bridge by two o'clock on the following afternoon.

The medical service, Captain Macphail continued, was no longer an ancillary but was an integral part of the army. This was so much the case that the Red Cross no longer availed to protect. He had never seen a deliberate instance of the Red Cross being violated on either side; on the contrary, the enemy had withheld his fire intentionally, but, conditions being what they were, hospitals and ambulances had often been struck. Such a day's work as he had described was looked upon somewhat as an interruption of the regular medical service, for they had millions of men to keep in a state of health and to care for in sickness. The methods of sanitation and hospitalization, including a mobile laboratory always available for the exact diagnosis of difficult cases, and extreme care in segregation, had yielded an amazingly healthy army. He had not seen a single case of typhoid at the front, and the few infectious cases that had to be dealt with were like children's diseases—such as chicken-pox and mumps—which the men would have gone through in childhood had it not been for modern developments in sanitation. It was an army, too, largely without venereal disease. That disease was regarded as a self-inflicted wound, like maiming the hand to escape service. To conceal it was a crime. The infected man was handed over to the assistant provost marshal, and the source of the contagion was discovered and deported. New problems in dealing with disease arose continually. Trench fever was a puzzle at first—men came complaining of great pain in the shins; it was put down as myalgia, and he was afraid injustice was done.

In conclusion, Captain Macphail said that care must be taken not to underrate the enemy's powers of resistance or of adaptation. That morning at Vimy they were close upon the German heels, and in a German dug-out they discovered sides of bacon, abundant bread, potatoes, bottled waters, drugs, dressings, articles in new leather, a phonograph, and a copy of Kant!—not at all bad supplies to make war on. The prisoners were helpful and diligent and docile, but had a certain faith in ultimate success. He advised the people at home to close their eyes to the end; to look upon the war as a normal condition, to cease praying for peace, to cease brooding over the continuation of hostilities. Otherwise they would get what the French called "psychopathy of barbed wire." No ground whatever existed now for alarm or doubt; the end was sure, but the days had shortened and lengthened thrice since the war began, and he rather thought they would shorten and lengthen again, perhaps more than once, before that end was reached.

TETANUS IN HOME MILITARY HOSPITALS.

IN the JOURNAL of November 11th, 1916, was printed a memorandum on the prophylaxis, diagnosis and treatment of tetanus, compiled by the War Office Committee for the Study of Tetanus, of which Surgeon-General Sir David Bruce is chairman. In this the curative treatment by antitoxin was discussed, and the method of performing intrathecal injection described.

Analysis of Results.

We have now received from Sir David Bruce an analysis of cases of tetanus treated in home military hospitals during August, September, and part of October, 1916, in continuation of the two previous analyses compiled for earlier periods. In the first analysis there were 231 cases, with a mortality of 57.7 per cent.; in the second analysis 195 cases, with a mortality of 49.2 per cent. The present analysis deals with 200 cases; of these, 127 recovered and 73 died, giving a mortality of 36.5 per cent. Thus there has been a regular and satisfactory fall in the mortality rate, which it is hoped will continue until the 20 per cent. aimed at is attained. This fall is attributed to the introduction of the primary prophylactic injection of antitoxin given to every wounded man in the front area, also to the earlier diagnosis and earlier specific treatment of the disease. If the fall continues, says Sir David Bruce, it will depend upon the introduction of multiple prophylactic

LIBRARY U. OF I. URBANA-CHAMPAIGN

doses, the vigilance of nursing sisters in detecting early symptoms, and the prompt and thorough treatment by medical officers by means of antitoxin. The original intention was to publish analyses of the cases of tetanus treated in home hospitals at the end of each year of the war; now, however, owing to the great interest taken in the subject by the medical officers concerned, it has been decided to report briefly in future on each series of 100 cases as they are completed.

During the same period two analyses have been published by Colonel Sir William Leishman of the cases of tetanus occurring among the British troops in France. In the first, 179 cases were dealt with, showing a case mortality of 78.2 per cent.; in the second, 160 cases were analysed jointly with Major Smallman, showing a case mortality of 72.7 per cent. It is to be noted that the cases dealt with in France are in the nature of things more acute and severe than the cases which arise in England.

Sir David Bruce illustrates his analysis by diagrams showing the monthly totals of cases, and the relation between the number of days elapsing between date of wound and onset of symptoms, and the rate of mortality; the last named shows clearly that the longer the interval the lower is the death-rate. A curve is given showing the number of cases which occurred on each day after the day of wound; the shortest incubation period was three days, and the longest 365. More cases occurred on the ninth, eleventh, and fourteenth days than on any other. At the beginning of last November the Tetanus Committee recommended that second, third, or more prophylactic injections should be given, and the hope is expressed that medical officers in charge of wounded will give this a fair trial. It would be interesting to note the effect upon the incubation period.

Among the 200 cases under review, 102 were noted as having received a prophylactic injection of antitoxin in France immediately after being wounded; of these, 74 recovered—mortality 27.3 per cent. Among the other cases there was no record of a prophylactic dose in 87, though most of them probably received it; of these, 48 recovered—mortality 44.8 per cent. The remaining 11 cases were stated to have had no prophylactic injection of any kind; of these, 5 recovered—mortality 54.5 per cent. The average incubation period in these 11 cases was 15.7 days. This is just over half the average incubation period of those inoculated on the day of wound.

Treatment by Antitetanic Serum.

With regard to therapeutic or curative, as opposed to prophylactic treatment, all but two of the 200 cases received antitetanic serum after the onset of symptoms; with 127 recoveries, and mortality 35.8 per cent. The two cases which, for some unexplained reason, did not receive curative serum, died.

A table showing the influence of the route in the therapeutic injection of serum suggests that the intrathecal method, contrary to the inference drawn from the figures for 1915, shows no advantage over the other routes. The question is then asked, Is there any other evidence to be found in the most recent records to show that the intrathecal route is preferable to the other methods of injection? and the answer seems inconclusive. Again, analysis of the figures relating to dosage furnishes no useful deduction as to the influence of this factor on the curative action of serum. The new figures, in fact, as Sir David Bruce points out, show no advance in knowledge of the curative value of antitoxin. He discusses the whole matter in a cautious and judicial spirit. The number of cases analysed was small, there were only two controls, and there was the greatest variety in the mode of treatment and in coincident infections, while deaths were often wrongly credited to tetanus. Hence it is not surprising that the evidence as to the real curative value of serum is so far inconclusive. Fortunately there is no shadow of doubt as to the prophylactic value of antitoxin.

In the present unsettled state of the evidence as to the therapeutic use of serum, Sir David Bruce feels that the only thing to do is to redouble efforts to make its application as thorough as possible. In the opinion of the Tetanus Committee, this can be best done by recognition of early symptoms and by prompt and thorough intrathecal injections.

General Lines of Treatment.

In conclusion, Sir David Bruce repeats the general advice as to treatment given in his previous analysis:

(*a*) Place in a quiet darkened room under the care of a sympathetic and capable nurse. "Rest, sleep, and food" are looked upon as the first essentials of treatment.

(*b*) If thorough surgical treatment is carried out on wounds from the beginning, so as not to allow the presence of necrotic tissues or foreign bodies, the number of cases of tetanus should sensibly diminish, if not altogether disappear. But, if a case does occur, then the wound should not be actively interfered with until the tetanic symptoms have subsided.

(*c*) The intrathecal injection of large doses of antitoxin of high potency, if available, should be begun at once and supplemented by intramuscular and subcutaneous injections.

(*d*) In addition, if necessary, the patient should receive sedatives, of which morphine in ¼-grain doses and administered every four hours is perhaps the most suitable. Chloral, chloretone, and other sedatives are also given by the mouth or rectum.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Lost at Sea.

LIEUTENANT R. STEWART, R.A.M.C.

The *Scotsman* of June 21st reports the death by drowning of Lieutenant Ronald Stewart, R.A.M.C. He was educated at Kelvinside Academy and at Glasgow University, where he graduated M.B. and Ch.B. in 1914. After filling the posts of resident assistant at the Western Infirmary, Glasgow, and of senior medical officer of the Belvedere Fever Hospital, Glasgow, he took a temporary commission as lieutenant in the R.A.M.C., and had served for some time at No. 4 General Hospital, Stobhill. Apparently he was the medical officer lost in the *Arcadian* on April 25th, whose name was then given as W. Stewart. Obituary notices of the other medical officers then lost appeared in the BRITISH MEDICAL JOURNAL of May 12th.

Killed in Action.

CAPTAIN C. A. WHITTINGHAM, R.A.M.C.

Captain Clive Alan Whittingham, R.A.M.C., was reported as killed in action, in the casualty list published on June 21st. He was educated at Glasgow University, where he graduated M.B. and Ch.B., with commendation, in 1910. He entered the Special Reserve of the R.A.M.C. as a lieutenant on January 31st, 1914, joined for duty as soon as qualified, and had recently been promoted to captain. He was attached to the Royal Fusiliers when killed.

Surgeon Probationer R. F. Pratt, R.N.V.R.

Died on Service.

MAJOR J. L. JONES, R.A.M.C.

Major John Langdale Jones, R.A.M.C., died of cerebral malaria at Nowshera, in the Punjab, on May 14th, aged 40. He was born on December 29th, 1876, educated in the Medical School of the Royal College of Surgeons, Ireland, in Dublin, and took the double qualification of the Irish Colleges in 1899. Entering the R.A.M.C. as lieutenant on November 29th, 1900, he became captain on November 29th, 1903, and major on November 29th, 1912.

CAPTAIN J. NELIGAN, R.A.M.C.

Captain John Neligan, R.A.M.C., was reported as having died on service, in the casualty list published on June 23rd. He graduated as M.B., B.Ch., and B.A.O. in the National University of Ireland in 1915, and immediately afterwards took a temporary commission in the R.A.M.C.

Wounded.

Captain C. W. Armstrong, R.A.M.C. (temporary).
Captain A. C. Court, R.A.M.C.(S.R.).
Captain C. D. Coyle, R.A.M.C. (temporary).
Captain G. S. Glass, R.A.M.C.(T.F.).
Captain R. O. H. Jones, R.A.M.C. (temporary).
Captain E. R. Mackay, Australian A.M.C.
Captain S. K. McKee, R.A.M.C. (temporary).
Captain C. G. L. Patch, R.A.M.C. (temporary).
Captain N. Prior, New Zealand Medical Corps.
Captain C. M. Samson, Australian A.M.C.
Captain R. P. Smith, R.A.M.C. (temporary).

Captain J. G. Sweeney, Australian A.M.C.
Captain E. B. Thomas, Australian A.M.C.
Captain G. W. Watson, R.A.M.C.(S.R.).
Captain C. A. Webster, R.A.M.C.(T.F.).
Captain R. C. Winn, Australian A.M.C.

DEATHS AMONG SONS OF MEDICAL MEN.

Grace, Mervyn Bruce, Lieutenant 2/6th North Staffordshire Regiment, killed in France on May 8th. He was the fourth son of the late Dr. E. M. Grace, of Thornbury, Gloucestershire. He was shot through the head whilst leading an attack after being wounded in the arm.

Green, Charles Leyton, Second Lieutenant Essex Regiment, elder son of Dr. Green, of Woodside, London, S.E., killed June 9th, aged 23. His commission was dated November 24th, 1914.

Herron, Reginald Maurice, Second Lieutenant, eldest son of the late Dr. James Herron, died of wounds on June 12th, aged 31.

Jardine, Graham Brynmer, Second Lieutenant Argyll and Sutherland Highlanders, attached to the Cameron Highlanders, elder son of Dr. Robert Jardine, of Glasgow, reported missing on October 18th, 1916, now presumed killed on that date, aged 24 years. He was educated in the Glasgow Academy, of which he was dux in 1908. In 1912 he graduated M.A. (honours in Classics) in Glasgow University, being first in his year. In 1915 he took the Honours B.A. in Classics in Oxford. No trace of him has been found since he led his platoon in the attack on the German trench near the Butte of Warlencourt at 3.30 a.m. on October 18th, 1916.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

NOTES.

FRENCH HONOURS FOR MEDICAL WOMEN.

THE Medal of Honour for Epidemics was presented by the President of the French Republic, through the Minister for War, on June 17th, to members of the staff of the Hôpital Auxiliaire 301 (Scottish Women's Hospital), Royaumont. The medal in gold was received by Miss Ivens, M.B., M.S. (chirurgien-chef); and in enamel by Miss R. Nicholson, M.B., B.S., Mrs. J. A. Berry, M.B., Miss W. Ross, M.B., Ch.B., and Miss M. Wilson, M.B., Ch.B. (surgeons); by Mrs. Savill, M.B., Ch.B. (radiologist); and Miss E. Courtauld, L.S.A. (anaesthetist).

MEDICAL OFFICER'S GIFTS TO THE RED CROSS.

Major W. Napier Keefer, of Toronto, late I.M.S., recently made a large gift of money to the King with a request that His Majesty should apply it as he deemed most suitable. Out of this gift, at the King's request, the Joint War Committee of the British Red Cross Society and the Order of St. John has allotted £7,500 as follows:

£2,000 to the Star and Garter Home for Paralysed Soldiers, for the permanent endowment of a room; £2,000 to the Nurse Cavell Homes of Rest, for the permanent endowment of a room; £1,000 to the Auxiliary Hospitals for Officers Department, for the Pinewood Sanatorium for Tuberculosis Officers; £500 to the Prisoners of War Central Fund; £2,000 to the Orthopaedic Curative and Training Fund, to be applied as follows: £1,000 to the Military Orthopaedic Hospital, Dublin, and £1,000 to the Ulster Volunteer Orthopaedic Hospital, Belfast.

In addition the King has handed £2,000 to Sir Walter Lawrence to be used for the benefit of any scheme that may be approved for the treatment of soldiers and sailors suffering from deafness.

The donor, Surgeon-Major William Napier Keefer, was a member of the Bengal Medical Service, from which he retired nearly thirty years ago. He is a Canadian, and was educated at Toronto University, where he graduated B.A. in 1864, and at McGill University, Montreal, where he graduated M.D. and C.M. in 1869; he took the L.R.C.S.Ed. and the L.S.A. in the same year. He entered the I.M.S. on October 1st, 1869, and retired on December 18th, 1889. He was for many years medical officer of the 13th Bengal Lancers (Duke of Connaught's or Watson's Horse), and afterwards Chief Medical Officer of the Andaman Islands. He saw much war service in India—the Lushai expedition on the N.E. frontier in 1871–72, medal with clasp; the Daphla expedition in Assam in 1874–5, mentioned in dispatches; the Jowaki campaign on the N.W. frontier in 1877–78, clasp; the Afghan war of 1878–80, mentioned in dispatches, medal with clasp; and Egypt, 1882, actions of Kassassin and Tel-el-Kebir, medal, Khedive's bronze star, and Order of the Osmanieh.

England and Wales.

DR. GLYNN OF LIVERPOOL.

A SPECIAL meeting of the Liverpool Medical Institution took place on June 20th to do honour to Dr. Thomas R. Glynn on the occasion of his attaining his jubilee year of membership. The President, Dr. Charles J. Macalister, occupied the chair, and on the platform were Drs. Caton, Macfie Campbell, Mr. Frank T. Paul, all past presidents, and the General Secretary (*pro tem.*), Dr. Frank H. Barendt. Ladies were present, and the attendance of members, under the present stress of war, was remarkably good. Many apologies for unavoidable absence and expressions of goodwill and warm congratulations from members, old pupils, and friends of Dr. Glynn were received. The Secretary read extracts of letters received from the Right Honourable the Lord Mayor of Liverpool, Sir William Forwood, Bt., an old schoolfellow of Dr. Glynn, Sir Dyce Duckworth, and Sir Thomas Barlow, testifying to the merit and personal worth of Dr. Glynn.

Dr. Charles J. Macalister said that in congratulating Dr. Glynn on his fifty years of membership the members were really congratulating themselves in having an old friend whom they one and all delighted to honour. Dr. Glynn was a veteran professor of medicine, a veteran leader of the profession, and one whose skill had been valued by medical men and students and by the public of Liverpool and far beyond. Largely through the medium of the Liverpool Medical Institution collating the scientific work of the School of Medicine, now the Medical Faculty of the University, and of the large hospitals of the city and environs, Dr. Glynn's professional ability was early recognized. His work had been of high scientific merit, great originality, and a stimulus to the innumerable students he had so assiduously instructed. His influence among the rising and already risen members of the profession was an invaluable heritage. It was because the medical profession far and wide knew the solid work that Dr. Glynn had performed, the enthusiasm which he brought to bear in his daily duties, the example of conscientious attention to detail he had ever set before it, that the members and his many friends had assembled to show their delight and pleasure in offering to Dr. Glynn their hearty congratulations. Dr. Caton then proposed the following resolution:

> The members of the Liverpool Medical Institution accord to Professor Thomas Robinson Glynn their hearty congratulations on his completion of fifty years of membership of the Institution.
>
> As Professor of Medicine in the University of Liverpool for nearly thirty-five years and as Physician to the Liverpool Royal Infirmary, Dr. Glynn has been in the foremost rank of those who have advanced the science and practice of medicine. His teaching has influenced the work of numerous students and practitioners, and by his unwearied devotion to his profession he has conferred invaluable benefits upon the sick and suffering of the community.
>
> As a member of Council, secretary to ordinary meetings, vice-president, president and trustee, Dr. Glynn's services to the Institution have been inestimable, and these members desire to place on record their gratitude for, and sense of appreciation of, his work, which has done so much to maintain the high traditions of the Liverpool Medical Institution and of the profession in the city. They express the hope that he may have many years of happiness with the gratification of being able to look back upon a life's work which has been continuous, effective, and appreciated by his patients and in the councils of his profession.

Dr. Caton said that he had known Dr. Glynn for forty-eight years, had been his colleague at the Royal Infirmary, and had been associated with him in many social gatherings where Dr. Glynn and others met at one another's houses for the purpose of studying music, art, Shakespeare, and other great dramatists. These studies favoured the development of beneficial hobbies. Dr. Glynn, always fond of nature, developed his artistic powers in landscape painting to a degree rarely found in an amateur. In music he sought recreation from the arduous and anxious labours of an energetic life; he sang and played the organ well to the delight of his friends. Dr. Glynn's health and perennial enthusiasm was largely due to the fact that he thoroughly recreated himself by these forms of refreshment and complete change of occupation. Dr. Caton concluded by bearing testimony to Dr. Glynn's gifts as a clinical teacher, and the services he had always rendered to the Medical Faculty of the University.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Mr. Frank T. Paul seconded the resolution. He was reminiscent of the circumstances under which their friendship was formed some forty-two years ago. Both being keenly interested in morbid anatomy and histology, it was only natural that they were thrown much together. Dr. Glynn's faculty for using the paint brush was exemplified in the numerous life-size paintings of various diseases of the thoracic organs. Mr. Paul spoke of the enthusiasm with which Dr. Glynn always worked, his thirst for knowledge, his anxiety to correct, if necessary, his diagnosis by the *post-mortem* findings. As a friend to young medical men and senior students, Dr. Glynn never seemed to forget that he was once a young man. His sense of humour was always hovering about ready to be roused, and the mistakes of others were ever indulgently glossed over, especially where youth was implicated. In public matters Dr. Glynn did not intrude; possibly had he done so his services to scientific medicine would have been more fully recognized.

Dr. Macfie Campbell contributed some remarks upon Dr. Glynn's helpfulness as a consultant. His diagnostic acumen was characteristic, his judgement sound, and the harmony between medical attendant and patient was at all times preserved. His optimism and cheery manner were typical. The resolution was then put to the meeting and carried unanimously, with prolonged applause.

Dr. Glynn, in his reply, said that the task of congratulating a friend was more easy than to acknowledge the compliments so liberally bestowed upon him adorned with so many superlatives. He truly appreciated the kind thoughts written and expressed by the members of the institution, and he would remember the occasion as an outstanding event in what he must conclude to be a long life. What success in life he had had he attributed to three factors—good health, good luck, good wife and friends. Disappointments did not necessarily remain such, for he called to mind one of the earliest he experienced. Although holding M.B.Lond. and M.R.C.S. and L.R.C.P., he failed to secure the post of resident medical officer at the Liverpool Royal Infirmary because he was not an L.S.A. At that time the School of Medicine was growing, and the infirmary, anxious to retain him, gave Dr. Glynn the post of demonstrator of anatomy. It was this circumstance that was decisive in his career, and he remained in Liverpool. In his student days great stress was laid on careful physical examination of patients, which he thought was nowadays apt to be relegated to the background owing to the influence of bacteriology and newer methods of biochemistry. He witnessed the introduction of the thermometer, 18 inches long, with no recording index, and the necessary haste in noting the exact temperature before the column of mercury receded. Pasteur's researches and Lister's practical application of these, the birth of the germ doctrine of disease, were rapidly passed in review. Dr. Glynn alluded to consultants of former years, and expressed the opinion that a medical man should always recreate himself by some diversion which should give him complete change from his daily duties. He concluded by acknowledging with sincere gratitude their congratulations.

CENTRAL MIDWIVES BOARD.

Special meetings of the Central Midwives Board were held on June 19th and 20th, at both of which Sir Francis Champneys presided. Nine women were struck off the roll. As usual there were many cases of ignorance with regard to taking the temperature and pulse and general breaches of the rules, but there were fewer charges of neglect of ophthalmia and only one with regard to puerperal fever. An unusual case was that of a midwife who obtained burial of three infants whilst giving a certificate implying that the box contained the body of a stillborn child. A fee of 2s. 6d. was paid by the parents of this child, whilst the midwife pocketed 15s. paid by the parents of the other two infants.

At the monthly meeting, on June 21st, Sir Francis Champneys in the chair, letters were read from the Privy Council, stating that the Treasury was prepared to authorize the payment, from public funds, to the country members of the Board, of the difference between their former and their present first class railway fares when attending Board meetings in London, the claims for repayment to be submitted to the Privy Council on December 1st in each year. A letter was read from the general secretary of the Medical Defence Union, asking the Board to consider certain communications of a more or less threatening nature received by several members of the union, from county medical officers of health as executive officers of the local supervising authorities, in respect of professional attendance upon midwifery cases, where uncertified women were engaged. It was agreed to reply that the Central Midwives Board had no jurisdiction over medical practitioners, uncertified women, or local supervising authorities, the authority possessing jurisdiction in the case of medical practitioners being the General Medical Council, which had drawn a distinction between such women acting as monthly nurses and those acting as midwives. An uncertified woman who "habitually and for gain" attended women in child-birth otherwise than under the direction of a registered medical practitioner was liable under the first section of the Act to a fine not exceeding £10, cases of genuine emergency excepted. It was decided that the chairman should arrange for the inspection, from time to time, of all training schools for pupil midwives conducted by midwives approved by the Board for the purpose.

OXFORD ORTHOPAEDIC CENTRE.

At a meeting of the Union Society, Oxford, presided over by the Earl of Jersey, to arouse interest in the provision of carpentering, engineering, and other workshops for wounded soldiers, Sir William Osler gave a most lucid account of the aims and objects of military orthopaedics, and the need for curative workshops as part of the therapeutic outfit of an orthopaedic centre. Colonel Sir Robert Jones, Inspector of Military Orthopaedics, and Major Goldthwait, of the American orthopaedic unit, also spoke. King Manuel was able to say that the curative workshops already installed at other centres had produced better results than could have been hoped. It seems probable that Oxford will become one of the most important military orthopaedic centres in the country, for in addition to an orthopaedic hospital and curative workshops for wounded men, there is being established at Headington an orthopaedic centre for officers which will accommodate 100, and be capable of extension.

Ireland.

THE IRISH MEDICAL PROFESSION AND THE WAR.

SINCE the outbreak of the war the Irish medical profession has voluntarily supplied a large proportion of its members for the medical services of the army and navy. The proportion of Irish doctors who have joined the medical services is much higher than would appear from a casual glance of the number of doctors who are registered with Irish addresses. Whilst over 3,000 doctors are usually registered with Irish addresses it is very doubtful whether, even in times of peace, the number engaged in all classes of Irish medical practice ever reached 2,000. It is generally estimated that only one in six newly qualified Irish doctors commences practice in Ireland. The great majority go to England and Wales and a smaller number go to the colonies.

Owing to the number of doctors who have accepted temporary commissions in the R.A.M.C., there are many rural districts in Ireland depending upon one doctor to look after the health of 6,000 or 8,000 of the population, and it is believed that even if military service were made compulsory on the profession in Ireland, the number of doctors joining the medical services could not be very much increased beyond that now obtained voluntarily.

The members of the Irish profession who have remained at home because they are over military age, or for other reasons, have given very valuable help in treating wounded soldiers in the general hospitals, or in V.A.D. hospitals specially organized for the reception and treatment of wounded soldiers. The War Office accepted last April a long-standing offer from the medical profession in Dublin to staff a base hospital for France. The doctors who will form the staff of this hospital will work in relays of nine for a term of three months, and will consist of three surgeons, two physicians, an ophthalmologist, a pathologist, a radiographer, and an anaesthetist. Similar offers have been made by the profession in Belfast and

Cork, but, so far, they have not been accepted by the War Office.

The Irish Medical War Committee was formed at a meeting of the profession convened by the Leinster Branch of the British Medical Association in May, 1915. It consists of two representatives of each of the various licensing bodies and medical schools in Ireland. Among its chief duties are (1) to provide doctors for the army and navy, (2) to protect the interests, during their absence, of those doctors who join the medical services and to assist them in finding suitable substitutes, (3) to advise regarding the medical requirements of the civil population. Public bodies, such as boards of guardians, have, with very few exceptions, given facilities to their medical officers who desired to apply for commissions in the medical services. They have not only given them the necessary leave, but in most cases have agreed to pay half their salaries during their absence as well as to pay the full salaries of their locumtenents. It is, however, to be regretted that some boards of guardians have persisted, contrary to the advice of the Irish Medical War Committee and the ruling of the Local Government Board, in appointing, as locumtenents, doctors of military age, when it was open to them to appoint doctors who were not available for military service.

Correspondence.

THE CO-ORDINATION OF BRITISH MEDICAL POLICY.

SIR,—In three letters already published I have ventured to urge—

1. The absolute necessity of *adequate liberty* for English medicine, if her advance is to continue, and the limitation of such control as may be inevitable to *adequately educated control.*

2. The careful consideration of a system of *part-time State service* for such sections of the profession as seem inevitably fated to have their liberty limited—except, of course, such services as the Army Medical and Navy Medical Administrations and the Public Health Service, all of which should obviously be whole-time State services.

3. That the *British Medical Association* is our only available fighting defensive force, but that, to avoid fresh failure, it needs prompt and drastic reforms, which I have indicated.

I would now urge our need to insist upon our absolute right, in view of our present all-absorbing work for the country, not to be coerced, whilst so deprived of normal resisting power, into any half-considered legislative changes.

We must have time—time for the return to civil life of the thousands of our most active and most interested members from military duty—time to think out and to weigh every proposal made (there must be no Prussian methods used this time), and to decide what is best for the empire—time to reorganize our deliberative assembly, to make it representative of all branches of the profession. Then if we show ourselves collectively unworthy of our traditions and our trust (the trust being the health of the empire), if we weigh sixpences against national needs, we shall at least do so deliberately, and under decent conditions of fair play from the public.

If, on the other hand, as I hope and believe, the experiences of this war have taught us that there are wiser policies than that of "hand to mouth," we may construct for English medicine the nearest possible approach to an ideal relation to the State, and, by ensuring the utmost degree of liberty for it, ensure also the utmost possibilities of usefulness and honour. We must have time; also we must waste none.—I am, etc.,

W. GORDON.

Exeter, June, 25th.

SIR,—Many interesting and forceful letters on this subject have lately appeared in the JOURNAL, which I hope, after further discussion, will result in a definite policy being agreed upon by panel practitioners. Having been in general practice over thirty years, may I state my conviction that the fundamental condition of a satisfactory medical service, panel or otherwise, is adequate remuneration? The present payment by panel patients scarcely provides a basis for negotiation; we should never have attempted to supply the required service on such impossible terms. I have in round numbers 350 panel patients, for which I receive about £100 a year. Out of this sum I am called upon to provide a furnished consulting room and waiting room, involving rates and taxes, heating and lighting, with the necessary attendant to answer the door, take messages, and keep the room in order. I doubt if it would be possible to secure this in the town for £50 a year. Then one must have a conveyance of some sort, a proportionate charge for which would probably be underestimated at £20 a year; a further sum of £10 for the clerical work entailed would not be too generous. These charges leave £20 a year as remuneration for my professional services. How can one be content to continue such an arrangement? The doctor feels the injustice keenly and knows that he is exploited. At present rates of remuneration many general practitioners have to devote a considerable amount of time to book-keeping, bill posting, dispensing, care of instruments, etc.; all these minor but necessary duties could with advantage be handed over to a surgery attendant, if the money was sufficient to provide one; the practitioner would then have more time to devote to the care of his patients, the record of cases, and some needful relaxation. Lord Alverstone in his *Recollections* says:

> The position of barristers' clerks is anomalous and interesting. They are paid by the clients by fees of half a crown for a consultation, and 5 per cent. on the brief fees. I know of no other instance where the personal attendant on a professional man is paid indirectly by the clients.

I wonder how the barrister himself would like to do their work! Unhappily, we are not so well represented in Parliament as are the lawyers. Compare the work, responsibility, remuneration, and out-of-pocket expenses of a revising barrister with that of a district Poor Law medical officer, or the salary and duties of a county court judge with that of the average county M.O.H. While I cordially dislike the word trade unionism, and also strikes, we must remember that they have been evolved by necessity, have proved effective weapons, and that they succeed in getting things done. No one as yet has devised equally powerful but less obnoxious measures.

My salary as Poor Law medical officer has remained the same for more than ten years, but had there been a strike, and an arbitrator appointed, who could doubt that an appreciable increase would have been awarded, and declared as justified by the increased cost of living, and of drugs which I have to provide?

My experience convinces me that panel patients themselves would not be slow to realize the necessity for a new order of things, with regard to payment for medical services. The difficulty in the past has mainly been with the agitators, who so often misrepresent and mislead them.

In the days of the old club system several societies accumulated millions of money by sweated labour of doctors and so-called paid officials, while the sick pay was at too low a rate. If they had been reorganized and contributions exacted from the members proportionate to the rise in wages, my belief is that ample funds would have been provided for an efficient medical service if properly administered.

Could the Poor Law medical service have been overhauled and brought up to date at the same time there would have been no need, I think, for the Insurance Act; but that has now, I suppose, come to stay, and it is up to us, by strikes (in the restricted sense as defined by Dr. Noy Scott) or otherwise, to see that the medical service is provided with adequate funds to make it efficient and desirable for all concerned.

The British Medical Association must get a move on and adopt more vigorous methods to obtain proper remuneration for the panel practitioners. Its failure to secure this in the past, and its slow appreciation of the urgency of the matter, account for the growing demand for a new organization with a bolder policy. I am all for reformation, not revolution, and I earnestly hope the Association will rise to the occasion and act quickly, for time presses.

Just lately I have read the first circular issued by the British Medical Association on "the work of the British Medical Association for insurance practitioners," and

LIBRARY U. OF I. URBANA-CHAMPAIGN

I would like to ask the Committee one question, and press for a reply. Is the wage limit now properly enforced and adhered to?—I am, etc.,

June 19th. SENIOR.

SIR,—How comforting it must be to the officials of the British Medical Association to know that the Association is still regarded by your correspondents as the "hope of the profession in its future struggles." With regard to the Secretary, surely it is an advantage to have a medical man in this post, as he can grasp the effect of proposed legislation upon the profession as a whole. We all realize the danger of a Medical Secretary who is primarily a politician and secondly a medical man.

I am among those who regret the absence of scientific papers at the meetings of Divisions, but even when scientific matters were discussed the attendance at meetings was very small. Fortunately, we have in Bedford a medical society which fills this gap.

We members of the Association *are* the Association, and what the majority wills will be done. At the root of all our troubles is the apathy of the profession. It is not the fault of the Association that medico-political problems form most of the pabulum of our Divisions. If all medical practitioners had the interests of the profession at heart, we should have full meetings, and any decision arrived at would be the considered opinion of the Division. Experience shows that a few enthusiastic members constantly attend meetings, and in return for their trouble apathetic members describe them as "an interested clique, who run the Division." The only remedy is for each enthusiast to inspire other members with his zeal, and as progress in this direction is made many misunderstandings will be cleared up.

The old cry, as false as it is persistent, still rankles in the mind of many that the Association sold us during the Insurance Act *débâcle*. The Association drew up a pledge which we agreed to keep. We broke our pledge by joining the panel, and so stultified ourselves and let down the Association. We may appoint as many new and brilliant officials as we like, but if the rank and file are dull and indifferent to their best interest, of what avail will it be?—I am, etc.,

Bedford, June 23rd. S. J. ROSS.

SIR,—Of the many letters on the above subject, surely special praise is deserved by that of Mr. Frank Coke, F.R.C.S. (June 16th, page 823). He outlines a very practical scheme of organization, which includes a strong local combination of practitioners as well as a central body to co-ordinate and be the mouthpiece of the smaller bodies. Organization is the crying need of the profession for to-day and more specially for to-morrow, but it seems to me that what we also want is a better conceit of ourselves. The profession does not appear to have yet recovered the moral lost in the great stampede, and has altogether too low an opinion of its importance to the State, and it is at this valuation of ourselves that we are judged by others. Nothing but this will account for the cavalier way in which the profession is treated by State-appointed committees of laymen, by boards of guardians, and by municipal and county bodies all over the country.

That the medical profession is greater than its present estimation of itself is shown by the following lines from a dedication by Robert Louis Stevenson:

> There are men and classes of men that stand above the common herd: the soldier, the sailor, and the shepherd not unfrequently; the artist rarely; rarelier still the clergyman; the physician almost as a rule. He is the flower (such as it is) of our civilization; and when that stage of man is done with, and only remembered to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race.

No one word of this splendid eulogy would be made less true if we possessed a strong business organization on modern lines for the maintenance of our prestige as a profession, and for our protection from State exploitation as individuals.—I am, etc.,

June 20th. ORGANIZER.

QUO VADIS?

SIR,—I think Dr. Fred. J. Smith is not quite fair to the "weaker brethren" in the profession when he attributes the defeat of the policy of the British Medical Association to the extra remuneration of a million and a half which tempted them beyond their strength. Surely the weaker brethren showed clearer foresight than the stalwarts.

If the avowed and official policy of the Association was its real policy, if work under the Insurance Act was derogatory to the honour and interests of the profession, how came it that our secretary was advised to take office as a commissioner; that meeting after meeting was held all over the country to form committees (local medical, panel, etc.) with various officials to carry out the provisions of the Act? Surely no man with common sense could doubt that with all these preparations we intended to work the Act. If work under the Insurance Act was derogatory, why did the Association bargain for better financial terms? And to-day why are referees and consultants and hospitals and infirmaries all ready to come into line and extend the provisions of the Insurance Act? A protest is invariably met by the rejoinder that the thing is inevitable. And so with a money bribe with our weaker brethren. With a fatalism worthy of a better cause we are drifting more and more under the Insurance Act which the avowed and official policy of the British Medical Association declared to be derogatory to the honour and interests of the profession.—I am, etc.,

Exeter, June 23rd. J. A. W. PEREIRA.

MINISTRY OF HEALTH.

SIR,—I am filled with amazement to read that it is seriously proposed that we medical men should consider and debate certain regulations affecting in a marked degree our practices, and suggested by the new Ministry of Health.

Is the British Medical Association in earnest when it asks us to do this? I cannot believe it possible that an Association said to have the interests of the general practitioner at heart should, at a time like this, call meetings for such an object.

At the present time medical men may be divided into two chief classes:

(1) Men at home.
(2) Men on active service.

The majority of the men at home are doing their own practices, the practices of their colleagues on active service, and part-time military work as well; and yet, in spite of all this extra strain, we are asked, as if we were being asked to lunch, to weigh and consider and report upon proposals which, if carried through, will have more far-reaching results than any proposal ever yet placed before the profession.

The Association must know that we have not the time to give these proposals that consideration they ought to have. It would be impossible by any other way than a referendum to get the opinions of all the men, for after days of such strain as those through which we are now passing, the majority of us are neither physically nor mentally fit to attend meetings.

Again, for men at home calmly to sit down and dispose of the future of 10,000 of their colleagues who are absent, and therefore unable to have a voice in the matter, is monstrous—it is iniquitous! Surely, it is our plain duty to refuse in no uncertain voice to discuss anything of this nature till the absent men have had time to return and pull their practices together again.—I am, etc.,

Newcastle-on-Tyne, June 25th. E. F. PRATT.

THE SHORTAGE OF MEDICAL OFFICERS: POSSIBILITY OF RELIEF FROM INDIA.

SIR.—Cannot the authorities at home insist on the Indian Government relaxing its grip upon the spare medical officers out here? The Indian Government will of course reply that there are no medical officers to spare, but if Lord Derby knew that experienced surgeons who have been recalled to military duty from civil appointments are being wasted in looking after Indian regiments in cantonments, doing the work that they did twenty years ago—if Lord Derby knew of this, I do not think he

would hesitate to compel the Indian Government to send to Europe a large proportion of the surgeons recalled from civil employment during the war. Many retired I.M.S. officers have actually been dragged out from private practices at home to fritter away their time in India in some unimportant work, instead of being sent to France or to some duty in the United Kingdom to release other men for the front. Most of us are longing to bear our share of the strain in France, but all requests to be sent to Europe meet with the reply that the work we are doing here is "just as important," or some equally inept platitude.

Of course any superficial inquiry will elicit the stereotyped answer from India that they cannot give up any of their surgeons, but those of us who see things as they are know that in this time of dearth of medical officers at home upwards of 100 experienced surgeons at least could be shipped to Europe in the next three weeks. All that I would suggest is that the Home Government should order the transfer of all I.M.S. officers recalled from civil employ during the war and at present serving in cantonments in India to England at once, and I guarantee that substitutes would be forthcoming to do the work they are doing now. If the Indian Government is first asked whether these men can be sent, the usual juggling with figures will follow, and nothing will be done.—I am, etc.,

WASTED.

May 30th.

THE GRIEVANCES OF TERRITORIAL MEDICAL OFFICERS.

SIR,—In reply to "Territorial Force" (p. 857), let me say that I think since the commencement of the war there have been no examinations held by which majors who "qualified" could be selected for promotion to lieut.-colonels. Many, however, have been promoted without examination. I believe fifteen years is the period of service qualifying for promotion to lieut.-colonel, so that an officer who had nine years' service when war broke out would, if each year of embodied service counted two, be eligible for promotion next August. To make each year of war service count two towards gratuity at the end of the war would not equalize the present discrepancy between the pay of the Territorial and temporary officer, but would be a rough-and-ready way of reducing the unfairness of the present rate. I have to-day seen a Territorial Force R.A.M.C. captain who has eleven years' service, two spent abroad in the present war, and I have in this brigade a temporary lieutenant R.A.M.C. of three months' service, whose pay is 6s. 6d. a day more than the Territorial captain's!—I am, etc.,

O. C.

June 26th.

ANTHRAX IN UGANDA.

SIR,—I have read with interest Dr. Spearman's memorandum on anthrax in Uganda (June 16th, p. 809), but it seems to me that Dr. Spearman has missed the point of the case. It is, he says, "noteworthy for its rarity," being possibly the first case reported in the Protectorate. This great rarity will probably be found to be due to want of recognition; but this by the way. What Dr. Spearman should have commented upon are certain unusual features of the case. In the first place, there is its duration—namely, ten days, whereas internal anthrax generally runs its course in three to five days. The alleged discovery of anthrax bacilli in the sputum is also far from common. At the *post-mortem* examination grey hepatization was noted, and, more remarkable still, small caseating masses. Though I have seen some thirty cases of pulmonary anthrax I have never observed similar changes, and cannot recollect to have heard or read of them.

But the case is remarkable also for what has *not* been noted. Thus, no mention is made of the peculiar terminal stage of collapse with which all who have seen much of anthrax are familiar; and the *post-mortem* record is silent regarding any gelatinous deposit in the anterior mediastinum, which I have never yet missed in pulmonary anthrax. Dr. Spearman states that "the bronchial glands were considerably enlarged"—nothing more, whereas I have invariably found them infiltrated with blood. Lastly, I note that anthrax bacilli are said to have been found microscopically in films taken from the broken-down patches in the lung, but we are not informed whether they were found in other parts of the lungs, and, curiously enough, they were not found in the spleen. It is unfortunate that no cultures appear to have been made, for the case is so unusual in every respect—both clinical and pathological—that in the absence of cultural confirmation of the diagnosis the utmost scepticism is justified.—I am, etc.,

F. W. EURICH.

Bradford, June 19th.

DERMATITIS FROM EXPLOSIVES USED IN THE AIR RAID.

SIR,—Yesterday, Tuesday, June 26th, 1917, I saw at the London Hospital fourteen cases of severe dermatitis due to contact with powder from bombs dropped in the East End of London on Wednesday, the 13th inst. The majority of the patients were workpeople handling materials which had been impregnated with dust from the explosive. In two cases the feet were affected through irritant matter in the streets. In one case simply handling powder picked up was the cause. The characters of the eruption were exactly similar in all the cases. On the hands, the palms and fingers were stained a deep orange colour, and the inflamed area was covered with closely set vesicles, in some instances confluent. The condition reminded one of a severe pompholyx. The hands were very swollen, and movement was impaired. The patients complained of intense burning and irritation. A point of special interest is that the vesicular dermatitis began in nearly every instance on the ninth day after the first contact with the powder. I hope to describe the progress of the cases in detail, but venture to send this note as a warning that it is dangerous to handle the powder or any material impregnated with the powder. In some of the patients the condition is already septic.—I am, etc.,

JAMES H. SEQUEIRA,
Physician, Skin Department, London Hospital, etc.

London, W., June 27th.

The Services.

EXCHANGE.

WOULD officer on home service care to exchange with officer in base hospital, France?—Address No. 2150, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

AT a meeting of the University Court on June 20th a letter was read from Dr. John Thomson, resigning the office of lecturer on diseases of children, to take effect in October next, and Dr. J. S. Fowler, now in Salonica, was appointed in his place. At the same meeting agreement was expressed with the report of the conference between representatives of the faculties of medicine and science of the Scottish universities with reference to the Carnegie research appointments.

The following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—*J. G. Allan, L. G. Allan, R. Andrew, J. S. Bow, Sarah Boyd, W. W. Brown, W. D. Brunton, J. C. Burns, W. E. Canekeratne, Ba Than Chain, Fakir Chand, Pares Chandra Datta, T. S. Duncan, H. B. Dykes, P. B. Eaton, W. Everett, N. P. R. Galloway, J. B. Kirk, J. L. Lamont, D. M'Eachran, Annie M. Mackay, W. D. Mackinnon, D. W. M'Lean, *R. Mailer, A. R. Matheson, R. A. Nathaniel, R. D. Osler, A. van der Poel, F. W. Poole, H. B. Renton, S. S. Rosebery, A. O. Ross, J. Schneider, J. M'I. H. Smellie, G. L. M Smith, J. O. P. Smith, Janet Smith, J. H. R. Smith, S. L. Smith, A. Strachan, J. M. Tyrrell, L. Walker, W. A. Weatherhead, J. D. White, J. Wolfson, A. T. Woodward.

* With distinction.

UNIVERSITY OF GLASGOW.

THE degree of D.Sc. Public Health was conferred upon Dr. Ernest Watt on June 25th, the title of his thesis being "A study of some aspects of the tuberculosis problem in Scotland."

VICTORIA UNIVERSITY OF MANCHESTER.

MR. W. H. PARKINSON has passed the M.D. examination with commendation.

SOCIETY OF APOTHECARIES OF LONDON.

THE diploma of the society has been granted to Messrs. W. A. Bibby, J. Hollings, C. de C. W. Langdon, and C. A. Mortlock-Brown.

LIBRARY U. OF I. URBANA-CHAMPAIGN

Obituary.

LIEUT.-COLONEL FREDERICK WILLIAM HENRY DAVIE HARRIS, R.A.M.C. (retired), died at Addlestone on June 20th, aged 59. He was born on January 25th, 1858, educated at University College, London, and took the diplomas of M.R.C.S. in 1880 and L.S.A. in 1882. After filling the posts of house-surgeon of the West Kent General Hospital at Maidstone and of the Teignmouth Infirmary, and of assistant medical officer of the Suffolk County Asylum, he entered the army as surgeon on May 30th, 1885, becoming surgeon-major on May 30th, 1897, and lieut.-colonel on May 30th, 1905, and retiring on July 19th, 1905. He acted for some time as adjutant of the R.A.M.C. at Aldershot. He served in the South African war (1899–1902), taking part in operations in Cape Colony and receiving the King's and Queen's medals, each with two clasps. He was formerly a member of the Naval and Military Committee of the British Medical Association and at one time represented the Army Medical Service on the Central Council. He was an honorary associate of the Order of St. John of Jerusalem, and was secretary of the R.A.M.C. Fund and Benevolent Society. He rejoined the R.A.M.C. for duty on August 25th, 1914, and at the time of his death was medical officer of the Army Clothing Factory. He leaves a widow and two sons, both of whom are in the army.

DR. JOHN WALTERS, who died on May 11th, was born in October, 1836, and was educated at King's College, where he won the gold medal and scholarship for surgery and honours in medicine and midwifery. He took the diploma of M.R.C.S.Eng. in 1857, and graduated M.B.Lond. in 1858. After holding the posts of house-surgeon at King's College Hospital and assistant demonstrator of anatomy at King's College he studied in Paris, and on returning to London became private assistant to the late Sir W. Bowman. He afterwards entered the Army Medical Service, and was sent out to Canada at the end of 1861 at the time of the Trent affair, being attached to the 2nd Battalion of the 17th Regiment. After spending some months at Halifax he was appointed assistant surgeon to the Rifle Brigade at Hamilton, Ontario, and while there married Mary Allan Geddes, the youngest daughter of Dean Geddes, then rector of Hamilton. After leaving the army he settled in practice at Reigate in the then firm of Martin, Holman, Hallowes, and Walters, where he remained until December 31st, 1908, when, being senior partner, he retired after over forty-four years' service. He was one of the founders of the Reigate and Redhill Cottage Hospital (now the Reigate and Redhill Hospital), and was its senior consulting medical officer. He was also for many years surgeon to the Children's Home, Reigate, had been a member of the Reigate Town Council, and was a borough magistrate for many years. His first wife died in 1899, and in 1902 he married Miss Eva Harrison, a daughter of the late vicar of Reigate, who survives him. He had eight children by his first marriage, of whom seven survive—four sons and three daughters—his second son, Dr. Alexander R. Walters, being now the head of the medical practice with which he was associated for so many years.

DR. HENRY CAMPBELL, of Cardiff, died on June 19th, after an illness of a few hours' duration, aged 49. He was born at Newton Crumlin, near Ballymena, co. Antrim, and received his medical education at Queen's Colleges, Galway and Belfast, and at the University of Edinburgh. He took the diplomas of L.R.C.P. and S.Edin., and L.F.P.S.Glas. in 1893, and the degree of M.D.Durh. in 1908. After acting as assistant to Dr. Parry of Pontycymmer for two years he started practice on his own account in Canton, Cardiff, and was joined as partner four years ago by his younger brother, Dr. F. W. Campbell, who is at present serving as captain R.A.M.C. He was a member of the Cardiff Division of the British Medical Association, in which he took great interest, and was one of the five practitioners appointed by the profession to deal with the problem of selecting medical men for the requirements of the army. He also took an active part in the committees established in connexion with the administration of the Insurance Acts. He leaves a widow and five children.

Medical News.

MAJOR ALEXANDER FARQUHARSON, M.D., B.Sc., R.A.M.C., of the Middle Temple, and Major Hugh Neville Adam, M.D., F.R.C.S., L.R.C.P., R.A.M.C., of Gray's Inn, have been called to the bar.

THE Council of the University of Leeds has conferred upon Colonel de Burgh Birch, C.B., late professor of physiology and Dean of the Faculty of Medicine, the title of Emeritus Professor.

THE President of the Board of Education, the Right Hon. H. A. L. Fisher, M.P., will deliver an address to the scholars, medallists, and prizemen of University College, London, at the college, on Thursday next, July 5th, at 3 p.m.

THE fourth meeting of the Conjoint Board of Scientific Societies was held on June 13th at the Royal Society, with Sir J. J. Thomson, P.R.S., in the chair. The report of the Executive Committee for the past half-year showed that a number of questions of scientific and industrial importance have come before the board. Among these are the need for an anthropological survey of the British people, the maintenance of the international catalogue of scientific literature, and the desirability or otherwise of adopting the metric system throughout the British Isles.

SIR GEORGE BEATSON, Chairman of the Scottish Branch of the British Red Cross Society, has written two pamphlets for that branch. The first, entitled "The Story of the Red Cross and its use in War as a Distinctive Emblem," gives a brief account of the origin of the movement for the recognition of the use of civilian medical assistance in a campaign, does justice to Henri Dunant of Geneva, and sets out the main provisions of the Geneva Convention, which it was hoped would be observed by all belligerent countries until it was flagrantly violated by Germany. The Red Cross emblem is derived from the Swiss Federal flag—a white cross on a red ground—by reversing the colours. The second pamphlet describes how the disabled wounded soldier is treated at orthopaedic centres in Scotland, and, in particular, the curative methods at the Scottish National Red Cross Hospital, Bellahouston. The pamphlet is well illustrated by a reproduction of photographs of the operating room, the pool bath, the whirlpool bath, the massage room, the electrical room, and the radiant heat room during working hours.

ON June 5th the Röntgen Society devoted a third consecutive meeting to discussing the future of the British *x*-ray industry, and agreed to a resolution appointing a committee to act in an advisory capacity with a view to determining in what particular directions the society could best further the interests of the manufacturers. Captain Robert Knox, in reopening the discussion, said that there were three principal reasons for the failure of the British *x*-ray industry to hold its own in the past: (1) Lack of capital; (2) want of co-operation; (3) failure to employ highly technical men to carry out contracts. The steps to be taken in the future should include a closer co-operation between the physicist and technical expert and practising radiologist; and also the amalgamation of existing businesses into one large corporation. A school of British radiology had always existed, and only required stimulating. Lieut.-Colonel Robert Wilson, of the Canadian Army Medical Corps, said that British workers had been content to make discoveries and then allow other countries to exploit them. They had been weak, not so far as scientific initiative was concerned, but in the application of it to industry.

OWING to the advantages likely to result from obtaining a continuous record, from year to year, of the state of the atmosphere as regards suspended impurity, the Committee for the Investigation of Atmospheric Pollution has been constituted an Advisory Committee on Atmospheric Pollution to the Meteorological Office, and a grant of £500 has been allotted by the Department of Scientific and Industrial Research to cover the cost of the work for the current year. The grant is intended to defray the expenditure of the Advisory Committee only, and was given on the understanding that the cost of gauges, collection, and analyses should be borne by the authorities which co-operate by setting up observing stations. The collection, compilation, and publication of statistics on the suspended impurities of the air is of service in connexion with the study of problems relating to fuel economy and smoke prevention, as well as agriculture, health, and the preservation of buildings. Information as to method of working, with standardized instructions and blank forms for returns, can be obtained from the honorary secretary, Dr. J. S. Owens, 47, Victoria Street, London, S.W.1.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY. *Medisecra, Westrand London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES.

G. F. N. (Sherbourne Greystones, co. Wicklow) wishes to hear of places suitable for a lady who has just recovered from a nervous breakdown. Healthy situation and light outdoor employment desirable. Moderate terms.

INCOME TAX.

INQUIRER says that he is told by the collector that as his partner's army pay is paid into the firm's account the special army rate of taxation is thereby lost.

*** This should not be so. The privilege of paying tax at the army rate is not affected by the destination of the pay. Further, army pay is assessed to income tax by the War Office acting through the army pay agents—Messrs. Holt and Co., presumably—and is not liable to local assessment. If it has in any particular case been paid into the firm's account, it should be excluded from the firm's general profits for purposes of assessment, and shown separately on the service member's return. The division of the local charge between the partners will, of course, require an appropriate modification.

R.A.M.C. has recently taken a commission, and inquires as to the operation of the three years' average basis of assessment in his new circumstances.

*** He is assessable in the ordinary way, but is entitled to have that assessment adjusted to the actual amount of his income. We therefore suggest that his return should be made on the basis of an estimate of current year's income (this should be specified) through his army agents. If and when he receives a notice of assessment from the local assessing authority, he should write to the surveyor of taxes, stating that he joined the R.A.M.C. on May 7th, 1917, and that he "applies" under Section 13 of the Finance Act, 1914 (Section 2) to have the assessment adjusted to the actual income of the year. It would be advisable at the same time to state the facts as fully as the circumstances allow, and to ask that any payment of duty be deferred until the financial year has ended, and a definite statement can be made as to the income for that year.

ANSWERS.

REMOVAL OF TATTOO MARKS.

INVESTIGATOR inquires: How can deep tattoo marks and pictures on the wrist and back of forearms of a woman be best removed without any bad scarring? The best treatment, according to the experience of one distinguished dermatologist, is to soften the epidermis with an ointment of salicylic acid and tannic acid, to break the granules of ink by the aid of electrolysis, and to apply hydrogen peroxide. The whole process, he admitted, however, is tedious and the result not highly satisfactory. A French prison surgeon (see JOURNAL, 1906, i, p. 1382) treats the tattoo mark with a concentrated solution of tannin, needles the part very closely, and rubs over the punctures a stick of silver nitrate. A few minutes later the caustic solution is wiped off. The blackened tattooed area becomes an eschar which separates, leaving a superficial scar. This treatment, described as "not very painful," is quite unsuited, however, to deep and wide tattoo marks. Professor Dubreuilh (*Annales de Dermatologie*, etc., fourth series, vol. x, 1909, p. 367) enters very fully into the subject; he considers *x* rays useless, and the destruction of the coloured tissues, after methods such as are described above, are open to objection. Dubreuilh practises a method which consists in dissecting off the superficial layers of the dermis as deeply as is desired. He then practises Thiersch's method of skin grafting, applying to the fresh bleeding surface long broad strips of skin which include part of the cutis vera as well as the epidermis.

LETTERS, NOTES, ETC.

COCAINE PRESCRIPTIONS AND PENALTIES.

MEDICAL practitioners in general, and panel practitioners in particular, should, for their personal benefit, note the following details of a prosecution which lately took place at Leeds under one of the many sections of the Defence of the Realm Act.

Dr. Henry Pope, medical practitioner, and Albert Rothstein, pharmacist, were summoned before the stipendiary, the former for having given to a patient a prescription for a lotion containing cocaine, and the latter for supplying the patient with the same, contrary to the provisions of the Act, on three separate occasions. The regulations provide that any medical practitioner giving a prescription for the supply of cocaine must date the prescription and sign it with his full name, address, and qualifications, and in addition mark it with the words "Not to be repeated." So far the prescriber. The chemist must not supply it without marking the prescription with his name, address, and date of dispensing, and must not repeat the prescription without authority. Further, the transaction is to be entered by the chemist with various particulars in a special book set apart for this purpose, which book shall be open to the inspection of an authorized person. The evidence made it clear that a technical offence had been committed inadvertently both by the prescribing practitioner and the dispensing chemist, and a fine of 10s. on each of the three summonses was imposed upon each defendant.

The defence of the practitioner was in the hands of Mr. Willey, instructed by Messrs. Hempson, the solicitors of the Medical Defence Union. Mr. Willey pointed out that by regulations made under the National Insurance Act a special prescription book had to be used by panel practitioners, and that other regulations required that the name of the practitioner should be written on the form, and that the prescription should not be repeated without a fresh order duly signed. Dr. Pope, in dealing with a panel patient, carried out the requirements of the Act under which he was then prescribing, forgetting for the time the later emergency Order made under the Defence of the Realm Act. The real object of the Cocaine Order was to identify the prescriber, the patient for whom the drug was prescribed, and to prevent any self-repetition. All these requirements were carried out by Dr. Pope, and it was quite obvious that the necessary caution was observed in the spirit, if not actually in the letter.

The magistrate decided that he ought to impose a small penalty, because the defendants should have made themselves familiar with the regulations, though he added that, as a matter of fact, he could not see how any harm could have been done in the present case.

BULLET WOUND IN PREGNANT UTERUS: RECOVERY.

DR. CLEMENT BELCHER writes: During the recent hostilities in Northern France two officers were billeted at a small farmhouse with a peasant woman. They occupied a room on the ground floor, on the same level as the living room of the family, the two rooms being divided by a thin partition. One morning one of the officers was engaged in cleaning his revolver, and revolved the barrels one by one to do so. Unfortunately, to his great horror and surprise, one of the barrels was undischarged; the bullet pierced the partition, and struck the woman upon the other side in the kitchen, who at the time was stooping with her buttocks directed towards the partition. The woman, who was far advanced in pregnancy, was removed to a hospital, where it was found that the bullet had entered just outside the anus. The woman was put to bed, and in a few hours was fairly comfortable and remained so for three days, until labour pains came on; she had a fairly good labour, but the child was born dead, with a bullet wound in its head; when the skull was opened the bullet was found inside the brain. The bullet had passed through the gluteal muscles, the floor of the pelvis of the mother, the wall of the uterus, and the skull of the child, when its force was expended; had it gone further, it would have assuredly entered the woman's peritoneal cavity with disastrous results. The woman made an uneventful recovery, and returned to her farm within a short time of her confinement.

STATE MEDICAL SERVICE.

DR. S. NOY SCOTT (Plymstock) writes: I wonder if many of the advocates of a State Medical Service have seen and pondered over the significance of the remark made by Sir William Collins in the House of Commons debate on June 21st. He said "that medicine and surgery appeared in their worst aspect when pressed into service under Acts such as the Review of Exceptions Act and when dominated by military orders and instructions." "Orders and instructions"—though not always called military—generally have a force which is military in character, and especially so when issued by Commissioners who are specifically given bureaucratic powers.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

LIBRARY U. OF I. URBANA-CHAMPAIGN

THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

SUPPLEMENT

CONTAINING

PROCEEDINGS OF COUNCIL

REPORTS OF STANDING COMMITTEES

MEETINGS OF BRANCHES AND DIVISIONS

PROGRAMME OF ANNUAL MEETING

MEDICAL BILLS IN PARLIAMENT

PROCEEDINGS OF THE GENERAL MEDICAL COUNCIL

ETC.

VOLUME I, 1917.

London:

PRINTED AND PUBLISHED AT THE OFFICE OF THE BRITISH MEDICAL ASSOCIATION,
429, STRAND, W.C.

INDEX TO SUPPLEMENT FOR VOLUME I, 1917.

A.

Army, British, medical service of, 3, 8, 11, 16, 20, 27, 31, 39, 43, 47, 51, 55, 60, 61, 63, 65, 70, 105, 113, 117, 129, 137, 142, 149, 157
Army, British: Army Medical Service, 3, 8, 11, 16, 20, 27, 31, 39, 43, 47, 51, 55, 60, 61, 63, 65, 70, 113, 117, 129, 137, 142, 149, 157
Army, British: British West Indies Regiment, 4
Army, British: Canadian Army Medical Corps, 4, 28, 39, 48, 52, 62, 70, 106, 113, 129, 137, 157
Army, British: Colonial Medical Service, 137
Army, British: Overseas Contingents, 4, 28, 39, 48, 52, 62, 64, 70, 106, 113, 129, 137, 157
Army, British: Royal Army Medical Corps, 3, 8 11, 16, 20, 27, 31. 39, 43, 47, 51, 55, 59, 61, 63, 65, 105, 113, 117, 129, 137, 142, 149, 157
Army, British: South African Medical Corps, 4, 52, 64, 158
Army, British: Special Reserve of Officers, 4, 11, 27, 32, 39, 44, 48, 51, 55, 60, 62, 63, 70, 114, 118, 129, 137, 150, 158
Army, British: West African Medical Staff, 137

ARMY, BRITISH, TERRITORIAL FORCE:
Army Medical Services, 8, 28, 48, 62, 64, 70, 118, 129
Grievances of medical officers, 116
Parliamentary questions, 45
Pay of majors, R.A.M.C.(T.F.), 10
Promotion of majors, 49
Royal Army Medical Corps, 4, 8, 11, 28, 32, 40, 44, 48, 52, 56, 60. 62, 64, 65, 70, 106, 114, 118, 129, 137, 142, 150, 158

Army, British, Territorial Force Reserve, 12, 40, 106
Army, Indian, 16, 27, 47, 62, 64, 129, 157
Association, British Medical: Annual Representative Meeting, 71—Provisional agenda, 71—Additional notices of motion, 123
Association, British Medical: Changes of boundaries of Branches and Divisions, 3, 34, 61, 110
Association, British Medical, Council of:—Annual report, 72—Balance sheet, 75—Appendices, 100—Elections, 105, 121—Proceedings of Council, 107—Quarterly Meeting of Council, 151—Central Medical War Committee, 151—Medical Recruiting Boards, 151—Middlemore Prize, 151
Association, British Medical, and insurance practitioners, 24
Association, British Medical, and promotion of majors, R.A.M.C.(T.F.), 49
Ayrshire medical referee scheme, 112

B.

BANKS, Alfred, disciplinary case of, 127
Bedfordshire Local Medical and Panel Committee, 69, 112—Future policy, 69—Medical benefit regulations, 69—York circular, 112
Belfast Division: Annual meeting, 156—Election of officers, 156—Metric system in prescribing and dispensing, 156
Birmingham Panel Committee: Future policy of British Medical Association, 112—Private dispensing of doctors on service, 112
Births Act, 1915, Notification of, operation of in Ireland, 131
Board, Local Government: Circular to local authorities as to vaccination or revaccination of contacts, 38
Board, Local Government, Ireland: War bonuses for Irish Poor Law medical officers, 53
Bombay Branch: Demonstrations, 132—Votes of thanks, 132—Annual meeting, 132—Annual report and financial statement, 132—Election of officers, 132—Cases exhibited, 132
Bournemouth Division: Annual meeting, 123—Election of officers, 123
British army. *See* Army
British Medical Association *See* Association
BRITISH MEDICAL JOURNAL, 131
Burnley Division: Annual meeting, 155—Election of officers, 155—Annual report, 155

C.

Calling up of medical men under 41, 67. *See also* War emergency
Cape of Good Hope—Eastern Province Branch: Annual meeting, 45—Election of officers, 45—Financial statement, 45—Annual report, 45—Policy against malpraxis, 133—War experiences (E. A. Seale), 133
Carnarvon, North, and Anglesey Division: Election of officers, 141—Annual Representative Meeting, 141—Examination of discharged soldiers, 141
Central Medical War Committee. *See* War emergency
Certificates under the Workmen's Compensation Act, 45
Cheshire Insurance Committee: Pharmacopoeia of, 46
Cheshire (Mid) Division: Annual meeting, 22—Election of officers, 22
CLARKE, James John Gordon Webster, disciplinary case of, 127
Cocaine, prescription of drugs containing, 15
Cocaine and unregistered dentists, 29
Conference of Local Medical and Panel Committees, 23. *See also* Insurance
Contract Practice Subcommittee, membership of, 22
COOK, Thomas Dixon, disciplinary case of, 125
CORNWALL, Sir Edwin: Working of the Insurance Act, 18

COUNCIL, GENERAL MEDICAL:
Dental disciplinary cases, 127
Dental Education and Examination Committee, 125
Disciplinary cases, 125
Education Committee, 125
Election of committees, 125
Executive Committee, 49
Finance Committee, 125
Manitoba, 125
Medical students, statistical statement, 42
Pharmacopoeia Committee, 125
President's address, 119
Public Health Committee, 125
Registration of Indian diplomas and degrees, 49
Reciprocity with British Columbia, 49
Students' Registration Committee, 125
Vote of thanks, 127

D.

DANKS, Robert Miller, case of, 136
DAROUX, William Samuel, case of, 128
Discharged soldiers. *See* Soldiers
Domiciliary treatment. *See* Insurance
Dorset and West Hants Branch: Annual meeting, 133—Financial statement, 133—Summer meeting, 133—Vote of condolence, 133—Scientific proceedings, 133
Dorset, West, Division: Annual meeting, 155—Election of officers, 155
Dow, Andrew Robertson, disciplinary case of, 126
DOWNES, H.: Sanatorium benefit, 50
Drugs and appliances in rural practices, insufficiency capitation rates for, 113
Dublin Division: Election of officers, 18—Temporary medical referees, 18
Dumfries and Galloway Division: Annual meeting, 140—Election of officers, 140—Annual Representative Meeting, 140
Dundee Central Bureau, 134

E.

Early closing of shops order and insurance dispensing, 22
Edinburgh and Leith Division: Compulsion of medical profession alone, 69—Fees, 63—Income tax, 63—Maternity service and child welfare scheme, 63—Medico-political matters, 109—Venereal diseases scheme, 63—Visits and consultations, 63
Essex, North-East Division: Annual meeting, 155—Financial statement, 155—Election of officers, 155—Expenditure of War Committee, 155

F.

Fees for discharged soldiers entering employment, 10
Fees for examination and report in the case of women to be employed in munition areas 10
Forfar County Local Medical Committee: Circular from York Medical and Panel Committees, 69—Letter from Secretary of Forfar Factory Workers' Union, 69—Medical referees, 128—Venereal diseases, draft scheme, 128

G.

GARRATT, Dr.: Organization of the medical profession, 47
General Medical Council. *See* Council
Glasgow Burgh Panel Committee: Index and medical registers, memorandum *re*, 111—Letter from Pharmaceutical Committee, 37
Glasgow Insurance Committee: Statement *re* distribution of Medical Benefit Fund, 2

H.

Hamilton, Local Medical and Panel Committees: Calling up notice, 128
Hampshire Local Medical and Panel Committees: Model schemes, 25—Panel Medico-Political Union, 25—Statistics of 1916, 25
Hampstead Division: Election of officers, 156—Maternity and infant welfare, 156
HARTLEY, Henri Saturnin, disciplinary case of, 126
Health, Ministry of: Letter to Secretaries of Divisions, 123—Resolutions of Branches and Divisions, 124, 133, 140
Herefordshire Local Medical and Panel Committee: Balance of 1915, 55—Resolution from County of London Panel Committee not agreed to, 136—Special mileage grant, 55
HERKLOTS, Gerard Andreas, disciplinary case of, 127
HICK, H.: Preparation of autogenous vaccines, 2
Horses of doctors, rationing of, 123

I.

Indian practitioners and combatant service, 151
Ireland: Certification of sickness benefits under the Insurance Acts in, 149—Temporary medical referees in, 18

Insurance, National:
Administration of the Acts, report of Commission, 42
Advisory Committee, 53, 58, 65, 110—Deputation from the British Medical Association, 110
Anaesthetic for dental operation and insurance practitioners, 33
Approved society finance and administration, 18—Final report of Departmental Committee, 18
Association and Scottish Insurance practitioners, 15

LIBRARY U. OF I. URBANA-CHAMPAIGN

Insurance, National *(continued)*:
Audit, third report, 50
Autogenous vaccines, preparation of, 2
British Medical Association and insurance practitioners, 24
Certification of sickness benefits under the Act in Ireland, 149
Conference of Local Medical and Panel Committees: Resolutions of, 23—Deputation to Insurance Commissioners, 23
Discharged soldiers. *See* Soldiers
Domiciliary treatment of expectant mothers and young children, 29, 41
Early closing of shops order and insurance dispensing, 22
Emergency settlement for 1916, 58
Entrance into insurance of persons previously exempt, 10
Future of insurance practice, 19, 26
Future of medical service, 51
Index registers, 2
Insurance Acts Advisory Committee, 139
Insurance Commissioners, inquiries by, 128, 136
Insurance finance in London, 31
Insured person enlisting, 129
Insurance practitioners and administration of anaesthetic for dental operations, 33
Kay, R.: *Re* insured person enlisting, 129
Medical Benefit Fund, distribution of, 2
Medical benefit, working of, 111, 122
Medical interests in future insurance legislation, 69
Medical profession, organization of, 29, 47
Medical referees under the Insurance Acts, 29
Medical referees in Ireland, temporary, 18
Medical remuneration under the Insurance Acts, 19
Mileage scheme of the County of Lanark, 111
Mobilization and National Service, 26
National Insurance Commission (England), issue of Blue Book reports of inquiries and appeals, 135
Non-panel doctors and National Insurance certificates, 38, 51, 137
Panel pharmacist, inquiry as to, 129
Pharmacopoeia of the Cheshire Insurance Committee, 46
Record cards for 1917, 1
Rural practitioners and the Insurance Advisory Committee, 151
Sanatorium benefit, 50
Seamen's National Insurance Society: Attendance on members (Johnston *v.* Godfrey), 46
Sickness benefit and diseases due to own misconduct, 7, 17
Sickness benefit, waiting days for, 25
Sick visiting of insured persons, 26
Soldiers, discharged, and insurance, 25, 33
Transfer of insured persons, wholesale, 21
Wholesale transfer. *See* Transfer
Working of the insurance scheme, 18

INSURANCE ACTS COMMITTEE:
Advisory Committee, 139, 151
Attacks on the Association, 139
Appointment of Rural Practitioners Subcommittee, 1
British Medical Association, future policy of as regards national health insurance, 13. *See also* Future
Composition of Insurance Acts Committee, 1
Future of insurance practice, 1
Future policy of the British Medical Association as regards National Health Insurance, 13—Report on future policy, 143, 152
Maternity and child welfare: Proposed legislation, letter to chairman of Joint Committee of Insurance Commissioners, 14
Record cards for 1917, 1
Report on future policy. *See* Future
Schemes for expert treatment: Disabled soldiers and sailors: Venereal diseases, 1
Soldiers and sailors, discharged disabled, resolutions to Council as to the State dealing with, 33—Memorandum to Insurance Commission, 139

PARLIAMENTARY QUESTIONS ON:
Derbyshire Insurance Committee, 37
Discharged soldiers, 37
Discharged tuberculous soldiers, treatment of, 37
Doctors' remuneration in Monmouthshire, 38
Health Insurance finance, 38
Payment to doctors in Lancashire, 38
Payment of panel doctors, 46
Sickness benefits for partially disabled men, 37
Tuberculosis treatment in Wales, 47

Irish Medical Committee: Number of insured and exempt persons in insurance areas and dispensary districts, 108—Ministry of Health, 108—Certification of sickness benefit, 108—Medical representatives on County Insurance Committees, 108—Notification of Births Act (1915), 117—Venereal diseases, 117—Poor Law medical matters, 117
Irish Medical War Committee, 33, 117
Irish Poor Law Medical Committee: Proposed midwives, legislation for Ireland, 109

J.

JOHNSTON, G. J. Waldron, *v.* Sidney H. Godfrey, 46
JONES, George Horatio, disciplinary case of, 127

L.

Lambeth Division: Annual meeting, 156—Election of officers, 156—Annual Representative Meeting, 156—Vote of thanks, 156
Lanark County, Local Medical and Panel Committee: Medical referees, 25—Mileage scheme, 111—Panel doctors consult in premises of panel chemists, 25—Treatment of soldiers by civilian doctors, 25
LEWIS, W. Spencer, case of, 128
Local Government Board. *See* Board
London: Case of W. Spencer Lewis, 128
London County Panel Committee: Anaesthetics, provision of, 36—Co-operation of Panel Committees, 24—Funds for sanatorium benefit, 43—Mobilization of the profession, 24—Restriction of alcohol, 36—Statistical information, 25 — Venereal diseases, diagnosis and treatment, 37
London Insurance Committee: Administrative expenses of Pharmaceutical and Panel Committees, 59—Deputation to Sir Edwin Cornwall, 31—Payments to panel practitioners, 59—Sanatorium benefit, 59—Supply of glycerin and syrups, 59
London, insurance finance in, 31
London Panel Committee: Amount advanced to practitioners, 112—And the British Medical Association, 3—Capitation fees, 112—Conditions of insurance service, 61—Hints on economical prescribing, 36—*London Panel Committee Gazette*, 36—Mobilization of the profession, 7, 10—Staff of Committee, 112—Toe-nail removed by panel practitioner, 112—Venereal diseases, instruction in, 112—War emergency scheme, 136
LYTH, J. C.: Medical remuneration under the Insurance Acts, 19

M.

Magdalene Hospital School, Combe Down, Bath, report, 54
MAHOMED, George: Future of medical service, 51
Manchester report on the need for compulsion (mobilization of the profession), 9
Marylebone Division: Annual meeting, 133—Annual report, 133—Election of officers, 133—Ministry of Health, 133
Maternity and child welfare: Letter to secretary of Local Government Board, 11—Deputation to Lord Rhondda, 57
Medical examination of women seeking employment in munitions works, 41, 63
Medical mobilization in Australia, 132
Medical officers of health, duties of, 21
Medical practitioners and hired motor cars, 131
Medical profession, organization of: Letter to Local Medical and Panel Committees, 29—York memorandum, 34, 45—Correspondence on, 47
Medical remuneration under Insurance Acts, 19. *See also* Insurance
Medical students in combatant services, 105
Medical students, statistical statement from President of General Medical Council, 42
Medical treatment of soldiers. *See* Soldiers
Medicines, right of medical practitioners to dispense, 117
Mental defectives, institutions for, 54
Middlesex, North, Division: Ministry of Health, 124—Representative on Central Council, 124
Middlesex Panel Committee, 25, 55, 127—Future working of the Acts, 25, 55
Midland Counties Institution, Knowle, near Birmingham, report, 54
Ministry of Health. *See* Health
Mobilization of the profession: Letters to the Prime Minister, 5, 6—Reply from the Prime Minister, 7—Manchester report on the need for compulsion, 9—Resolutions of London Panel Committee, 10—Resolution of County of London Panel Committee, 24—Correspondence on, 26—Conference called by the Director of National Service, 41—Resolution passed by Royal Faculty of Physicians and Surgeons of Glasgow, 50
Munster Branch: Election of members, 46—Treatment of venereal diseases, 46—York memorandum, 46

N.

Navy, Royal, Medical Service of, 3, 8, 11, 16, 27, 31, 39, 43, 47, 51, 55, 59, 61, 63, 65, 69, 105, 113, 117, 129, 137, 142, 149, 157
Navy, Royal: Royal Naval Volunteer Reserve, 3, 8, 11, 16, 27, 31, 47, 51, 55, 59, 61, 63, 65, 69, 105, 113, 117, 129, 137, 142, 149, 157
Non-Panel Committee, 109
Non-panel doctors and National Insurance certificates. *See* Insurance, non-panel
Notification of Births Act. *See* Births

O.

Opium, prescription of drugs containing, 15
Organization of the medical profession. *See* Medical

P.

Payment for medical officers in V.A.D. hospitals, 116, 131
Pensions Medical Advisory Committee, 132
PEREIRA, J. A.: Future of insurance practice, 19
Petrol, restricted allowance of, 17—Supply of to medical practitioners, 69, 105
Pharmacopoeia of the Cheshire Insurance Committee, 46
Poor Law medical officers, Irish, war bonuses for, 53
Portsmouth Division: Annual meeting, 156—The late Dr. L. K. H. Hackman, 156—Annual report, 156—Annual Representative Meeting (1917), 156
Practices, mutual insurance of (North Staffordshire scheme), 135
Practices in war time (Dundee Central Bureau), 134—(North Staffordshire scheme) 135

R.

R.A.M.C. *See* Army, British
Rationing of doctors' horses, 123
Remuneration for medical attendances on discharged disabled soldiers and sailors 139
Renfrew County Panel Committee: Ayrshire medical referee scheme, 112—Change of doctor, 25—Dispensing for 1917, 46—Earlier settlement, 69—Interpretation of section, 33, 69—Liquor sedans, 46—Memorandum from York Panel Committee, 69—Statistics of 1916, 25
Right of medical practitioners to dispense medicines for their patients, 117. *See also* Medicines.
Rochdale Division: Annual meeting, 123—Annual report and financial statement, 123—Election of officers, 124—National insurance, 124
Royal Albert Institution, Lancaster, report, 54
Royal Earlswood Institution, report, 54
Royal Eastern Counties Institution, Colchester, report, 54
Royal Faculty of Physicians and Surgeons of Glasgow, and the mobilization of the profession, 50
Rural practitioners and the Insurance Advisory Committee, 151
Rural Practitioners Subcommittee, 45

S.

School medical staff and school teachers, duties of, 33
SCOTT, E. Noy: Future of insurance practice, 26
Scottish Committee: Meeting, 17—Association and national insurance business specially affecting Scotland, 17—Schemes for treatment of venereal diseases, 17—Medical referees under Insurance Act, 17—Nominations to committees, 17—Insurance Acts Subcommittee, 132—Colliery and Public Works Surgeons Committee, 132—Drugs in rural districts, 132—Central Midwives Board, 132
Scottish insurance practitioners and the Association, 15
Scottish Medical Service Emergency Committee. *See* War Emergency

SEALE, E. A.: War experiences, 133
Seamen's National Insurance Society:—Attendance on members: Johnston *v.* Godfrey, 46
Sheffield Division: Election of officers, 124
Sickness benefit. *See* Insurance.
Small-pox prevention, vaccination or revaccination of contacts (Local Government Board circular), 38
Soldiers, disabled, treatment and training of; Army Council instruction, 59
Soldiers, discharged: Fees for reports on those entering employment, 10—Medical out-patient treatment of (letter to Minister of Pensions), 61; his reply, 61
Soldiers, discharged disabled: British Medical Association's committees consider the attendance on and treatment of, 21—Resolution to Council, 33—Report of deputation to Minister of Pensions, 115—Memorandum by Insurance Acts Committee, 139
Soldiers, discharged, and insurance. *See* Insurance
South African Committee, 22—District surgeons, 22—Formation of new Branches in South Africa, 22—Medical defence, 22——Medical appointments during the war, 22—Contagious Diseases Act, treatment of venereal diseases, 22—Medical congresses, 22—Medical and Pharmacy Bill, 22
South-Eastern Counties Division: Annual report, 65—Future policy with reference to national health insurance, 65—Hamilton, the late Dr. J. R., 63—Resignation of Representative on Branch Council, 65—Venereal disease, 65
South-Eastern of Ireland Branch: Ordinary meeting, 58—National insurance, 58—Annual meeting, 124—Legal right of Poor Law medical officers to act as county councillors, 124—Milk supply, 124—Tuberculosis Prevention Act, 124—Vote of sympathy, 124
Southport Division: Annual meeting, 140—Election of officers, 140—Ministry of Health, 140
South Shields: Case of William Samuel Daroux, 128—Case of Robert Miller Danks, 136
Staffordshire, North, Division: Scheme for mutual insurance of practices, 135
Staffordshire, South Division: Annual meeting, 141—Election of officers, 141—Dispensing for private practitioners, 141—Annual Representative Meeting, 141—Medical certificates, 141—Induction of chairman, 141
Stirling Branch: Annual meeting, 141—Election of officers, 141
Suffolk, East, Panel Committee: Doctors practising, 37—Economy in expensive drugs, 3—Flat rate for prescriptions, 25—Future policy, 37—Insurance cards, 37—Mileage scheme, 25—Salvarsan, free supply of, 3, 25—Suspense slips, 3, 25—Tuberculosis treatment, 55—Venereal diseases, 55
Surrey Panel Committee: Advisory Committee, 128—Central Medical Benefit Fund, 55—Convalescent homes, 128—County registers, 55—Inquiries as to patients' insured state, 127—Statistics of attendances, 55—York circular, 128

T.

Temporary commissions R.A.M.C., 105. *See also* Army, British
Territorial officers. *See* Army, British, Territorial Forces
Torquay Division: Annual meeting, 156—Election of officers, 156
Tyrone County Local Medical Committee: County Council Tuberculosis Committee, 55—Election of officers, 55—Pamphlet from Irish Medical Association, 55

V.

Vaccination or revaccination of contacts (Local Government Board circular), 38
Vaccines, autogenous, preparation of, 2
Venereal diseases, treatment of, Newcastle-upon-Tyne Division and, 38
Venereal diseases, treatment of by unqualified persons, 7

W.

War bonuses for Irish Poor Law medical officers, 53

WAR EMERGENCY:
Calling up of all medical men under 41, 67
Central Medical War Committee, 68, 109, 122, 139
Compulsion in medical profession alone, 69
Detailed instructions to recruiting officers, 68
Instructions issued by Director of Recruiting, 67
London Panel Committee's scheme, 136
Scottish Medical Service Emergency Committee, 69
Temporary officers now serving, 68

Warwickshire: Local Medical and Panel Committee, 55—Domiciliary treatment, 55—Insurance Acts Committee, British Medical Association, 55
Water charges for dispensing, 22
WELSH, R. A.: Insufficiency capitation rates for drugs and appliances in rural practices, 113
Western Counties Institution, Starcross, report, 54
WHITE, Edward, disciplinary case of, 126
Widows and orphans of soldiers and sailors, 109

Y.

York Medical and Panel Committee, 31, 111—Interim report of a subcommittee on the working of the Act, 111, 122
York memorandum on the organization of the profession, 34, 45
Yorkshire, West Riding, Local Medical and Panel Committee, 37—Circumcision, 46—Notice *re* alterations in agreements, 37—Payment of 3d. per prescription for dressings and appliances, 37, 46

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

LIBRARY U. OF I. URBANA-CHAMPAIGN

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY JANUARY 6TH, 1917.

CONTENTS.

	PAGE
INSURANCE:	
INSURANCE ACTS COMMITTEE: SCHEMES FOR EXPERT TREATMENT.—FUTURE OF INSURANCE PRACTICE	1
RECORD CARDS FOR 1917	1
THE INDEX REGISTERS	2
DISTRIBUTION OF MEDICAL BENEFIT FUND	2
PREPARATION OF AUTOGENOUS VACCINES	2
LOCAL MEDICAL AND PANEL COMMITTEES	3
ASSOCIATION NOTICES:	
THE LIBRARY OF THE BRITISH MEDICAL ASSOCIATION	3
SUGGESTED CHANGES OF BOUNDARIES	3
NAVAL AND MILITARY APPOINTMENTS	3
VACANCIES AND APPOINTMENTS	4
BIRTHS, MARRIAGES, AND DEATHS	4
DIARY	4

INSURANCE.

INSURANCE ACTS COMMITTEE.

SCHEMES FOR EXPERT TREATMENT.

Disabled Soldiers and Sailors: Venereal Diseases.

THE conference of representatives of Local Medical and Panel Committees called by the British Medical Association and held in London on October 19th, 1916, instructed the Insurance Acts Committee to issue to Local Medical and Panel Committees a model scheme to meet the proviso to Article 3 of the new Medical Benefit Regulations. The regulation was as follows:

> 3. On and after the first day of January, 1917, the following clause shall be substituted for Clause 3 of the conditions of service for practitioners set forth in the First Schedule to the principal Regulations:
>
> "3. Where the condition of the patient is such as to require services beyond the competence of an ordinary practitioner the practitioner shall advise the patient as to the steps which should be taken in order to obtain such treatment as his condition requires, and shall, where provision is made for such services in or for the area by any public authority after consultation with the Local Medical Committee, and due notice of such provision has been given to the practitioner by the Insurance Committee, take such other steps as may be reasonably necessary in order that the patient may derive full advantage from the provision of such services:
>
> "Provided that, where, for the purpose of defining the duties of practitioners as aforesaid, a scheme has been prepared by the Panel Committee in consultation with the Insurance Committee and approved by the Commissioners, the provisions of any such scheme shall be deemed to be part of the agreement and shall be substituted for this clause."

The Executive Subcommittee at once took the matter in hand and drafted a model scheme based upon the suggestions of the Conference; but in accordance with its usual practice of endeavouring to facilitate the work of Panel Committees it approached the Commissioners to ascertain whether the scheme as drafted was likely to meet with their approval, such approval being necessary before any scheme could be put into force. It was found that the scheme as drafted was not likely to receive the Commissioners' approval, and the Subcommittee is now engaged in consultation with the Commissioners in formulating such a scheme as would be approved by the Commissioners if submitted by any Panel Committee. It is hoped to issue this shortly, and pending its appearance it is suggested that Panel Committees should not proceed with the drafting of any local schemes under the proviso of Article 3. The position will not be prejudiced by such delay.

FUTURE OF INSURANCE PRACTICE.

Arising out of consideration of one of the minutes of the Conference referred to the Insurance Acts Committee, the latter is of opinion that the time has come when the profession as a whole should carefully consider what its attitude is to the Insurance Acts and any modification or extension thereof, and upon this most important question the Association intends to consult the whole of the medical profession.

The Medical Secretary was instructed by the Insurance Acts Committee to inform Local Medical and Panel Committees, and Divisions and Branches, that the Executive Subcommittee is submitting to the full Insurance Acts Committee at its next meeting a communication and questions concerning this matter. It is hoped that the document in question will be issued to Committees, Branches, and Divisions shortly.

COMPOSITION OF INSURANCE ACTS COMMITTEE.

In consequence of erroneous and misleading statements that have been made from time to time with regard to the composition of the Insurance Acts Committee, particulars as to the position of each member of the Committee have been verified by direct reference to the members themselves; these were published in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of December 30th, 1916 (p. 173). As already indicated in circular M. 18, the Committee has approved the principle that half the elected members of the Committee should be the direct nominees of insurance practitioners, and is taking steps to secure the necessary alterations to the by-laws.

APPOINTMENT OF RURAL PRACTITIONERS SUBCOMMITTEE.

In accordance with the recommendation contained in Minute 89 of the Conference, a Rural Practitioners Subcommittee has been appointed, and the following have accepted office thereon:

Dr. H. B. Brackenbury (London), *ex officio*.
Dr. Harding, New Radnor (Radnorshire).
Dr. T. Cuming Askin, Alderton, Woodbridge (Suffolk).
Dr. J. Cleasby Taylor, Berwick.
Dr. Wood Locket, Melksham (Wilts).
Mr. A. Linnell, Towcester (Northants).
Dr. W. Grant, Blantyre (Lanarkshire).

RECORD CARDS FOR 1917.

IN view of numerous complaints received from all parts of the country, the Executive Subcommittee of the Insurance Acts Committee at its last meeting decided to make representations to the Commissioners with reference to the duties of panel practitioners to keep medical records. The question was raised by the deputation which met the

Commissioners on December 18th, when it was pointed out (1) that any recent statistics now available are unreliable; (2) that in view of that lack of value, the Commissioners should consider the advisability of not insisting on record cards being kept during 1917; (3) that the average of the past three years might be adopted for case value purposes; and (4) that in the present depleted state of the profession any saving of time that could be effected by reducing clerical work would be a distinct advantage to the community.

The Association on December 29th, 1916, was informed that as a result of these representations the Commissioners had felt justified in approaching the Treasury on the matter; that the Treasury had agreed to the course proposed; and that in view of the urgent desirability of notifying doctors before the end of the year of the proposed concession, notifications were at once being issued to individual practitioners without waiting to communicate officially with the Insurance Acts Committee.

The notification states that the obligation to keep records as regards the year 1917 has been waived, and that the waiver will not affect the amount of the Exchequer grant. It will not, therefore, be incumbent upon panel practitioners to complete either the upper or lower half of record cards in respect of treatment given during 1917, but it is added that this course has been adopted solely on account of the exceptional circumstances of the war, and without prejudice to any future question of medical remuneration, and that the suspension of the obligation does not imply the exclusion of the duty from those which in normal circumstances form part of the service expected from panel practitioners.

This suspension of the obligation to complete record cards does not apply to 1916. All record cards in respect of persons attended on or before December 31st, 1916, should be forwarded not later than January 22nd, the upper half to the Insurance Committee concerned, and the lower to the Commissioners. The keeping of the records is one of the conditions attached to the payment of the additional 2s. 6d. per insured person provided by the Exchequer towards the cost of medical benefit. Where a doctor is acting as deputy for a colleague who is absent with His Majesty's forces, care should be taken to forward separately the records relating to the latter's patients. These records should bear the name of the absent doctor.

THE INDEX REGISTERS.

THE deplorable condition of the index registers has induced the Commissioners to issue to approved societies a circular, 228/I.C., which calls attention to matters of urgent importance in connexion with the notifications of changes affecting the registers which societies are required to send to insurance committees. The circular states that the enlistments notified up to the present represent only a small proportion of the insured persons who have enlisted, and societies are requested to take immediate steps to secure that any outstanding notifications are sent to committees at the earliest possible date. Directions are given as to the procedure to be adopted in cases where a society is informed of the enlistment but is not aware of the date of enlistment.

Societies are also reminded that it is their duty to notify insurance committees as to suspensions from medical and sanatorium benefit on account of arrears of contributions, death, etc., immediately the facts have come to their knowledge. In the same way reinstatement after suspension should be notified as early as possible. Especially is attention drawn to the need that societies should act expeditiously in notifying insurance committees of the reinstatement of members on their discharge from the army or navy, as in many such cases the members will be in immediate need of medical attention. Details are given of the procedure to be adopted both in these cases and whenever new members are admitted to a society. If societies can be induced to carry out the suggestions of the circular there can be little doubt that the index registers will be greatly improved.

A circular on somewhat similar lines has been sent also to insurance committees calling attention to their share in the work of putting the index registers in order, and suggesting various modifications in the details of dealing with orange slips. Important suggestions are made as to the procedure proper in dealing with discharged soldiers who are not members of approved societies. It is stated that when application for benefit is made in these cases before receipt of an index slip by the committee, the applicant, if discharged on medical grounds and insured during service, will be entitled to admission to benefit from the Navy and Army Insurance Fund, and arrangements for medical benefit should be made at once, a suspense slip being constructed pending the receipt of an index slip from the Commissioners. On the other hand, if the applicant was not discharged on medical grounds, a special form is to be sent to the Commissioners, who will investigate his title. Persons who were deposit contributors before enlistment will ordinarily be entitled to medical benefit at once. But if the person were not insured before enlistment, but, having been insured in the army, remains in insurance after discharge, he will, unless he join an approved society, become a deposit contributor three months after discharge, when his right to benefit will depend on the balance in his account, and be subject to other conditions. Committees are asked to explain to applicants in the latter class that they can obtain medical benefit at once by joining a society. The circular further gives instructions to committees with a view to a uniformity of action amongst committees which will conduce to the smooth working of the index register arrangements.

DISTRIBUTION OF MEDICAL BENEFIT FUND.

THE following statement, issued by the Clerk to the Burgh of Glasgow Insurance Committee, is a good example of the way in which the necessary information can be clearly set out.

STATEMENT SHOWING AMOUNT AND DISTRIBUTION OF MEDICAL BENEFIT FUND FOR YEAR 1914.

	£	s.	d.	£	s.	d.
Amount of Final Credit for year from Insurance Commissioners for Medical Benefit				147,622	1	11
Add Sundry Receipts from Approved Societies ...				0	8	6
Gross amount of Medical Benefit Fund for year... ...				147,622	10	5
Under deduction of amount transferred to Special Arrangements Fund				1,274	6	3
Leaving as the amount of the Panel Service Fund for year				146,348	4	2
Of which—						
Transferred to Practitioners' Fund (thirteen-seventeenths)	111,913	6	9			
Transferred to Drug Fund (four-seventeenths)	34,434	17	5			
				146,348	4	2
Amount of Practitioners' Fund as above				111,913	6	9
Add Balance from Drug Fund—						
Amount of Drug Fund as above ...	34,434	17	5			
Less amount of Charges against Drug Fund for year...	30,509	8	0			
				3,925	9	5
Add also amount Transferred from Sanatorium Benefit Fund in respect of Domiciliary Treatment of Tuberculosis...				8,605	7	11
				124,444	4	1
Under deduction of—						
(1) Cost of Treatment of persons temporarily resident in other areas	236	5	4			
(2) Expenses of Panel Committee for year (authorized in terms of Section 33 (2) of National Insurance Act, 1913)	175	11	6			
				411	16	10
Leaving for distribution among Medical Practitioners ...				124,032	7	3
Of which—						
Amount credited to Practitioners in respect of persons on Lists	116,411	0	1			
Amount transferred from Drug Fund as above	3,925	9	5			
Amount of surplus in respect of "unallocated" persons	3,695	17	9			
				124,032	7	3
Amount of credit as above...				124,032	7	3
Less payments already made				110,911	3	8
Leaving amount for further distribution now on final adjustment				£13,121	3	7

PREPARATION OF AUTOGENOUS VACCINES.

MR. H. HICK (New Romney) informs us that he has received the following letter, dated November 28th, from the Clerk to the Insurance Committee of Kent:

Your letter of May 16th on the subject of bacteriological examinations and the preparation of autogenous vaccines was laid before the Medical Benefit Subcommittee, and after consideration the Subcommittee decided that the case might be viewed under two heads:

(*a*) The cost of the vaccine—that is, its preparation.
(*b*) The examination of the faeces to decide which was the correct vaccine to be prepared.

LIBRARY U. OF I. URBANA-CHAMPAIGN

As regards (*a*), they endorsed their previous decision that the vaccine should be provided at the cost of the Drug Fund—that is, by the doctor where he is responsible for the provision of drugs. As regards (*b*), it appeared to be a matter to be dealt with as being outside the scope of medical benefit.

The matter was laid before the Insurance Commissioners, and in their reply the Commissioners drew attention to the fact that the Medical Benefit Funds of the Committee are available only for defraying (*a*) the cost of such treatment as can properly be undertaken by a general practitioner of ordinary competence and skill, and (*b*) the cost of the necessary drugs and prescribed appliances in connexion with such treatment.

As there can be no doubt that the bacteriological examination for the preparation of the vaccine is not usually performed by the medical practitioner, it has been decided that the cost in connexion therewith cannot be defrayed from the Medical Benefit Fund.

LOCAL MEDICAL AND PANEL COMMITTEES.

COUNTY OF LONDON.

Panel Committees and the British Medical Association.

AT the meeting of the London Panel Committee on December 19th, after the chairman (Dr. H. J. CARDALE) had given a report of the recent Conference of Panel Committees to which he was delegate, a discussion arose on the question of securing the co-operation of Local Medical and Panel Committees in the future by some other method than the one at present adopted. The subcommittee to whom this question had been referred brought forward a recommendation that the Insurance Commissioners be requested to take steps to secure that in all cases where it was necessary to obtain the views of the panel profession, a body directly representative of the Panel and Local Medical Committees throughout the country should be consulted. The chairman agreed that the conference called by the British Medical Association was representative in character, but the complaint was that it was not a standing body, and was never directly consulted by the Commissioners at all. The British Medical Association was the body consulted. He hoped that just as the Panel Committees were advisory bodies to the Insurance Committees, so it might be possible to set up a central body exercising the same functions towards the Commissioners. Dr. LAURISTON SHAW thought it essential that there should be bodies able to represent the sectional interests of the profession, of which panel work was one. The British Medical Association was endeavouring to promote the sectional interests of panel practitioners, but the sectional interest should have a means of expressing its opinion directly to the Government. Dr. MAJOR GREENWOOD defended the Conference as at present constituted; he was not aware that there was any dissatisfaction with it, and in view of the unanimity with which Panel Committees all over the country had supported it, he did not think that the objection of one Panel Committee, even though a large one, would impress the Commissioners. Dr. H. H. MILLS considered that some such body as the one suggested in the recommendation was the logical outcome of the two Insurance Acts. An elected mass meeting did not lend itself to the purposes of consultation. Dr. HASLIP pointed out the representative character of the Conference, and thought that it would be a great mistake to set up another method. Dr. ETHEL BENTHAM, the chairman of the subcommittee, urged that in view of the great changes which were forthcoming in the administration of the Insurance Acts, there was great need to have a continuous body. Under the present system there was no guarantee even that the same representatives would be elected twice in succession. The recommendation of the subcommittee was carried by a large majority, and it was referred to the subcommittee to consider the advisability of circulating it among all the other Panel Committees.

EAST SUFFOLK.

At a meeting of the Panel Committee on December 12th the Chairman was asked to obtain a copy of the names and addresses entered in the suspense slips for the use of the Panel Committee. It was decided to inform the Commissioners that the previous year's payment in respect of mileage was totally inadequate, amounting to only 4.9419d. in the shilling, and that the Committee required the sum of £550 in payment for mileage for 1916.

It was decided to send a letter to the *East Anglian Times* stating that the object of the Committee in sending a circular to panel practitioners urging economy and care with regard to prescribing expensive drugs was to check the existing extravagance in ordering such drugs in cases where they were unnecessary and less expensive substitutes were equally suitable, and not to forbid the prescribing of expensive drugs when necessary.

The Secretary was instructed to ask the British Medical Association whether doctors with the following qualifications had *ipso facto* the right to free supply of salvarsan or its substitute, or the medical officer of health for the county had still a right of veto:

1. Holds a certificate of having satisfactorily fulfilled the duties of clinical assistant in a hospital department recognized by the Local Government Board.
2. Holds certificate of satisfactory attendance at a course of instruction in such hospital department.
3. Has been for the past five years a member of the permanent staff of a hospital of not less than 50 beds.
4. Produces satisfactory evidence that he has had adequate experience in administrating drugs by intravenous injection.

Association Notices.

THE LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

A LIST of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

SUGGESTED CHANGES OF BOUNDARIES.

NOTICE is hereby given to all concerned of a proposal, made by the Manchester and Stockport, Macclesfield and East Cheshire Divisions, that Heaton Norris U.D. and that part of Stockport C.B. lying in Lancashire be transferred from the former to the latter Division. Written notice of the proposal has been given to the Lancashire and Cheshire Branch, and the matter will be determined in due course by or on behalf of the Council. Any member affected by the proposed change and objecting thereto is requested to notify the fact and his or her reason therefor to the Medical Secretary, British Medical Association, 429, Strand, W.C., not later than February 6th, 1917.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeons W. B. MacLeod, M.B., to the *Impregnable*; H. J. Chater to the *Bellerophon*, vice MacLeod; H. H. Pearse to the *Cæsar*, vice Trythall; J. R. Muir, M.B., to Wei-Hai-Wei Sick Quarters, vice Clark; J. S. Dudding to the *Tiger*, vice Muir; R. B. Scribner to the *Pembroke*. Staff Surgeons W. W. D. Chilcott to the *Lowestoft*, vice Hall; T. A. Smyth, M.B., to the *Cornwall*. Temporary Surgeons A. L. Watts, M.B., to Plymouth Hospital; S. W. F. Underhill, M.B., to Chatham Hospital; T. S. Bradburn to the *Vivid*; G. P. Burr, M.B., to the *Cornwallis*; R. C. P. Whitcombe to the *Superb*; J. E. Phillips to the *Cornwall*; W. H. Butcher to the *Victory*; M. O. Hunter to Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon W. G. Evans, M.D., to the *Pembroke*, additional. Surgeon Probationers G. M. S. Lindsay, A. W. Mackie, G. N. Wardle, C. Griffith-Jones, E. C. Whitehall-Cooke, and H. J. Phillips to the *Pembroke*, additional; J. M. Ritchie, J. H. Blackburn, C. B. Reckie, J. Nicol, J. J. Nolan, and D. M. McR. Nicol to the *Victory*, additional; J. Allen to the *Hilary*.

To be Surgeon Probationer: E. R. Ormerod.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Major A. Carless, M.B., F.R.C.S., R.A.M.C.(T.F.), to be temporary Lieutenant-Colonel.

Temporary Major G. B. Price, M.B., to be temporary Lieutenant-Colonel.

Captain G. P. Taylor to be temporary Major, and not as stated in the *London Gazette* of October 13th, 1916.

Temporary Captain W. Penberthy to be temporary Major whilst commanding troops on a hospital ship.

Temporary Lieutenant J. L Birley, M.B., to be temporary Major whilst employed on special duty.

Temporary Lieutenants to be temporary Captains: A. W. G. Murray, M.B., P. R. Lowe, M.B.

Temporary Captain W. J. G. Gayton relinquishes his commission.

Temporary Captain S. Greenwood relinquishes his commission on account of ill health.

Temporary Lieutenants relinquish their commissions: R. Paterson, M.B., C. R. M. Pattison, R. W. Halladay, M.D., H. C. Sutton, M.B., T. B. Shoolbread, M.B.

To be temporary Lieutenants: G. O'N. Waddington, B. Cohen, M.B., B. Knowles, M.B., H. D. Wilson, M.D., F. A. Godson, M.B., E. W. Hall, W. W. D. Thomson, M.D., H. A. Faulkner, A. W. G. Murray, M.B., J. J. O'Mullane, W. M. G. Guinness, M.D., B. G. H. Connolly, M.B., C. L. Warke, G. Gordon, M.B., J. Carrick, M.B., G. A. Mavor, M.B., R. C. Rogers, M.B., H. W. Windsor-Aubrey, M. H. Bland, M.D., W. Daunt, D. Finlayson, M.B., C. Speers, R. A. Hosegood, J. S. Bellas, M.B., W. M. Christie, M.B., H. W. Bernard, M.B., T. M. Thomson, T. M. Guthrie, M.B., J. A. Berlyn, M.B., B. Muir, J. D. Gray, M.D., F. Lilley, J. R Sinton, M.B., F. W. Cheese, M.D., J. P. Fehily, M.B., T. McC. Sellar, M.B., C. H. Burgess, M.B., H. R. Sinclair, M.B., C. Baylor, T. A. Adams, M.B., H. F. Sheldon, T. R. Robertson, M.B., J. A. McIlroy, H. A. Grierson, M.B., A. E. Hart, M.B., A. Newton-Brady, M.B., G. H. Adam, W. E. Ord, M.D.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain P. C. MacRae, M.B., relinquishes his commission on account of ill health.

Lieutenant S. W. Hoyland to be Captain.

To be Lieutenants: S. C. Swinburne, from Edinburgh University Contingent O.T.C., W. Corner, M.B. (substituted for the notification in the *London Gazette* of August 1st, 1916), M. J. Burns, M.B., C. Weir, J. A. H. Miller, B. Mountain.

OVERSEAS CONTINGENTS.

SOUTH AFRICAN MEDICAL CORPS.

Temporary Major R. N. Pringle to be acting Lieutenant Colonel whilst commanding a unit.

To be temporary Captains: C. P. Bligh-Wall, M.D., K. Bremer, M.B., S. Copley, J. C. Caldwell, M.B.

CANADIAN ARMY MEDICAL CORPS.

Late temporary Lieutenants R.A.M.C. to be temporary Captains: L. M. Morton, O. G. Donovan.

Major G. R. Philip to be temporary Lieutenant-Colonel.

C. D. Rilance, M.B., to be temporary Captain.

BRITISH WEST INDIES REGIMENT.

Surgeon-Lieutenant W. S. Mitchell to be Surgeon-Captain. A. A. Hearne to be temporary Surgeon-Lieutenant.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Major C. R. White, M.B., to be temporary Lieutenant-Colonel.

Captain (temporary Major) J. E. W. MacFall, M.D., relinquishes his temporary rank on ceasing to command a field ambulance.

Captain E. W. Holyoak, M.B., to be seconded.

Captain J. B. Sinson, M.B., relinquishes his commission on account of ill health.

Supernumerary for Service with the O.T.C.—Lieutenant (temporary Captain) E. W. Walker to be Captain.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BOLINGBROKE HOSPITAL, Wandsworth, S.W.—(1) Resident Medical Officer; (2) House-Surgeon. Salary, £200 and £150 per annum respectively.

BOLTON INFIRMARY AND DISPENSARY.—Second and Third House-Surgeons. Salary, £200 and £180 per annum respectively.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL. House-Surgeon. Salary, £200 per annum.

BRIDGWATER HOSPITAL. — House-Surgeon. Salary, £120 per annum.

BRISTOL: BEAUFORT WAR HOSPITAL, Fishponds.—Resident Surgical Officer. Salary, £365 per annum.

BRISTOL GENERAL HOSPITAL.—House-Surgeon. Salary, £175 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon.

CARDIFF: KING EDWARD VII WELSH NATIONAL MEMORIAL ASSOCIATION. — (1) Tuberculosis Physicians; (2) Assistant Tuberculosis Physicians. Salary, £500 and £350 per annum respectively.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W. — House-Physician. Honorarium, 30 guineas for six months.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) Two House-Surgeons; (2) Assistant Casualty Medical Officer; (3) House-Physician. Salary, £60 per annum and £5 washing allowance.

HUDDERSFIELD EDUCATION AUTHORITY.—Assistant School Medical Officer. Salary, £350 per annum.

MANCHESTER: COUNTY ASYLUM, PRESTWICH.—Locumtenent. Salary, £7 7s. per week.

NORTHAMPTON GENERAL HOSPITAL.—House-Surgeon. Salary, £150 per annum.

NOTTINGHAM AND MIDLAND EYE INFIRMARY. — House-Surgeon (lady).

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.—Clinical Assistant in the Out-patients' Department.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E. — (1) House-Physician; (2) House-Surgeon. Salary, £100 per annum.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford.—House-Surgeon.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C. — Surgical Registrar.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.—Resident Surgical Officer.

SCOTTISH WOMEN'S HOSPITALS.—(1) Assistant Medical Officers for Serbian Unit in Russia; (2) Assistant Surgeon for Serbian Unit in Macedonia. Honorarium at the rate of £200 per annum.

SHEFFIELD ROYAL HOSPITAL. — Assistant House-Surgeon. Salary, £120 per annum.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—Honorary Dental Surgeon.

WELSH METROPOLITAN WAR HOSPITAL, Whitchurch, near Cardiff.—Resident Medical Officer.

WESTMORLAND SANATORIUM, Meathop. — Second Assistant Medical Officer. Salary, £200 to £250.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Esher (Surrey), Hull (Yorks, East Riding), Lydbrook (Gloucester).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ALCOCK, Arnold, M.B., B.S., an Honorary Surgeon to the Gloucestershire Royal Infirmary and Eye Institution, vice G. Wayland Ancrum, M.B., C.M.Edin., resigned.

GORDON, F. J., M.R.C.S., L.R.C.P.Lond., District and Workhouse Medical Officer of the Horncastle Union.

HOULBROOK, W. E., M.R.C.S., L.R.C.P.Lond., Certifying Factory Surgeon for the Hathersage District, co. Derby.

NICHOLL, R. C., L.R.C.P.and S.Irel., District Medical Officer of the Fylde Union.

ORCHARD, W. G., M.R.C.S., L.R.C.P.Lond., District Medical Officer of the Hailsham Union.

SIMPSON, H., M.B., B.C.Camb., District Medical Officer of the Tonbridge Union.

GUY'S HOSPITAL.—The following appointments have been made in connexion with the scheme for the diagnosis and treatment of venereal disease: Assistant to the Obstetric Surgeons, Miss Morna Rawlins, M.B., B.S.Lond.; Assistant to the Dermatologist, Mr. L. S. Gathergood, M.R.C.S., L.R.C.P.; Assistant to the Genito-Urinary Surgeon, Captain G. E. Genge-Andrews, M.B., B.S.Lond.; Assistant Bacteriologist, Miss Una Griffin, M.B., B.S. Lond.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

MARRIAGE.

SCOTT-BURNS.—On December 30th, 1916, very quietly, at St. Mary's, Finchley, Eric Arnold Scott, temporary Captain R.A.M.C., only son of Albert G. Scott, Glenroy, Seymour Road, Finchley, to Margaret Jessie Burns (Madge), daughter of the late J. B. Burns of Rugeley.

DEATHS.

MOIR.—At 4, Ardross Terrace, Inverness, on December 31st, Jessie Arnot, wife of John Munro Moir, M.D., Lieut.-Colonel, R.A.M.C., and Senior Medical Officer, Inverness Area.

SHILLITOE.—On December 23rd, at "Ardvernis," 3, Richmond Gardens, Bournemouth, Buxton Shillitoe, F.R.C.S., late of 2, Frederick's Place, Old Jewry, E.C., in his 91st year.

SUTHERLAND.—On December 23rd, at 33, Trafford Road, Salford, Manchester, Wm. Leith Ireland Sutherland, M.B., C.M., aged 61.

DIARY FOR THE WEEK.

TUESDAY.

SOCIETY FOR THE STUDY OF INEBRIETY, 11, Chandos Street, W.—4 p.m., Sir John Kirk: Alcoholism and Child Welfare in War Time.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W.—9 p.m., Hunterian Lecture by Mr. J. W. Thomson Walker: The Bladder in Gunshot and Other Injuries of the Spinal Cord.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JANUARY.
6	Sat.	Scottish Committee, North British Station Hotel, Edinburgh, 2.30 p.m.
8	Mon.	London: Naval and Military Committee, 3.30 p.m.
9	Tues.	London: Organization Committee, 2.45 p.m.
10	Wed.	London: Medico-Political Committee, 2.15 p.m.
11	Thur.	London: Insurance Acts Committee, 2 p.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

LIBRARY U. OF I. URBANA-CHAMPAIGN

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JANUARY 13TH, 1917.

CONTENTS.

	PAGE
VOLUNTARY MOBILIZATION OF THE PROFESSION: LETTERS TO THE PRIME MINISTER—	
FROM THE CENTRAL MEDICAL WAR COMMITTEE	5
FROM THE SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE	6
FROM THE JOINT COMMITTEE OF THE ROYAL COLLEGES IN ENGLAND	6
REPLY OF THE PRIME MINISTER	7
LONDON PANEL COMMITTEE	7
NAVAL AND MILITARY APPOINTMENTS	8
BRITISH MEDICAL ASSOCIATION:	
CURRENT NOTES:	
TREATMENT OF VENEREAL DISEASES BY UNQUALIFIED PERSONS	7
SICKNESS BENEFIT AND DISEASES DUE TO OWN MISCONDUCT ...	7
ASSOCIATION NOTICES	7
VACANCIES AND APPOINTMENTS	8
BIRTHS, MARRIAGES, AND DEATHS	8
DIARY	8

VOLUNTARY MOBILIZATION OF THE PROFESSION.

WE announced a fortnight ago that the Central Medical War Committee had arrived at the conclusion that the whole situation with regard to the present position of the profession in relation to the war had been changed by the Prime Minister's statement that the War Cabinet had unanimously approved the conclusion of the preceding Cabinet, that the time had come for the adoption of the principle of universal national service. The Committee believed that the medical profession would desire that its special position and difficulties should be laid before the responsible authority as soon as possible. In furtherance of this, it has caused the following letter to be addressed to the Prime Minister:

CENTRAL MEDICAL WAR COMMITTEE.

Mr. T. JENNER VERRALL, LL.D., Bath, *Chairman*.
Sir RICKMAN GODLEE, Bt., K.C.V.O., Ex-President Royal College of Surgeons of England.
Professor HARVEY LITTLEJOHN, Dean of the Faculty of Medicine, University of Edinburgh.
Colonel Sir ALEX OGSTON, K.C.V.O., LL.D., Aberdeen.
Sir WILLIAM OSLER, Bt., F.R.S., Oxford.
Dr. A. E. SHIPLEY, F.R.S., Master of Christ's College, Cambridge.
Dr. T. W. SHORE, Dean of the Medical School of St. Bartholomew's Hospital.
Dr. FREDERICK TAYLOR, President Royal College of Physicians, London.
Sir T. CLIFFORD ALLBUTT, K.C.B., F.R.S., Cambridge (President, B.M.A.).
Mr. E. B. TURNER, F.R.C.S., London (Chairman of Representative Meetings, B.M.A.).
Dr. J. A. MACDONALD, LL.D., Taunton (Chairman of Council, B.M.A.).
Dr. G. E. HASLIP, London (Treasurer, B.M.A.).
Lieut.-Col. Sir JAMES BARR, LL.D., Liverpool.
Lieut.-Col. R. A. BOLAM, Newcastle-on-Tyne.
Dr. H. W. LANGLEY BROWNE, West Bromwich.
Dr. C. BUTTAR, London.
Major RUSSELL COOMBE, Exeter.
Dr. ADAM FULTON, Nottingham.
Major W. J. GREER, Newport, Mon.
Dr. THOMAS HENNESSY, Joint Hon. Secretary Irish Medical War Committee.
Major ALBERT LUCAS, Birmingham.
Dr. D. NAUNTON MORGAN, Gilfach Goch, Bridgend.
Dr. EDWIN RAYNER, Stockport.
Dr. B. A. RICHMOND, Secretary London Panel Committee.
N. BISHOP HARMAN, F.R.C.S., London,
ALFRED COX, M.B., Medical Secretary B.M.A. } *Secretaries.*

Offices: 429, Strand, London, W.C.
December 30th, 1916.

Sir,

The Central Medical War Committee has noted your statement in the House of Commons on December 19th regarding the organization of the national resources, and desires to place before you what has been done in the matter of organizing the medical profession in England and Wales for the purposes of the war.

The work of this Committee was initiated by the British Medical Association, which on August 7th, 1914, issued a letter to each of its 200 Divisions asking them to make what arrangements they could for carrying on the work and protecting the interests of those practitioners who were called away on military service. Subsequently the Association appointed a Committee (which afterwards became the Central Medical War Committe) for the purpose of obtaining officers for the R.A.M.C. in co-operation with the Director-General A.M.S., and assisting in making arrangements for carrying on the practices of these officers while in the army. As will be seen from the composition of the Committee, as given at the head of this note-paper, it includes not only members of the British Medical Association but representatives of other important medical bodies.

The Committee in the summer of 1915 instituted a system of enrolment of all male members of the medical profession up to the age of 45, and this scheme was afterwards approved by Lord Derby when he was Director of Recruiting and by the Director-General A.M.S. Each man who enrolled undertook to accept a commission when called upon to do so, and the Committee undertook to consider in making its calls not only the demands of the War Office but also the needs of the civilian community.

After the passing of the second Military Service Act the Committee was recognized by the Army Council under that Act as the Central Professional Committee for England and Wales, with the duty of considering applications made by doctors to Local Tribunals for exemption, and giving decisions which are binding on the Local Tribunals.

By repeated appeals to the profession under the voluntary system; by its enrolment system, and by its system of calls subsequent to the passing of the Military Service Acts the Committee has been able to provide for the Royal Army Medical Corps a very large number of officers, but it is becoming increasingly difficult to keep up the supply.

The Committee, in the course of its work, has accumulated a large amount of information as to the distribution and employment of the members of the medical profession. This information is of a very detailed character, and is not in the possession of any other body.

There is still a considerable number of men of military age in England and Wales, but unfortunately a large proportion of them practise in industrial and munition areas where the supply of doctors in proportion to population was, even in peace times, not too great, and is now barely equal to the demands made upon it. In these circumstances the Committee was brought to consider whether it would not be necessary to ask the Government that some special steps should be taken to organize the whole medical profession for the national needs, civilian as well as military. At a meeting on December 6th the Committee approved the general principle of mobilization of the medical profession, apart from any question of the general mobilization of the whole community, so that any individual whose name is on the *Medical Register* shall give such service, whether in a military or a civil capacity, as he or she is competent to give, when required to do so by the State. The Committee had intended to ascertain by an appeal to the profession in England and Wales whether they were willing that the Government should be told on their behalf that steps should be taken thus to organize the medical profession, irrespective of what was done for the rest of the community. But while the subject was under discussion, your statement of December 19th appeared and seemed to the Committee materially to alter the whole situation, as it is evident that the Government intends that the whole community shall be mobilized for the national service. The Committee thereupon resolved to seek an interview with the Director-General of National Service with the intention of putting the

special position of the medical profession before him, and in taking this step has the concurrence of the Scottish Medical Service Emergency Committee and the Joint Committee of the Royal College of Physicians of London and the Royal College of Surgeons of England, Committees which have been appointed to deal with matters of this kind.

In the meantime, however, the Committee desires to place this statement before you with an intimation that it is prepared to place its services at the disposal of the Government in any way which may be thought to be most useful.

We have the honour to be, Sir,
Your obedient Servants,
N. BISHOP HARMAN, F.R.C.S.,
ALFRED COX, M.B.,
Secretaries.

The Rt. Hon. David Lloyd George, M.P.

The Scottish Medical Service Emergency Committee had independently resolved to take the same course, and has addressed the following letter to the Prime Minister:

... ...

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

... ...

Royal College of Physicians, Edinburgh,
23rd December, 1916.

The Right Honourable D. Lloyd George.

Sir,

In view of your statement in the House of Commons on December 19th regarding the organization of the national resources, it is opportune that we should place before you what the medical profession in Scotland has done and is doing in this matter.

The Scottish Medical Service Emergency Committee came into existence on August 14th, 1914, and was recognized by the Government on 1st June, 1916, as the Central Professional Committee for Scotland under the Military Service Act. Its composition is set forth at the head of this letter. Concerned at first only with the civil needs of the community, it added to its duties in May, 1915, that of providing the ever-increasing number of medical officers required for the army, and has since then exercised both functions with an eye to the interests of both.

Up to now it has never failed to provide all the men the Director-General has asked for, but latterly this has only been done with difficulty, and it is driven to the conclusion that if the supplies are to be kept up without seriously affecting the medical care of the civil community further organization would be required. In illustration of what has been done under the voluntary system it may be mentioned that the roll of the profession in Scotland, made up in July, 1915, contained approximately 3,900 names, and that Scotland has sent 1,800 doctors to the navy and army.

After careful consideration it was decided that, in order to provide the additional men required by the Director-General, it would be necessary to ask for a general organization of the medical profession, and on December 15th the Committee unanimously adopted the following resolution:

> That the Committee approve of the principle of the complete organization of the medical profession for the period of the war and for six months thereafter, in order that every person whose name is on the *Medical Register* shall be held bound, when required by the Government, to give such service as he or she is competent to render to the country for naval, for military, or for civil practice.
>
> *Rider:* The Committee have adopted the above resolution on the understanding that the organization referred to shall be in the hands of a Medical Committee appointed by the Government for the purpose.

The members of the Committee who sit in virtue of their official positions—the President of the Royal College of Physicians, the President of the Royal College of Surgeons, the President of the Royal Faculty of Physicians and Surgeons of Glasgow, and the Chairman of the Scottish Committee of the British Medical Association—each undertook to bring this resolution before their respective bodies, and they have reported to us as follows:—

The Royal College of Physicians on December 21st unanimously passed the following resolution:

> That this College, having considered the resolution submitted to it by its representative on the Scottish Medical Service Emergency Committee, endorses the policy of the resolution, on the understanding that the organization referred to shall be in the hands of a Medical Committee appointed for the purpose, and that this College and the other Scottish medical corporations are adequately represented on the Committee.

The Royal College of Surgeons on December 20th unanimously passed the following resolution:

> That this College, having considered the resolution submitted to it by its representative on the Scottish Medical Service Emergency Committee, endorses the policy of the resolution, on the understanding that the organization referred to shall be in the hands of a Medical Committee appointed for the purpose, and that this College and the other Scottish medical corporations are adequately represented on the Committee.

The Royal Faculty of Physicians and Surgeons of Glasgow had by its standing orders only two alternatives, first to adopt the motion and remit it to the Council with powers, or to remit it to the Council for report. The Faculty adopted the latter procedure, and an early meeting of the Faculty will be held to consider the Council's report. The Scottish Committee of the British Medical Association met on December 22nd and adopted the following resolution:

> That this Committee approve of the principle of the complete organization of the medical profession during the period of the war and for six months thereafter, in order that every person whose name is on the *Medical Register* shall be held bound when required by the Government to give such service as he or she is competent to render to the country for naval, for military, or for civil practice, subject to the following riders:
>
> 1. The Committee have adopted this resolution on the understanding that the organization referred to shall be in the hands of a Medical Committee appointed by the Government for the purpose.
>
> 2. That at least one half of the members of the Committee in question should consist of general practitioners.

It was the Committee's intention to proceed by laying these resolutions before meetings of the profession in the larger centres of population in Scotland and when they had received as was anticipated an almost unanimous endorsement to ask you to introduce the necessary legislation.

In view of your announcement the Committee is of opinion that the information contained in this letter should be laid before you at once so that you may place it at the disposal of whatever authority is entrusted with the matter, and I am to add that the Committee places itself and all the information at its disposal unreservedly at the service of the country.

I have the honour to remain, Sir,
Your obedient Servant,
NORMAN WALKER, *Convener.*

The Joint Committee of the Royal Colleges in England has taken a similar course by addressing the following letter to the Prime Minister:

COMMITTEE OF THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS (ENGLAND).

January 5th, 1917.

Sir,

The Committee of the Royal Colleges of Physicians and Surgeons which was appointed to consider, either independently or in conjunction with other bodies, urgent medical questions arising out of the war, and which is recognized as the Statutory "Committee of Reference," have been informed that letters have been addressed to you by the Central Medical War Committee and the Scottish Medical Service Emergency Committee on the subject of the mobilization of the medical profession.

On the 21st ult. the Committee adopted the following resolution:

> That the Committee of the Royal Colleges of Physicians and of Surgeons are of opinion that it is desirable to join the Central Medical War Committee and the Scottish Medical Service Emergency Committee in a deputation to the Director of National Service to urge upon him that the mobilization of the medical profession should be organized under his direction by a representative body selected from that profession.

The Committee now desires to express to you their wish to assist in such manner, as may be determined, the mobilization of the profession by placing themselves and the information they possess at the disposal of the Government, and in doing so they beg to assure you that they are acting now, as they have in the past, in full sympathy and co-operation with the Scottish Medical Service Emergency Committee and the Central Medical War Committee.

The following are the present members of the Committee:

FREDERICK TAYLOR, M.D., President of the Royal College of Physicians.
Lieut.-Col. W. HALE WHITE, M.D., F.R.C.P., R.A.M.C (T.).
Major SIDNEY MARTIN, M.D., F.R.C.P., F.R.S., R.A.M.C.(T.).

LIBRARY U. OF I. URBANA-CHAMPAIGN

Major F. W. MOTT, M.D., F.R.S., R.A.M.C.(T.).
Captain H. G. TURNEY, M.D., F.R.C.P., R.A.M.C.(T.).
Surgeon-General Sir W. WATSON CHEYNE, Bt., K.C.M.G., C.B., R.N., President of the Royal College of Surgeons, F.R.S.
Sir RICKMAN J. GODLEE, Bt., K.C.V.O., M.S., F.R.C.S.
Lieut.-Col. W. F. HASLAM, F.R.C.S., R.A.M.C.(T.).
Lieut.-Col. D'ARCY POWER, F.R.C.S., R.A.M.C.(T.).
CHARLES RYALL, Esq., F.R.C.S.

I am, Sir, your obedient servant,
F. G. HALLETT, *Secretary.*

The Right Honourable David Lloyd George, M.P.,
Prime Minister.

THE REPLY OF THE PRIME MINISTER.

The following reply from the Prime Minister has been received by the Central Medical War Committee:

10, Downing Street, Whitehall, S.W.,
January 10th, 1917.

Dear Sir,

I am desired by Mr. Lloyd George to acknowledge the receipt of your letter of the 30th December, and to thank the Central Medical War Committee for their courtesy in submitting to him the statement of the work done by them.

The Prime Minister is well aware of the invaluable services rendered to the nation during the war by the medical profession.

Yours faithfully,
F. L. STEVENSON.

N. Bishop Harman, Esq., F.R.C.S.

LONDON PANEL COMMITTEE.

A SPECIAL meeting of the London Panel Committee was held on January 9th to consider the proposals for mobilizing the profession. The Chairman (Dr. H. J. CARDALE) said that the Subcommittee which had been considering the matter recommended that the Director of National Service should be approached with certain proposals—namely, that the Central Medical War Committee be given extended powers and a larger and more representative membership; that a lay element be introduced into the work of carrying into effect such of the recommendations of the Central Committee as had to do with medical services on behalf of the civilian population; and that greater use be made of the part-time service of civilian doctors by the army authorities in this country. It was beyond question that more medical men were required for the army, but so far as London was concerned he believed it to be quite impossible for more to be released without some scheme of substitution, and, without committing themselves to the principle of immediate mobilization, it was important that, should the proposal mature, the profession itself should have a controlling hand in the arrangements. Dr. A. WELPLY moved the reference back of the whole matter, arguing that it had been rushed, that insufficient information had been given, that the Central Medical War Committee as at present constituted was not the proper body to undertake the work of mobilization, and that if part-time service were generally accepted it might meet the situation. Dr. LAURISTON SHAW urged that the aim should rather be to strengthen and improve the Central Committee in such a way that the necessity for safeguarding civilian interests would be adequately brought to the notice of the Government.

The motion to refer back was lost, and the recommendations were then taken in detail. The first was to the effect that if the mobilization scheme was to be efficiently worked, extended powers should be conferred upon the Central Committee, and that the membership of the Committee should be strengthened by the addition of at least six general practitioners, of whom one should be a woman. This was amended to make all the six additional members men actively engaged in panel practice, and in this form the recommendation was carried. The second recommendation provided that in so far as the recommendations of the Central Committee had reference to the medical service of the civilian population, these should be carried into effect by a small executive committee appointed from the members of the Central Committee, with lay members appointed by the Director of National Service. Dr. FARMAN and others expressed the opinion that these lay members would be in an ambiguous position, and that it would be impossible to secure laymen of any eminence if they had merely to register the decrees of a superior professional committee. Dr. RICHMOND said that the lay members' function was to see that the instructions of the full committee were carried out with due regard to the needs of the civilian population. Dr. SHAW said that they would be men of high civil standing whose word would be an assurance to the Government that something more than professional interests were being considered. The CHAIRMAN said that they could not demand that the working of the whole scheme should be entirely in professional hands, and moderation of attitude in this respect would be more likely to commend their proposals to the Government. The recommendation was agreed to, as was a further recommendation urging that greater use should be made by the army authorities in this country of the part-time services of civilian doctors. Dr. FARMAN desired to move a further resolution to the effect that regulations protecting the practices of panel practitioners accepting military service should be extended to cover the practices of men transferred under the substitution scheme, but he consented to postpone it until considered by the subcommittee.

British Medical Association.

CURRENT NOTES.

THE TREATMENT OF VENEREAL DISEASES BY UNQUALIFIED PERSONS.

THE British Medical Association has accepted an invitation from the Association of Municipal Corporations to join in a deputation to the President of the Local Government Board on Wednesday, January 24th, for the purpose of urging that administrative measures for the diagnosis and treatment of venereal diseases can only attain their maximum effectiveness in protecting the public health when the treatment of such diseases by unqualified persons is prevented by law.

SICKNESS BENEFIT AND DISEASES DUE TO OWN MISCONDUCT.

An insurance practitioner brought to the attention of the Association the fact that some of his patients suffering from venereal diseases were, by the rules of the approved society, debarred from sickness benefit, and were as a result suffering extreme hardship and their recovery retarded, and asked that the Association take action in the matter. Representations were made to the approved society in question as to the desirability of considering the question of the amendment of its rules in this connexion, with the result that the Association has been informed by the secretary that the matter will receive the consideration of the society at its next meeting. He added that his committee were favourably inclined to the course suggested by the Association, and were communicating with the Insurance Commissioners with a view to obtaining their approval to the alteration of rules required in order to allow the payment of benefit in all cases of venereal diseases.

The attitude of the Commissioners on this question is shown by the answer given in the House of Commons on July 31st, 1916, by Mr. Roberts, then Chairman of the Joint Committee of Insurance Commissions, who said that "the rule disqualifying for benefit a member whose incapacity is due to his own misconduct is optional, and can be revoked by any society at its pleasure. The finance of the Insurance Acts, therefore, must be held to include provision for the payment of benefit in such cases. The problem is in fact not wholly or mainly a financial one, since the safeguarding of the benefit funds was not the object, so far as I am aware, which societies had in view in originally adopting rules of the kind in question. The whole question, to the vital importance of which the Insurance Commissioners are fully alive, is receiving careful consideration, and I am hoping to have an early opportunity of consulting approved societies with regard to the position under their rules."

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

WILTSHIRE BRANCH.—Dr. J. Tubb-Thomas, the President, announces that Mr. F. S. Kidd, Surgeon, Genito-Urinary Department, London Hospital, will deliver a lecture on "The modern methods of treatment and diagnosis of diseases of the male urethra," illustrated by large diagrams, at the Council

Chamber, County Offices, Trowbridge, on Wednesday, January 17th, at 3 p.m. Dr. Tubb-Thomas offers a cordial invitation to all medical practitioners and officers of the R.A.M.C. in the county of Wilts and the adjoining districts to attend.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following notifications are announced by the Admiralty: Fleet Surgeons R. M. Richards to the *Victory*, additional; J. A. Keogh, M.B., to the *Pembroke*; W. Jackson to the *Vivid*, additional. Staff Surgeons R. H. St. B. E. Hughes to the *Pembroke*, additional; W. H. Hastings to the *Blonde*, vice Burdett; B. S. Robson, M.B., to Hospital Ship *Magic*, vice Hastings; J. H. Burdett to Chatham Hospital; S. F. Dudley to the *Pembroke*. Surgeons E. C. Holtom to the *Pembroke*, additional; W. C. Carson to the *Victory*. Temporary Surgeons F. J. R. Cowie, M.B., F. H. Cripps, M.B., to the *Pembroke*, additional; F. H. Vey to the *Kent*, vice Dixon; E. I. Lloyd to the *Shannon*, vice Reckitt; A. Orr-Ewing, M.B., to the Haslar Hospital; H. H. Bailey to Plymouth Hospital; C. E. Rickett to the *Victory*.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: D. A. Cadman and C. A. Horder.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel E. Brodribb is restored to the establishment.

H. M. Rigby, M.B., F.R.C.S. (Captain R.A.M.C.T.F.), to be temporary Lieutenant-Colonel.

Fleet Surgeon W. E. Home, M.D., R.N.(ret.), to be temporary Major.

To be temporary honorary Majors: R. Armstrong-Jones, M.B., F.R.C.P., E. W. White, M.B.

The name of temporary Captain William J. Moloney, M.B., is as now described, and not as in the *London Gazette* of December 11th, 1916.

Temporary Captain T. F. Weakliam, M.B., relinquishes his commission on account of ill health.

Temporary Captains relinquish their commissions: J. Burfield, M.B., F.R.C.S., R. J. Jones.

To be temporary Captains: Temporary Lieutenant F. W. H. Hutchinson, C. G. Whorlow, R. Williams, C. H. Treadgold, M.D.

The notification in the *London Gazette* of July 21st, 1916, regarding H. D. McCall is cancelled.

Temporary Lieutenants relinquish their commissions: F. J. R. Forster, M.B., J. D. Shields, M.B., V. K. O'Gorman, M. F. Hession.

To be temporary Lieutenants: J. K. Watson, M.D., C. D. H. Corbett, M.D., A. E. Goldie, M.B., H. H. Fairfax, S. G. J. Dowling, M.B., A. C. S. Waters, E. H. White, M.B., F. C. Sprawson, M.B., F.R.C.S., F. Simpson, W. F. Gibb, C. M. Atkinson, A. G. Macdonald, M.D., A. B. McMaster, M.D., F. Challans, M.D., C. E. Tangye, M.D., P. J. O'Sullivan, P. A. Leighton, M.D., M. E. A. Wallis, R. O. Whyte, M.B., L. B. C. Trotter, M.D., I. G. Cobb, C. K. Smith, M.B., J. H. Mayston, H. Freeth, M.D., A. Leitch, M.B., J. Young, M.B., M. H. Raper, M.D., T. H. Macfie, M.B., B. A. Slocombe, M.B., M. Henry, M.B., C. L. Williams, H. G. Peel.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Captain A. N. S. Carmichael, M.B., from Attached to Units other than Medical Units, to be Deputy Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Major (temporary Lieutenant-Colonel) J. McD. Nicoll, M.B., relinquishes his temporary rank on ceasing to command a field ambulance.

Captain (temporary Major) H. N. Barnett, F.R.C.S., relinquishes his temporary rank on ceasing to command a field ambulance.

Captain H. G. F. Dawson to be Major.

Captain J. M. Hunt, M.B., to be temporary Major whilst acting as registrar of the hospital.

Captain (temporary Major) J. Young, M.B., F.R.C.S., to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

Captains H. M. Rigby, M.D., F.R.C.S., E. D. Macnamara, M.D., F.R.C.P., and A. D. Reid are seconded whilst holding temporary commissions in the R.A.M.C.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BIRKENHEAD UNION.—Junior Female Resident Assistant Medical Officer. Salary, £250 per annum.

BIRMINGHAM AND MIDLAND FREE HOSPITAL FOR SICK CHILDREN.—(1) Physician to Out-patients; (2) Surgeon to Out-patients.

BOLINGBROKE HOSPITAL, Wandsworth, S.W.—(1) Resident Medical Officer; (2) House-Surgeon. Salary, £200 and £150 per annum respectively.

BOLTON INFIRMARY AND DISPENSARY.—Second and Third House-Surgeons. Salary, £200 and £180 per annum respectively.

BRISTOL GENERAL HOSPITAL.—House-Surgeon. Salary, £175 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £150 per annum.

DORSET COUNTY COUNCIL.—Clinical Tuberculosis Officer. Salary, £350 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL. House-Surgeon. Salary, £200 per annum.

HARROGATE: FURNESS AUXILIARY HOSPITAL.—Resident Medical Officer. Salary, £35 a month.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) Two House-Surgeons; (2) Assistant Casualty Medical Officer; (3) House-Physician. Salary, £60 per annum and £5 washing allowance.

HUDDERSFIELD EDUCATION AUTHORITY.—Assistant School Medical Officer. Salary, £350 per annum.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEAMINGTON SPA: WARNEFORD GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary, £150 per annum.

LIVERPOOL PARISH.—Resident Assistant Medical Officer for the Brownlow Hill Institution. Salary, £300 per annum.

MANCHESTER: COUNTY ASYLUM, Prestwich.—Locumtenent. Salary, £7 7s. per week.

NORTHAMPTON GENERAL HOSPITAL.—House-Surgeon. Salary, £150 per annum.

NOTTINGHAM AND MIDLAND EYE INFIRMARY.—House-Surgeon (lady).

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.—Clinical Assistant in the Out-patients' Department.

PLAISTOW HOSPITAL FOR INFECTIOUS DISEASES, E.—Temporary Resident Medical Officer. Salary, £250 per annum.

PORTSMOUTH BOROUGH MENTAL HOSPITAL.—Locumtenent. Salary, £7 7s. a week.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford.—House-Surgeon.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROXBURGH DISTRICT ASYLUM.—Medical Superintendent. Salary, £500 per annum.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Member of Court of Examiners.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.—Resident Surgical Officer.

SHEFFIELD ROYAL HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—House-Physician (female). Salary, £100 per annum.

SURREY EDUCATION COMMITTEE.—School Dentist. Salary, £300 per annum, rising to £350.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WEST END HOSPITAL FOR NERVOUS DISEASES, Welbeck Street, W.—House-Physician. Salary, £250 per annum.

WORCESTER CITY COUNCIL.—Assistant Medical Officer (female). Salary, £350 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Foyers (Inverness), Frodsham (Chester), Paignton (Devon), Wartle (Aberdeen).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

GEOGHEGAN, A. V., M.D.Dub., District Medical Officer of the Ri... bridge Union.

SLATTERY, J. B., M.D., District Medical Officer of the Saffron Walde... Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notic... not later than the first post on Wednesday morning in order t... ensure insertion in the current issue.*

MARRIAGES.

DICKSON—PRICE.—On January 2nd, at St. Mary's, Reading, by th... Rev. C. L. Jeayes, vicar of St. Mary's, Newbury, assisted by th... Rev. A. L. Whitfield, vicar of Hughenden, and the Rev. W. Wic... ham Legge, vicar of St. Mary's, Reading, Captain Ian Dunba... Dickson, R.A.M.C., eldest son of John Dunbar Dickson, M.D... J.P., and Mrs. Dickson, of The Gables, Marlow, to Nell Gwenllia... Parry Price, younger daughter of Major Parry Price, and Mr... Parry Price, of Castle Hill, Reading.

SCOTT—BURNS.—On December 30th, 1916, very quietly at St. Mary'... Finchley, Eric Arnold Scott, temporary Captain, R.A.M.C., on... son of Albert G. Scott, "Glenroy," Seymour Road, Finchley, ... Margaret Jessie Burns (Madge), daughter of the late J. B. Burn... of Rugeley.

DEATH.

JOHNSTON.—On January 4th, at 31, Waverley Street, Nottingham... James Hunter Johnston, M.B., M.S Edin., aged 51.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:
5 p.m.—General Meeting of Fellows.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF THE HISTORY OF MEDICINE.—4.30 p.m., Exhibitio... of Books, Portraits, etc. 5 p.m., Mr. R. R. Steele: A Mediaev... Panacea.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF DERMATOLOGY.—4.30 p.m., Cases.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JANUARY.
17	Wed.	Wiltshire Branch, Trowbridge, 3 p.m.
		FEBRUARY.
6	Tues.	London: Organization Committee.
		London: Propaganda Subcommittee, 3 p.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

LIBRARY U. OF I. URBANA-CHAMPAIGN

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JANUARY 20TH, 1917.

CONTENTS.

	PAGE
BILIZATION OF THE MEDICAL PROFESSION:	
MANCHESTER REPORT ON THE NEED FOR COMPULSION ...	9
RESOLUTIONS OF LONDON PANEL COMMITTEE	10
TISH MEDICAL ASSOCIATION—CURRENT NOTES:	
FEES FOR EXAMINATION AND REPORT IN THE CASE OF WOMEN TO BE EMPLOYED IN MUNITION AREAS	10
DISCHARGED SOLDIERS ENTERING EMPLOYMENT	10
PAY OF MAJORS R.A.M.C., TERRITORIAL FORCE	10
ENTRANCE INTO INSURANCE OF PERSONS PREVIOUSLY EXEMPT	10
BRITISH MEDICAL ASSOCIATION (*continued*):	
MATERNITY AND CHILD WELFARE (Letter to the Secretary of the Local Government Board)	11
NAVAL AND MILITARY APPOINTMENTS	11
VACANCIES AND APPOINTMENTS	12
BIRTHS, MARRIAGES, AND DEATHS	12
DIARY FOR THE WEEK	12
DIARY OF THE ASSOCIATION	12

IOBILIZATION OF THE MEDICAL PROFESSION.

MANCHESTER REPORT ON THE NEED FOR COMPULSION.

E Manchester Medical War Committee has drawn up a morandum which is of particular value at the present ment, because it is founded upon experience, and puts present situation with Lancastrian directness.

The preamble admits the difficulty of the problem, and ntions the suggestion that the medical profession uld effect a self-mobilization on a voluntary basis, the nciple being that every willing medical man should d himself to perform such service as he is competent give when called upon to do so. The suggestion, it is ught, has probably been made owing to the existence of a ief that the civilian side of the National Service Depart- nt intends, generally, to give a trial to the voluntary nciple, but that in the event of unsuccess it will seek mpulsory powers, and that this anticipated course of ion must apply to the medical profession along with er professions, and trades.

The memorandum proceeds to state that the Manchester dical War Committee at the end of 1915 had succeeded mobilizing the local profession, on the voluntary is now advocated, in an area with 850,000 inhabitants, l has worked the system as well probably as anything of oluntary nature can be worked during the whole of the t year. Though it can claim to have available 80 per t. of the material required for its purpose, the Com- tee has come to the conclusion that even that large centage is insufficient to meet the national need, and t the secret of success can only lie in compelling the gards to do what the majority of the profession is eager lo on its own initiative. The result of the work of the nchester system is held to show that a committee of the fession is quite capable of managing its own mobiliza- n, and that any obvious defects in working are due to bility to enforce compliance with its provisions. It uld be said that a special Medical Board for examina- n of medical men has been established, and every doctor nilitary age who has been before it has been classified.

DETAILS OF THE WORKING OF THE SYSTEM.

The operations of the system are covered under the four owing headings:

1. *Provision of Medical Officers for the Forces.*

When a call is made by the Central Committee or an plication for a commission submitted, the medical needs he particular section of the area, or public appointment, considered before a decision is made.

The disabilities under which the Committee labours in s respect are (*a*) that candidates otherwise suitable not be selected because the result would be depletion a particular neighbourhood; (*b*) that doctors who can spared are found unfit for service or fit for h[illegible] service y; (*c*) that the Committee in selecting whole-time officers for service is overruled by Government departments; and (*d*) that the Committee has no means of dealing with conscientious objectors.

2. *Conservation of Practices.*

This is carried out under terms of a signed agreement by which patients of practitioners on service are attended by signatories, records of non-panel work are forwarded, on cards provided, to the honorary accountants, who send out accounts and apportion the sums received between the practitioner on service and the home practitioner in equal shares. Cash payments are accounted for on special cards. Insurance work in Manchester being carried out on the principle of free choice of doctors, pooling the money due and dividing periodically in accordance with work done, insured patients of practitioners on service can get attention from any signatory; panel doctors being credited with the attendance and being paid in the ordinary way, and non panel doctors sending in a record, on a special card, to the honorary accountants, who pay for the attendance at a fixed rate and recover the amount from the insurance pool. Panel doctors have agreed to deductions being made from the gross pool to allow of these sums being paid and to ensure payment to panel practitioners on service of an annual sum equal to half that earned during the last complete insurance year prior to taking up a commission. Printed notices to patients are hung up in all consulting and waiting rooms.

The disabilities of the Committee in this respect are: (*a*) That 20 per cent. of practitioners have not agreed to work the official scheme, and are thus outside the control of the Committee; this tends to confuse the public. (*b*) That there is difficulty in obtaining information as to the manner in which those who have signed the scheme fulfil their obligations. (*c*) Dilatoriness of the profession in entering up the cards and sending them to the honorary accountants. (*d*) Omission to ask a new patient who last attended him.

3. *Co-ordination of Civil Work.*

Part-time service is supplied from amongst those who have specified the work they can undertake. Full-time service is provided in certain instances by part-time men working on a rota. Co-ordination is effected by dividing the work amongst those best suited by qualification and ability to spare the time.

The disabilities of the Committee in this respect are as follows: (*a*) No power to make a doctor live at his surgery should a district become depleted. (*b*) No power to release a practitioner eligible for military service by substituting one who is ineligible. (*c*) No control over those who obtained temporary part-time appointments before mobilization and who have since refused to fall into line. (*d*) No power to make use of conscientious objectors. (*e*) No power to prevent doctors undertaking work without sanction from the Committee. (*f*) No power to transfer a doctor from a non-depleted district to a depleted district.

4. *Financial Assistance Fund.*

A scheme of this nature is at present under consideration.

NEED FOR COMPULSORY POWERS.

The Manchester Committee is of opinion that the existing system would meet all naval, military, and civil medical requirements of the district if the observance of

its objects and conditions were made compulsory. Powers should be granted on the following lines:

1. To obtain any particulars from medical men which may be considered by the Committee as necessary to carry out its objects.

2. To compel every general practitioner to act in accordance with the scheme for conservation of practices already accepted by a large majority in the area.

3. To transfer for long or short periods any medical man unsuitable for military service from an area or section of an area which could spare him to another area or section where his professional services are urgently needed. These doctors could be guaranteed payment by Government at the army rate for temporary commissions in the R.A.M.C., ready cash from and accounts of work done for private patients being booked up on the proper cards and sent in to the War Committee's accountants, and money earned on account of insured patients being credited to the War Committee, less deductions for absent practitioners' fund. Payment could be made by the War Committee, the home practitioners' share of money earned being credited to the guarantor up to the amount of salary paid. The practices of those doctors could be conserved as in the case of those on military service. It would also be advisable for long-period substitutes to do this work outside their own area if powers are made general.

4. To order, when necessary, any doctor to reside at the place where he practises.

5. To decide generally how the services of civil practitioners, including conscientious objectors, can best be utilized for national purposes.

6. To control the making of temporary part-time appointments and to revise such when necessary or advisable. This revision would forward the Committee's policy of finding as much paid work as possible for doctors returning from service.

7. To obtain notification of the hearing of any case of conscientious objection, and to be represented at the local tribunal in such cases.

8. To prevent Government departments vetoing decisions on eligibility for service of whole-time medical officers engaged on executive work or as assistants to administrative medical officers.

9. To make a monetary grant to meet administrative expenses and salaries paid to transferred practitioners.

10. To make provision for dealing with breaches of regulations summarily, with a right of appeal to a central body.

CONCLUSIONS.

1. Every registered medical practitioner should be deemed to be a member of the medical military forces of the kingdom as from a given date.

2. The control of the medical profession for war purposes should be vested in a Central Committee attached to the Department of National Service, and consisting of the Presidents of the Royal Colleges of Physicians and Surgeons respectively, and five members elected by the profession.

3. Whilst better co-ordination of existing medical manpower in the army might be distinctly advantageous, there is no doubt that the alleged shortage would be remedied to an appreciable extent by the granting of Home Service Commissions to those certified as physically fitted for such.

4. Any scheme for regulating medical service at home should be promulgated with a view to obtaining the highest amount of efficiency, which would prove an impossible task if saddled with the voluntary principle.

5. "Voluntary mobilization" could not remove the present deadlock, created on the one hand by the demand of the Insurance Commissioners for efficient panel medical service, and on the other hand by the refusal of Government departments to release eligible young doctors.

6. The Manchester system of "mobilization" could be adapted to every area in the country, and would prove a success if properly organized and local committees were given power, subject to appeal, to decide all local adjustments and arrangements.

The memorandum is signed by the chairman, Dr. T. Arthur Helme, and the honorary secretary, Dr. W. F. Dearden, of the Manchester Medical War Committee.

RESOLUTIONS OF LONDON PANEL COMMITTEE.

A REPORT was published last week (p. 7) of a special meeting of the London Panel Committee on January 9th to consider the proposals for mobilizing the profession. The recommendations of the Committee are embodied in the three following resolutions:

(*a*) That the Panel Committee are of opinion that, in respect to the proposal to mobilize the medical profession, it is essential, in order to secure the efficient working of any scheme adopted, that extended powers be conferred upon the Central Medical War Committee in connexion therewith, and that the personnel of the Committee be strengthened by the addition of at least six practitioners actively engaged in panel practice, one of whom should be a woman.

(*b*) That the Panel Committee are of opinion that, in so far as the recommendations of the Central Medical War Committee shall have reference to the services rendered by the medical profession to the civilian population, if accepted, these should be carried into effect by a small Executive Committee appointed from the members of the Central Medical War Committee with lay members appointed by the Director of National Service.

(*c*) That the Panel Committee are of opinion that the difficulties of these Committees in this connexion would be greatly lessened, and a considerably increased number of medical men set free for active service abroad without serious interference with the medical needs of the civilian population, if much greater use were in future made of the part time services of civilian doctors for the treatment of sick and wounded soldiers whilst in hospitals, and for other military duties in this country.

The Committee states that it is convinced that a large number of additional medical officers will be required for service with the R.A.M.C., and, while not expressing any opinion regarding the immediate mobilization of the profession, considers that should the proposal be carried into effect, it is essential that the arrangements in connexion therewith should be under the control of a purely professional committee. In its opinion the Central Medical War Committee, having both the experience and necessary information, would be the most suitable body to undertake this important work, strengthened in the manner indicated in resolution (*a*) above.

British Medical Association.

CURRENT NOTES.

FEES FOR EXAMINATION AND REPORT IN THE CASE OF WOMEN TO BE EMPLOYED IN MUNITION AREAS.

PRACTITIONERS who have been approached by Labour Exchanges in various parts of the country with a request to undertake the examination and the giving of reports on the physical condition of women about to be engaged in munition areas at the fee of 2s. 6d. a case may be interested to know that this question is to be discussed at the next meeting of the Medico-Political Committee.

DISCHARGED SOLDIERS ENTERING EMPLOYMENT.

The Committee will also consider at its next meeting the question of uniformity of action, as regards the fees of medical practitioners, for reports required by civil employers on the physical condition of discharged soldiers before being employed.

PAY OF MAJORS R.A.M.C., TERRITORIAL FORCE.

The Naval and Military Committee of the Association at a recent meeting gave further consideration to the question of whether the pay of a Major R.A.M.C.(T.F.) should under Article 358 of the Royal Pay Warrant 1914, be increased from £1 3s. 6d. per day to £1 6s. per day after three years' service as such, and intends to approach members of Parliament with a view to having the question raised in the House of Commons. The present contention of the War Office as to the meaning of the words "after three years' service as such" is that it means three years mobilized service. It is against this contention that the Naval and Military Committee intends to protest.

ENTRANCE INTO INSURANCE OF PERSONS PREVIOUSLY EXEMPT.

The attention of the Insurance Acts Committee at its last meeting was drawn to a new development which appears to be prevalent in various parts of the country. It seems that men who, prior to the passing of the Military Service Acts, were not insured persons, have now, with a view to evading military service, entered insurable employment. In many of these cases the men are still in a position to claim exemption from the Insurance Act on the

ground that they are not mainly dependent for their livelihood upon their income from their insured employment. Many, however, do not make any effort to seek exemption from the Insurance Act, but quite openly ask their private doctor to take them on his panel as they are now insured persons. The Insurance Acts Committee is approaching the Commissioners on this point, as the position thus created is quite foreign to the spirit of the Insurance Act, and it is felt that if the practice is allowed to continue a precedent will be created which, in view of the possible mobilization of the whole civil population, will be detrimental to private medical practice.

MATERNITY AND CHILD WELFARE.

THE following letter has been addressed to the Secretary of the Local Government Board:

British Medical Association,
429, Strand, London, W.C.
17th January, 1917.

Sir,

The Association has noted an apparently inspired statement in the *Daily News* of the 10th inst., to the effect that legislation is to be introduced by the Local Government Board for the purpose of pressing local authorities to take more vigorous action in the matter of maternity and child welfare. The statement would seem to indicate some considerable extension of the work of these authorities in dealing with expectant mothers and children under 5 years of age, possibly including domiciliary attendance.

In view of the obvious interest of the medical profession in such matters, the Association is surprised not to have had some early and official intimation of the possibility of such proposed legislation, particularly having regard to the statement by the late President of the Board, the Right Hon. Walter Long, M.P., in connexion with the treatment of venereal diseases—that he considered it most desirable that representatives of the medical profession should be consulted with respect to matters which so closely concerned the profession.

I am instructed to ask whether the Board is in a position to give the Association any information as to the proposed legislation, and particularly as to whether it is proposed to authorize or encourage local authorities to undertake domiciliary attendance in connexion with expectant mothers and young children.

I am, Sir, your obedient servant,
ALFRED COX,
Medical Secretary.

The Secretary,
Local Government Board, Whitehall, S.W.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following notifications are announced by the Admiralty: Fleet Surgeons W. A. Whitelegge has been placed on the retired list with the rank of Deputy Surgeon-General, G. M. Eastment to the *Kent*, E. B. Pickthorn (ret.), to the *Victory*, additional. Staff Surgeon A. H. S. Richardson to the *Research*, for R.N. Hospital and Dépôt, Portland. Temporary Surgeon T. J Hartyan, M B., to the *Espiegle;* H. V. Deakin to the *Vivid*, additional; A. H. Richardson, W P. Starforth, M.B., and C. V. Ratcliffe to the *Pembroke*, additional; H. F. Seymour to the *Victory*, additional, for Haslar Hospital; H. W. Scott to the *Hyacinth;* N. N. Wade, M.D., and J. S. Geikie to Haslar Hospital; H I. G. Rutherford to Plymouth Hospital; R. M. Barrow, M.B., to the *Swiftsure;* W. H. Sarra to the *Caesar;* J. E. Scanlan to the *Cochrane;* G. C. Mort, M.D., to the *Pomone*, additional, for Dartmouth College; M. Prior, M.B., to the *Vivid*, additional. for disposal; H. W. Cooke to the *Vivid*, additional, for Plymouth Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationer: O. H. Brown.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel R. Caldwell, F.R.C.S., from R.A.M.C., to be Colonel and to be supernumerary.

Temporary Lieutenant-Colonel H. G. Barling, F.R.C.S. (Lieutenant Colonel R A.M.C T.F.), to be temporary Colonel.

Temporary Lieutenant-Colonel Robert Jones, F.R.C.S. (Major R.A.M.C.T.F.), to be temporary Colonel.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonels to be acting Colonels whilst employed as Assistant Directors of Medical Services of a Division: H. M. Morton, M.B., H. Hewetson, W. E. Hudleston.

The undermentioned relinquish the rank of temporary Lieutenant-Colonel on reposting: Brevet Lieutenant-Colonel F. G. FitzGerald, Major M. F. Grant, M.D., Major A. R. C. Parsons.

Temporary Lieutenant-Colonel J. R. C. Simons (Major R.A.M.C.T.F.) relinquishes his temporary rank.

Major G. S. Mansfield, M.B., to be temporary Lieutenant-Colonel whilst employed as Assistant Director of Medical Services, Home Forces.

Major R. T. Collins to be temporary Lieutenant Colonel whilst in command of a field ambulance.

Major W. J. P. Adye-Curran to be temporary Lieutenant-Colonel whilst in command of a general hospital.

Major W. J. Waters to be acting Lieutenant-Colonel whilst in command of a general hospital.

Majors to be temporary Lieutenant-Colonels whilst in command of a casualty clearing station: J. M. B. Rahilly, J. G. Bell, D.S.O., M.B., A. C. H. Gray, M.B.

Temporary Major J. M. Atkinson, M.B., relinquishes his commission on account of ill health.

Temporary Captains to be temporary Majors: N. H. Mummery, F. C. Hart-Smith, M.B., F.R.C.S., J. R Lee, M.D., F.R.C.S.E.

F. A. G. Jeans, M.B., F.R.C.S., to be temporary honorary Major whilst employed with No. 6 British Red Cross (Liverpool Merchants' Mobile) Hospital.

Captains (temporary Lieutenant-Colonels) relinquishing their acting rank on reposting: A. S. Williams, D.S.O., A. R. Wright, M.B.

The name of temporary Captain Sydney C. H. Moberly is as now described, and not as in the *London Gazette* of June 12th, 1915, and May 29th, 1916.

Captains acting Majors) to be acting Lieutenant-Colonels whilst in command of a field ambulance: W. I. Thompson, M.B., F. Worthington, D.S.O., M.B., G. H. Dive, A. S. Littlejohns, A. S. Williams, D.S.O., E. M. O'Neill, D.S.O., M B., J. J. O'Keefe, M.B., A. R. Wright, M.B., A. D. Fraser, M.C., M.B., W. G. Wright, A. G. Wells, T. B. Nicholls, M.B., T. T. H. Robinson, M.B., F. H. Bradley, M.B., J. D. Bowie, M.B., F. L. Bradish, T. S. Eves, M.B., E. C. Phelan, M.C., M.B., W. H. Forsyth, M.B., E. J. Kavanagh, M.B., W. K. Beaman, H. Gibson.

Captains to be acting Lieutenant-Colonels whilst in command of a field ambulance: W. B. Burdon, M.C., M.B., E. D. Caddell, M.B., D. F. Mackenzie, M.B., G. B. Edwards, C. R. M. Morris, M.B., R. Hemphill, M.B., W. Egan, M.B., C. W. Bowle, J du P. Langrishe, M.B.

Temporary Captains (acting Majors) to be acting Lieutenant-Colonels whilst in command of a field ambulance: J. R. C. Greenlees, D.S.O., M.B., H. Faulkner, M.D.

Temporary Captain J. la F. Lauder, D.S.O., to be acting Lieutenant-Colonel whilst in command of a field ambulance.

Temporary Captains relinquish their commissions: F A. R. Hacker, A. Dingwall-Fordyce, M.D., F.R.C.P.E., G. Norman, M.B., G. A. Finlayson, M.B., G. W. Thompson, M.D., N. D. Bardswell, M.D., F.R.C.P., J. R. H. Walker, M.D., E. J. Stubbs, M.B., R. C. Forbes, F.R.C.S., J. R. Dobbin, M.B.

Temporary honorary Captain William Gemmell, having resigned his appointment at the Red Cross Hospital, Bellahouston, relinquishes his commission.

Temporary Captain J. A. Gentle, M.B., relinquishes his commission on account of ill health.

Temporary honorary Captain Harold Bowring, M.B., having ceased to be employed with No. 6 British Red Cross (Liverpool Merchants' Mobile) Hospital, relinquishes his commission.

Temporary honorary Captains, having ceased to be employed with the St. John Ambulance Brigade Hospital, relinquish their commissions: J. Beckett, M.D., W. D. Coplestone.

Temporary Lieutenant to be temporary Captain: J. L. Whatley.

Lieutenant A. R. Wightman, M.B., from 3rd Northern General Hospital (T.F.), to be temporary Lieutenant (substituted for notification in the *London Gazette* of February 17th, 1915).

Temporary Lieutenants relinquish their commissions: J. C. Forbes, A. W. Brodribb, M.B., C. R. Joyce, M.D.

Temporary Lieutenant G. Heathcote relinquishes his commission on account of ill health.

H. P. Thompson, M.D., F.R.C.S., to be temporary honorary Lieutenant whilst employed with the St. John Ambulance Brigade Hospital

Permanent Appointments.

The following are, we believe, the first permanent appointments to the R.A.M.C. since the war began; they include 53 officers of the Special Reserve, 3 from the Territorial Force, and 48 officers holding temporary commissions.

To be Lieutenants, and are granted the rank of temporary Captain:—Captains from the Special Reserve: E. Davies, T. J. Kelly, M.B., R. J. Clausen, M.B., C. McN. McCormack, M.C., M.B., E. F. W Grellier, O. Hairsine, M.C., A. B. Preston, R. Ellis, M.B., F. G. A. Smyth, J. C. A. Dowse, M.C., M.B., C. O. Shackleton, M.B., F. P. Freeman, M.C., A. M. McCutcheon, M.B., H. H. Mulholland, M.B., A. C. Jebb, M.B., E. B. Marsh M.B., C. W. Treherne, J. H. Pendered, M.B., F.R.C.S., W. W. MacNaught M.B., J. P. Litt, M.D., H. A. Harbison, M.C., M.B., W. G. Shakespeare, A L, Robb, M.B., E. Catford, A. F. I. Patterson, C. J. D. May, W. C. Hartgill, T. F. Kennedy, M.B., K. A. M. Tomory, M.B., J. S. Sloper, M.B., C. Wilson, M.B., H. N. Stafford, R. I. Sullivan, M.B., R. A. Anderson, M.B., F. M. Lipscomb, H. P. Rudolf, M.B., D. N. Macleod, M.B., G. B. Hadden, M.B., R. P. Cormack, M.B., G S. Pirie, M.B., W. K. Campbell, D.S.O., M.B., G. H. Haines, R. B. Myles, M.B., R. R. Thompson, A. E. Richmond, E. Jamieson, M.B., F. R. S. Shaw, M.B., R. Stowers, O. D. Jarvis, M.B., J A. Binning, W H. A. D. Sutton, G. T. Gimlette, M.B., and W. L. A. Harrison. Captains from R.A.M.C.(T.F.): R. E. Barnsley, M.C., F P. Rankin, and J. E. Brooks. Temporary Captains: G. D. Jameson, W. A. Sneath, M.C., M.B., F.R.C.S., D. W. Pailthorpe, M.C., A. L. Aymer, M B., St. J. D. Buxton, A. N. Minns, M.C., S. Arnott, M.B., D. Pottinger, M.C., M.B., T. L. Fraser, M.B., D. Bell, M.B., L. G. Bourdillon, D S.O., M.C., D. G. Cheyne, M.D., G. A. Lilly, P. A. Opie, M.B., J. Sainsbury, M.B., A. S. Taylor, M.B., G. D. Robertson, H. C. Godding, M.C., H. D. F. Bran, M.B., D. W. Beamish, W. L. E. Reynolds, J. P. Little, H. A. Rowell, M.C., C. J. O'Reilly, M.C., M.B., O. B. Pratt, D. C. Monro, M.B., J. H. Boag, M.B., W. Foot, M.C., M.B., C. R. Dudgeon, M.C., F. C. K. Austin, M.B., H. E. A. Boldero, G. A. E. Argo, M.B., R. C. Matson, S. S. Crosse, H. R. Sheppard, R. W Galloway, M.B., R. L. Ritchie, M.B., G. D. Harding, M.B., E. S. Cuthbert, J. A. Andrews, M.C., M.B., J. W. O'Brien, M.C., M.B., H. J. Couchman, M.B., R. C. Robertson, M.C., M.B., T. H. Sarsfield, J. F. L. Lauder, D.S.O., M.C., J. F. Bourke, H. J. Bower, A. F. G. Guinness.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenant (on probation) R. R. Scott is confirmed in his rank.

Captains (acting Majors) to be acting Lieutenant-Colonels whilst in command of a field ambulance: M. R. Taylor, M.B., D. C. Barron, K D Murchison.

Captain A. H. Habgood, M.B., to be acting Lieutenant-Colonel whilst in command of a field ambulance.

Lieutenants to be Captains: J. Cullenan, M.B., C. O. J. Young, M.B., N. A. Martin, M.B.

To be Lieutenants: W. M. Morris, M.B., F. K. Hayman, M.B., from Bristol University Contingent O.T.C., G. E. Archer, M.B., from University of Manchester Contingent O.T.C., T. Stanton, M.B., from Dublin University Contingent O.T.C., W. Burridge, M.B.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Major A. N. Davies resigns his commission on account of ill health and is granted the honorary rank of Major (substituted for announcement in the *London Gazette* of April 28th, 1916).

Major (temporary Lieutenant-Colonel) G. M. Hetherington relinquishes his commission on account of ill health.

Captain H. Beeney relinquishes his commission on account of ill health contracted on active service, and is granted the honorary rank of Captain (substituted for announcement in the *London Gazette* of April 21st, 1916).

Captain F. C. Bentz, M.B., relinquishes his commission on account of ill health caused by wounds, and is granted the honorary rank of Captain (substituted for announcement in the *London Gazette* of June 2nd, 1916).

Captains F. B. Smith and B. Robertshaw, from a field ambulance, to be Captains.

Captains B. S. Wills, F.R.C.S., E. P. Dawes, and W. H. Calvert, M.D., relinquish their commissions on account of ill health.

Lieutenants to be Captains: C. P. Sells, F. F. T. Hare, M.B., S. Child, M.B., J. C. Newman, M.B., F.R.C.S., N. R. Williamson, M.B., A. J. A. McCabe-Dallas, T. B. McKee, M.B., S. K. McKee, A. M. Jones.

Attached to Units other than Medical Units.—Major J. F. Crombie to be temporary Lieutenant-Colonel whilst commanding a field ambulance. J. A. Hartley, M.D., to be Captain.

TERRITORIAL FORCE RESERVE.

ARMY MEDICAL SERVICES.

Colonel J. V. W. Rutherford, from Assistant Director of Medical Services, to be Colonel.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel C. E. Douglas, M.D., F.R.C.S., from Attached to Units other than Medical Units, to be Lieutenant-Colonel.

Captain F. H. Sprague, from Attached to Units other than Medical Units, to be Captain.

Captain E. N. Butler, from a field ambulance, to be Captain.

Captain W. N. W. West-Watson, M.B., from a casualty clearing station, to be Captain.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BIRKENHEAD UNION INFIRMARY.—Junior Female Resident Assistant Medical Officer. Salary, £250 per annum.

BIRMINGHAM CITY.—Lady Doctor for Infant Welfare Work. Salary, £350 per annum, rising to £450.

BIRMINGHAM EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £300 per annum, and £5 per annum travelling expenses.

BOLTON INFIRMARY AND DISPENSARY.—Second and Third House-Surgeons. Salary, £200 and £180 per annum respectively.

BRIDGWATER HOSPITAL.—House-Surgeon. Salary, £120 per annum.

BRISTOL GENERAL HOSPITAL.—House-Surgeon. Salary, £175 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £150 per annum.

DUMFRIES: CRICHTON ROYAL MENTAL HOSPITAL.—Temporary Pathologist and Clinical Pathologist. Salary, £300 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) Two House-Surgeons; (2) Assistant Casualty Medical Officer; (3) House-Physician. Salary, £60 per annum and £5 washing allowance.

KENSINGTON UNION.—Second Assistant (male) Resident Medical Officer for the Workhouse and Infirmary. Salary, £160 per annum, rising to £175.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEAMINGTON SPA: WARNEFORD GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary, £150 per annum.

LEEDS: GENERAL INFIRMARY.—(1) Resident Aural Officer. (2) Ophthalmic House-Surgeon. Salary, £100 and £50 per annum respectively.

LEICESTER CORPORATION.—Resident Medical Officer for the Isolation Hospital and Sanatorium. Salary, £250 per annum.

LISCARD: VICTORIA CENTRAL HOSPITAL.—House-Surgeon. Salary, £250 per annum.

LONDON UNIVERSITY.—External Examiners in subjects of the examination for medical degrees.

NOTTINGHAM AND MIDLAND EYE INFIRMARY.—House-Surgeon (lady). Salary, £120 per annum.

PLAISTOW HOSPITAL FOR INFECTIOUS DISEASES, E.—Temporary Resident Medical Officer. Salary, £250 per annum.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford.—House-Surgeon.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Clinical Assistant. Salary, £110 per annum.

SHEFFIELD ROYAL HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

STAFFORDSHIRE GENERAL INFIRMARY.—House-Surgeon. Salary, £300 per annum.

STAFFORDSHIRE, WOLVERHAMPTON AND DUDLEY JOINT COMMITTEE FOR TUBERCULOSIS.—Resident Medical Officer for Moxley Sanatorium. Salary, £350 per annum.

STANNINGTON: CHILDREN'S CONSUMPTIVE SANATORIUM.—Resident Lady Medical Officer. Salary, £200 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House-Physician (female). Salary, £200 per annum.

SUNDERLAND: ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—House-Surgeon. Salary, £200 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Resident Surgical Dresser.

WORCESTER CITY COUNCIL.—Assistant Medical Officer (female). Salary, £350 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Amlwch (Anglesey).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

COURTNEY, L., M.B.N.U.I., Assistant Master, Holles Street Lying-in Hospital, Dublin.

DOUBLEDAY, F. N., L.R.C.P., M.R.C.S., L.D.S.Eng., Dental Surgeon to King George Military Hospital, vice Arthur S. Underwood, deceased.

STOBO, R., M.D., District Medical Officer of the Malton (Out-relief) Union.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—The following appointments have been made:—Senior Assistants, Venereal Diseases Department: O. T. Dinnick, M.R.C.S., L.R.C.P.; Mrs. Green, M.B., B.S. Pathologist, Venereal Diseases Department: Miss G. Cordingley, L.S.A.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

MARRIAGE.

DOUDNEY—SCOTT.—On January 8th, at Derby, Leslie Doudney, M.R.C.S., L.R.C.P. of the W.A.M.S., Nigeria, to Margaret Scott, matron of the Nightingale Nursing Home, Derby.

DEATHS.

BAZALGETTE.—On January 7th, from influenza and pneumonia, at Brent Knoll, Somerset, Sidney Bazalgette, M.R.C.S., L.R.C.P., aged 38 years.

BERRY.—On January 16th, 1917, at Powick, near Worcester, of pneumonia, Walter Berry, M.D.Brux., M.R.C.S. and L.S.A., King's College (late of Lowestoft), aged 68.

HUGHES.—On or about December 17th, 1916, in Northern Assam, from cerebral malaria, David E. J. S. Hughes, M.R.C.S., L.R.C.P.Lond., only son of the late Rev. David Meates Hughes, Rector of Clist-Hydon, Devon, and of Mrs. Hughes, Wotton Lodge Nursing Home, Gloucester, aged 30 years. (By cable.)

MUNRO SMITH.—On January 13th, at 18, Apsley Road, Clifton, Bristol, George Munro Smith, M.D., L.R.C.P.Lond., M.R.C.S., Honorary and Consulting Surgeon to the Bristol Royal Infirmary, late Lieutenant-Colonel R.A.M.C.(T.), son of the late William Smith, surgeon, of Clifton.

DIARY FOR THE WEEK.

MONDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF ODONTOLOGY.—5.30 p.m., Dr. A. E. Rowlett: Conductive Anaesthesia of the Mandible.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:

SECTIONS OF MEDICINE, PATHOLOGY, EPIDEMIOLOGY.—(Combined meeting), 5 p.m., Discussion on the Origin, Symptoms, Pathology, Treatment, and Prophylaxis of Toxic Jaundice observed in Munition Workers and Troops, to be opened by Dr. T. M. Legge.

ROYAL SOCIETY OF MEDICINE:

SECTION OF PSYCHIATRY.—4.30 p.m., Dr. F. Sano: Morphological Investigations upon the Convolutional Pattern of Relative Brains in Man.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W.—9 p.m., Demonstration by Mr. Frank Kidd on Surgical Diseases of the Urethra.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF BALNEOLOGY.—5.15 p.m., Dr. A. G. S. Mahomed: Distribution of Deaths from Lightning Stroke in England. Dr. J. Horne Wilson: Galvanometric Diagnosis and Dielectric Therapy, with Description of Methods Used. 7.30 p.m., members dine together.

ROYAL SOCIETY OF MEDICINE:

SECTION OF NEUROLOGY, King George Hospital.—8 p.m., Clinical Meeting.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JANUARY.
31	Wed.	London: Medico-Political Committee, 2.0 p.m.
		FEBRUARY.
6	Tues.	London: Grants Subcommittee, 11 a.m. London: Organization Committee, 11.30 a.m. London: Propaganda Subcommittee, 3 p.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

LIBRARY U. OF I. URBANA-CHAMPAIGN

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JANUARY 27TH, 1917.

CONTENTS.

BRITISH MEDICAL ASSOCIATION.

INSURANCE ACTS COMMITTEE: PAGE
- FUTURE POLICY OF THE BRITISH MEDICAL ASSOCIATION AS REGARDS NATIONAL HEALTH INSURANCE 13
- PROPOSED LEGISLATION FOR MATERNITY AND CHILD WELFARE 14

CURRENT NOTES: PAGE
- THE ASSOCIATION AND SCOTTISH INSURANCE PRACTITIONERS 15
- PRESCRIPTIONS FOR DRUGS CONTAINING OPIUM OR COCAINE ... 15

NAVAL AND MILITARY APPOINTMENTS 16

VACANCIES AND APPOINTMENTS 16

BIRTHS, MARRIAGES, AND DEATHS 16

DIARY 16

INSURANCE ACTS COMMITTEE.

THE FUTURE POLICY OF THE BRITISH MEDICAL ASSOCIATION AS REGARDS NATIONAL HEALTH INSURANCE.

THE following letter with attached questions has been addressed, by direction of the Insurance Acts Committee, to the Honorary Secretaries of Branches and Divisions of the British Medical Association and of the Local Medical and Panel Committees in the United Kingdom:

Dear Sir,

1. Since the Insurance Act came into full operation in January, 1913, the Association has been watching its developments with the keenest interest, particularly in view of the fact that the financial arrangement with the medical profession was only for a period of three years. Had it not been for the war the profession would no doubt have had last year to face an inquiry into the whole system.

2. This inquiry is only deferred. After the war the medical profession must be prepared with its constructive policy for the future as well as with its criticisms of the present system. There will probably be either a Royal Commission or a Parliamentary Inquiry, and the profession must be ready not only to repel any attempts that may be made to reduce the remuneration at present paid to those working the Act, but also to offer its suggestions for the future administration of medical benefit.

3. In spite of the absorption of the time and energies of the profession in other matters, it is essential that a beginning should be made in collecting the opinions of the profession in regard to this important question. It will not do to wait until easier times, for it is clear that other people and organizations interested in the subject are not idle. It is, therefore, suggested that Divisions and Branches of the Association, and every Local Medical and Panel Committee, should, in co-operation wherever possible, at once appoint a thoroughly representative committee or subcommittee with the following reference:

> To consider the present system of National Health Insurance so far as it affects the relation of the medical profession to the public health and the treatment of disease; to make suggestions for the improvement of that system; and to report to the (Branch) (Division) (Local Medical and Panel Committee).

It will be noted that the reference is wide enough to allow of all kinds of suggestions being made, ranging from a complete reorganization of the present system to simple modifications of it in detail.

4. It is very important that all classes of professional opinion should be brought to bear on the problem, for it is only by a combination of the criticisms of those who do not work the present system and of those who do, that really useful results can be obtained. Further, it must be apparent to all observers that this system of provision of medical attendance for the working classes, which already employs such a large proportion of the general practitioners of the country, is likely in the future to be still further extended and to affect consultants and specialists.

5. It is urged, therefore, that each Division and (or) Branch of the Association, and each Local Medical and Panel Committee will, either alone or in combination, carefully select a committee or subcommittee which shall be instructed to report to the appointing body on the reference given above. The report should be considered at a full meeting of the appointing body, and after discussion and amendment should be forwarded here as the opinion of the body sending it.

6. It is proposed that these reports shall then be collated, and an interim report issued by the Association to the Divisions, Branches, and Local Medical and Panel Committees for their consideration. The discussion by these bodies of that report—which will be an attempt to combine the views of all kinds of practitioners all over the kingdom—will enable a final report to be produced which will embody the opinions of the profession as a whole, so far as any report can represent the opinions of such a large and composite body. At any rate, if the procedure laid down in this circular is followed, it will not be open for any one to allege that a fair attempt has not been made to secure the considered opinion of the medical profession, which can be submitted as such to the Government when the time comes.

7. In order that attention may be focussed on some of the chief questions which experience has shown to be those to which answers will be expected from the profession, a series of questions and suggestions are contained in the accompanying document (D 9), which every Division, Branch, and Local Medical and Panel Committee is earnestly requested to take into consideration in framing its report. It is particularly asked that whatever other points are dealt with in any report sent in, an expression of opinion will be given on all the points mentioned. Answers should be as concise as possible, but care should be taken to develop fully any new proposals.

8. Each Division or Branch and Local Medical and Panel Committee, or combination of these bodies, is requested to report by May 31st. It is to be noted that what is now being undertaken is a preliminary survey of the ground and not a final expression of policy, and as each of the bodies now approached will have an opportunity of revising its opinions in the light of the interim report, it is most important that those bodies which have new ideas on the subject, that they would like to test on the profession in other areas, should take the opportunity of formulating their ideas *now*.

9. It is earnestly hoped that Divisions, Branches, and Local Medical and Panel Committees will not fail to give this subject their immediate and most serious attention. Considering the effect the Insurance Acts have had on the medical profession and the still greater effects that future developments will almost certainly bring about, the medical profession simply cannot afford, even at a time like this, to postpone a discussion which is the necessary preliminary to the formulation of policy.

10. In view of the absence of so many men on military service whose interests may be seriously affected by future

changes in the insurance service, it is hoped that all possible steps will be taken to ascertain the opinions of such of them as can be communicated with.

I am, yours faithfully,

Alfred Cox,
Medical Secretary.

Questions.

1. What is the general feeling of *insured persons* in your area as to the present system? Is there much dissatisfaction? What are the points on which dissatisfaction is expressed?

2. What is the general feeling of the *medical profession* in your area as to the present system? What proportion of the general practitioners are on the panel? Are those general practitioners who are not on likely to join it? If not, why not? What changes in the system would induce them to take service?

3. Do you prefer the panel system, subject to practicable improvements, to a salaried State service? If in favour of former, state improvements suggested. If latter, give briefly the lines on which such a salaried State service should be run.*

4. What extensions of the present provision in respect of medical benefit do you consider are required to make the service an adequate one? State these extensions in the order of importance.

5. Should there be any limitation of the number of persons on any given doctor's list, and, if so, what limitation?

6. What method do you approve for the supply of drugs and appliances? What additional appliances, if any, do you think should be added to the list? Are the members of the local profession agreed that the separation of prescribing and dispensing is advantageous?

7. Do you consider that the payment for domiciliary treatment of tuberculous insured persons should be separated from the other capitation payment—that is, that in respect of medical benefit? Bearing in mind the criticisms that have been expressed as to the domiciliary treatment of tuberculosis under the Act, have you any suggestions to make?

8. Does the total remuneration actually received in respect of a whole year, when compared with the amount of work done for it, seem fair remuneration? If not, state what you would consider to be fair remuneration for the work *now* required under present agreements, and why?

9. Having read Mem. 229/I.C., what suggestions have you to make as to improvement of present method of remuneration?

Note.—Answers on this point are particularly requested, but to be of any use they must be given after making allowances for the difficulties that are shown to be inherent in any capitation system of remuneration which applies to a constantly moving population of 13 to 14 millions or more.

10. Could the information obtained by the present system of card records be obtained by any simplified method? If so, how?

11. What alterations do you suggest in the present certification system?

12. In view of the constant complaint made by rural practitioners of their disadvantage from a monetary point of view as compared with the town practitioner whose patients lie within easy distance, have you any suggestions to make as regards payment of rural practitioners?

13. Are there any other special points to which you desire to draw attention?

PROPOSED LEGISLATION FOR MATERNITY AND CHILD WELFARE.

On the instruction of the Insurance Acts Committee of the British Medical Association the following letter has been addressed to the Chairman of the Joint Committee of Insurance Commissioners:

Sir,

From an apparently inspired notice in the *Daily News* of the 10th inst., it is understood that the Local Government Board propose to introduce legislation to stimulate local authorities to provide midwives, nurses, and medical attendance for expectant mothers, and medical attendance and treatment, possibly including domiciliary attendance, for children under five years of age.

The Insurance Acts Committee of the British Medical Association, which is recognized by the Local Medical and Panel Committees in England, Scotland, and Wales as their mouthpiece in central negotiations with the Commission, desires to place before you the following observations, which the Committee will be glad to elaborate if desired.

1. The late Chairman of the Joint Committee of Commissioners in a letter dated October 27th, 1916, told this Committee that the Commissioners had no knowledge or present expectation of any additions being made to the responsibilities of panel practitioners during 1917, beyond those then under discussion, namely, those connected with the treatment of venereal diseases and the treatment of discharged disabled soldiers. The legislation proposed by the Local Government Board is bound to add to these responsibilities, for a large number of the expectant mothers for whom provision is to be made are insured persons. In the opinion of the Committee it is unfortunate, to say the least, that no official intimation of this proposed legislation has been given to bodies representing panel practitioners, who have been allowed to discover it by a reference to the lay press.

2. There is grave reason for fearing that the contemplated new provision may be developed upon lines which the great majority of the profession would regard as wrong. The Committee submits the following reasons for this opinion:

(*a*) The provision of a special service for treatment, including (as it must do if it is to be really effective) domiciliary attendance on pregnant women, nursing mothers, and young children, is an example of piecemeal handling of the problem of provision of medical service which is greatly to be deprecated. Criticism both by the medical profession and the public has constantly been directed to the absence of any evidence that any comprehensive survey of this problem has ever been undertaken. All kinds of overlapping at present exist, and the present proposal will aggravate it.

(*b*) The public and the profession have a right to expect, at a time when many large schemes of social reconstruction are under consideration, that there should be an attempt to arrive at a coherent policy as regards medical service. The methods of dealing with such points as the provision of medical treatment for the dependants of insured persons, provision of specialist treatment for insured persons and their dependants, and the whole question of institutional medical treatment were deliberately postponed by the Government when the Insurance Act was introduced, though the need for early attention was fully recognized. A matter so deeply affecting the relations of the great majority of the medical profession to their patients as the subject now under discussion should not be dealt with in a way which precludes a general discussion of the best methods of providing for the community as a whole such services as general practitioners are best suited to give.

(*c*) The Committee does not suggest undue delay in making provision which everybody recognizes to be important, but such provision should receive full consideration as part of the larger problem, and the fact that there has been no consultation of the medical profession on this subject is a proof that there has been no such consideration.

(*d*) Schemes for treatment under local authorities and the Local Government Board and Board of Education have tended in recent years to be organized on the lines of employment of doctors to give their whole time to the particular work—for example, tuberculosis and medical treatment of school children. The doctors appointed have often had previously very little, if any, experience of practice, are confined to a very narrow field of work, and are not therefore given the chance of becoming such valuable physicians and surgeons as they would otherwise be. This system has an evil influence on the private practitioner, for it cuts off from the field open to him important sections of medical treatment and thus diminishes his usefulness to the general public who must mainly rely upon him. The Committee views with great apprehension the influence on the medical profession of this country of a system which tends to make the general practitioner believe that it is none of his business to keep himself efficient in dealing with tuberculosis, or the emergencies of midwifery, and the diseases of women and young children, because these are the sphere of so-called specialists. The Committee raises no objection to the employment of whole-time officers as such, indeed it recognizes that for certain purposes—for example, administration and inspection—there are advantages in employing officers who, because

*In this connexion two articles on the "Future of Medical Service," in the British Medical Journal of January 20th, 1917, pp. 86 to 90, may be read with advantage, as they set forth the case for and against a whole-time salaried State medical service.

they are not in intimate personal relations with the individual, are able to take a detached view which renders them more efficient on the administrative side. But this very detachment detracts from their usefulness as medical attendants on the public. The Committee would urge that there should be full use of both administrative and clinical branches of the profession with proper co-ordination.

(*e*) Development on the lines objected to is already producing a grotesque situation as regards the medical service of the working classes. The ordinary procedure as regards medical attendance on a working man's family may be expected soon to be as follows:

> Father, in all illnesses (except tuberculosis) attended by his insurance practitioner; mother, in all illnesses (except those connected with childbirth and tuberculosis) if an insured person, attended by her panel doctor (probably also her husband's); if not an insured person attended (when she can afford it) by private practitioner (probably her husband's panel doctor), when she cannot afford it, either by the parish doctor or by some medical charity; during pregnancy consults the maternity centre doctor; at her confinement attended by a midwife or a doctor provided by the maternity centre; if affected by tuberculosis, by a tuberculosis officer. Infants and young children up to school age attended by maternity centre doctor; after school age attended for "school diseases" by school medical officer and by private doctor (probably father's panel doctor) when too ill to go to school; after school age and up to 16 attended by private doctor; after 16 attended by panel doctor—probably the same practitioner; if affected by tuberculosis the tuberculosis officer is introduced.

(*f*) The absurdity of such an arrangement as the above is emphasized by the fact that as regards insured women the panel practitioner is responsible for their treatment up to and a short time after their confinement. It is apparently proposed that the maternity centre doctor should intervene, without any previous knowledge of the woman or her family, for the short time immediately before, and during the confinement and nursing periods. In addition the Insurance Committee, which is responsible for the administration of maternity benefit, is to be supplanted during this period by another local authority.

(*g*) It appears to the Committee that such a development as is just described could only be seriously contemplated if the Government has resolved to allow the National Insurance system to die from inanition, or by gradual undermining in favour of a system of whole-time State medical officials. The Insurance Act of 1911 contemplated the extension of the benefits given under that Act when funds permitted, and among the "additional benefits" contemplated were "medical treatment and attendance for any persons dependent upon the labour of a member." But if the treatment of the expectant mother and her young children is to be handed over to another department to be dealt with under an entirely different system, it would appear that the Government has decided to abandon any attempts at building up a really inclusive and national system of health insurance. If this be so, the Committee submits that such action should not be taken in an apparently casual manner, but should be adopted openly and deliberately by the Government after consultation with the approved societies and those concerned in the maintenance, extension, and improvement of national health insurance. The medical profession is, of course, deeply concerned in this subject.

5. The Committee would ask what has become of the proposed extensions of the medical service under the Insurance Acts for which Parliament voted large grants in 1914? It was then contemplated to provide referees who should be the advisers of the Insurance Committees on matters relating to clinical treatment; to provide treatment centres at which expert advice could be obtained by insured persons on the reference of their panel doctors; to provide pathological laboratories for the examination of specimens and clinical material in order to aid the panel doctor in his treatment of difficult and obscure cases; and to provide a nursing service. It is impossible to believe that simultaneously with these developments the Government would have proposed to place an important section of the treatment of insured persons and their dependants in the charge of another department, and on an entirely different plan. If the proposal by the Local Government Board is the sign that the Government has abandoned its former policy, insured persons, the approved societies, and the medical profession ought to be told.

Finally, the Committee wishes to make it clear that in raising this question and in submitting the above statement to you, it is inspired by no feeling of hostility to any measures which have for their object the medical care and treatment of mothers and children. Any developments of this kind on the right lines will be welcomed and assisted by the medical profession as a whole and by the British Medical Association as an organization. But the Committee has felt bound to make these representations because it feels that the probable future effects of such a development as is now contemplated by the Local Government Board have not been considered, whether as affecting the efficiency of the medical profession and its consequent usefulness to the community, or as affecting the general scheme of National Health Insurance.

I am, Sir, your obedient servant,

ALFRED COX,
Medical Secretary.

January 19th, 1917.

British Medical Association.

CURRENT NOTES.

ASSOCIATION AND SCOTTISH INSURANCE PRACTITIONERS.

In accordance with the promise given by the Chairman of the recent Conference of Representatives of Local Medical and Panel Committees that the Association would take into consideration the question of the method of dealing with National Insurance questions specially affecting Scotland, the matter has been carefully considered by both the Scottish and Insurance Acts Committees of the Association in consultation with representatives of insurance practitioners in Scotland.

As a result the Insurance Acts Committee proposes to appoint a Scottish Subcommittee with the following reference:

> To consider and report to the Insurance Acts Committee on those matters which are peculiar to that country respecting the relation of the medical profession in Scotland to the National Insurance Acts; to report on any matters specially referred to it by the parent Committee; to confer with the Scottish Commissioners as representing the views of the insurance profession in Scotland on any subjects specially relating to the working of the Insurance Acts in Scotland as distinct from those which are common to all insurance practitioners; and generally to keep the Insurance Acts Committee in touch with the Local Medical and Panel Committees in Scotland.

The Subcommittee will consist of: (*a*) Any members of the parent Committee who reside in Scotland; (*b*) five members appointed by the Scottish Committee of the Association, at least three of whom shall be insurance practitioners; and (*c*) eight members appointed by the Panel Committees of Scotland—four by County Panel Committees, and four by Burgh Panel Committees—all of whom shall be elected by transferable vote.

The meetings of the Subcommittee will be held in Scotland, and the Clerk of the Scottish Committee will act as its clerk, but all its proceedings will be reported to the Insurance Acts Committee.

PRESCRIPTIONS FOR DRUGS CONTAINING OPIUM OR COCAINE.

References have already been made in the JOURNAL to the various Orders in Council issued under the Defence of the Realm Regulations with regard to the sale of opium and cocaine, but in view of certain questions that have been raised it may be well briefly to recapitulate the duties imposed on medical practitioners by these orders, which of course apply equally both to insurance practitioners and those not on the panel. The ordinary position as regards prescribing of opium is not affected. As regards cocaine, which can only be supplied in accordance with a written prescription of a duly qualified medical practitioner, the prescription must be dated and signed with the prescriber's full name and address and qualifications, and marked "Not to be repeated." The total amount of cocaine to be supplied on the prescription must be specified, except in the case of a proprietary medicine, where it will be sufficient to state the amount of the medicine to be supplied. Chemists are forbidden to dispense cocaine on any prescription which is not in compliance with the requirements. It is understood that the Orders in Council on this subject do not apply to cocaine personally administered by a practitioner. The Home Secretary has issued a general authority, dated January 16th, 1917, granting to all persons employed or engaged in dispensing medicines at any public hospital, or other public institution, being persons duly registered under the Pharmacy Act, 1868, a permit to purchase cocaine and opium for the use of the hospital or other institution as aforesaid in accordance with the conditions prescribed by the Regulations.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following notifications are announced by the Admiralty: Staff Surgeon A. F. Fleming, D.S.O., to the *Victory*; C. E. C. Stamford, M.B., and W. Bradbury (acting) to the *Vivid*. Temporary Surgeons H. A. Hewat to the *Victory*; D. M. Connan to the *Vivid*, additional, for R.N. Barracks, Devonport; W. J. Cunningham-Watt, M.B., to Haslar Hospital; J. R. Adam, M.B., and G. Sparrow, M.B., to the *Vivid*; W. O. Hodge and R. W. Pritchard, M.B., to Plymouth Hospital; G. Bailey to the *Ringdove*. To be temporary Surgeons: D. L. Baxter, M.B. (Surgeon Probationer, R.N.V.R.), N. S. Hewitt, J. P. Ross.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeons J. R. Kay-Mouat, M.B., to the *Victory*; W. A. Sewell (temporary) to the *Vivid*.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

The undermentioned relinquish the acting rank of Lieutenant-Colonel on reposting. Major H. W. Long; temporary Major C. E. Edgerwood, M.D.; temporary Captain J. La F. Lauder, D.S.O.

To be acting Lieutenant-Colonels whilst in command of a casualty clearing station: Brevet Lieutenant-Colonel F. G. FitzGerald, Major J. H. R. Winder, M.D.

H. M. Rigby, M.B., F.R.C.S., Captain R.A.M.C.(T.F.), to be temporary Lieutenant-Colonel (substituted for the notification in the *London Gazette* of January 5th).

To be temporary Lieutenant-Colonels: Sir A. Chance, F.R.C.P., F.R.C.S., A. B. Mitchell, M.B., F.R.C.S.I.

Majors to be acting Lieutenant-Colonels whilst in command of a general hospital: M. C. Wetherell, M.B., A. W. Gater.

Temporary Captain C. D. Pye-Smith, M.B., M.B., F.R.C.S., to be temporary Lieutenant-Colonel whilst in command of a field ambulance.

Captain J. A. W. Ebden, M.B., R.A.M.C.(S.R.), to be Lieutenant, and is granted the temporary rank of Captain.

Temporary Lieutenants to be temporary Captains: G. A. Hayman, T. Forsyth, M.B., C. Witts, M.B., C. G. Lambie, M.B., A. S. Sieger, W. D. Cruikshank, M.B., J. P. MacDonald, M.D., F. W. Rigby, M.B., J. H. Crofton, M.B., W. E. Hills, W. Parker, M.B., T. W. E. Morton, H. C. W. Allott, A. W. Allen, M.D., J. Welsh, D. Kennedy, M.D., W. Darlington, M.B., O. V. Burrows, M.B., J. Appleyard, J. T. O'Boyle, G. A. MacFarland, C. D. Holdsworth, M.D., J. G. Craig, M.B., F.R.C.S.E., C. F. Rumsey, H. J. Nightingale, M.B., F.R.C.S., H. G. Smith, L. Fraser, W. Duffy, M.B., T. G. Twigg, M.D., L. D. I. Graham, M.B., T. L. Price, D. M. Clements, M.B., H. M. Vickers, M.B., H. Goodman, D. M. Moffatt, M.C., M.B., W. H. Blakemore, W. Hamilton, M.D., F. M. Murray, G. Thomson, L. Levene, M.B., P. E. B. Barrow, M.B., P. A. B. Clark, M.B., M. Chadwick, D. W. Daniels, M.D., F.R.C.S., J. S. Dunn, M.D., G. C. Linder, R. A. Johnston, J. McIntyre, M.B., F. L. Hill, M.D., W. A. R. Michell, M.B., J. H. Egbert, W. G. Macdonald, M.B., R. S. Dollard, H. E. Bloxsome, S. A. D'Arcy, F. Hannigan, O. Carlyle, F.R.C.S.E., W. C. Mence, H. H. Fisk, D. H. Derry, C. S. Vartan, M.B., J. K. Davies, W. Wilson, M.D., F. M. Byrne, J. Smith, M.B., R. Proctor, M.D., G. S. Clancy, M.D., G. T. Baker, J. B. MacKay, M.B., C. A. Dupont, M.D., J. C. A. Ridgway, M.B., H. G. Baynes, M.B., H. C. Watson, M.B., J. D. Robertson, M.B., H. F. Sheldon, W. J. Weaver, C. E. A. Huddart, T. H. Oliver, M.B., J. Ross, M.D., J. E. Cheesman, D. K. MacDougall, M.B., H. F. Brice Smith, G. S. Terry, J. P. O'Connor, M.B.

INDIAN MEDICAL SERVICE.

Captain J. D. Sandes, M.B., appointed to hold charge of the duties of Superintendent, X-Ray Institute, Dehra Dun, in addition to his own duties during the absence of Major A. E. Walter on other duty.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BARNSLEY: BECKETT HOSPITAL AND DISPENSARY.—House-Surgeon. Salary, £200 per annum.

BIRMINGHAM CITY.—Lady Doctor for Infant Welfare Work. Salary, £350 per annum, rising to £450.

BIRMINGHAM EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £300 per annum, and £5 per annum travelling expenses.

BRISTOL GENERAL HOSPITAL.—House-Surgeon. Salary, £175 per annum.

CAMBRIDGE: ADDENBROOKE'S HOSPITAL.—Honorary Assistant Surgeon in the Out-patient Department.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House-Surgeon. Salary, £200 per annum.

COVENTRY EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £350 per annum.

GRIMSBY AND DISTRICT HOSPITAL.—House-Surgeon. Salary, £5 5s. per week.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) Two House Surgeons; (2) Assistant Casualty Medical Officer; (3) House-Physician. Salary, £60 per annum and £5 washing allowance.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEAMINGTON SPA: WARNEFORD AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—Second Resident Medical Officer. Salary, £200 per annum.

LEICESTER CORPORATION.—Resident Medical Officer for the Isolation Hospital and Sanatorium. Salary, £300 per annum.

LONDON UNIVERSITY.—External Examiners in subjects of the examination for medical degrees.

NETLEY: BRITISH RED CROSS HOSPITAL.—(1) Pathologist. (2) Junior Operating Surgeon. (3) Radiographer.

NEWCASTLE-UPON-TYNE: ROYAL VICTORIA INFIRMARY.—Assistant in the New Department of Venereal Diseases.

NOTTINGHAM AND MIDLAND EYE INFIRMARY.—House-Surgeon (lady). Salary, £120 per annum.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Radiographic and Medical Electrician.

SHEFFIELD UNION HOSPITAL.—Resident (woman) Assistant Medical Officer. Salary, £250 per annum, increasing to £300.

STAFFORDSHIRE GENERAL INFIRMARY.—House-Surgeon. Salary, £300 per annum.

STAFFORDSHIRE, WOLVERHAMPTON, AND DUDLEY JOINT COMMITTEE FOR TUBERCULOSIS.—Resident Medical Officer for Moxley Sanatorium. Salary, £350 per annum.

STANNINGTON: CHILDREN'S SANATORIUM.—Lady Resident Medical Officer. Salary, £200 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House-Physician (female). Salary, £200 per annum.

SUNDERLAND: ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

WEST HAM UNION.—Resident Assistant Medical Officer at the Sick Home. Salary, £300 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Resident Surgical Dresser.

WILTS COUNTY COUNCIL, Trowbridge.—Assistant School Medical Officer to act as School Oculist. Salary, £350 per annum.

WINSLEY SANATORIUM, near Bath.—Assistant Resident Medical Officer. Salary, £250 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Bridport (Dorset), Chester-le-Street (Durham), and Wells (Somerset).

MEDICAL REFEREE.—The office of Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 4, attached more particularly to the Preston, Garstang, Chorley, and Lancaster County Courts, is vacant. Applications to the Private Secretary, Home Office, by February 6th.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ADAMSON, C. H., M.B., C.M., F.R.C.S.Edin., District Medical Officer of the Dover Union.

CRESSY, C. J., M.R.C.S., L.R.C.P., District and Workhouse Medical Officer of the Ringwood Union.

GLOVER, N., M.B., Ch.B.Oxon., District Medical Officer of the Market Harborough Union.

HARRIS, Herbert George, M.D., Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No 51 for the period of the war, and to be attached more particularly to the Southampton, Winchester, and Romsey County Courts.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTH.

FENTON.—On January 15th, Lillian (*née* Ferguson), wife of Dr. W. J. Fenton, of 58A, Wimpole Street, W., of a son.

MARRIAGE.

LOUGHNAN-MANLY.—On December 27th, 1916, at the Church of the Three Patrons, Rathgar, Dublin, by the Very Reverend Charles Canon Malone, P.P., assisted by the Rev. T. A. Fitzgerald, O.F.M., Captain W. F. M. Loughnan, M.C., R.A.M.C., son of the late J. M. Loughnan, of Sion Villa, Kilkenny, to Eileen, fourth daughter of Joseph Manly and Mrs. Manly, of Frankfort Avenue, Rathgar, Dublin.

DEATHS.

BURGESS.—On January 17th, at 442, Glossop Road, Sheffield, Duncan Burgess, M.B., F.R.C.P., aged 66 years.

DILLON.—On January 22nd, at 17, Claro Street, Cardiff, Rosa Aldwell, the dearly loved wife of Theodore Francis Dillon, M.B., Captain (R.A.M.C.). R.I.P.

TAYLER.—On January 18th, at 13, Higher Broadway, Exmouth, Herbert Paget Tayler, M.B.Camb., aged 59.

DIARY FOR THE WEEK.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF LARYNGOLOGY.—4 p.m., Cases.

SECTION OF ANAESTHETICS.—8.30 p.m., Captain Geoffrey Marshall, R.A.M.C.(S.R.): Anaesthetics at a Casualty Clearing Station.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JANUARY.
31	Wed.	London: Medico-Political Committee, 2.0 p.m.
		London: Central Medical War Committee.
		FEBRUARY.
6	Tues.	London: Grants Subcommittee, 11 a.m.
		London: Organization Committee, 11.30 a.m.
		London: Propaganda Subcommittee, 3 p.m.
8	Thurs.	London: Insurance Acts Committee.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, FEBRUARY 3RD, 1917.

CONTENTS.

	PAGE
BRITISH MEDICAL ASSOCIATION:	
Current Notes	17
Meeting of Scottish Committee	17
Meetings of Branches and Divisions	18
NAVAL AND MILITARY APPOINTMENTS	20
VACANCIES AND APPOINTMENTS	20
INSURANCE:	
Approved Society Finance and Administration	18
Insurance Notes	18
Correspondence	19
BIRTHS, MARRIAGES, AND DEATHS	20
DIARY	20

British Medical Association.

CURRENT NOTES.

Restricted Allowance of Petrol.

The Petrol Control Committee on January 25th, 1917, intimated to the Association that the majority of the existing petrol licences issued to doctors would expire on January 31st, and that arrangements had been made for their renewal as quickly as possible on the receipt in each case of the application form on page 7 of the licence, but that these were coming in very slowly.

The Petrol Control Committee regrets that, owing to the urgent necessity which has now arisen for further limitation of the consumption of motor spirit, it cannot see its way to allow any increase on the amount already granted, and it is also reluctantly compelled to fix a maximum allowance of 50 gallons of petrol a month for each doctor. It will be remembered that this maximum, which was the only restriction on the requirements of the medical profession, remained in force for a short time and was subsequently withdrawn.

A communication has been forwarded to the Petrol Committee stating that the Association regrets the decision to fix a maximum allowance of 50 gallons of petrol a month for each doctor, as when that maximum was in force previously many doctors were placed in a position of great difficulty and found it impossible to carry on the extra work which they have been compelled to undertake owing to the depletion of the profession; and that at the present time in some areas one practitioner has often to suffice where three or more were available before the war, and if he is to be deprived of his means of locomotion the health of the community will be seriously endangered. The Association feels that this is a matter of vital and national concern, and expresses the hope that the Petrol Control Committee, recognizing the gravity of the position, will not deprive any medical practitioner of the full amount of petrol required for carrying on his professional duties—an object of national importance.

Sickness Benefit and Diseases due to "Own Misconduct."

The recommendation in the final report of the Departmental Committee on Approved Society Finance and Administration (Ryan Committee) recommending approved societies, in their own interests as well as on grounds of public policy, to amend their rules so as to provide that sickness benefit shall not be withheld where the insured person is rendered incapable of work from venereal disease, whatever may have been the circumstances in which the disease was contracted, is identical in principle with the view urged by the Association in its Memorandum of Evidence submitted to the Committee. The principle was first enunciated by the Conference of Representatives of Local Medical and Panel Committees in 1915 at the suggestion of the Oldham representative. The recommendation of the Departmental Committee thus brings to a successful conclusion the strenuous campaign initiated by a member of the Insurance Acts Committee—the late Dr. Olive Claydon—then honorary secretary of the Oldham Local Medical and Panel Committees.

MEETING OF SCOTTISH COMMITTEE.

The Scottish Committee met in Edinburgh on January 6th. Present: Dr. John Adams (in the chair), Drs. G. C. Anderson (Methil), R. C. Buist (Dundee), J. R. Drever (Glasgow), John Stevens (Edinburgh), the Medical Secretary, and the Clerk to the Committee.

The Association and National Insurance Business specially affecting Scotland.

The chief business of the Committee was to consider this subject, which had been under discussion at the two previous meetings, and had been postponed for consultation with the Insurance Acts Committee.

A deputation consisting of Dr. Michael Dewar (Chairman), Dr. John Craig (Secretary), Drs. John Orr and Robert Robertson, placed before the Committee the following resolution adopted by the Burgh of Edinburgh Panel Committee:

> That a Scottish Insurance Acts Committee composed of Scottish panel practitioners, having its residence and meetings in Scotland, be formed to deal with Scottish Insurance business.

The deputation gave their reasons for supposing that this resolution voiced an opinion very generally held by panel practitioners in Scotland.

[As was announced last week in Current Notes, p. 15, the Insurance Acts Committee proposes to appoint such a Scottish Subcommittee with the reference already printed.]

Schemes for Treatment of Venereal Diseases.

It was reported that a circular in reference to this subject had been issued to every Division and Branch of the Association, and to every Local Medical and Panel Committee in Scotland, urging them to ensure that the opinion of the profession should be adequately presented to the authorities responsible for the framing and carrying out of schemes for the diagnosis and treatment of venereal diseases.

Medical Referees under Insurance Acts.

The Chairman's Subcommittee reported that the replies of the Divisions and Branches to a circular addressed to them in September, 1916, had not been sufficiently numerous to enable any definite idea being formed as to the consensus of opinion on the subject placed before them. The matter was further postponed, but the Clerk was instructed to intimate to the Secretary of the National Conference of Friendly Societies in Scotland that the replies indicated considerable divergence of opinion on the scheme placed by that body before the Committee.

Nominations to Committees.

Dr. Buist was nominated to act as the Scottish representative on the Propaganda Subcommittee of the Organization Committee. Dr. Anderson was asked to accept nomination on the Contract Practice Subcommittee vice Dr. Buist resigned, and, should he accept, to ask for the appointment of some other practitioner closely concerned in the present contract practice struggles in Scotland.

It was resolved to nominate Dr. A. D. R. Thomson of Musselburgh for the vacancy on the Scottish Medical Service Emergency Committee in the place of Dr. J. R. Hamilton, deceased.

Meetings of Branches and Divisions.

LEINSTER BRANCH:

Dublin Division.

A special meeting of the Division was held at the Irish Offices, 16, South Frederick Street, Dublin, on December 29th, 1916, when Dr. J. O'Connell Delahoyde was in the chair.

Election of Officers. — The following officers were appointed for 1916–17:

Chairman: Dr. J. O'Connell Delahoyde.
Vice-Chairman: Dr. J. M. Day.
Representative for Representative Meeting: Dr. W. M. Crofton.
Honorary Secretary and Treasurer: Dr. M. R. J. Hayes.
Representatives on Branch Council and Divisional Executive: Drs. J. Craig, J. M. Day, Delahoyde, Neill, R. J. Rowlette, Surgeon W. I. de Courcy Wheeler.

The Honorary Secretary was instructed to write a letter congratulating Dr. E. Coey Bigger on his appointment to be medical commissioner of the Local Government Board, and another of condolence to the family of Dr. James Little.

Temporary Medical Referees.—In connexion with the remuneration of temporary medical referees the following resolution was unanimously passed:

> That the Dublin Division of the Leinster Branch believes that where, in addition to an opinion as to fitness or unfitness for work under the National Health Insurance Act, a report regarding the prognosis and duration of incapacity is required, the remuneration should not be less than one guinea per case, and in any circumstances the fee should not be less than half a guinea.

INSURANCE.

APPROVED SOCIETY FINANCE AND ADMINISTRATION.

The final report of the Departmental Committee on Approved Society Finance and Administration, just issued, deals with three main subjects:

"*Excessive Sickness.*"

Section 63 of the Insurance Act of 1911 is concerned with the causes of excessive sickness, and appears to assume that the variation from the normal sickness-rate in the case of approved societies would not generally exceed 10 per cent. on the normal rate of sickness, but it is pointed out that certain societies whose members are engaged largely in hazardous occupations exhibit a rate of sickness more than 10 per cent. in excess of the standard. On the other hand, certain societies have a rate well below the standard, but it is not therefore to be assumed that no preventable sickness has occurred among their members. For example, in rural districts the sickness-rate may be well below the average, but the housing and water supply may be very unsatistactory. The Committee therefore considers that the standard prescribed should be abandoned. But in order to prevent the unreasonable exercise by societies of the right to initiate inquiries, it is proposed that any society that desires an inquiry should apply to the Insurance Commissioners to make a preliminary investigation of the facts, which appear to show that the socie y has suffered loss from any of the causes mentioned in the Act, and that if the Commissioners are satisfied that there is a prima facie case made out, application should then be made to the Secretary of State or the Local Government Board for an inquiry to be held.

Venereal Diseases.

The second subject dealt with is the payment of benefit in sickness due to venereal disease, and on this are quoted in full memoranda from the National Council for Combating Venereal Disease, the British Medical Association, and the Panel Medico-Political Union, all of which urge that approved societies should, in their own interests as well as on grounds of public policy, amend their rules so as to provide that sickness benefit shall not be withheld where an insured person is rendered incapable of work through venereal disease, whatever may have been the circumstances in which the disease was contracted. The Committee expresses the opinion that there are no data to prove that the payment of sickness benefit at the outset in these cases would actually be balanced by a saving in the long run through the avoidance of sequelae of venereal disease. But, apart from the financial consideration which the Committee leaves doubtful, it is acknowledged that the greatest difficulty often arises in deciding whether the disease has been caused by misconduct, and there may be grave objections if innocent sufferers are subjected to inquiries. The argument from the grounds of public policy and the benefit to the community and the future generation from the prompt treatment of these diseases, is one which the Committee considered to be beyond the scope of its inquiry. Nevertheless, it is clear that it was impressed by the evidence presented, and it recommends that societies should modify their rules so as to provide that sickness benefit should not be withheld in these cases unless the sufferer fails to submit himself to medical treatment, but that societies may still retain their power to expel any member who has been guilty of wilful misconduct.

After-care of Tuberculous Patients.

It had been suggested that societies should accept liability to pay sickness or disablement benefit to tuberculous patients who, after residence in a sanatorium, are discharged fit to do a little occasional work, but unfit perhaps for some time, to earn a proper living. It is recognized that it is necessary to advise many of these patients to give up their former occupations if a relapse is to be avoided, but that it is extremely difficult to determine the point at which a patient ceases to be "incapable of work"; it has therefore been urged that benefit should be paid during convalescence for periods of partial incapacity. In favour of this it is argued that the societies would in the long run gain by assisting their members to complete their cure, as they would avoid the heavy benefit claims that would otherwise arise. Here again, the Departmental Committee states that the financial aspect can only be tested in the light of experience which is not at present available, and it does not feel justified in making any recommendations of a sweeping character. The Committee has evidently carefully considered a number of schemes for after-care, such as the Hairmyres Colony scheme and that of the Cambridgeshire After-care Association, but it concludes that the schemes are necessarily experimental. It says: "The stamping out of tuberculosis must clearly be approached as a national problem . . . and the part played by approved societies must obviously be subsidiary, and they should not be called upon to take upon themselves any substantial new burden in furtherance of the national scheme." At the same time, the Committee recommends such schemes as those mentioned to the favourable consideration of societies, even though they may involve some additional charges which may or may not be recouped in the long run.

INSURANCE NOTES.

Temporary Medical Referees in Ireland.

At a recent meeting of the Dublin County Borough Local Medical Committee the following resolution was unanimously passed in connexion with the temporary appointment of medical referees under the National Health Insurance Act:

> That this Committee hereby protests against the temporary arrangements made for medical referees under the National Health Insurance Acts, as being a breach of faith on the part of the Irish Insurance Commissioners with the Irish Medical Committee; that, where an approved society appoints such a temporary medical referee within our area (*a*) he shall be a member acceptable to the profession, and (*b*) the fee payable shall be not less than 10s. 6d. for examination and report on each case within a three mile radius from the examiner's house.

The Working of the Insurance Scheme.

At the luncheon given to him by the Faculty of Insurance on January 27th, Sir Edwin Cornwall, M.P., Chairman of the Joint Committee of Insurance Commissioners, said that the burden of discharged sailors and soldiers should not be thrown upon the insurance funds. The approved societies were anxious to do everything in their power, but the cost should be met by the State, and not borne by the wage-earning classes belonging to the societies. He had been in consultation with the Pensions Minister, who was considering the most convenient and economical plan, but the Treasury also would have to be consulted. In the course of his speech, he said there were 2,00 societies, 20,000 branches, 14½ millions of insured persons, and the turnover in a year of £25,000,000. In 1915 sickness benefit was paid to the amount of £5,430,000, maternity benefit £1,333,000, disablement benefit £842,000, doctors £3,802,00 chemists £1,104,000, sanatoriums £711,000. Speaking generally of amendments required in the Acts, he said that they would

not touch the principle, but would aim merely at simplification and adjustment. He considered that the Advisory Committee was too large, and that it should be replaced by a smaller body of twelve or fifteen members, which should meet regularly and have clear duties and functions. The toast of the approved societies was given by Sir L. Worthington Evans, and acknowledged by the presidents of the National Conference of Friendly Societies, the National Conference of Industrial Assurance Approved Societies, and of the National Union of Women Workers, and by the Secretary of the National Union of Railwaymen. All the speakers expressed their determination to make the insurance system work well.

CORRESPONDENCE.

MEDICAL REMUNERATION UNDER THE INSURANCE ACTS.

DR. J. C. LYTH, Honorary Secretary York Panel Committee, writes: The remarkable nature of Memorandum 229/I.C., issued by the National Health Insurance Commissioners to explain to the practitioners why it is that they are being paid only 6s. 2d. when they were promised 8s. 6d., is only equalled by the little notice which it seems to have excited in the profession. Beyond a leading article in this JOURNAL (which appeared to offer the memorandum its blessing) and a few letters, the most extraordinary apathy is shown towards the subject. This may, perhaps, be accounted for by the present war conditions, which keep fully occupied both those who are away and those left at home; but, apart from this, can it be taken to signify that the majority of practitioners accept the circular as a sufficient explanation of a deduction of nearly 20 per cent. from the fees which they have earned by the sweat of their brow?

That such is certainly not true of all parties a resolution passed by the York Insurance Committee on December 21st, 1916, will prove. This committee rightly taking the view that it is a party to an agreement which it has been compelled by the Commissioners to break, and feeling that it could not let such an injustice go without a protest, *unanimously* passed the following:

> That this Committee is of opinion that the system of medical remuneration outlined by the National Health Insurance Commission in Memorandum 229/I.C. constitutes a departure from the agreement come to between the parties at the inception of the Act, notably in the substitution of a day-to-day for an annual system; that grave injustice and irritation are thereby caused to doctors, approved institutions, chemists, and others affected; and that the Commissioners be requested to place the system of remuneration upon a sound basis conformable with the principles of insurance as applied by ordinary assurance societies. They further press upon the Commissioners the view that the failure of their system to allocate a reasonably accurate credit for 1915 should not entail short payment of the chemists' accounts, and desire that the Commissioners take steps to enable this Committee to meet the liability.

Surely, if this is the view taken by so catholic an assembly as an Insurance Committee, the medical profession itself should not fail to take the trouble to inquire most closely into the plausible arguments put before it. Such an inquiry rapidly reveals the fallacy upon which the circular is based. In paragraph 6 it is stated "the full 8s. 6d. is not payable for less than a full year's risk," and the whole cumbersome, complicated, and admittedly haphazard machinery by which the remuneration is calculated is based upon this theorem. But who suggested in 1912, when the bargain was struck between the profession and the Government, that the full capitation fee would only be paid for a full year's risk? What is the unit of time involved? What insurance company is there which will accept its premium (as we have to do) eighteen months after the termination of the period of time covered and at the same time will agree to the insured individual varying this period of time at will? If you insure your motor car, you not only pay the premium in advance, but you pay it for a full year's risk; and if you sell the car during the year you get no rebate from the insurance company.

Yet the Commissioners, finding themselves short of cash owing to the unsound finances of the Act, now proclaim that the unit of time is a day—for our risk, but not for our payment. We are to be paid at leisure, only in part even quarterly; but we are to agree to the insurance lapsing and the policy becoming void at any moment.

The thing is so manifestly absurd that it is difficult to believe that any other body of men than the notoriously unbusiness-like medical profession would have been insulted by such a proposition.

Might I suggest that, as a preliminary, wherever possible, the representatives of the practitioners on the Insurance Committees should endeavour to procure the passage of resolutions similar in character to the one quoted? If this were done to any extent it would at least give the Commissioners cause to reconsider their position: and if the British Medical Association is prepared to take the matter up, it would provide a powerful argument. If the British Medical Association will let this go the way of the "shilling certificates," perhaps other means of presenting the views of the profession will be found.

FUTURE OF INSURANCE PRACTICE.

DR. J. A. W. PEREIRA (Exeter) writes: The agitation for a change in the panel service, and, in some quarters, for the inauguration of a State medical service, should be met by a clear enunciation of policy by the British Medical Association. I think the weakness of the Association lies in its democracy. Democracy always goes to the wall in the presence of a business-like oligarchy. The Commissioners are trying to get the most, if not the best, out of the practitioners. The Association should see that the practitioners give their best, but are guaranteed sufficient leisure to put forth that best.

That we have been more or less taken in by the Act everybody but a blind partisan must admit. Whoever foresaw the sheaves of regulations with their list of penalties which panel practice would entail? As literature, or as legal training, they are worthless, but as time consumers and as traps for the unwary they are formidable. The Association itself has more than once misunderstood the regulations. I wonder whether the Commissioners realize that each time they assert "the practitioner shall," they deteriorate the public service by making it more repellent to free men. The more binding the fetters the less the output of work. Our leaders should see that an essentially good public service is not unwittingly spoilt by vexatious regulations. The Association should prevent its members selling themselves body and soul for the capitation fee of nine shillings. Our remuneration is fixed. Is our work correspondingly fixed? We are at the beck and call of any insured person at any moment of the day and night. No service can prove efficient at this rate. We must face this question firmly. Philanthropists and sentimentalists must be rigorously excluded from our counsels, because Acts of Parliament are not framed by such. They take no part in the working of the Act, but only bring a business undertaking into disrepute.

The Association should take up very seriously the question of sick certificates. So serious is this point that I have no hesitation in saying that unless drastic alterations are made it will prove the undoing of the profession. When the giving of a true certificate often causes friction with the patient, or with the insurance agent, or even with the approved society, and all the practitioner gets in return is loss of patient and of income, one must live in a fool's paradise to believe that the profession as a whole will come out of this ordeal unscathed. We struggled hard during the passage of the Act to cast off the yoke of the friendly societies. They are now more powerful than ever. They can throw the doctors' certificates into the waste-paper basket with impunity and withhold sick pay. Yet the doctor dare not withhold these certificates. They read the sick certificates and look up a medical dictionary to learn what is the matter with their members, and they do this after the question of professional secrecy was exhaustively gone into between the Association and the Government. Under cover of getting these certificates weekly they constitute themselves a General Medical Council to adjudicate on the efficiency and frequency of the panel service. They form the "secret service" of the Commission. Emerson wrote that insurance companies increase accidents. Can a health service increase sickness?

There is a point on which I know my views are heterodox, but I am convinced they are the only solution to a very difficult question. Our agreement should not be with the Commissioners, nor with the Insurance Committees, but directly with the individual patient A panel patient chooses me and I elect to treat him. Here is the agreement in fact. English law proclaims all men are equal. If that be so we cannot treat responsible human beings as a flock of sheep, and submit without protest to rules and regulations where these people are not even consulted. They are placed in such an impotent position by their guardians that when their sense of justice prompts them

to pay a panel practitioner for some unnecessary and irritating demand on his time, the regulations prevent the doctor accepting it, and so foster that annoyance between doctor and patient to the detriment of the public service.

Why have we saddled ourselves with the finances of the Drug Fund? Mr. Lloyd George told the artisan that the Act placed him on a level with the millionaire as far as the quality of his medicines was concerned. Why should we not help the Government to make this statement true? Is it our business if the finances will not stand the strain? The Government said they would. It is their business. Our duty is to study the therapeutics of drugs. But the gravest part of the transaction is this: that while the Commissioners and the profession are loud in their protests for an efficient medical service for the working man, the man himself is totally ignorant that his doctor may be surcharged for prescribing for him.

Naval and Military Appointments.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

TEMPORARY CAPTAINS relinquishing their commissions: O. P. N. Pearn, J. Hanson, M.B., A. H. R. Duncan, F. J. Dixon, M.B., F. McKee, M.B., F.R.C.S.I., R. G. Brown, R. D. Forbes, F.R.C.S., J. E. M. Brown, M.B., A. W. Anderson, M.B., H. H. Prentiss, M.B., N. I. Sinclair, M.B., J. A. K. Brayton, S. G. Billington, M.B., F.R.C.S.E., G. W. Charsley, M.B., E. C. A. Smith, P. J. S. O'Grady, M.B., F. G. O'Donohoe, N. R. Rawson, M.B., A. V. J. Harrison, M.B., F. S. Rowland, D. H. Griffiths, G. E. Genge-Andrews, M.B., E. E. Hobson, M.B., J. S. Hall, M.B., F. A. Murray, M.D., H. L. Apthorp, M.D., W. R. S. Watkins, M.B., F.R.C.S.E., T. J. Burton, M.D., P. Butler, J. E. Cook, M.B., J. Allan, R. B. Taylor, M.B., M. Hynes, M.B., J. S. Martin, M.D., J. Allison, M.B., H. S. Berry, H. Catling, R. S. Miller, M.D., C. H. Shearman, M.B., A. E. Lyster, M.D., S. J. Ormoud, M.D., O. H. Edwards.

Temporary Lieutenants relinquishing their commissions: J. J. McMillan, M.D., C. K. Stevenson, M.B., J. McDonald, M.B., E. Rommel, M.D., R. J. Bethune, M.D., N. H. Austin, J. F. MacLeod, M.B., M. G. Pettigrew, J. Bowen-Jones, J. A. K. Griffiths, M.B., C. H. G. Ross, M.B., G. Stowell, M.B., C. H. Ferguson, M.B., C. H. Phillips, M.D., J. Pender, M.B., T. Smyth, M.B., T. H. Clarke, H. L. Askham, A. Barrett, M.B., H. P. Thompson, M.D., F.R.C.S.E., S. D. Bridge, A. O. Evans, M.B., J. G. Bell, M.C., M.B., F. M. Bishop, R. A. MacNeill, M.B., R. T. Slinger, M.B., F.R.C.S., W. H. Broughton, A. E. Clark, M.B., H. A. Wagney, M.B., G. R. Potter, J. C. Mead, M.B., F.R.C.S., J. M. Hermon, M.D., W. J. McL. Baird, M.B., W. H. Hodgson, M.B., H. M. Mills, M.B., J. W. Hilliard, M.B., T. A. Mayo, M.B., F.R.C.S., G. Kee, N. Navarra, H. Harrison, H. F. Johns, M.D., W. Bligh, M.D., H. W. M. Strover, M.B., P. Stocks, M.B., W. J. Ashby, M.B., V. Colmer, H. E. Brown, M.B., P. A. Nightingale, M.D., A. T. Thomson, M.B., J. D. Stewart, M.D., C. J. Pentland, M.D., L. W. May, M.D., G. W. Racey, M.B., S. St. T. Shann, M.B., A. Chance, M.D., F.R.C.S., H. S. Sims, M.B., R. M. Moore, M.B., J. A. Davidson, M.D., H. A. Hutt, P. W. Barker, M.B.

To be Lieutenants: Temporary Lieutenants T. C. Bowie, M.B., G. C. Robinson, D. H. Coats, M.B., P. E. D. Pank, and G. Monson and Lieutenants C. B. C. Ander on and R. H. C. Pryn from R.A.M.C.(S.R.).

To be temporary Lieutenants: T. F. Wilson, M.B., D. N. Knox, M.B., T. Y. Finlay, M.D., J. H. Kay, M.B., J. C. Henderson, M.B., E. Miskin, M.B., M. R. Lawrence, M.B., temporary honorary Captain H. Deardon, J. Dundon, C. C. Gibson, B. H. Woodyatt, T. J. Taunton, A. E. Woodall, M.D., F.R.C.S., A. Y. Hutchison, M.B., J. Gardner, M.D., E. O'Reilly, M.B., T. E. Regan, J. D. Laidlaw, M.B., T. Burrell, M.B., W. E. Barrett, F.R.C.S., D. A. H. Moses, A. C. Parsons, F. B. Elwood, F.R.C.S.E., J. G. Heath, J. R. O'Brien, M.D., R. L. Rea, M.B., W. F. H. Ives, A. P. Thom, M.B., E. C. B. Ibotson, M.D., J. W. Lindsay, M.B., J. Hogg, M.B., J. B. Howell, J. S. Doyle, M.B., R. L. Jones, R. Roberts, A. M. Crawford, M.D., T. J. McDonald, W. T. Hardie, M.B., T. H. Campbell, M.B., J. F. Wood, M.D., F. C. Stewart, M.D., J. Harper, M.B., R. E. Sedgwick, G. R. Rew, N. Flower, M.B., R. G. Cunningham, M.B., W. M. McFarlane, M.B., A. F. W. Millar, M.B., A. G. Holms, M.B., W. A. Marray, M.B.

To be temporary honorary Lieutenant: N. Sherrard.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BARNSLEY: BECKETT HOSPITAL AND DISPENSARY.—House-Surgeon. Salary, £200 per annum.

BIRMINGHAM MATERNITY HOSPITAL.—Honorary Physician.

BOLTON INFIRMARY AND DISPENSARY.—Second and Third House-Surgeons. Salary, £200 and £180 per annum respectively.

BRISTOL GENERAL HOSPITAL.—House-Surgeon. Salary, £175 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon.

DERBYSHIRE ROYAL INFIRMARY.—(1) House-Physician and Casualty Officer. (2) Resident Anaesthetist. Salary, £200 per annum.

ESSEX COUNTY COUNCIL, Chelmsford.—Tuberculosis Officer. Salary, £500 per annum.

GRIMSBY AND DISTRICT HOSPITAL.—House-Surgeon. Salary, £5 5s. per week.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £200 per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) House-Surgeon. (2) Assistant Casualty Medical Officer. (3) House-Physician. Salary, £60 per annum, and £5 washing allowance.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEAMINGTON SPA: WARNEFORD AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—Second Resident Medical Officer. Salary, £200 per annum.

LEICESTER CORPORATION.—Resident Medical Officer for the Isolation Hospital and Sanatorium. Salary, £350 per annum.

LONDON UNIVERSITY.—External Examiners in subjects of the examination for medical degrees.

PORTREE PARISH COUNCIL.—Medical Officer and Public Vaccinator. Salary, £60, and about £420 from other available public appointments.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

NOTTINGHAM AND MIDLAND EYE INFIRMARY.—House-Surgeon (lady). Salary, £120 per annum.

ST. MARK'S HOSPITAL, City Road, E.C. House-Surgeon.

ST. PETER'S HOSPITAL FOR STONE, ETC., Henrietta Street, W.C.—Junior House-Surgeon. Salary, £75 per annum.

SHEFFIELD UNION HOSPITAL.—Resident (Woman) Assistant Medical Officer. Salary, £250 per annum rising to £300.

STAFFORDSHIRE EDUCATION COMMITTEE.—Women Assistant School Medical Inspectors. Salary, £400 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House-Physician. Salary, £200 per annum.

SUNDERLAND: ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Resident Surgical Dresser.

WINSLEY SANATORIUM, near Bath.—Assistant Resident Medical Officer. Salary, £250 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Altrincham (Cheshire), Cleobury Mortimer (Salop).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

MCQUAID, T. P., L.A.H.Dubl., Assistant Medical Officer of the Fulham Road Infirmary of the Westminster Union.

RICE, George, M.D.Durh., Medical Superintendent of the Creaton Sanatorium, Northampton, vice Dr. J. A. Kilpatrick, deceased.

WATERS, D. B., M.D.Edin., D.P.H.Camb., District Medical Officer of the Gainsborough Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTHS.

STEPHEN.—At Sunnyside, Strichen, on the 27th January, to Dr. and Mrs. J. H. Stephen, a daughter.

TASKER.—On January 20th, at 438, Alexandra Park Road, Alexandra Park, N., the wife of Captain L. S. B. Tasker, R.A.M.C., of a son.

DEATHS.

FARR.—On the 26th January, suddenly, at Heath House, Andover, Ann Lawrance Augusta Mabel, the most dearly-loved wife of Ernest A. Farr, J.P., and only daughter of the late Major-General and Mrs. I. L. Bolton, of La Chasse, Jersey.

HUMPHREYS.—On January 16th, at Richmond, Surrey, Henry Humphreys, M.A., M.D.Cantab., M.R.C.P., late Fellow St. John's College, Cambridge, aged 72 years.

DIARY FOR THE WEEK.

TUESDAY.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C.—8.15 p.m., E. E. Fournier d'Albe, D.Sc.: Some Properties and Applications of Selenium.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF OPHTHALMOLOGY.—8.30 p.m., Clinical Cases. Papers:—Mr. Arnold Lawson: Fur Infection of the Conjunctiva. Mr. P. C. Bardsley: The Retinal Signs of Arterio-sclerosis and Increased Blood Pressure.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
CLINICAL SECTION.—8 p.m., Cases. Paper:—Dr. Parkes Weber: Primary Cancer in the Liver with Thrombosis of the Inferior Vena Cava in One.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		FEBRUARY.
6	Tues.	London: Grants Subcommittee, 11 a.m.
		London: Organization Committee, 11.30 a.m.
		London: Propaganda Subcommittee, 3 p.m.
8	Thurs.	London: Insurance Acts Committee.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, FEBRUARY 10TH, 1917.

CONTENTS.

PAGE

British Medical Association.
CURRENT NOTES:
- DISCHARGED DISABLED SOLDIERS 21
- WHOLESALE TRANSFER OF INSURED PERSONS 21
- DUTIES OF MEDICAL OFFICERS OF HEALTH 21
- WATER CHARGES FOR DISPENSING 22
- EARLY CLOSING OF SHOPS ORDER AND INSURANCE DISPENSING 22
- MEMBERSHIP OF CONTRACT PRACTICE SUBCOMMITTEE ... 22

SOUTH AFRICAN COMMITTEE 22
MEETINGS OF BRANCHES AND DIVISIONS 22
NAVAL AND MILITARY APPOINTMENTS 27

PAGE

INSURANCE:
- RESOLUTIONS OF CONFERENCE OF LOCAL MEDICAL AND PANEL COMMITTEES (Correspondence with the Insurance Commissioners) 23
- BRITISH MEDICAL ASSOCIATION AND INSURANCE PRACTITIONERS 24
- LOCAL MEDICAL AND PANEL COMMITTEES 24
- INSURANCE NOTES 25
- CORRESPONDENCE 26

VACANCIES AND APPOINTMENTS 23
BIRTHS, MARRIAGES, AND DEATHS 28
DIARY 28

British Medical Association.

CURRENT NOTES.

DISCHARGED DISABLED SOLDIERS.

THE Medico Political, Hospitals, and Insurance Acts Committees of the Association have had under consideration the question of the medical attendance and treatment of discharged soldiers. The first two committees have decided to make certain recommendations to the Council, and the Insurance Acts Committee, at its meeting to be held shortly, will doubtless decide to recommend to the Council upon some similar lines. The recommendations are: (*a*) That the question of wounded disabled soldiers and sailors, whether insured or not is one to be dealt with by the State as a special national problem. (*b*) That it is preferable that these persons should be retained for treatment under military or naval discipline until such time as they are considered (1) to be fit to earn their own living, or (2) as unlikely to benefit any further from treatment obtainable. (*c*) That any arrangements put into operation by the State in connexion with the treatment of wounded disabled soldiers and sailors, whether insured or not, should be retrospective, so as to bring within the scope thereof such soldiers and sailors as had already been discharged. (*d*) That it is the duty of the State to make provision for the medical attendance and treatment of discharged disabled soldiers outside the present financial provisions of the Insurance Act. The Medico-Political Committee at its last meeting expressed the opinion that a fee of 5s. should be charged by practitioners for certificates given to discharged soldiers and sailors for the use of War Pensions Committees, and that as regards cases dealt with by a medical board, the board should not be paid by a certification fee, but on some other basis. The Committee also expressed the opinion that a practitioner should not give a certificate to the effect that a discharged soldier's or sailor's incapacity was "incurred on active service or by military training," unless such facts were within his own knowledge. It appeared desirable that some pronouncement should be made on behalf of the Association on this latter point, inasmuch as the form of certificate required by the War Pensions Committees in some parts of the country required a practitioner to certify to that effect.

WHOLESALE TRANSFER OF INSURED PERSONS.

The following is an illustration of the power of the Association in looking after the interest of insurance practitioners. Before the expiration of the period during which insured persons could transfer from one insurance practitioner to another, or, as in the present instance, from a private practitioner to the panel of an approved institution, a member of the Association who is on the panel communicated with the Association with respect to canvassing he alleged was going on to his own detriment on behalf of the medical officer of an approved institution, and asked for the assistance of the Association with a view to preventing wholesale transfers from his panel list to that of the institution during the transfer period of last year. Representatives of the approved institution, together with their solicitor and the medical officer, met the Chairman of the Medico-Political Committee of the Association, the Medical Secretary, the Deputy Medical Secretary, and the member of the Association concerned, when an amicable conference took place, with the result that the following understandings were arrived at, which have since been confirmed in writing by the secretary of the society, who added that the conditions would be strictly observed by the Board of Management, which desired that no further friction should develop between the society and the medical practitioner:

1. That the Committee of the . . . . Medical Society would not accept, at the end of this year, patients desiring to transfer to the Society from Dr. . . (that is, *the private practitioner*), subject to any isolated individual case being referred to the British Medical Association for decision.
2. That in future the . . . . Society, with a view to the correction of its lists, will not take any steps—such as the issue of circulars, house-to-house visits, etc., without the consent of the British Medical Association.

The above matter was dealt with by the Medico-Political Committee, with the full cognizance of the Insurance Acts Committee, which has placed on record its appreciation of the successful result of the action taken, and expressed the opinion that the facts should be brought prominently before the medical profession.

DUTIES OF MEDICAL OFFICERS OF HEALTH.

The attention of the Medico-Political Committee was recently drawn to the inclusion among the duties of an assistant medical officer of health of attendance upon midwifery cases on the summons of a midwife. The Committee has expressed the opinion that the duties of a medical officer of health should not include attendance in respect of calls by a midwife. Medical practitioners who are members of Public Health Committees of town councils would, therefore, be doing useful work on behalf of the health of the general community if they would make public the obvious disadvantages of such a duty being included amongst those of a medical officer of health.

WATER CHARGES FOR DISPENSING.

The Medico-Political Committee recently, on the advice of the Solicitor of the Association, approved of obtaining further legal assistance in defending an action brought by a local water board against a medical practitioner, the effect of which, if successful, would have been that the practitioner would be required to pay at the commercial rate for all water used in his surgery for dispensing purposes. The county court judge who heard the case held (*a*) that the question at issue was whether the water used by the practitioner for making up medicines was used for domestic or trade purposes; (*b*) that the water was used in mixing medicines in order to make them such a strength as was suitable for taking, which was a purpose for which water was used in every house in the country; (*c*) that in his opinion such was a domestic use; and (*d*) that it was done on a larger scale in the case in question because it was done by a medical practitioner. He accordingly gave judgement for the medical practitioner with costs.

EARLY CLOSING OF SHOPS ORDER AND INSURANCE DISPENSING.

When the Home Office Order as to the early closing of shops during the winter months was published last November some misgivings were felt by insured persons, medical practitioners, and chemists, in certain areas, as to difficulties the order would be likely to create in connexion with the dispensing of insurance prescriptions. The Commissioners have recently issued a circular letter to Insurance Committees pointing out that the order in no way affects any arrangements that may have been made locally for the dispensing of insurance prescriptions, that it is not the view of the Home Office that the order requires either that chemists' shops should be locked after 8 p.m., or that every light should be extinguished, and that there is no reason to expect that the observance of the order by chemists will encroach upon the facilities previously afforded insured persons by the dispensing services in the area.

MEMBERSHIP OF CONTRACT PRACTICE SUBCOMMITTEE.

Dr. G. C. Anderson, Methil, Fifeshire, has been appointed a member of the Contract Practice Subcommittee of the Medico-Political Committee in place of Dr. R. C. Buist, Dundee, resigned.

SOUTH AFRICAN COMMITTEE.

THE South African Committee met in Cape Town on October 30th and 31st. Present: Sir Kendal Franks (in the chair); Drs. Charles Anderson, Simpson Wells, and A. Jasper Anderson (Cape of Good Hope, Western Province Branch); Dr. Dru Drury (Cape of Good Hope, Eastern Province); Dr. Watkins Pitchford and Lieutenant-Colonel Temple Mursell (Witwatersrand); Dr. Manning (Orange Free State); Dr. Osborne (Pretoria); in addition Dr. Jasper Anderson represented also the Natal Coastal and Border Branches.

Dr. Jasper Anderson was elected Honorary Secretary.

District Surgeons.

The Committee unanimously adopted a resolution pressing upon the Government the need for action in respect of certain grievances under which the district surgeons suffer, including—

Class 1.

1. Differential scales of payment in different provinces—that is, in payment for vaccinations.
2. Reduced drug allowance.
3. Loss of money caused by travelling to Circuit Court at 4d. per mile instead of district surgeons' rate of 1s. 3d. per mile.
4. Non-payment for dismounted police.
5. Marked increase of supply of drugs to paupers.

Class 2.

The injustice of the rule as to provision of a locumtenent when the district surgeon is engaged or absent on Government duty.

The Committee took the view that an agreement could easily be reached between the Government and the majority of the district surgeons as to the general principle on which appointments could fairly be held, including a retaining fee or salary for all work performed at the District Surgeons' Centre, with expenses for travelling and for attendance on midwifery cases and paupers. Sir Kendal Franks, Drs. Watkins-Pitchford, Gordon Grant, and Howell Davis were appointed a subcommittee to interview the Minister of the Interior, and to take whatever steps they thought necessary for remedy of the grievances.

Formation of New Branches in South Africa.

The Honorary Secretary reported a letter from the Organization Committee of the Association to the effect that arrangements had been made whereby in future no action would be taken by that Committee or the Council of the Association as regards changes of existing, or formation of new, Branches, until the South African Committee had had an opportunity of expressing its views.

Medical Defence.

The question of possible arrangements for voluntary insurance of individual members with respect to defence against actions for malpraxis, etc., was considered on the report of the Medical Defence Subcommittee. Certain further inquiries were directed to be made.

Medical Appointments During the War.

The Committee resolved that it was inadvisable that the Government should make permanent appointments during the war. The Honorary Secretary was directed to communicate this resolution to the Ministers of the Interior and for Justice. Arrangements were made with a view to liberating as many further medical men as possible.

Contagious Diseases Act: Treatment of Venereal Diseases.

The Honorary Secretary was instructed to write to the Branches asking their views as to the question of the repeal of Part I of the Act. The Committee approved the proposed free distribution of medicines for treatment of venereal diseases, as in accordance with the recommendation of the Royal Commission (London).

Medical Congresses.

It was decided that no Congress be held until after the war.

Medical and Pharmacy Bill.

Recommendations to the Branches made by the Committee and the replies of the Branches thereto were considered and decisions arrived at amending and approving various clauses of the bill. The Honorary Secretary was directed to forward the decisions to Dr. J. A. Mitchell, of the Public Health Branch, Department of the Interior.

Meetings of Branches and Divisions.

LANCASHIRE AND CHESHIRE BRANCH:

MID-CHESHIRE DIVISION.

THE following officers and committee were elected at the annual meeting held on January 21st:

Chairman: Mr. Alex. Young.
Vice-Chairman: Mr. W. C. Renshaw.
Representative in Representative Meeting: Mr. T. W. H. Garstang.
Representatives to Branch Council: Dr. H. A. Burrowes and Mr. E. L. Luckman.
Secretary: Dr. A. T. Blease.
Committee: Drs. P. R. Cooper, J. McCaig, W. Hickey, J. H. Hacking, H. Terry, G. H. Smith, T. A. Rothwell, A. Golland, L. Thorp.

THE LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

A LIST of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

INSURANCE.

RESOLUTIONS OF CONFERENCE OF LOCAL MEDICAL AND PANEL COMMITTEES.

DEPUTATION TO INSURANCE COMMISSIONERS.

As the result of the discussion which took place between the deputation of the Insurance Acts Committee and the Insurance Commissioners with reference to the resolutions adopted by the October conference of Local Medical and Panel Committees, the following correspondence has passed between the Insurance Commissioners and the Insurance Acts Committee. Representations will continue to be made to the Commissioners upon the various matters referred to in the resolutions of the Conference and a complete report with regard to each item will be submitted to the next conference.

National Health Insurance Commission (England),
Buckingham Gate, London, S.W.,
11th January, 1917.

Sir,

I am directed by the National Health Insurance Commission (England) to refer to the deputation of members of the Insurance Acts Committee of the British Medical Association, which was received at this office on Monday, the 18th December, and to state that it is understood that a brief capitulation of the main points under discussion will be of assistance to the Association. The following statement has accordingly been prepared by the Commissioners with the concurrence of the Welsh Insurance Commissioners :—

MEDICAL RECORDS.

The principal* object of the deputation was to urge that during the present emergency the obligation on panel doctors to keep records in the prescribed form should be suspended. In view of the strong representations made by the deputation and of the prospect of further demands being made on the profession by the military authorities, the Commissioners felt justified in approaching the Treasury on this matter, and they have since, as the Association is no doubt aware, notified each practitioner on the panel that the obligation to keep records will be waived during the year 1917. It will be appreciated that, in order to avoid causing panel practitioners generally a considerable amount of unnecessary trouble, it was essential to inform them of this decision before the end of the year, and for this reason notice was sent to individual practitioners before the Association was officially informed of the Commissioners action. A copy of the letter addressed to each practitioner is enclosed for your information, and attention is particularly directed to paragraph 4 of the letter.

In this connection I am to add that under the Medical Benefit Regulations the calculation of "case values" for the purpose of the remuneration of practitioners for the treatment of temporary residents is based on the records furnished for the year. It will, therefore be necessary to modify this system by adopting as a basis of calculation the records furnished in previous years, and this modification must be accepted as a necessary corollary of the concession.

Of the remaining points dealt with by the deputation it is proposed to refer first to the second question mentioned in the penultimate paragraph of your letter of the 7th ultimo, and then to deal with the several Minutes referred to in the enclosure to that letter.

(1) This question relates to attendance on insured persons who produce no medical cards or other evidence of insurance. As was pointed out to the deputation, the question resolves itself into two, namely (a) that of persons who apply to the doctor for treatment as insured persons, but fail to produce a medical card or other evidence of insurance; and (b) that of persons who neither produce a medical card (or other evidence of insurance) nor apply for treatment on the footing of insured persons.

As regards the first category, the view was expressed to the deputation that a doctor may properly protect himself against loss by charging a fee, on the understanding (expressed at the time to the patient) that he returns the fee if and when the person's title to medical benefit is established and he is placed on the doctor's list as from the date when treatment was first given. So far as concerns the provision by the doctor of drugs, the Commissioners do not anticipate difficulty in suggesting in any particular instance to Insurance Committees means by which in these cases (which are, as the deputation made clear, of a very exceptional kind) the cost of the drugs may be borne by the Committee's funds.

As regards persons in the second category who in applying for treatment make no reference to medical benefit or treatment under the National Insurance Acts, it was suggested by members of the deputation that at least in some classes of practice a doctor might not unreasonably hesitate to ascertain by a direct question whether the person was insured. The Commissioners find it difficult to believe that under any circumstances the point could not be brought to the notice of the patient either by a reference to the proposed fee or in other ways, and they feel strongly that both in his own interests and in those of the patient a doctor should make every endeavour to avoid the subsequent misunderstanding and difficulty which may result from the patient's position being left at the time undefined. The experience of the Commissioners has been that in the great majority of cases of this kind which have been brought to their notice there has been a direct conflict of evidence between the doctor and the patient as to whether or not application for treatment was made on the footing that the person was insured; and the Commissioners have no doubt that in many of these cases the discrepancy between the statements made has been the result of a genuine misunderstanding. Such misunderstandings can hardly fail to lead in some cases to the subsequent repudiation of the account, and are likely to be the source of annoyance and trouble alike to doctor and patient.

(2) *Minutes* 81, 14, 15, 73 *and* 97.

Attention was drawn by the deputation to the resolutions contained in these Minutes, and they have been noted. As regards Minutes 14 and 15 it was pointed out to the deputation that while the Commissioners are anxious to do all in their power to improve the machinery under which suspensions are notified and registers corrected, the depletion of the staffs of Approved Societies and Insurance Committees makes the task an increasingly difficult one.

(3) *Minute* 19.

It was pointed out to the deputation, that two separate questions have to be considered in connection with this point, namely, (a) the length of the period during which the terms of the Agreement are under negotiations (whether centrally or locally), and (b), the length of the period allowed to the individual practitioner in which to determine whether or not to accept the new terms. It is important that these two stages of the proceedings should not be confused.

The present procedure is as follows :—The period during which the doctor is entitled to give notice of his intention to resign from the panel at the end of the year expires on the 19th November, and the notice giving the new terms of the agreement must reach him not later than fourteen days before that date, *i.e.*, the 5th November. Before issuing such notice it is, of course, necessary for the Insurance Committee to have determined the amendments which they propose to make, and for that purpose they are required by Article 5 (1) of the Medical Benefit Regulations, 1913, to consult the Local Medical and Panel Committees. Before such consultation takes place the Commissioners must inform Insurance Committees of any alterations in the Regulations which will come into force in the ensuing year, and this information must consequently be in the hands of Committees several weeks before the 5th November. In the year 1916, the Commissioners advised Committees of the new Regulations on the 15th September, and suggested to them that Local Medical and Panel Committees should be immediately informed. The Panel Committees therefore received notice of the proposed alterations in the Regulations more than three months before the end of the year, and a period of some seven weeks was available in which Insurance Committees had the opportunity of consulting the Panel Committees before finally determining any local amendments to be made in the local agreement.

It will be appreciated that in order to allow of Insurance Committees being informed of proposed alterations in the course of September, it is necessary for the Commissioners at a much earlier date to consider the matter in consultation with their Advisory Committee, and to deal with any points brought to their notice on behalf of the profession, and if, as is understood to be the case, the Insurance Acts Committee of the British Medical Association may not infrequently desire to submit points which arise in the course of the negotiations for the opinion of panel Committees throughout the country, it is obvious that the negotiations may be protracted. Any advantage, therefore, which might accrue from extending the length of any of the stages outlined above must be weighed against the disadvantage of commencing the consideration of amend-

** The Insurance Acts Committee desires to point out that while a considerable part of the discussion at the deputation was in connection with the subject of Medical Records, insurance practitioners will realise that the primary object of the deputation was the discussion of the resolutions of the recent Conference.*

ments at a period in the year when there has not been sufficient opportunity of reviewing the existing arrangements.

The Commissioners were not clear as to the precise object which the resolution put forward by the deputation seeks to attain, and they would suggest that the matter might be reconsidered in the light of the observations made above.

(4) *Minutes 58 and 59.*

The calculations upon which the figures referred to in these resolutions are based are necessarily of great complexity, and it would not be practicable to present in any intelligible form a concise statement embracing all the details for the country as a whole. As regards, however, the statements of figures furnished to Insurance Committees, the Commissioners would be prepared to take a convenient opportunity of advising Insurance Committees to provide Panel Committees with copies of these statements, if a request is made for them, and they understand that this will substantially attain the objects which the resolutions were designed to secure.

Minute 91.

The question whether any particular kind of expenditure comes within the terms of Sub-Section (2) of Section 33 of the Act of 1913 as being "for the administrative expenses" of a Panel Committe is a legal one depending upon the interpretation to be placed on the Sub-Section; and the Commissioners have no power to enlarge the scope of the Sub-Section by any administrative action.

The Commissioners are not entitled to give any binding decision on the legal point involved, but the following observations may be of assistance to the Association.

So far as regards the travelling expenses of members attending the meetings of a Panel Committee, the Commissioners are advised (as the Associat on have already been informed) that this expenditure on the part of the member cannot be regarded as forming part of the administrative expenses of the Committee, and cannot therefore be brought within the terms of Section 33 (2). This view is supported by the fact that the repayment (in certain cases) of the travelling expenses of members of Insurance Committees is expressly provided for by Statutory enactment in the proviso to Section 61 (2) of the National Insurance Act, 1911.

The question of the travelling expenses of selected members of the Panel Committee attending on behalf of the Committee at central conferences appears to the Commissioners to stand upon a different footing. The determining factor in this case would be, as they are advised, the objects for which the conference was summoned. If these objects are in the main the discharge of the statutory functions charged upon Panel Committees through the channel of any central organisation to which they may have affiliated themselves for the purpose, it appears to the Commissioners that such travelling expenses might properly be treated as the administrative expenses of the Panel Committee.

I am, Sir, Your obedient Servant,

S. P. VIVIAN.

The Medical Secretary,
British Medical Association, 429, Strand, W.C.

British Medical Association,
Medical Department,
429, Strand, London, W.C.
19th January, 1917.

Sir,

Deputation from the Association on December 18th, 1916.

Your letter of the 11th instant was considered by the Insurance Acts Committee at its meeting held the same day, when instructions were given for your letter, together with this reply, to be published in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL.

Production of Medical Cards—Onus of Proof.

The Committee notes the views of the Commissioners on this question, but desires again to reiterate its opinion that the onus of proof as to right to medical benefit must rest upon the insured persons and not upon the medical practitioner.

Notice as to Proposed Alterations in Agreement.

The Committee desires to make it quite plain to the Commissioners that Panel Committees will not be satisfied unless definite arrangements can be made by the Commissioners which will allow the Insurance Acts Committee to communicate to Panel Committees by October 1st, at latest, the details of any proposed alterations in the agreement for the ensuing year. The Committee adheres to its desire that the latest date by which insurance practitioners must notify the Insurance Committee of their intention of not continuing on the panel the succeeding year be altered from November 19th, the present date, to December 1st. The deputation in pressing this point was met by the statement that inasmuch as an insured person had to give notice to the Insurance Committee of his intention to transfer to another doctor by December 1st, it was necessary that insurance practitioners should be required, at some prior date, to notify the Insurance Committee of their intention not to continue on the panel for the ensuing year, so as to allow of the Insurance Committee being in possession of information as to which of the local medical practitioners would be on that panel. The Insurance Acts Committee considers that the objection to making the desired alteration, while correct in theory, is not a practical objection, inasmuch as (a) there is ample opportunity for an insured person desirous of changing his doctor to ascertain before December 1st (when he must give notice of his intention to transfer) whether the practitioner to whom he desires so to transfer is continuing on or going on the panel, and (b) that it is a well known fact that no Insurance Committee ever has a complete panel list in existence, and practically available until after January 1st. The Committee therefore urges that this additional fortnight be added to the period allowed for insurance practitioners in which to make up their minds whether or not to continue on the panel.

Payment—Supply of Data to Insurance and Panel Committees.

The Committee desires to press that Panel Committees shall have the right of being provided, as a matter of routine, with copies of the sets of figures furnished to Insurance Committees by the Commissioners, and not merely be provided therewith, only on request being made for them

I am, Sir, Your obedient Servant,

JAS. NEAL,
Deputy Medical Secretary.

The Secretary,
National Health Insurance Commission
(England),
Buckingham Gate, S.W.

BRITISH MEDICAL ASSOCIATION AND INSURANCE PRACTITIONERS.

A CIRCULAR LETTER recently issued by the Honorary Secretary of the Wiltshire Panel Committee to the practitioners on the Wiltshire Panel contains the following statement:

I had the pleasure of attending the recent Conference in London as your Representative, and what impressed many of the Representatives more than anything else was the great amount of quiet effective work that has been, and is being, done on behalf of panel practitioners by the Insurance Acts Committee. We came away quite satisfied that our interests are being very carefully watched, and through the medium of the Rural Practitioners' Subcommittee, men working in country areas will now be able to bring forward any grievances that they may have with a certainty that they will receive sympathetic consideration.

LOCAL MEDICAL AND PANEL COMMITTEES.

COUNTY OF LONDON.

Co-operation of Panel Committees.—At the meeting of the London Panel Committee on January 23rd a further reference was made to the suggestions for bringing about a closer co-operation of Panel Committees throughout the country. This had formed the subject of a resolution at the meeting on December 19th (BRITISH MEDICAL JOURNAL, January 6th), which urged the Commissioners to take steps to secure that a body directly representative of Panel Committees should be set up and consulted when it was necessary to obtain the views of the panel profession. It was now reported that the resolution had been forwarded to the Commissioners, who had replied that, in view of the resolution passed by the recent Conference appointing the British Medical Association as the mouthpiece of the Local Medical and Panel Committees, it was not clear what action they could take. Four members of the Committee have now been appointed to draw up a statement for submission to the Commissioners, and in the meantime copies of the Committee's resolution are to be sent to all the other Local Medical and Panel Committees in the country, together with a letter inviting their co-operation.

Mobilization of the Medical Profession.—The Committee, which had already at a special meeting passed resolutions on this subject, agreed to a further recommendation to the effect that in any general scheme of

substitution the regulation now in force restricting the right of insured persons on the lists of practitioners absent on service with the forces to transfer at the end of the medical year should be extended to cover the case of any panel practitioner who might be transferred from one area to another as the result of mobilization.

Statistical Information.—It was announced that the count of the Index Register of insured persons in the county on October 1st, 1916, was 1,610,493, and of the Medical Register, 1,522,976. Dr. Richmond, the secretary, said that he had been supplied in advance with the figure for the Index Register on January 1st, which was 1,606,846. During the first nine months of 1916 the number of prescriptions issued for insured persons was 3.168,222, the cost of ingredients was £36,884, and the dispensing fees amounted to £33,912; the average cost for each prescription was 5.36d. These figures included prescriptions for temporary residents and persons in receipt of domiciliary treatment. It was thought that a small proportion of the 1916 drug fund would be available for distribution amongst practitioners on the panel.

MIDDLESEX.

The Middlesex Panel Committee had under consideration at its last meeting the steps that should be taken with regard to the future working of the Insurance Acts and Regulations, and alterations which may be made in them, and it appointed a subcommittee to survey the situation and to report in April.

HAMPSHIRE.

At a meeting of the Local Medical and Panel Committees on January 17th it was resolved to send to all panel practitioners a form for the statistics of 1916 as requested by the British Medical Association. A proposal to support the Panel Medico-Political Union was postponed for three months. It was agreed that no model scheme under the proviso to Article 3 of the new medical benefit regulations for 1916 should be adopted pending the receipt of the model scheme of the British Medical Association.

EAST SUFFOLK.

At a meeting of the Panel Committee on January 9th it was reported that there were at present 1,200 suspense slips in the register, and it was decided to ask the clerk to the Insurance Committee to forward those having reference to the respective members of the Panel Committee for the assistance of the Committee. It was resolved to consider the revision, and, if necessary, to redraft the present mileage scheme at a special meeting of the Committee to be held in May, and to inform the East Suffolk County Council that, in the opinion of the Committee, any registered practitioner holding any one or more of the four qualifications mentioned in the circular letter of the Local Government Board dated August 29th, 1916, was *ipso facto* entitled to a gratuitous supply of salvarsan, and that in such cases the medical officer of health had no right to refuse the same. It was decided to ask for a flat rate of 6d. per prescription for 1916.

COUNTY OF LANARK.

At a meeting of the Local Medical and Panel Committee on January 17th it was agreed to inform the Insurance Committee that the present arrangement whereby panel doctors consult in the premises of panel chemists should remain till after the war, without prejudice to the questions involved. It was decided to issue a circular to panel practitioners with reference to the treatment of soldiers by civilian doctors, and the procedure to be taken in connexion therewith. A subcommittee was appointed to consider the scheme for medical referees which had been adopted in Ayrshire, and to report.

RENFREW COUNTY.

It was agreed that applications for change of doctor by insured persons on the lists of practitioners holding naval or military commissions, when based on grounds in no way connected with the practitioner's military service, should be granted. It was decided to issue to practitioners a schedule in the form suggested by the British Medical Association for information as to the work done by practitioners during 1916.

INSURANCE NOTES.

DISCHARGED SOLDIERS AND INSURANCE.

IN the SUPPLEMENT of December 2nd, 1916, a summary was given of a Circular A.S. 183 issued to approved societies by the Insurance Commissioners with regard to the payment of sickness benefit in the case especially of discharged soldiers who have been insured during their service, and the suggestions made in that circular have been apparently so open to misinterpretation that the Commissioners have found it necessary to issue a further circular, A.S. 183*a*, explanatory of the first. The first circular was evidently instigated by a feeling of sympathy with men who, while not entirely incapable of work, might for some time be unable to obtain such lighter work as they could do, and the Commissioners recommended these persons to the favourable consideration of societies. But it now appears that some societies have taken this as a suggestion that sickness benefit should be used as a sort of unemployment benefit—that is to say, in making payment to members who, after recovering from sickness, are unable to obtain employment. That was clearly never intended by the Commissioners, though it cannot be denied that the least hint of anything like leniency in the strict carrying out of the law is always open to misinterpretation. The Commissioners are therefore compelled to state that they never intended to recommend societies to break the law that sickness benefit can only be paid when a person is "incapable of work" in the legal meaning of the term.

It is a pity that any legal difficulty should have been raised over what was evidently a well-intentioned suggestion on the part of the Commissioners made in the interests of the men who have deserved so well of their country. Every one who is acquainted with the management of approved societies must know that lenient consideration may be perfectly compatible with observance of rules in the numerous cases that are on the borderline between "incapable of work" and "unable to follow the usual occupation." It is impossible to make a rule that covers every case and even the medical attendant is often in doubt. As however the question has been raised, the Commissioners were perhaps compelled by their position to say that they must not be understood to recommend that the law should be broken. But it is hardly to be imagined that any society will be found that will in case of doubt insist on the utmost rigour of the law and will not rather give the benefit of any doubt to the members who "have done their bit" for their country. Indeed, no reasonable person would blame them if in suitable cases they even stretched a point in the interpretation of the rule, nor can it be imagined that the Government would ever allow the societies to suffer on that account to any material extent.

THE WAITING DAYS FOR SICKNESS BENEFIT.

It is often convenient for panel doctors to know the position of patients with regard to the three waiting days at the commencement of an illness for which no sickness benefit is payable. Under the Act of 1911 the waiting days were four, but in the amending Act of 1913 the wording was so altered that the benefit begins on the fourth day, so that there are really only three waiting days. There is a common idea among the insured that the three waiting days are not deducted twice in a year—that is, when a second illness occurs during the year. This is not, however, strictly and always correct, and even society officials appear to have doubt in some cases, especially as the instructions on the subject which appeared in the earlier *Handbook* are omitted in the *Handbook* for 1915. A writer in the *National Insurance Gazette* has drawn the attention of the Commissioners to the subject and has received the following reply:

Memo. C.S.—If an insured person, having been in receipt of sickness benefit, recovers and again falls ill, the second illness is reckoned as a continuation of the first, unless between the end of the first illness and the beginning of the second a period of at least twelve months has elapsed. If a period of twelve months has elapsed sickness benefit will be payable commencing on the fourth day of the second illness. If a period of twelve months has not elapsed and the member has not exhausted his right to sickness benefit, sickness benefit will be payable from the first day of the second or subsequent illness, and will continue to be payable for such part of the maximum period of twenty-six weeks as has not been exhausted in the previous illness.

If, however, the first illness does not extend to the fourth day no benefit will have been paid in respect of it, and the second illness will therefore count as a new illness even if it occurs within twelve months of the previous illness. Benefit will then be payable commencing on the fourth day of the second illness.

Sick Visiting of Insured Persons.

The Association of Approved Societies has issued its scheme for the joint sick visiting of incapacitated members of approved societies.

It recommends that where practicable whole-time visitors should be appointed, or where this is impracticable, part-time visitors, and that any society should be entitled to the use of the visitors on payment of 4d. a member a year, or if only special visits were wanted at a charge of 1s. for each such visit. The duties of the sick visitors include a weekly visit to insured persons incapacitated from work, and the sending in of a weekly report to the secretary of the association. The visitor is to report "on the physical and material condition of the person visited," and whether the person is complying with the doctor's orders and the rules of the society. He is also to report any inattention on the part of the doctor. He must further report any circumstance which may not be conducive to the good health of the person visited, or which is likely to militate against or retard speedy recovery, and in this connexion an immediate report is to be made as to any overcrowding, insufficient supply of pure water, insufficient sanitary arrangements at the member's place of employment or residence, habitual intemperance or misconduct, or unhealthy overcrowded home surroundings.

It is clear that to carry out properly these duties the sick visitors will have to have some sort of training as sanitary inspectors, and unless the greatest care is exercised to avoid any undue interference with either the doctors or the recognized sanitary officials, there may be some danger of difficulties arising.

CORRESPONDENCE.

Future of Insurance Practice.

Dr. S. Noy Scott (Plymstock) writes: Like Dr. Lyth, I have carefully read M. 229 I.C., and I can only say that the result is to convince me of the utter bondage of the profession. The Commissioners plainly tell us that we must be satisfied with all they say or do, and there's an end to it! The apathy of the profession is appalling, and it can apparently only be roused to action by some future great act of injustice. But why need we wait for such a contingency? Can we not find some common ground of action and take the offensive against the Commissioners? Is it not possible for the British Medical Association (or one of the other existing organizations) to bring an action on behalf of one of its members for recovery of full payment of what is due under the contract made with him? If funds are needed for such an action I would gladly subscribe, and even if the action were lost it would clear the air, and show how we have been deceived. At present we seem bound to accept every decision of the Commissioners as law. Surely the doctors did not mean this when they accepted service under the Act. The records which I have kept prove that we are not being paid at the rate we were promised, and also that the work done exceeds that which was expected of us. In the old club days I was always paid a quarter's fees for every member who joined or who happened to die during the quarter. Now a day is the Commissioners' unit. Personally, I would rather go back to the club system, with all its imperfections, but with its greater freedom of contract.

With Dr. Pereira I have serious fears for the future. Every week which passes brings additions to my list of females insured, and all munition workers are gradually being enrolled amongst the insured, and will probably remain insured after the war. The effect of this is that my private practice is being gradually but surely depleted of those who have hitherto been good paying patients, and there is very little prospect of others taking their place. Another serious aspect is that some who were able to live on their private means are now (because of their patriotic work in connexion with the war) compulsorily placed amongst the insured.

On protesting to my Insurance Committee against the deduction of 20 per cent. from my fees I am told that the reasons were inflated lists and the large number who had enlisted. It is my weekly custom carefully to add the new cards received by me and to remove from my list all who are marked removed, suspended, or enlisted, and I am certain that I am responsible for medical attendance on a far greater number than I am paid for. My experience, therefore, is that each year sees more work done and less money received, and it proves that I was correct in my statement when the Act was passed that we were then given the minimum of work and the maximum of pay, and I am, perhaps unfortunately, one of those individuals who cannot practise medicine from a purely philanthropic point of view, but am also compelled to look on it as a means of getting what I believe to be an honest livelihood.

Mobilization and National Service.

A Welshman writes:

The newly appointed Director-General of National Service, together with his military and civil directors, claim the fullest confidence and most active co-operation of the medical profession in the stupendous task that lies before them. Your editorials and correspondence columns of late have been disappointing—the former for their silence, and the latter for their lack of enthusiasm, when it is well known and felt that the heart and soul of the profession are throbbing for the fray. Our medical *confrères* have certainly done wonders on voluntary lines, but as those days are over, we have now to see how we can go one better on compulsory lines. A glance at a few of the defects of the voluntary system, with its attendant abuse, hardships, and injustice, should clear the air, and render the greatest service to the men who henceforth will direct our energies.

To begin with, mobilization of the profession means that every medical man in or out of practice, not a hopeless invalid from infirmity or age, should do his part in the reorganization of our services as directed by the authority in control. National service, again, means that every medical man of 41 and under, capable of any work, must serve his country in the R.A.M.C. or as a combatant. These issues should be clearly borne in mind, as we are now in for one or other, or both. Your Medical War Committee are undoubtedly pondering over these matters, and will no doubt without delay present a scheme to the Branches and Divisions for their immediate discussion and action. Our governing medical bodies, including the General Medical Council, the universities and colleges, the Insurance Commissioners, and even the Director-General of the army himself, have been too lenient with the stay-at-homes, and not vigorous enough to brush aside the whims of these for the loftier claims of our suffering soldiers and sailors. It is to be hoped that your democratic JOURNAL, the *Lancet*, and the medical and lay press in general, will untiringly thresh out the subject, give the profession a lead, and show the way to our new Director-General.

The utilization of the man-power of the profession has been lamentably inefficient and unjust in the past. Volunteers have been welcomed to take commissions almost irrespective of age, and veterans have been dug out of the retired lists, whilst young men, that is, of 41 and under, have been allowed to carry on their increasing practices, and even given the soft jobs, or "plums," of examining recruits and the charge of troops, despite King's regulations to the contrary. This is keenly resented by the men abroad, and those serving away in this country, but they grouse not. If justice were done between man and man those whose brains and nerves have been racked after two years abroad should be gradually recalled and replaced by degrees. There will always be plenty of middle-aged (over 41) and elderly medical men in this country to cope with all urgent sickness and accident, so long as the profession is mobilized and the plethora of certain town areas distributed over the scattered places. Government departments must awake to the fact that their medical officers cannot live and do their highest national duty by piling on to them ever-increasing clerical work. Let us hope that the new President of the Local Government Board will set a war-time example.

Before the outbreak of war it was known that many doctors had three and four thousand panel patients on their lists, and they got through the work comfortably, *plus* in some instances a fair amount of maternity work and private practice. If this could be done in peace times, surely double the amount could be done now when the public are made more abstemious and less exacting and the call is more urgent. Private practitioners have doubled and trebled their practices since their neighbouring

colleagues have voluntarily gone, or been called up, and there is no reason why these colleagues should not do the same if recalled and their rivals have to depart. General and special hospitals have well fulfilled their function with depleted staffs; many work side by side with the military authorities already, and all may have to come under their jurisdiction. No provincial hospital should retain a young house surgeon or physician or anaesthetist, excepting, of course, a lady doctor; and the practitioners of every town and village should be invited to proffer their services with the out-patient, and perhaps the in-patient, department, when the staff is reduced. Hospitals with schools attached should keep their qualified students for a few months only, and not years, for further special fitness for the army or navy; and higher examinations will have to wait till the war is over. Asylums of all kinds and sorts should only be run by the older men, who would quickly enough learn the ropes. School medical officers should be women only. In this way, and possibly many others, a small army of eligible young men (under 41) would be forthwith available for our new Director-General, and things would go on quite as smoothly at home as if there were no war.

We are proud to be thought of as members of an honourable profession; let it be our pride to feel in honour bound to offer our best and our whole in sacrifice to our brother nations in arms. Let no man of age, and fit, seek shelter behind the finding of some medical board. Every man who is equal to the strain of medical practice is equal to any demand that will ever be made of him in the army or navy.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following notifications are announced by the Admiralty: Fleet Surgeons P. E. Maitland to the *Vivid*, additional, for disposal; W. H. O. Garde to the Dungavel Auxiliary Hospital; A. J. Pickthorn to Rosyth Dockyard; F. H. Nimmo to the *Victory*, additional, for disposal; L. Kilroy to the *Agincourt*; A. R. Bankart, M.B., C.V.O., K.H.P., to R.M. Division, Portsmouth; W. H. Daw to the *Shannon*; C. M Beadnell to the *Vernon*; J. A. Keogh, M.B., to the *Emperor of India*; P. M. May to the *Pembroke*, additional, for disposal; L. E. Dartnell to the *Erin*; H S. Burniston, M.B., to the *Marlborough*; A. Maclean, M.B., D.S O., to the *Pembroke*, additional for medical charge of R N. Barracks, Chatham; H. W Finlayson M.B., D.S O., to the *President*, additional for Greenwich College and School. Staff Surgeons A. F. Fleming, D.S.O., to the *Vivid*, additional; R. H. St. B. E. Hughes to the *Leander*; G. C. Cross to the *Juno*; P. L. Crosbie to the *Pembroke*; R. H. Atkins, M.B., to the *Birmingham*. Temporary Surgeons T. W. Robbins, G. E. Burton, W. B. Heywood-Waddington, A. V. S. Davies, and C. H. Terry to the *Vivid*, additional, for Plymouth Hospital; C. H. S. Taylor to the R.N Hospital, Portland, additional; E. H. Hugo, M.B., E. I. Parry, and A. E. Gow, M.B., to the *Vivid*, additional, for disposal; C. A. Anderson to the *Victory*, additional, for R.N Barracks, Portsmouth; R. H. Atkins, M.B., to the *Victory*, additional, for disposal; W. J. Colborne, S. N. Scott, A. F. Grimbly, M.B., K. Masson, D. L. Baxter, and E. A. Cockayne, to the *Victory*, additional, for Haslar Hospital; F. B. Eykyn, M.B., to the *Victory*; W. H. Blackburn, S. Wilson, and C. N. Carter, to the *Pembroke*, additional, for Chatham Hospital; S. F. Abbott to the *Pembroke*, additional, for Welcome Auxiliary Hospital, Chatham; N. Jennings, M.B., to Haslar Hospital; W. E. Fox, M.B., to the *Ganges*, for Shotley Sick Quarters; I. H Beattie to the *King Alfred*; W. H. Coldwell to the *Juno*; F. M. Allchin to the *Duke of Edinburgh*; T. S Bradburn to the *Cyclops*; W. J. Coullie to Sheerness Barracks and Yard; J. J. Carroll, M.B., to the *Otway*; T. Grimson to the *Virginian*; J. L. Lamond to the *Orotava*; W. D. Pearman to the *Patia*; F. Ewart, M.B., to the *Ponca*; J. E. Clark to the *Montague*; T F. O'Donoghue to the *Columbella*; E. A. Green to the *Hildebrand*; T. H. W. Idris to the *Royal Arthur*, vice Maxwell; G. C. Mathie to the *Victorian*; T. C. Blackwell, M.D., to R.M. Artillery, Eastney, Portsmouth; B. H Pidcock to the *Birmingham*. To be temporary Surgeons: L. P. L. Firman-Edwards, K. M. Ross, G. Hoffmeister, E. S. Orme, E. M. Atkinson, M. Pearson, D. G. Churcher, J. G. Stevens, C. J. L. Blair, W. V. Gabe.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeons A. H. Crook to the *Victory*, additional; T. D. Dixon to the *Impregnable*; Temporary Surgeons J. R. Kay-Mount, M.B., to R.M. Division, Deal, additional; A. H. Crook to the Haulbowline Hospital and Dockyard: Surgeon Probationers T. James to the *Llewellyn*; A. B. Macdonald to the *Spitfire*.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonels to be Acting Colonels whilst employed as Assistant Directors of Medical Services of a Division: G. W. Tate, M.B., F. E. Gunter, M.B. (substituted for the notification in the *London Gazette* of August 22nd, 1916)

Lieutenant-Colonel E. Brodribb is placed on the half-pay list on account of ill health.

Majors (acting Lieutenant-Colonels) relinquish their acting rank on reposting: W. J. P. Adye Curran, A S. Arthur, M.B

Major D. O. Hyde, D.S.O., M.B., to be acting Lieutenant-Colonel whilst in command of a field ambulance.

Captain A. M. Pollard to be acting Lieutenant-Colonel whilst in command of a field ambulance.

Temporary honorary Major T. C. L. Jones, F.R.C.S., having ceased to be employed with No. 6 British Red Cross (Liverpool Merchants' Mobile) Hospital, relinquishes his commission.

Temporary Major P. MacGregor relinquishes his commission on account of ill health.

Captain W. L. A. Harrison, R.A.M.C.(S.R.), to be Lieutenant, and is granted the rank of temporary Captain with seniority next below Lieutenant G. C. Robinson (substituted for notification in the *London Gazette* of January 10th).

Captain R. A. Preston, M.C., M.B., R.A.M.C.(S.R.), to be Lieutenant and to be granted the temporary rank of Captain with seniority next below J. C. A. Dowse.

Temporary Captains relinquish their commissions: A. G. Henderson, M.D., R. Sinclair, M.B.

F. H. Knaggs to be temporary Captain whilst employed at the Huddersfield War Hospital.

Temporary Captain A. Thompson takes rank and precedence in the corps and in the army as if his appointment to the rank of temporary Captain bore date November 18th, 1916.

Captain E. M. Middleton to be acting Major whilst in command of a field ambulance.

Temporary honorary Captain A. E. Ward, having resigned his appointment at the Springburn and Woodside Central Red Cross Hospital, relinquishes his commission.

The notification in the *London Gazette* of January 10th regarding temporary Captain Alexander F. G. Guinness is cancelled.

The name of Captain William B. Purdon, M.C., M.B., is as now described, and not as in the *London Gazette* of January 12th.

To be temporary Captains: Lieutenant E. P. Evans, M.D., J. L. Aymard, P. S. Blaker, late Captain I.M.S., H. Dodgson, M.B., L. M. Scott, M.D., C. R. Skyrme, M.B., late Surgeon Captain R.G.A.(Vols.), A. E. J. Barcroft, E. A. Chartres, F.R.C.S.I.

Captains from R.A.M.C Special Reserve to be Lieutenants and are granted the rank of temporary Captain: W. L. E Reynolds, H. R. Shepard (substituted for the notification in the *London Gazette* of January 10th).

Temporary Captains relinquish their commissions on account of ill health: G. Coats, F. J. Ayre, J. E. Stacey, M.B, G. Melville, M.B., T. S. Brodie, M.B., R. M. Boyd.

Temporary Lieutenants relinquish their commissions on account of ill health: E. Denison, R. T. Jupp, M.B., F R.C.S., W. Thomson, M.B.

Temporary Lieutenant R. Paterson, M.B, relinquishes his commission on account of ill health (substituted for announcement in the *London Gazette* of December 27th, 1916).

Temporary Lieutenants to be temporary Captains: J. H. Thornley, M.B., H. Miller, M.B., W. A. Paterson, M.B., H. Coppock, M.D., J. B. Dunning, M. ., M.B., J. A. Thomson, M.B., F. B. Pinniger, M.D., A. R Jordan, M.B., F.R.C.S. F. S. Partridge. P. de C. Potter, R. D. Bell, M.B., J. W H. Boyd, M.B., H. Speirs, M.D., F.R.C.S.E., W. H. Gray, H. Child, R. H. W. Garle, A. Stewart, M.B., P. B. Harrison, D. Manson, M.B., J. B. Cunningham, M.B., A. R Jackson, M.D., A. M. Mitchell, M.B., J. E. J. R Kelly, J. E. Ruck, R. J. Mayberry, M.D., B C. Eskell, M.B., J. D. Mercer, H. B. Billups, M.B., J. H. Addinsell, J. B Randall, M.B., E. D. Adrian, M.B., B. F. Bailey, M.C., C. E. Bes, M.B., J. B. Alexander, M.B., T. W. McCubbin, J. M. Gage, A. W. S. Sichel, M.B. J. P. Jones, H. Q. O. Wheeler, A. E. Atkinson, J. J. Healy, M. Redding, F.R. .S., T. Tierney, M.D., J. S. Curgenven, J. R. Magee, R. Rowlands, S. H. Richards, M.B., W. F. V. Simpson, M.B., A. Feiling, M.D., E. Evans, J. F. Gallaher, M.B., A C. Wilson, M.D., H. G. R. Jamieson, M.B., R. L. Blenkhorn, M.B., H. C. T. Langdon, M.B., W D. Kennedy, M.B., R. W. L. Fernandes, M.B., A. S. L. Malcolm, R. O. Whyte, M.B.

Temporary Lieutenants relinquish their commissions; E. A. Seale, M.D., H. J. Cooper, M.B., G. Kennedy.

To be temporary Lieutenants: E. Tempany, M.B., H. F. Stephens, T. W. Parry, M.B., R. D. MacGregor, M.B., H. E. Brown, M.B., D. V. Muller, J. D Walker, J. H. Swan, G. C. Swanson, M B., H B. Watson, M.D., H. W. Perkins, F.R.C.S., E. G. Y. Thom, M.B., A. G. Jenner, J. L Johnston, M.D., W. J. Isbister, M.B., J. G. Elder, M.B., T. C. D. Watt, M.B., G. Robertson, A. H. Hall, M.B. A. D. Turnbull, J. G. Havelock, M.D., D. H. Fraser, M D. T. H. G. Shore, M.B., R. Dane, E. A. Runting, A. P. Draper, M.D., A. B. MacCarthy, M.B., G. Heathcote, M.B.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel C. Duer, M.B., F.R.C.S., of the retired list, is re-employed during the period of the war, with effect from October 26th, 1916.

Major G. Tate, M.B., appointed temporarily to be Civil Surgeon, Simla (East), with effect from October 1st, 1916; and, in addition, to be in charge of the current duties of Health Officer, Simla, with effect from October 21st, 1916.

Major A T. Gage, Director, Botanical Survey of India, placed on special duty in the Department of Revenue and Agriculture to inquire into the possibility of obtaining suitable land for cinchona cultivation.

Major E. S. Peck, M.B. (retired), who was re-employed, has been permitted to resign, with effect from March 4th, 1916.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captains to be acting Lieutenant-Colonels whilst in command of a field ambulance: (Acting Major) R. Magill, M.B, W. H. L. McCarthy, M.C., M.D., W. R. Gardner, M.B.

Captain (temporary Major) R. M. Beath, M.B., relinquishes his temporary rank on ceasing to command troops on a hospital ship.

The undermentioned relinquish their commissions on account of ill health: Captain J. F. van der Westhuyzen, M.B., Lieutenant (on probation) C. R. Sandiford, M.B.

The notification in the *London Gazette* of December 20th, 1916, regarding Captain J. E. Cheesman is cancelled.

Captain R. Hay relinquishes his commission on appointment to the I.M.S.

Lieutenants to be Captains: W. S Dawson, M.B., G. Perkins, M.B., J. N. L. Blamey, M.B., R. L. Newell, M.B., J. Alston, M.B., J. J. B. Edmond, M.B., A. M. Paterson, M.B., R. D. Cameron, M.B., W. J. F. Craig, M.B., W. L. Ingham, M.B., C. Rudd, M.B., M. Foster, M.B., J. Pennett, M.B., A. K Gibson, M.B., B. J. Ryrie, M.B., J. M. Smellie, M.B., D. G. Stoute, M.B., J. A. C. Guy, M.B., C. W. Dudley, M.B., J. A. Nicholson, M.B., H. G. Broadbridge, W. Corner, M.B

To be Lieutenants: J. A. Charles, M.B., B Mountain, from University of London Contingent O.T.C. substituted for the notification in the *London Gazette* of January 2nd) G. G. Jack, D. Mitchell, M.B., H. C. Roberts, M.B., C Tighe, M.B., W. B. Lawson, J B. Leigh, M.B. from Manchester University Contingent O.T.C., W. Garde-Brown, M.B., E. F. Creed, M.B., N. S. Tirard, M.B., . E. Micklem, M.B.; R A. Woodhouse, and E. R. W. Gilmore, M.B., from University of London Contingent O.T.C.; W. C Craig, M.B., J. S. Munro, from University of Edinburgh O.T.C.; W. Westby, M.B., J. H. E. Annequin, G. C. McEwan, M.B., R. J. Smith, M.B

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

The surname of Lieutenant-Colonel G. R. Phi p is as now described, and not Philip, as in the *London Gazette* of November 17th 1916.

Lieutenant Colonels relinquish their temporary commissions: J. McCombe, G. E. Armstrong.

Major C. F. McGaffin to be temporary Lieutenant-Colonel.

Major T. P. Bradley (Canadian Militia) to be temporary Major.

Captain E. R. Selby to be temporary Major.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Captain J. N. Robbins, from a T.F. Field Ambulance, to be Deputy Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Major J. S. Mather, M.B., relinquishes his commission on account of ill health, and is granted the honorary rank of Major.

Major A. H. Burgess, M.B., F.R.C.S., is now seconded whilst holding a temporary commission with R.A.M.C.

Captain A. Cuffe, M.D., F.R.C.S., resigns his commission on account of ill health.

Captain (temporary Major) J. Bruce, M.B., to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

Captain W. A. Slater, M.B., from 1st Northern General Hospital, to be Captain.

Captain C. A. Spooner is seconded for duty with a hospital abroad.

Captain K. B. Clarke relinquishes his commission on account of ill health, and is granted the honorary rank of Captain (substituted for announcement in the *London Gazette* of March 4th 1916).

Lieutenants to be Captains: G. L. Findlay, M.B., G. D. Newton, K. F. R. Davison, W. F. Lanchester, E. B. C. Mayrs, M.B., G. C. Williams, A. Iredale, M.B., T. Higson, R. Welch, M.B., J. S. Burton, H. B. Pope, H. W. Taylor, R. R. Powell.

The announcement which appeared in the *London Gazette* of May 8th, 1915, regarding the appointment of J. S. Horn, M.B., is cancelled and the following substituted: J. Steedman to be Lieutenant.

Captain H. E. S. Richards, M.D., from Attached to Units other than Medical Units, to be Captain (substituted for announcement in the *London Gazette* of July 12th, 1916).

To be Lieutenants: K. S. Beken, J. D. Davidson.

Attached to Units other than Medical Units.—Major R. J. R. C. Simons relinquishes his commission on account of ill health, and is granted permission to retain his rank and to wear the prescribed uniform.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BARNSLEY: BECKETT HOSPITAL AND DISPENSARY.—House-Surgeon. Salary, £200 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Second and Third House-Surgeons. Salary, £200 and £180 per annum respectively.

BRISTOL GENERAL HOSPITAL.—House-Surgeon. Salary, £175 per annum.

CAMBERWELL: PARISH OF ST. GILES. Two Locumtenent Assistant Medical Officers for the Infirmary. Salary, £7 7s. weekly.

CARDIFF: KING EDWARD VII HOSPITAL.—House Surgeon.

DERBYSHIRE ROYAL INFIRMARY.—(1) House-Physician and Casualty Officer. (2) Residential Anaesthetist. Salary, £200 per annum.

DUMFRIES: CRICHTON ROYAL MENTAL HOSPITAL.—Temporary Pathologist and Clinical Pathologist. Salary, £300 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £200 per annum.

KENT EDUCATION COMMITTEE, Maidstone.—Temporary School Inspector and Medical Officer of School Clinic. Salary, £350 per annum.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LONDON UNIVERSITY.—External Examiners in subjects of the examination for medical degrees.

MANCHESTER CITY.—First Assistant Medical Officer to the Baguley Sanatorium for Tuberculosis. Salary, £300 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer. Salary, £225 per annum.

NORTHERN HOSPITAL, Winchmore Hill, N.—Assistant Medical Officer (Resident, temporary). Salary, £7 7s. a week.

NOTTINGHAM AND MIDLAND EYE INFIRMARY.—House-Surgeon (lady). Salary, £120 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—Temporary Assistant Physician.

ROTHERHAM HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

ST. MARK'S HOSPITAL, City Road, E.C.—House-Surgeon.

ST. PETER'S HOSPITAL FOR STONE, ETC., Henrietta Street, W.C.—Junior House-Surgeon. Salary, £75 per annum.

STAFFORDSHIRE EDUCATION COMMITTEE.—Women Assistant School Medical Inspectors. Salary, £400 per annum.

SUNDERLAND: ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.

WEST KENT GENERAL HOSPITAL, Maidstone.—Senior House-Surgeon. Salary, £250 to £300.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BRAMWELL, Edwin, M.B., C.M.Edin., F.R.C.P.Lond., Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of Forfar, with a view to being employed in cases of writer's cramp and telegraphist's cramp arising in the Sheriffdom in which the services of a medical referee are required.

BROOKS, S. J., M.R.C.S.Eng., District Medical Officer of the Bakewell Union.

CUMMING, J., M.B., C.M.Glasg., Certifying Factory Surgeon for the Hull District, co. Yorks.

ROBERTS, A., M.D.St. And., Certifying Factory Surgeon for the Harrogate District, co. York.

SHARPLEY, E., M.D. Durh., Certifying Factory Surgeon for the Louth District, co. Lincoln.

TALLENT, J. H., M.B., B.C.Camb., District Medical Officer of the Bromley Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTH.

MACBETH.—On January 30th, at South Hill Nursing Home, Edgbaston, Birmingham, to Gertrude, wife of A. Stewart Macbeth, M.B., Ch.B., of Sunnyside, Raglan Road, Smethwick, a daughter.

MARRIAGES.

COURTENAY—ASHWORTH.—On Saturday last the wedding was solemnized at S. Paul's Church, Onslow Square, S.W., between Ashley Reginald (Lieutenant A.S.C.), elder son of the Rev. and Mrs. C. Courtenay, Rome, Italy, and Edith Kennedy, younger daughter of J. Henry Ashworth, M.D.St. Andrews, M.R.C.P.Edin., of Vigne House, Cliftonville, Kent. The officiating clergy were the Rev. Prebendary Webb-Peploe and the Rev. A. C. Ashworth, brother of the bride.

HAMILTON—TRUMPER. On the 28th January, at Aston Parish Church, by the Rev. Canon Sutton, M.A., Major F. C. Hamilton, Hants R.G.A.(T.F.), third son of late James T. Hamilton and Mrs. Hamilton, of Hollyholm, Southampton, to Alice Joan, only daughter of Dr. and Mrs. Trumper, of Aston Manor, Birmingham.

LEWERS—ASHWORTH.—On Saturday last the wedding was solemnized at S. Paul's Church, Onslow Square, S.W., between William Heartley Nicholson, elder son of Arthur H. N. Lewers, M.D.Lond., F.R.C.P., of 15, Southwick Street, W., and Winifred Louise, elder daughter of J. Henry Ashworth, M.D.St. Andrews, M.R.C.P.Edin., of Vigne House, Cliftonville, Kent. The officiating clergy were the Rev. Prebendary Webb-Peploe and the Rev. A. C. Ashworth, brother of the bride.

DEATHS.

D'AETH.—On January 31st, at Alnbank, Barking Road, Plaistow, Walter D'Aeth, L.S.A., of Charing Cross Hospital, aged 50 years, the beloved husband of Helen D'Aeth.

PETHICK. On February 4th, at 21, Somerset Terrace, Duke's Road, London, W.C., Marie Louise Pethick, daughter of the late Mr. Henry Pethick, J.P., of Weston super-Mare.

WALLIS.—On January 29th at 21 Meneage Street, Helston, Cornwall, Basil Wallis, M.B., B.S., B.A.Cantab., M.R.C.S.Eng., L.R.C.P. Lond., aged 35, dearly loved husband of Alice Wallis. Interment at The Friends' Burial Ground, Reading, on February 1st, at 3 p.m.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 8.30 p.m.—Surgeon-General H. D. Rolleston, C.B., M.D., F.R.C.P., R.N.: Naval Medicine in the Great War.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, 5 p.m.—Hunterian Lecture by Professor J. Hutchinson: Dupuytren's Contraction.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF PATHOLOGY, 5 p.m.—Major F. W. Mott, F.R.S., R.A.M.C.: (1) Changes in the Central Nervous System in Hypothyridism; (2) in Shell Shock and Gas Poisoning. Dr. Drinkwater: An Anatomical Abnormality inherited from the Fifteenth Century.

WEDNESDAY.

ROYAL COLLEGE OF SURGEONS Lincoln's Inn Fields, W.C., 5 p.m.—Hunterian Oration by Surgeon-General Sir George H. Makins, K.C.M.G.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF DERMATOLOGY.—4.30 p.m., Cases. 5 p.m., Dr. Graham Little: Erytheme Annulaire Centrifuge (Darier). Mr. J. M. H. MacLeod for Dr. Allworthy): Occupation Dermatitis in the Flaxspinning Mills (Doffer's Eruption).

FRIDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF OTOLOGY, 8.15 p.m.—Discussion on War Injuries and Neuroses of Otological Interest, to be opened by Mr. H. J. Marriage, F.R.C.S.

SECTION OF ELECTRO-THERAPEUTICS, 8.30 p.m.—Dr. Martin Berry: Trauma in the Etiology of Arthritis.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W., 5.30 p.m.—Miss Harriette Chick and Miss E. M. M. Hume: The Distribution among Foodstuffs (especially those suitable for the rationing of armies) of the substances required for the prevention of (*a*) Beri-beri and (*b*) Scurvy.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	MARCH.
1 Thurs.	London: Insurance Acts Rural Practitioners Subcommittee.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, FEBRUARY 17TH, 1917.

CONTENTS.

	PAGE
British Medical Association.	
CURRENT NOTES:	
Cocaine and Unregistered Dentists	29
Domiciliary Treatment of Expectant Mothers and Young Children	29
Medical Referees under the Insurance Acts	29
ORGANIZATION OF THE MEDICAL PROFESSION	29
INSURANCE:	
York Medical and Panel Committee	31
Insurance Finance in London	31
NAVAL AND MILITARY APPOINTMENTS	31
VACANCIES AND APPOINTMENTS	32
BIRTHS, MARRIAGES, AND DEATHS	32
DIARY	32

British Medical Association.

CURRENT NOTES.

Cocaine and Unregistered Dentists.

In view of the fact that the period during which unregistered dental practitioners may be allowed to use preparations of cocaine terminates on February 28th, a further communication has been addressed to the Home Secretary, urging that to allow any further extension of the period during which such persons may procure and use preparations of cocaine would destroy the value of the restrictions contained in the Defence of the Realm Order on this question, which, in the opinion of the medical profession, was most necessary and opportune.

Domiciliary Treatment of Expectant Mothers and Young Children.

After careful consideration of the new development which has recently occurred in respect of possible legislation in regard to the domiciliary treatment of expectant mothers and young children, the chairman of the Committee of Chairmen has appointed a special Subcommittee of that Committee to consider the question with a view to the formulation of a policy for adoption by the Association. The following are the members of the Subcommittee: Dr. J. A. Macdonald (Taunton), Mr. E. B. Turner (London), Dr. John Adams (Glasgow), Mr. E. J. Domville (Exeter), Dr. T. Campbell (Wigan), Mr. N. Bishop Harman (London), Professor Bostock Hill (Staffordshire), Dr. H. J. Cardale (London), Dr. T. Ridley Bailey (Bilston, Staffs), Dr. Mabel Ramsay (Plymouth), Dr. M. G. Biggs (London), Mr. H. B. Brackenbury (Hornsey, Middlesex), Dr. H. J. Campbell (Bradford), Captain E. R. Fothergill (Brighton), Dr. G. E. Haslip (London).

The following expressions of opinion by the Medico-Political and Insurance Acts Committees on the matter have been referred to the Subcommittee for consideration:

1. That the central administration in all matters affecting the health of the community should be by a unified Government department established as a Ministry of Public Health.

2. That in any Public Health Service the duties of salaried whole-time medical officers should be confined to administration and inspection, and that medical attendance and treatment of individuals should be carried out only by private medical practitioners, who should not be whole-time medical officers.

Medical Referees under the Insurance Acts.

The Insurance Acts Committee has considered the medical referee scheme of the Ayrshire Insurance Committee, and has expressed its opinion (*a*) that on no account should any Local Medical or Panel Committee approve of any referee scheme containing a provision whereby the medical practitioner under any circumstances bore any part of the cost of the medical referee's fee, (*b*) that it was against the true interests of both insured persons and approved societies that such a provision should appear in any scheme inasmuch as it would deter practitioners making that full and free use of the medical referee so essential to the successful working of any scheme, and (*c*) that the opinion of both the Conference and the Association was that medical referees under the Insurance Act should be appointed and paid by the Insurance Commissioners and should be whole-time officers.

ORGANIZATION OF THE MEDICAL PROFESSION.

The following letter has been addressed to the honorary secretaries of Local Medical and Panel Committees, and, for their information, to the honorary secretaries of Divisions and Branches of the British Medical Association.

Dear Sir,

The attention of the Insurance Acts Committee B.M.A. has been drawn to the issue to every Panel Committee by the York Local Medical and Panel Committees of a circular in which certain statements are made as to the position and powers of the Association in regard to the organisation of the profession, particularly as regards National Insurance. Many of these statements carry their own refutation, and some of them are so flagrantly inaccurate that they are unlikely to be credited by anyone who has taken any interest in recent medical politics. It is, however, considered desirable to make certain observations which it is hoped Panel Committees will take into consideration when the York circular comes before them.

1. Referring to the possibility of changes in the provision of medical attendance under the Insurance Act the York circular remarks that such changes are "*more than likely*" *to be* "*imposed from without*," and goes on to say that "*this would be* "*unsatisfactory to the profession . . . . unless the profession has a large voice in any new arrangements.*" With this statement the Insurance Acts Committee fully agrees, and would remind Panel Committees that it has just issued to them a Circular (D 8) in which the probability of such changes is foreshadowed, and the profession is asked to undertake the serious consideration of these future possibilities and express its opinion thereon. When the British Medical Association has in this way gathered the opinions of the profession and is in a position to formulate them in detail, there is no doubt that the policy then adopted by the profession, through the Association, will be recognised as of paramount importance in discussions of policy by any Government.

2. The York circular then proceeds to say that "*if this expected change is imposed from without the B.M.A is legally incompetent to act as the effective mouthpiece of the profession.*" No proof of this statement is given, and the Insurance Acts Committee meets it with a flat denial. The B.M.A., by its Memorandum of Association, is legally entitled to take action in "maintaining the honour and interests of the medical profession." Its action during the whole of its history, and particularly during the past 14 years since its re-organisation, shows that it has always claimed to be, and acted as, the mouthpiece of the profession. There is no other body even remotely approaching it in representative capacity. Successive Governments and all Government Departments have freely recognised it as the representative body of the profession. When the York circular proceeds to remark that the "*profession must be in a position to fight the Government if necessary*" and assumes that it cannot do so through the Association, it exhibits an ignorance of what occurred during 1911-13 which is both humorous and pathetic. If the profession, represented by the Association, was not "fighting the Government" in 1911-13, what was it doing? Whatever opinion any individual member of the profession may have about the results of that fight, no politician, and no Friendly Society or Trade Union leader has any doubt that the radical reconstruction of the

medical part of the National Insurance Bill as introduced, and the additional grant to the medical profession of over 1½ millions of public money were due to the action of the Association in a "fight with the Government."

3. The circular goes on to say "*To fight the Government and to fight Local Authorities involves necessity to be able to influence medical men to resign appointments, to agitate to prevent men from accepting appointments, to take concerted action to influence men not to undertake contracts, or in other words to perform acts which are technically 'in restraint of trade.'*"

The York Committees apparently have a knowledge of law which is denied to those who have spent their life in the study of it. To decide what is *technically* "in restraint of trade" is an exceedingly difficult matter. But it is certain that the Association, with the full knowledge of its legal advisers, has been doing for years, is doing, and will continue to do all the things mentioned in the above quoted paragraph, whenever such action is thought necessary. "Fighting the Government" has already been alluded to. The Association has done it once and will do it again if and when necessary. "Fighting Local Authorities" when necessary is part of its everyday work, and it is done precisely by the means which the York document proceeds gravely to point out cannot be used by the B.M.A.

What a body not a Trade Union cannot do is to urge men to *break* contracts, and, as even Trade Unions have discovered, this is a form of activity surrounded with many pitfalls even for them. There is no reason to believe that medical men want this power. To be able to refuse to enter into contracts or to refuse to renew contracts is enough for them, and this the Association can help them to do, and this has in fact been done on a very large scale on the initiative of the Association and under its auspices.

The occasions on which the Association has influenced individuals to resign appointments, etc., are too numerous to mention, but, to take an example on a larger scale—in 1912 the Association, through its local machinery, collected the resignations of practically every contract practice appointment in the country. In October, 1912, these were sent in to the various bodies affected, with immense effect on the struggle that was then going on. The Trade Union law was in existence then, and there has been no alteration of it since so far as this question is concerned.

This is a sufficient answer to the further statement made that "*it is doubtful how far*" *the B.M.A.* "*could organise resignations from the panel service.*" The B.M.A. has already published to the Local Medical and Panel Committees its plans for taking this very step, if necessary, and this plan has received the enthusiastic and almost unanimous approval of the Panel Committees of the country. There has been no secrecy about it. Why should the York Committees affect ignorance of a published determination to do the thing they say the Association cannot do?

4. Again, "*Now that the inflation of the panel lists for* 1915 *is fixed by the Commissioners at* 17·4 *per cent. it* (*the B.M.A.*) *has done nothing.*" This is untrue, for the Association elicited the facts which caused the Commissioners to make this calculation, has got the Commissioners to elaborate their reasons in a document, and secured their attendance at a Conference of Representatives of Local Medical and Panel Committees, when their representative was cross-examined on the subject. So far as is known neither the York Committees nor any other bodies have yet offered any *constructive* criticism of the present system, which everybody concerned is anxious to improve, as and when opportunity arises, and the imperfections of which have already been materially reduced by the action of the B.M.A.

5. Further, "*Were a whole-time State Service to be imposed on the profession the B.M.A. could do nothing to fight it or to modify it except offer pious opinions and perhaps not even do that*" Such a statement is fatuous. The B.M.A. is at the present time engaged in collecting the opinions of the profession on the various possible developments of National Insurance, of which a whole-time State Service is one. When it is known what the profession wants the Association will act. The strength and efficiency of its action will depend on the strength of opinion behind it, and the determination of the men expressing that opinion to stand by it.

6. The York Committees then proceed to give two recent examples of hostile action on the part of Government departments which have threatened the interests of the profession.

The first is the action of the Government in deciding to pay only one shilling for certificates of infectious diseases. The moral pointed out is that the medical profession has been powerless to prevent it. The medical profession will always be powerless to prevent any action by the Government unless it is sufficiently united on some particular question to tell the Government that it declines to accept their terms and will refuse to obey any law embodying those terms.

The Insurance Acts Committee leaves it to practitioners to say how far the profession would have supported any body of men who in the midst of a great war said that members of the profession would be prepared to go to prison rather than carry out a statutory duty for a 1s. instead of 2s. 6d. Nothing less than such a declaration backed up by an immense majority of the profession would have been any use in the circumstances.

The other example is the question of inflation, dealt with above. The York Committees give no hint as to the action which would have been taken by their ideal body—presumably a Trade Union—which obviously would have to include in it the great majority of insurance practitioners. A body which is so ready to damage the only organisation the profession has might have been expected to show what their proposed organisation would have done and how they would have done it.

The circular then goes on to point out how much more effective as a body the York Medical Defence Association is than the B.M.A. The former Association has apparently decided to take certain very decided steps as to remuneration and we are left to presume that there is no doubt that every member will carry out these decisions. Why should this be taken as axiomatic in face of the experience in all times and in all parts that many such resolutions have previously been made—and broken. The circular goes on to say that members of the profession who join such associations "*are automatically freed from any necessity to accept*" low fees. Why automatically? What does the York Association rest on but the good faith and common interest of its members? And what other guarantee will any Association ever have? What could their Association do if one of their members did not carry out the resolution? Ostracise him? But this is a method far older than the York Association and there are numerous examples of the successful use of this weapon by numerous bodies which are not Trade Unions.

8. The circular then goes on to the real purpose of the whole document which is to emphasise the (alleged) necessity of members of the profession joining an organisation registered under the Trade Union Acts. It points out that under such auspices "*action can be taken without fear of prosecution or proceedings for conspiracy to bring pressure to bear upon practitioners who are not members*" of the Trade Union, "*so that a stand made by the majority for the good of the whole profession may not be rendered void by the minority who stand out*"

Put bluntly this means that a body of medical men organised as a Trade Union would by means of the cruder methods of trade unionism, known as "peaceful persuasion" issue of "black lists," etc., be able to terrorise men who were not convinced by argument, to join with them in action which would not have received the willing adhesion of the men concerned; that these powers would be exercised; and that they would be successful.

This is a pure delusion and exhibits an ignorance of the psychology of medical men which is inexcusable on the part of a body which professes to give a lead to the medical profession. The question of Trade Unionism for the medical profession has been debated in all its aspects and at great length by bodies of medical men since 1911 when it first came up before any large body of medical practitioners. In 1912 the Representative Body after debate postponed its discussion for a year. In 1913 a motion in favour of trade unionism was defeated by over 2 to 1. In 1914 the matter was again discussed and a motion in favour of the promotion of a Trust in preference to a Trade Union was adopted by a two-thirds majority. In 1916 at the Conference of Local Medical and Panel Committees a motion in favour of trade union organisation for insurance practitioners was defeated by "a very large majority."

9. The fact is that the great majority of those who have considered this subject are convinced that it is a "Will-o'-the-wisp" so far as the medical profession is concerned. It is the *spirit* which animates the Trade Unionist which is the essential thing and which needs to be copied by the medical profession, the spirit which leads him to defer to the opinion of the majority, to be loyal to his elected leaders, to subscribe freely to his union, and to starve if necessary rather than give in so long as there is any chance of winning It is not the *form* of organisation. The examples of lawyers, teachers and doctors are sufficient to show that the *form* matters little. Lawyers are proverbially able to protect their own interests, yet they have no Trade Union. The National Union of Teachers a few years ago organised and carried out a most successful "strike" of teachers in Herefordshire It is not a Trade Union. The fight organised by the B.M.A. during the Insurance Act campaign and its organisation of contract practice resignations is a sufficient proof of what the medical profession can do without a Trade Union when it is in earnest.

10. The Insurance Acts Committee which has no object but the effective organisation of the profession and particularly of

these members of the profession who are engaged in National Insurance work earnestly asks that Local Medical and Panel Committees will decline to be led off on a search for some magical method of organisation which will *compel* union in the profession. It cannot be done and such union would not be worth having if it could be got in that way only, for it would be a proof that the members of the profession were willing to be bullied into an *apparent* unanimity. An educated body of men must be convinced not coerced. Far more will be done to organise the profession effectively for the struggles that are to come by recognising this fact, and by utilising the machinery already at hand and trying to improve it. The B.M.A. has organisation, funds, staff and a splendid body of local workers. It would be madness for insurance practitioners to scrap all this, or make it ineffective by setting up rival organisations, though no doubt many outside bodies watch these attempts with satisfaction. The times are too serious for such trifling, and great is the responsibility of those who attempt to divert the energies of the working and enthusiastic members of the profession into several channels.

To such the Insurance Acts Committee would offer the example of all other callings which have found by experience that the most effective method of organisation is to unite so far as possible all the members of any given calling in one strong organisation. In every trade a process of amalgamation and federation of the smaller societies is going on. Does it seem likely that the medical profession will prove to be an exception and gain strength by being split up into a number of rival organisations?

I am, yours faithfully,

ALFRED COX,
Medical Secretary.

British Medical Association,
429, Strand, W.C.
February 16th, 1917.

INSURANCE.

YORK MEDICAL AND PANEL COMMITTEE.

AT a meeting of the Local Medical and Panel Committee on February 3rd a letter was read from the Commissioners intimating that the Committee must pay the honorarium to the secretary from the voluntary fund. It was reported that, as a result of the conference between the Finance and General Purposes Subcommittee and the parties interested, the Insurance Committee had decided that both approved institutions and "own arrangements institutions" should bear a deduction of 12.4 per cent. from the final credit for 1915.

The action taken by the subcommittee appointed at the last meeting in issuing the memorandum *re* organization of the profession to all Panel Committees was approved with one dissentient, and it was decided to send copies of the memorandum to all medical practitioners in the York and neighbouring area.

In response to Circular D 8, issued by the British Medical Association, a Committee was appointed to consider the present insurance system so far as it affects the relation of the medical profession to the public health and the treatment of disease, and to make suggestions for the improvement of that system. The conflict of views regarding medical trade unionism between the Committee and the British Medical Association was discussed, and it was decided to let the matter remain *in statu quo* pending a forthcoming conference between the two principal medical trade unions.

INSURANCE FINANCE IN LONDON.

A DEPUTATION from the London Insurance Committee had an interview on February 12th with Sir Edwin Cornwall, M.P., chairman of the Joint Committee of Insurance Commissioners, to represent that it had become impossible to carry out the work in London on the allowance at present made by the Treasury, and that it was probable, failing further assistance from the Government, that a levy might have to be made upon the insured population of the county to wipe out the deficit of £20,000 and to meet the further annual recurring deficiency. Sir Edwin Cornwall promised to give early consideration to the matter.

At a recent meeting of the committee a report was received from the special subcommittee, appointed in July last, with regard to the sanatorium benefit fund. The report declared that the fund was insufficient, and proposed that the Treasury should bear the whole burden of the additional capitation fee to medical practitioners so as to restore to the sanatorium benefit fund the full 1s. 3d. intended to be available. A further proposal was that the Government should consider legislation for the purpose of carrying out the isolation of tuberculosis patients, of preventing patients leaving the institution against the instruction of the responsible medical practitioner, and of making satisfactory provision for the treatment of advanced cases. It proposed also that persons should be compelled to make application for sanatorium benefit immediately their cases were notified to the public health authority; that tuberculous soldiers and sailors should not be discharged from the services until they had received adequate treatment; that after-treatment should be provided in farm and industrial colonies, and that unhealthy domiciles should be removed and model dwellings erected. A motion to adjourn the discussion of the report to a subsequent meeting, when Sir Edwin Cornwall would be present, was lost. Mrs. Handel Booth, the chairman of the subcommittee, then moved the adoption of its report. In doing so she complained that, with one exception, the medical members had offered no help, so that she had had to compile the report herself. An investigation she had made in 230 county and borough areas showed that in very few were the insured tuberculous persons receiving adequate treatment.

After Mr. Handel Booth had made an attack on the medical members for what he described as their dilatory policy, Sir Shirley Murphy moved the reference back of the report, which, he said, showed a complete misapprehension of the nature of the disease. No committee containing medical men could possibly accept the statement that "tuberculosis is an infectious disease, and . . . the only real method of eradicating it would be to discover and isolate all persons who for various reasons cannot help spreading the infection"; nor could they accept the view that the medical man should act the part of the gaoler. The acceptance of the report would prejudice the reputation of the committee, certainly with the medical profession, and ultimately with the lay community. Dr. Lauriston Shaw and Dr. H. H. Mills urged Mrs. Booth to withdraw the report, and signified their willingness to co-operate in an amended report, but Mrs. Booth refused, and the discussion ultimately fell through in the absence of a quorum.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following notifications are announced by the Admiralty: Fleet Surgeon E. B. Townsend has been placed on the retired list, with the rank of Surgeon-General. Fleet Surgeons J. H. Lightfoot to the *Victory*, additional, for disposal; H. H. Gill, M.B., to the *Bacchante*. Staff Surgeons to rank as Fleet Surgeons: E. Cox, M.B., J. Macdonald, M.D., A. La T. Darley, A. J. Wernet, M.B., C. E. C. Stanford, M.B., D.S.O., A. R. Thomas, T. F. O'Keefe, M.B., E. F. Ellis, D. V. Lowndes, P. F. Alderson, J. Thornhill, M.B. Temporary Surgeons: J. F. Pace, M.D., to the *Duncan*; H. C. Mann, M.D., to the *Egmont*, additional, for Malta Hospital; J. Smith to the *Pembroke*; G. W. Carte, M.B., to the *Vivid*; R. J. Monohan, M.B., and J. G. A. Fairbank, M.B., to the *Bacchante*; E. A. Linnell, M.B., to Pembroke Dock Hospital; N. H. Smith and B. L. Lloyd, M.B., to Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon probationers: E. L. Adendorff, R. P. Warrless, and W. J. McClintock.

ARMY MEDICAL SERVICE.

Major Sir E. S. Worthington, C.M.G., M.V.O., to be Deputy Assistant Director-General, vice Lieutenant-Colonel G. St. C. Thom, C.M.G., M.B., who has vacated the appointment.

Colonel Cecil Birt is retained on the active list under the provisions of Articles 120 and 522 of the Royal Warrant for pay and promotion and to be supernumerary.

ROYAL ARMY MEDICAL CORPS.

Major A. H. Burgess, M.B., F.R.C.S., R.A.M.C.(T.F.), to be temporary Lieutenant-Colonel.

E. W. Goodall, M.D., to be temporary Lieutenant-Colonel whilst employed at the Grove Military Hospital, Tooting.

Temporary Major T. R. Elliott, M.D., to be temporary Lieutenant-Colonel.

Major (temporary Lieutenant-Colonel) G. E. Ferguson relinquishes his temporary rank on reposting.

Major R. G. Anderson is restored to the establishment.

Major (acting Lieutenant-Colonel) A. B. Hinde relinquishes his acting rank on reposting.

The notifications in the *London Gazette* of January 22nd regarding temporary Captains N. I. Sinclair, M.B., and R. D. Forbes, F.R.C.S., are cancelled.

Temporary honorary Captain W. D. Coplestone having resigned his appointment with the St. John Ambulance Brigade Hospital relinquishes his commission.

To be temporary Captains: J. Watson, Surgeon-Captain H. J. Shone, M.B. (Jersey Militia), E. E. Hobson, and E. C. Lindsay, M.B., F.R.C.S. (late temporary Captains R.A.M.C.).

Temporary Captain B. C. Ashton, M.B., and temporary Lieutenant W. M. Cromble relinquish their commissions on appointment to the Indian Medical Service.

Temporary honorary Captain J. D. Lyle, M.B., having resigned his appointment at the British Red Cross Hospital, Netley, relinquishes his commission.

Temporary Lieutenant Michael Joseph Ahern is cashiered by sentence of a general court-martial, November 25th, 1916.

Temporary honorary Lieutenant H. A. F. Wilson to be temporary honorary Captain

Temporary Lieutenants to be temporary Captains: C. C. Gibson, L. S. H. Glanville, M.D., W. Roche, J. S. Doyle, M.B., J. F. Wood, M.D.

To be temporary Lieutenants: J. B. Lester, C. W. Windsor, M.D., S. Marle, A. H. Bostock, A. M. Niven, M.B., W. A. Smith, M.B., W. Hibbert, M. Crowley, M.B. C. B. Simpson, D. L. Morrison, M.D., T. Archdeacon, P. W. Ashmore, M.B., J. Reid, F. R. Tickle, M.B., A. Kirkhope, M.B., V. G. Ward, M.D., J. H. Pratt, M.B., G. P. Barff, H. S. McLellan, M.B., A. L. Gardner, A. K. S. Wyborn, W. Hartland, M.B., T. W. Arnison, M.B., J. A. F. Wilgress, W. E. Tanner, M.B., F.R.C.S., J. Howells, M.D., M. Hooper, M.B., H. L. W. Wemyss, M.D., F.R.C.P.E., W. H. Cam, M.B., F. Osborne, A. W. M. Sutherland, M.B., H. H. V. Welch, M.B., K. L. Bates, E. K. Campbell, M.B., F.R.C.S., J. M. N. S. Bickerton, M.B., E. Rommel.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: G. I. Evans, D. M. M. Fraser, M.B., R. S. Woods, G. S. Davidson, M.B., W. C. C. Easton, M.B., J. A. Mackenzie, M.B., W. N. Greer, M.B., D. G. Duff, M.B., A. McL. Ferrie, M.B., I. MacKenzie M.B., E. A. Mills, M.B., C. Milne, M.B., J. Milne, M.B., C. P. Penberthy, M.B., M. Stewart, M.B., E. W. Fish, M.B., C. R. Knowles, M.B., R. S. Aspinal, D. S. Scott, M.B., N. H. Harrison.

To be Lieutenants: P. D. McLaren, M.B., from Edinburgh University Contingent O.T.C., D. J. Batterham and T. L. Heath from the University of London Contingent O.T.C., J. A. Panton, M.B., from Manchester University Contingent O.T.C., N. C. L. B. Tweedie, M.B., from Belfast University Contingent O.T.C., J. R. S. Mackay, M.B.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Captain (temporary Lieutenant-Colonel) H. K. Dawson, M.D., relinquishes his temporary rank on ceasing to command a field ambulance.

Captains F. Coleman and L. D. B. Cogan to be acting Lieutenant-Colonels whilst commanding a field ambulance.

Captain G. C. Gray relinquishes his commission on account of ill health contracted on active service and is granted the honorary rank of Captain (substituted for announcement in the *London Gazette* of March 23rd, 1916).

To be Captains: Captain W. E. Rothwell, M.B., from 3rd East Lancashire Field Ambulance, Captain E. N. Butler from T.F.R., Captain A. S. Hebblethwaite, M.B., from the West Riding Casualty Clearing Station.

Captain (temporary Major) D. Dickie, D.S.O., M.B., relinquishes his temporary rank on alteration in posting.

Captain H. N. Burroughs, M.B., to be acting Lieutenant-Colonel whilst commanding a field ambulance.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

ASHTON-UNDER-LYNE DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Assistant House-Surgeon. Salary, £160 per annum.

BIRKENHEAD UNION.—Junior Female Resident Assistant Medical Officer for the Infirmary. Salary, £300 per annum.

BOLTON INFIRMARY AND DISPENSARY.—(1) Senior House-Surgeon; (2) Second House-Surgeon; (3) Third House-Surgeon. Salary, £230, £200, and £180 per annum respectively.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL.—Resident Medical Officer. Salary, £250 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon.

DERBYSHIRE ROYAL INFIRMARY.—(1) House-Physician and Casualty Officer; (2) Resident Anaesthetist. Salary, £200 per annum

DORSET COUNTY COUNCIL.—Temporary Clinical Tuberculosis Officer. Salary, £350 per annum.

EDINBURGH PARISH COUNCIL.—Assistant Medical Officer for Craiglockhart Poorhouse and Hospital. Salary, £250 per annum.

GREAT YARMOUTH HOSPITAL.—House-Surgeon. Salary, £200 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) House-Surgeon; (2) Assistant Casualty Medical Officer. Salary, £60 per annum.

KENSINGTON UNION.—Second Assistant Resident Medical Officer for the Institution, Marloes Road, W. Salary, £160 per annum, rising to £175.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary, £200 per annum.

MANCHESTER CITY.—First Assistant Medical Officer to the Baguley Sanatorium for Tuberculosis. Salary, £300 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

MANCHESTER UNION.—Assistant Resident Medical Officer at Nell Lane Military Hospital. Salary, £7 7s. per week.

MANSFIELD AND DISTRICT HOSPITAL.—House-Surgeon. Salary, £250 per annum.

NETLEY: BRITISH RED CROSS HOSPITAL.—Two Medical Officers and one Surgeon.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Assistant Resident Medical Officer. Salary, £60 per annum, increasing to £80 on appointment as Senior.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford.—House-Surgeon.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Junior Obstetric Assistant. Salary, £62 10s. per annum.

ST. MARK'S HOSPITAL, City Road, E.C.—House-Surgeon.

ST. PETER'S HOSPITAL FOR STONE, ETC., Henrietta Street, W.C.—Junior House-Surgeon. Salary, £75 per annum.

STAFFORDSHIRE EDUCATION COMMITTEE.—Women Assistant School Medical Inspectors. Salary, £400 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House-Physician. Salary, £200 per annum.

SUNDERLAND: ROYAL INFIRMARY.—Lady House-Surgeon. Salary, £150 per annum.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—Senior Resident Medical Officer. Salary, £250 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Harefield (Middlesex), Rickmansworth (Hertford).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BAZETT, H., M.R.C.S., L.R.C.P., District Medical Officer for the Beaminster Union.

GARTH, J., L.R.C.P.I., L.M., District Medical Officer of the Preston Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTHS.

BLACKSTONE.—On February 11th, at Westcliff-on-Sea, the wife of Leonard C. Blackstone, M.B., B.S., Temporary Lieutenant R.A.M.C., a daughter.

HUGHES.—On the 13th inst., at Barnsley Hall, Bromsgrove, Worcestershire, to Dr. and Mrs. Percy T. Hughes, a son.

RIVETT.—On February 10th, at a nursing home, to Louis Carnac Rivett, M.C., F.R.C.S., Clover Lodge, Dilke Street, Chelsea, and Mary (*née* Rowan), a son.

THOMPSON.—On February 9th, the wife of J. Hilton Thompson, M.D., Bolton, of a daughter.

MARRIAGE.

TROTTER—BROWN.—At Cathcart Road Wesleyan Church, on the 14th inst., by the Rev. Walter Platt, assisted by the Rev. James G. Lunn, M.A., of Sherwood U.F. Church, Paisley, George Clark Trotter, M.D., F.R.S.Edin., to Margaret Jarvey Brown, M.B., Ch.B., daughter of Mr. and Mrs. John Jarvey Brown, Rithsdale Road, Pollokshields, Glasgow.

DEATHS.

SHEARER.—At Bridge of Allan, N.B., on February 6th, Colonel Johnston Shearer, C.B., D.S.O., Indian Medical Service (retired), 10, Royal Terrace, Queen's Park, Glasgow.

THOMAS.—On February 7th, 1917, at Bournemouth, Florence Gertrude, wife of Major Telfer Thomas, R.A.M.C.(T.), of Penvean, Camborne, Cornwall.

Mr. Percival Turner, of 4, Adam Street, Strand, regrets to announce the death, on Wednesday, February 14th, of Miss Page, his trusted secretary, who was well known to his clients for over twenty-one years.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:
GENERAL MEETING OF FELLOWS, 5 p.m.
SECTION OF THERAPEUTICS, 4.30 p.m.—Dr. Stansfeld: Principles of Treatment by Transfusion of Blood.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF HISTORY OF MEDICINE—4.30 p.m., Exhibition of Portraits, Books, etc. 5 p.m., Dr. R. Hingston Fox: Dr. John Fothergill (1740—1780).

THURSDAY

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—First Milroy Lecture, by Dr. W. J. Howarth: Meat Inspection, with special reference to the developments of recent years.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF STUDY OF DISEASE IN CHILDREN, 4.30 p.m.—Cases. Short Papers: Mr. J. S. Kellett Smith: Lateral Curvature of the Spine. Dr. F. Parkes Weber: Lipodystrophia Progressiva.
SECTION OF EPIDEMIOLOGY AND STATE MEDICINE, 8.30 p.m.—Mr. A. W. Bacot: The Louse Problem. The discussion will be opened by Professor G. H. F. Nuttall, F.R.S.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	MARCH.
1 Thurs.	London: Insurance Acts Rural Practitioners Subcommittee.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, FEBRUARY 24TH, 1917.

CONTENTS.

	PAGE
IRISH MEDICAL WAR COMMITTEE	33
BRITISH MEDICAL ASSOCIATION:	
CURRENT NOTES	33
ASSOCIATION NOTICES	34
ORGANIZATION OF THE MEDICAL PROFESSION:	
YORK MEMORANDUM	34
PREVENTION OF SMALL-POX	38
TREATMENT OF VENEREAL DISEASES	38
INSURANCE:	
LONDON PANEL COMMITTEE	36
LOCAL MEDICAL AND PANEL COMMITTEES	36
PARLIAMENTARY NOTES	37
NON-PANEL DOCTORS AND INSURANCE CERTIFICATES	38
NAVAL AND MILITARY APPOINTMENTS	39
VACANCIES AND APPOINTMENTS	40
BIRTHS, MARRIAGES, AND DEATHS	40
DIARY	40

IRISH MEDICAL WAR COMMITTEE.

A MEETING of the Irish Medical War Committee was held in the Royal College of Physicians, Ireland, on February 13th. Dr. Joseph O'Carroll, P.R.C.P.I., presided, and the following members attended: Right Hon. M. F. Cox, P.C., M.D., Dr. MacDowel Cosgrave, Dr. E. Coey Bigger, Dr. Denis J. Coffey, President University College, Dublin; Professor A. F. Dixon, Lieutenant-Colonel William Taylor, P.R.C.S.I., Mr. Conway Dwyer, F.R.C.S.I., Dr R. J. Rowlette, T. Hennessy, F.R.C.S.I., Irish Medical Secretary, British Medical Association, and Dr. Maurice Hayes, F.R.C.S.I., Honorary Secretary.

Questions relating to the safeguarding of the interests during their absence of those doctors who had joined the R.A.M.C., were considered and decisions reached on which the honorary secretary was instructed to act.

Intimation was received from the Central Medical War Committee that there is an urgent need for officers for the R.A.M.C. It is realized that the existing needs of the population will put a strain on the remaining members of the profession, and will entail the cutting down of the medical services to the really essential. But it must be remembered that the needs of the wounded combatants have first claim on the services of the medical profession, and the public must be prepared to do with less medical attendance, just as they are having to restrict necessaries and deny themselves luxuries. Irish doctors have been renowned in the past for their self-sacrifice and devotion to duty, and since the war began they have supplied a fair quota to the service, and the Committee feels that in inviting those who can to apply for commissions in the R.A.M.C. its request will meet with a hearty response.

British Medical Association.

CURRENT NOTES.

DUTIES OF SCHOOL MEDICAL STAFF AND SCHOOL TEACHERS.

THE National Union of Teachers and the Association (through its Medico-Political Committee), in agreeing some time ago to a joint memorandum as to the allocation to school medical officers, teachers, and school nurses of various duties in connexion with the medical inspection and treatment of school children, came to an understanding that if at any time any question arose as to the division of work in this connexion between members of the medical and teaching staff of any education authority, both bodies would be prepared to do their best to settle the point amicably. Recently, at the request of a local education authority, both bodies have given consideration to the question as to which section of the school staff should carry out a particular duty not specifically mentioned in the agreed memorandum. An understanding was reached which has since been accepted by the local authority concerned.

INSURANCE PRACTITIONERS AND ADMINISTRATION OF ANAESTHETIC FOR DENTAL OPERATION.

The following case may be of assistance to insurance practitioners in connexion with the above question:

At the instigation of his dentist an insured person applied to his panel doctor for advice as to whether he should have chloroform and have all his teeth removed at once, or have a few drawn at a time under a local anaesthetic. In view of the physical condition of the insured person, the medical practitioner advised the use of chloroform, so that all the teeth could be extracted at one sitting. The medical practitioner subsequently administered chloroform for the operation, which took place at the patient's house. Later the case came before the local Insurance Committee, which informed the practitioner that in its opinion the services required of a panel practitioner under Clause 2 (i) of his agreement included the administration of an anaesthetic in connexion with dental treatment. The practitioner was advised by the Association to appeal to the Commissioners against the decision of the Insurance Committee, and the Association has now been informed by the practitioner that the decision of the Insurance Commissioners is entirely in his favour. The Commissioners point out, however, that their decision in this case does not mean that in no circumstances can any treatment which might ordinarily be classed as dentistry be included amongst the obligations of a panel doctor. In any particular case the special circumstances—such, for instance, as that of urgency—would have to be considered.

DISCHARGED DISABLED SOLDIERS AND SAILORS.

The Insurance Acts Committee, after consideration of the recommendations of the Medico Political and Hospitals Committees in the above matter,[1] has decided to submit the following resolutions to the Council:

(*a*) That the question of wounded disabled soldiers and sailors, whether insured or not, is one to be dealt with by the State as a special national problem.

[1] SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL, November 10th, p. 22.

(*b*) That it is preferable that these persons should be retained for treatment under military or naval discipline until such time as they are considered (1) to be fit to earn their own living, or (2) as unlikely to benefit any further from treatment obtainable.

(*c*) That any arrangements put into operation by the State in connexion with the treatment of wounded disabled soldiers and sailors, whether insured or not, should be retrospective so as to bring within the scope thereof such soldiers and sailors as had already been discharged.

(*d*) That it is the duty of the State to make provision, outside the present financial provisions of the Insurance Act, for the medical attendance and treatment of discharged disabled soldiers and sailors, as such medical attendance and treatment cannot be held to be covered by the terms and conditions of service of panel practitioners, and the rate of payment at present accepted by panel practitioners for insured persons is totally inadequate to meet the needs of these discharged persons.

(*e*) That such extra provision should be made in accordance with the following provisions:

(i) When returned to civil life each such person should be entitled to free choice of doctor, subject to consent of doctor to accept; prior choice exercised by the insured person being considered to hold good in any district where collective responsibility has been undertaken for carrying on any absent practitioner's practice.

(ii) Payment for medical attendance should be made for each person to the doctor accepting him on a scale agreed between the British Medical Association and the Government.

Association Notices.

CHANGES OF BOUNDARIES.

Adjustment of Areas of Manchester, and Stockport, Macclesfield, and East Cheshire Divisions.

THE following changes have been made in accordance with the Articles and By-laws and take effect from the date of publication of this notice:

That Heaton Norris U.D., and that part of Stockport C.B. lying in Lancashire, be transferred from the Manchester Division of the Lancashire and Cheshire Branch to the Stockport, Macclesfield, and East Cheshire Division of that Branch.

Representation in Representative Body: Unaffected.

THE LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

A LIST of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

ORGANIZATION OF THE MEDICAL PROFESSION.

LAST week, under this heading, a letter issued by the Medical Secretary of the British Medical Association to Local Medical and Panel Committees was published. It was in the nature of a reply to a memorandum issued last January by the York Medical and Panel Committee. Drs. P. Macdonald and J. C. Lyth, members of the sub-committee of the York Committee which drafted the memorandum, consider that the memorandum itself should be given equal publicity, and we therefore comply with their request, although we must point out to all correspondents that the publication of lengthy documents of this kind at the present moment is extremely difficult owing to the restrictions placed upon all publications by the Defence of the Realm Act.

MEMORANDUM TO LOCAL MEDICAL AND PANEL COMMITTEES ON THE NEED FOR ORGANIZATION OF THE MEDICAL PROFESSION.

Inquiries have been made of the York Local Medical and Panel Committee as to their reasons why, at the recent British Medical Association Conference on October 19th, 1916, they placed a resolution on the agenda paper in favour of the organization of the medical profession on a trade union basis, and why their representative dissociated himself from the resolution of confidence in the British Medical Association, moved by the Staffordshire Panel Committee—a line of action which the York Panel Committee endorsed when reported to them by their representative.

In view of the obvious urgency of an efficient professional organization, and the strong and growing undercurrent of feeling apparent in an increasing number of places in the kingdom, that such organization should take full advantage of the Trade Disputes Act—a view which the York Panel Committee accept—it has been thought well to put these reasons on paper and send a statement of them to all Panel Committees.

Present Position.

The present position of medical service—which is partly whole-time service (for example, military, public health, tuberculosis, school medical, lunacy services), partly part-time under contract (for example, National Health Insurance work, Poor Law medical service), partly voluntary (for example, honorary work at hospitals and charitable institutions), partly personal and individual (private practice)—is obviously unstable, and change is certain. For a long time past the two former modes of service have been growing at the expense of the two latter.

It has recently become much more unstable by two Acts of the Government:

(*a*) The passing of the Insurance Act with its establishment of a new and crude service on a gigantic scale which professed to give all necessary medical service to all insured persons, but which, except for the nebulous provision in the "New Regulations," has left out all specialist services, all pathological service, and all provision for anything but quite minor surgery—a state of things which is unlikely to continue.

(*b*) The establishment of provision for the treatment of venereal disease, all costs of which are to be borne by the Local Government Board and Local Health Authorities. Arrangements for giving this service are to be made almost exclusively with charitable hospitals, which means the beginning of the end of hospital voluntaryism.

This change may be conducted from within the profession, and the British Medical Association would possibly in that case be competent to organize it; and if this were the probable solution there would be little or no need to promote another organization.

It is, however, more than likely that this change will be imposed from without, and will be effected by further Government action; and there are two probable alternatives:

(*a*) Modification of the Insurance Medical Service. (The new regulations recently issued, providing as they do for consultant services on limited lines, are an indication of what may be expected, and it should be remembered that Mr. Roberts, the responsible Minister, definitely stated in the House of Commons that a thorough investigation of medical benefit would be undertaken immediately after the war.)

(*b*) The imposition of a whole-time State Medical Service.

It is an open secret that this latter alternative has been considered by influential members of the Government.

Without expressing any opinion as to the advantages or disadvantages of a State Medical Service, it is certain that it will be unsatisfactory to the profession, as will also any modification of service under the Insurance Act, unless the profession has a large voice in any new arrangements.

Incompetence of British Medical Association to be the Fighting Organization of the Medical Profession.

If this expected change is imposed from without, the British Medical Association is legally incompetent to act as the effective mouthpiece of the profession; and it would be futile that any feelings of mistaken sentiment about loyalty to the British Medical Association, or that any false notions that the dignity of the profession is involved, should be allowed to blind the profession to this primary fact.

To be in a position to have this large voice, the profession must be in a position to fight the Government, if necessary.

Apart from the establishment of any new services, service under local authorities is likely to increase. Such service is at present underpaid—for example, school medical appointments, tuberculosis appointments, and Poor Law appointments; and the profession ought also to be in a position locally to fight local authorities when necessary.

To fight the Government and to fight local authorities involves necessity to be able to influence medical men to resign appointments, to agitate to prevent men from accepting appointments, to take concerted action to influence men not to undertake contracts; or, in other words, to perform acts which are technically "in restraint of trade."

Actions in restraint of trade are illegal, and render the persons or groups of persons who perform them liable to legal proceedings, but great security from this is obtained by registration as a trade union.

Any group of persons or any association not so registered is also liable, under certain circumstances, to have its whole funds impounded, and to be thereby rendered impotent.

Not only is the British Medical Association not a trade union, but it is barred from becoming a trade union or taking any action like a trade union, inasmuch as it is, and almost necessarily has to remain, a "company." In fact, its Memorandum of Association contains the words:

> "Provided that the Association shall not support with its funds any object, or endeavour to impose on or procure, to be observed by its members or others any regulation, restriction, or condition which, if an object of the Association, would make it a trade union."

The British Medical Association is accordingly debarred from doing things that it is necessary that the mouthpiece of the profession should be able to do.

It is doubtful how far it could organize resignations from the panel service, or refusal to serve in case of the imposition of unsatisfactory conditions. If the contract rate were reduced from 8s. 6d. to 4s. 6d. it could do nothing effective.

Now that the inflation of panel lists for 1915 is fixed by the Commissioners at 17.4 per cent., it has done nothing; and when this matter was raised at the Conference of Panel and Local Medical Committees, the Chairman of the Conference (who is also a very prominent and deservedly popular official of the British Medical Association) asked the representative who introduced the subject if it was worth while to proceed with a resolution as nothing could be done.

Were a whole-time State service to be imposed upon the profession the British Medical Association could do nothing to fight it or to modify it, except utter pious opinions and perhaps not even do that; and the profession which had no other mouthpiece would be helpless and beaten from the start.

The York Panel Committee are dissatisfied with this state of impotence, and see no way out of it other than organization of the profession on trade union lines.

They are convinced that the time to organize is now; the profession cannot afford to lose a day. To leave the formation of a competent organization till the fight is on is to court another debacle similar to that of 1912.

Need for the Creation of Medical Defence Association or Associations.

That there is need for an efficient organization to maintain and improve the position of the medical profession is becoming increasingly evident to all thoughtful members of the profession, threatened as it is from various points by action hostile to its interests.

Two recent examples may be given of such hostile action, one affecting equally all medical practitioners, the other affecting directly only the practitioners on the panel:

(*a*) The Government recently decided to pay only 1s. for certificates of infectious diseases, in place of the previous 2s. 6d. It is hardly necessary to emphasize the injustice of this decision; but the moral to be pointed is that the medical profession has been powerless to prevent it. That it caused very great dissatisfaction in the profession was evident from letters, resolutions, etc., published in the BRITISH MEDICAL JOURNAL, but there the matter ended. Is not this a warning and an earnest of the treatment the profession may expect when the affairs of the nation once more resume a normal course?

(*b*) The position of final credits due to panel practitioners for the years 1914 and 1915 is instructive. These were reduced by 13 per cent. and 17.4 per cent. respectively. This was done in an arbitrary fashion by the Commissioners without reference to the profession. This constitutes a breach of faith with the profession. When a capitation basis of payment for services was undertaken by the profession, it assumed with reason that the sum to be paid was to be a fee for each responsibility undertaken by each practitioner, and that the unit of time for which responsibilities were undertaken was a year. The Insurance Commissioners now say No. The unit of time is a day, and the responsibility is not the responsibility of any single practitioner, but of the whole number of practitioners on all the panels. By loose and defective book-keeping of the Commissioners, or other authorities, the total responsibilities of these practitioners is not the same as the aggregates of the responsibilities of each practitioner as represented by their panel lists, but for 1915 is said to be 17.4 per cent. less. In other words, the capitation payment for the year (including payment for drugs) is not 8s. 6d. per head but 6s. 2d.

Yet the profession is powerless to do more than lodge an ineffective protest, and the British Medical Association has not even done that.

Advantages of Medical Defence Associations.

Apart from being fighting organizations in a medico-political capacity, there are distinct advantages in having local medical associations to secure and advance the position of the medical profession locally.

These are obvious, but as an instance of what can be done to improve the status of the profession financially the example may be given of the activities of the York Medical Defence Association, a body with which the York Panel Committee is in hearty co-operation.

The members of the association have decided to do no contract practice, other than National Health Insurance work, under a capitation fee of 8s. 6d.; they have decided that they will do no private practice under a fee of 3s. per attendance; that they will do no midwifery under a fee of £2 2s.; that they will do no life insurance work under a fee of £1 1s. for policies of over £200; and other steps have been taken to strengthen the position of the profession. That standards such as these should be set by an organized body of the profession is of the greatest service to all its members, and it is already known that local doctors who have not enrolled in the association have accepted these standards.

Those members of the profession who are in the fortunate position of having practices so good that no question of low fees affects them, also benefit, as anything which will benefit the less favourably situated members of the profession directly will improve their own position indirectly from a general raising of the standard.

Those members of the profession who, in the stress of competition, are subjected to the pressure which induces the imposition of low fees and low rates for contract work, are, by joining such associations, automatically freed from any necessity to accept them; and if all members of the profession are unitedly agreed not to accept them, low fees for private practice and low rates for contract work cease to exist.

Finally, it should be remembered that this is in the interests of the public and especially of the working classes, as no satisfactory medical service can be given at fees and rates of contract work which are insufficiently remunerative.

Necessity for Registration under the Trade Union Acts.

However honourable a body of men the medical profession may be, in a time of crisis the action of the executive and the individual is always liable to be hampered by the fear that some may break away. As an instance of this, the fiasco of 1912 may be cited, when the solemn pledges, on various coloured papers, given by members of the profession, came to be treated, even amongst themselves, as no more than scraps of paper, and became a mockery amongst those with whom the profession were contending. It is not so much the danger of any individual going back on his word as the fear which exists throughout the whole body that this may happen. This fear can never be removed, and the body as a whole can take no effective action unless there is some binding force of such strength that it is unthinkable that any members should give way. This binding force can, in the opinion of the Committee, under existing law (which was shaped for the advantage of existing trade unions), be supplied only by registering under the Trade Union Acts. Action can then be taken, without fear of prosecution or proceedings for conspiracy, to bring pressure to bear upon practitioners who are not members of the association, so that a stand made by the majority for the good of the whole profession may not be rendered void by the minority who stand out.

Objections to Registration under the Trade Union Acts.

The only objection to such registration, which seems to have weight with many members of the profession, lies in

a supposed derogation attaching to the phrase "trade union." To this allegation it may be replied that it is necessary to use the weapon which the law gives. Even if it be granted that this weapon has been basely used by certain sections of individuals this does not imply that it must so be used. It is not to be expected that the profession will be strong enough in the near future to effect a fundamental alteration of existing laws, but to make progress it is necessary to utilize existing conditions; and in proposing to take advantage of the law of the country as it exists in order to raise and maintain the ethical and financial status of the medical profession, the York Panel Committee does not admit that it is advising anything which is derogatory to the dignity of the profession in any shape or form.

Line of Action.

A number of York practitioners formed an association called the York Medical Defence Association. The York Panel Committee is in active co-operation with this association.

It applied for registration under the Trade Union Acts, but was blocked by the action of the President of the General Medical Council, which the York Panel Committee ventures to think was autocratic, high-handed, and unwarranted. This may prove to be a blessing in disguise, as it induced the committee of the York Medical Defence Association to investigate the position of medical trade unions already in existence. This committee has decided to recommend the association to become a branch of the Panel Medico-Political Union, which is already registered under the Trade Union Acts, and is a union of all medical practitioners, not merely of panel practitioners. By this means, all advantages of registration under the Trade Union Acts is secured to the association. Each branch of a union is in law a separate union although separate registration is not necessary. There is full local autonomy for local purposes, and machinery is provided for co-operation with other bodies for national purposes.

To secure all the advantages that organization can confer, this union must grow until it includes among its members the bulk of the profession, and the York Panel Committee invites other Panel Committees at least to consider the wisdom of promoting this.

INSURANCE.

THE LONDON PANEL COMMITTEE.

In the *London Panel Committee Gazette* for February it is announced that the Committee has decided to recommend an alteration in the method of crediting the additional capitation fees. At present the amount available in respect of persons not on any doctor's list is divided amongst the doctors entitled to share in the scheme according to the number of persons accepted or assigned to them during the preceding quarter, but as this appears to be unfair to practitioners serving with the forces it is proposed that the fees should be divided simply in proportion to the number of persons on the doctors' lists.

Representations having been made that the term "Rep. mist." is in many instances not being used in accordance with the conditions laid down, a warning is given that the Commissioners have stated that if the conditions are not generally observed the use of the term may be prohibited, and they will not hesitate to penalize any continued and wilful disregard of the rules.

The Committee has had under consideration the proposal of the Central Medical War Committee for the voluntary mobilization of the medical profession, and has passed resolutions to the effect that, to secure an efficient working of any scheme adopted, extended powers should be given to the War Committee, and that there should be added to it at least six practitioners actively engaged in panel practice, one of whom should be a woman; that so far as any scheme refers to medical services for the civilian population it should be worked by a small executive committee appointed from the members of the Central Medical War Committee with lay members appointed by the Director of National Services. The Panel Committee is of opinion that more medical men would be set free for active service abroad without serious interference with the needs of the civil population if extra use were made of the part-time services of civilian doctors for the treatment of sick and wounded soldiers in hospitals and for other military duties in this country. It has also urged on the Insurance Commissioners the desirability of extending the regulation restricting the right of insured persons to transfer from the lists of practitioners on active service, so as to cover cases where panel practitioners might be affected by any scheme of substitution resulting from mobilization.

An account is given of the Drug Fund for the area of the Committee for the first three quarters of 1916, and it appears that up to the end of September the total cost of the prescriptions was £70,797, and, even allowing for a probable rise in the fourth quarter, it is unlikely that the total cost for the year will exceed £100,000. It is understood that, according to the Commissioners' estimate, the amount that may safely be advanced to chemists is about £80,000, and there is a probability that a small proportion of the 1916 drug fund will be available for distribution among the panel practitioners. Attention is again drawn to the necessity of marking with a "D" all prescriptions given to patients in receipt of domiciliary treatment. Practitioners often omit this with the result that the cost is charged to the Drug Fund when it ought to be borne by the Sanatorium Benefit Fund.

Hints on Economical Prescribing.

The Panel Committee issues with the *Gazette* a memorandum on the 1916 drug tariff which suggests various methods of effecting economies in prescribing. The method of pricing the prescriptions is described, and it is shown that in many cases accessory ingredients which are only of secondary importance are often more costly than the principal ingredient; for example, "aq. chloroformi ad 12 oz." costs 2.85d., whereas it would be just as good to order "emuls. chlorof. 2 drachms" and "aq. ad 12 oz." which only costs 0.41d. The medicated waters of the *British Pharmacopœia* may also be replaced by what are referred to as "ex conc."; for example, "aq. menth. pip. 8 oz." costs 2.48d., whereas "aq. menth. p. ex conc." only costs 0.8d., though it is claimed that the latter is equal in every respect. It is estimated that the medicated waters are so largely prescribed that the use of the "ex concentra" solutions would effect a saving of something like £10,000 a year. Practitioners are further advised to pay attention to the scale of dispensing fees, as a saving can often be effected by a slight alteration in the form—for example, by not ordering unless necessary the medicaments that are assumed to be prepared extemporaneously for which a higher dispensing fee is paid. Attention is drawn to the ten stock mixtures the committee has chosen. Attention is also drawn to the fact that for a compounded ointment, or one that has to be freshly prepared, the dispensing fee is 3.6d., whereas those which are included in the tariff only carry a dispensing fee of 1.8d. Economy may also often be effected in the prescribing of pills and tablets. Special attention is drawn to the fact that the chemists are not now under any obligation to supply medicines in graduated bottles, which are difficult to obtain owing to the war, and practitioners are therefore asked to give careful directions to their patients as to dosage in order to prevent waste.

LOCAL MEDICAL AND PANEL COMMITTEES.

County of London.

Restriction of Alcohol.—At the meeting of the Panel and Local Medical Committees on February 20th a long discussion, in which great divergence of opinion was manifested, took place on the recommendation of a subcommittee that, in the interests of the public health, further restriction of the consumption of alcohol was desirable. While some members urged that this matter, like venereal disease and tuberculosis, was closely concerned with panel practice, others regarded it as extraneous to the work of the Committee, and ultimately a motion was adopted to proceed to the next business.

The Provision of Anaesthetics.—Arising out of a recent case and of a suggestion from the Insurance Commissioners that a small portion of the Practitioners' Fund should be earmarked to defray the cost of the administration of anaesthetics, the Committee agreed to a motion that it was undesirable for any portion of the Practitioners' Fund to be earmarked for this purpose, and that in any case in which the administration of an anaesthetic was desirable in connexion with an operation to be performed

as part of medical benefit, the practitioner performing the operation should arrange with one of his colleagues to undertake the administration.

Diagnosis and Treatment of Venereal Diseases.—The special subcommittee appointed to consider the public provision for the diagnosis and treatment of venereal disease in London brought forward a lengthy report, signed by Dr. Lauriston Shaw, the chairman. Certain details of the forms and arrangements made by the Local Government Board were criticized and suggestions made for use when the schemes come up for reconsideration after the experimental year. As to the co-operation of the general practitioner in the scheme, the subcommittee stated that it did not think it necessary, at any rate for the present, to promulgate an arrangement defining the duties of practitioners under the new clause (Clause 3) which had been added to the panel practitioner's agreement, but, on the other hand, it thought it important that at the outset every practitioner should recognize his individual responsibility to exercise his own personal judgement with regard to the nature of any form of treatment to which he advised or encouraged his patient to submit. The report was criticized by Dr. A. Salter, who said that while in one paragraph the "undoubted efficacy" of salvarsan was spoken of, in the preceding paragraph it was stated that salvarsan was still on its trial, that those who made the freest use of it differed amongst themselves as to its use, mode of administration, dosage, and dangers, that numerous cases were recorded of speedy death after a first or subsequent injection, and that time was showing that later manifestations of syphilis became evident in patients who had been vigorously treated by it in the earlier stages of the disease. He thought that those who confounded salvarsan with ordinary vaccines and antitoxins and viewed them all with a certain "political" bias would make damaging use of such admissions. The detailed consideration of the report was adjourned until the next meeting of the Committee.

East Suffolk.

At a meeting of the Panel Committee on February 13th it was reported that the Pharmaceutical Service Subcommittee had requested the Medical and Sanatorium Benefit Subcommittee to give the general question of doctors prescribing very careful consideration, as it was of opinion that there were good grounds for believing that insured persons were not receiving such proper and sufficient medicines, etc., as were necessary for their treatment owing to the fact that too much anxiety was being shown by practitioners to keep down the cost of drugs in the mistaken notion that otherwise they might be surcharged. After interviewing a deputation from the Medical and Sanatorium Benefit Subcommittee, it was decided to send a circular letter to practitioners on the panel with a view to removing any misunderstanding which might possibly have been caused by the previous circular on prescribing (September 17th, 1915), and to inform the deputation that unless the resolution of the Pharmaceutical Service Subcommittee was withdrawn, it would be the duty of the Panel Committee to press that each charge upon which it was founded shall be fully investigated.

A subcommittee was appointed to consider the question of the future policy of the British Medical Association as regards national insurance.

It was resolved to request the clerk to the Insurance Committee that whenever an insurance card was sent to a patient, a memorandum should be affixed thereto informing the patient that he ought to choose a doctor, and obtain the signature of that doctor to his insurance card without delay.

West Riding of Yorkshire.

The Local Medical and Panel Committees, when accepting the 1917 agreement, resolved to inform the British Medical Association that at least six months' notice should be given to Panel Committees of any alterations required to be made in the agreement, so that the Committees would have plenty of time to discuss the matter fully, and if necessary to communicate with each practitioner in the area.

It was resolved to accept the payment of 3d. per prescription in respect of all dressings and appliances, provided the money comes out of the Drug Fund, and provided a record be kept with a view to comparing the working of the method with the system previously in force. It was decided to inform the Insurance Committee that the notice sent to chemists instructing them to suspend the supply of dressings in bulk to practitioners should be withdrawn, as it had caused serious dislocation in the work of the doctors.

Glasgow Burgh.

At a meeting of the Panel Committee on November 22nd, 1916, a letter was read from the Pharmaceutical Committee expressing agreement with the explanations offered in respect of a large number of doctors whose average cost was high, but pointing out that there are still fifteen practitioners whose cases were not covered by the explanations put forward, and offering to give every assistance in the limited investigation that would be involved in these cases. It was agreed to send a reply pointing out that a representation for an investigation should be accompanied by something more definite than a reference to average cost, especially when the general average was so low as in the year under review, and that the investigation would involve (1) the resorting of prescriptions into doctors' bundles; (2) a scrutiny of every individual prescription of the doctors concerned; (3) the writing of letters to the doctors, giving particulars of the alleged extravagance; (4) the interviewing of the practitioners by the Committee; (5) hearing the Pharmaceutical Committee if it so desired. Having regard to the obstacles in the way of taking such steps at the present juncture, it was hoped that the request for a formal investigation would be withdrawn, as the Committee believed that writing to or interviewing the practitioners concerned would promote economy in the future.

INSURANCE ACT IN PARLIAMENT.

Sickness Benefits for Partially Disabled Men.

In reply to Mr. Hogge in the House of Commons on Monday, Sir Edwin Cornwall said that benefits are being paid by approved societies to men in receipt of partial disablement pensions who are incapable of work through sickness. The view taken was that the financial burden imposed by the payment of claims arising from war service should not ultimately fall upon approved societies, and arrangements were under consideration for recouping societies in respect of such payments. On this Mr. Hogge asked how a man who was incapable of working and partially disabled was not totally disabled, but no further reply was vouchsafed.

Discharged Soldiers.

Mr. Hogge inquired whether all soldiers on discharge were receiving leaflet 29A. Sir Edwin Cornwall in his reply, said that the Army Council had instructed the regimental authorities to issue a copy to every man on his discharge. Supplies had also been sent to military hospitals in order that they might be given to the men on their discharge. Local War Pensions Committees had further been asked to hand a copy where necessary to every man with whom they were brought in contact.

Treatment of Discharged Tuberculous Soldiers.

In answer to Mr. Hogge Sir E. Cornwall said: "Under special arrangements made by the various Insurance Commissions with the Admiralty and the War Office, beds have been provided for nearly 5,000 discharged sailors and soldiers suffering from tuberculosis. Insurance Committees have, in addition, provided beds under the ordinary arrangements for a considerable number of discharged men, but I have no information as to the exact number."—In further reply to Mr. Hogge, the Minister said he had no information at the moment as to how many of these 5,000 discharged sailors and soldiers suffering from tuberculosis had any pension. He added that Mr. Booth was right in saying that the Committees had not sufficient funds in hand to deal with the civilian population, and that the admission of soldiers was increasing the waiting list of civilians.

The Derbyshire Insurance Committee.

Mr. T. Richardson asked whether the Derbyshire Insurance Committee proposed to charge the practitioners

concerned with the estimated cost of Medical Services Subcommittee inquiries, and whether he would take the necessary steps to prevent Insurance Committees from taking such action, which was giving rise in the medical profession to dissatisfaction with the administration of medical benefit. Sir Edward Cornwall replied that his attention had not been drawn to the matter, but in the event of any dispute arising between the Insurance Committees and the practitioners, the latter had the right of appeal to the Commissioners, who would thereupon deal with the question.

Doctors' Remuneration in Monmouthshire.

Mr. T. Richardson asked a question as to the dissatisfaction existing amongst medical practitioners in Monmouthshire at the payments in advance of remuneration for last year being reduced by 30 per cent. of the amount due as shown by the insured persons on the doctors' lists, and whether any steps could be taken to make a further payment on account forthwith. Sir Edwin Cornwall replied: "I am informed that the Monmouthshire Insurance Committee have reserved a small margin, not exceeding 5½ per cent., from the advanced payments suggested by the Commissioners. I am, however, in communication with the Insurance Committee with a view to such further sums being advanced as the local conditions will justify."

Payments to Doctors in Lancashire.

In the House of Commons on February 13th Mr. Tyas Wilson asked whether the Lancashire Insurance Committee had not made the ordinary advance to doctors in October; whether the capital sum to be advanced to the end of 1916 would amount to only 4s. 9d. a head; and whether the Committee was withholding for the final settlement more funds than were necessary having regard to the fact that the doctors' lists in that area had not been substantially affected by enlistments and that the total sum eventually available for distribution would be close on 6s. 6d. a head. Sir E. Cornwall replied: The ordinary monthly advance was not made by the Lancashire Insurance Committee in October, 1916, because the doctors had already received, during previous months, payments on account in excess of the amounts properly available for distribution at those periods. The payments which, I understand, have been made to the doctors at the end of the year were fully up to the sums then properly available, regard being had to the necessary adjustments. The full balance will, of course, be paid to the doctors as soon as the requisite facts are available.

Health Insurance Finance.

In reply to another question by Mr. Tyas Wilson on the same day, Sir Edwin Cornwall stated in a written answer that for the last year in respect of which accounts had been completed—namely, to December 31st, 1914—the value of Health Insurance stamps sold was £17,571,364, and the value of the stamps accounted for in the Insurance Fund, less the value of stamps on unclaimed insurance cards, was £16,953,586. It had not been possible to complete the accounts to December 31st, 1915, owing to the delay in the surrender of contribution cards by societies to the Commissioners. In reply to a further question, Sir E. Cornwall said that the total amount paid into the Insurance Funds through the sale of insurance stamps since the Act came into operation to the end of December, 1916, was £79,409,150. The approximate value of stamps on unclaimed contribution cards in the hands of the Commissioners on December 31st, and included in the above figures, was £37,860.

NON-PANEL DOCTORS AND NATIONAL INSURANCE CERTIFICATES.

In order to minimize as much as possible the inconveniences caused to doctors who attend insured persons in their private capacity, the Association has published books of certificates which, it is believed, will meet the requirements of approved societies, so far as is practicable in the case of certificates not given under the obligations of the official medical certification rules. The form of certificate is sufficiently like the official form to remove many of the difficulties which insured persons who have been attended by private doctors have had in satisfying the requirements of their approved societies, but is sufficiently distinct from the official form to show at once that it is being used by a doctor who is attending the patient in a private capacity—that is to say, either by a doctor who is not on a panel, or by a panel doctor other than the one on whose list the insured person is.

The Association has shown the certificates to the Insurance Commissions for England, Scotland, and Wales, and they raise no objection to the issue of them by the Association to medical practitioners for use when attending insured persons not being their panel patients, and not being persons whom they are attending as medical officers of institutions under Section 15 (4), or in virtue of "own arrangements" under Section 15 (3).

The books are being issued at cost price. They contain 50 certificate forms, and may be obtained from the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C., price 6d. each, post free.

PREVENTION OF SMALL-POX.

Vaccination or Revaccination of Contacts.

The President of the Local Government Board in England and Wales has issued to local authorities a circular letter stating that it has been represented to him that it is desirable that further facilities should be provided for securing, on the occurrence of any case of small-pox, the prompt vaccination and revaccination of persons who have come in contact with the infection.

A General Order, entitled the Public Health (Small-pox) Regulations, 1917, and dated February 12th, 1917, has accordingly been issued. It empowers medical officers of health to perform vaccination or revaccination of persons who have come in contact with the infection and who are willing to be vaccinated. In the performance of vaccination the following instructions are to be observed:

(*a*) Vaccination should at every stage be carried out with aseptic precautions, which should include the cleansing of the surface of the skin before vaccination, the use of sterilized instruments, and the protection of the vaccinated surface against extraneous infection both on the performance of the operation and on inspection of the results.

Advice as to the precautions to be taken in this respect until the scabs have fallen and the arm has healed should always be given to the person vaccinated, or, in the case of the vaccination of a child not more than fourteen years of age, to the parent or other person having the custody of the child.

(*b*) In all ordinary cases of primary vaccination the medical officer of health should aim at producing four separate good-sized vesicles or groups of vesicles, not less than half an inch from one another. The total area of vesiculation resulting from the vaccination should not be less than half a square inch.

(*c*) If any person vaccinated or revaccinated by a medical officer of health in pursuance of these regulations requires medical treatment in consequence of the vaccination or revaccination the local authority should offer to provide such medical treatment as may be required.

It is to be clearly understood that the powers conferred upon the medical officer of health under the new regulations are only intended to be exercised in the cases of persons who have been in immediate contact with persons suffering from small-pox.

TREATMENT OF VENEREAL DISEASES.

Dr. J. Hudson, honorary secretary (pro tem.) of the Newcastle-upon-Tyne Division, has had several interviews with the local authorities in connexion with the report of the Royal Commission on Venereal Diseases, which he considers involves two points: First, a setting up of means of treatment, and secondly, a general raising of the level of general practitioners, so that they may become more experienced with the modern treatment of these diseases.

The first part, he writes, the local authorities are carrying out in a very efficient manner by forming clinics and making arrangements for diagnosis, and my feeling is that they may rely mainly on a publicity compaign to attract patients to the clinics instead of enlisting the co-operation of the general practitioners, so that they will send all their patients whom they feel cannot be treated efficiently by themselves. The local authorities should remember that the sending of any patient to a clinic is purely voluntary.

In regard to the second—the education of the general practitioner. The profession must rely on its own efforts, as, though I pointed out to the local authority any patient treated at home saves them money, they have bound themselves—I am speaking of this district—to leave everything in the clinic to the jurisdiction of the hospital authorities; and, though they are the paymasters, they

have no authority in the internal management. I am not saying that the above is not a good arrangement, but that the local authorities, with the best will, are really able to do nothing to further the education of the general practitioner. The report of the Commission, page 47, paragraph 151, says:

We consider that any scheme of administration for dealing with venereal diseases must be so framed as to develop the ability of the general practitioners in treating these diseases, and make them more efficient for their general functions as the first line of defence of the community.

And we find on page 43, paragraph 136, the opinion of representative medical men on the feasibility of the general practitioner learning the technique as follows:

Sir William Osler was of opinion that there was no more reason why the general practitioner should not treat with salvarsan than that he should not give diphtheria antitoxin (Q. 14,213), while Sir Clifford Allbutt regarded the use of salvarsan as a difficult manipulation, needing a great deal of caution and special knowledge (Q. 13,649). Colonel Gibbard, Mr. Lane, and others were of opinion that salvarsan should be administered only by those who are thoroughly acquainted with its technique and contraindications (Q. 3,892, 3,135-9). Sir Victor Horsley was of opinion that the difficulties of the administration of salvarsan by the panel doctor are only temporary, though intravenous injection could scarcely be done by the ordinary panel doctor without special instructions (Q. 11,245, 11,367). Drs. Cox and Fulton thought that the provision of salvarsan for use by medical practitioners should be encouraged, and that they should be trained to administer it. There can be no doubt that many panel doctors are competent to administer salvarsan, and we were informed that some were, in fact, using this drug in their panel practice. It may be hoped that, with the improvement of medical education as regards venereal diseases and the provision of greater facilities for institutional treatment, salvarsan will come into general use. These difficulties apply, though with diminished force, to neo-salvarsan. We are, however, strongly of opinion that training in technique is necessary in the case of all medical practitioners who administer this drug, and the means of such training will become available if our recommendations are adopted.

I think it will be seen that the Commissioners are of opinion that it is quite feasible that general practitioners should learn the administration of these potent remedies, and that their idea is, instead of one specialist in a clinic, every general practitioner should have an opportunity of becoming proficient in that line in the national interest.

To achieve that, the profession should press on the hospital authorities that there should be a rota of general practitioners. I suggest for this district twelve a week—two daily—to act as clinical assistants for a period of three months, and to take an active part in the administration of the clinic in all its activities. At the end of that time the medical officer of health should give them salvarsan for administration to their patients, and this they would be competent to do. If a practitioner does not desire to attend the clinic, he can send his patients for treatment there, but I would say that the great majority of younger men would be eager of taking the opportunity of adding to their knowledge, and so carry out the opinion of the Commissioners. Another point is that the clinic is going to take away fees from the general practitioner, and so diminish again the earning powers of the profession. The above restores to them the opportunity.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Deputy Surgeon-General R. Hill, C.V.O., to the *Queen Elizabeth*. Fleet Surgeons J. C. Rowan to the *Pembroke*, additional; W. S. H. Sequeira to the *Iron Duke*; R. B. Scribner to the *Cochrane*. Staff Surgeons K. D. Bell to the *Queen Elizabeth*; L. M. Morris to the *Lord Nelson*. Surgeons A. Simpson, M.B., and R. M. Riggall to the *Pembroke*. Temporary Surgeons C. P. Tatton to the *Iron Duke*; J. Smith to the *Melbourne*; N. S. Nairne to the *Victory*, additional, for Haslar Hospital; C. M. Williams to the *Pembroke*; C. M. Burrell to the *Euryalus*; H. H. M. Johns to the *Princess Royal*.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

To be temporary Lieutenant-Colonels: Lieutenant-Colonel Sir Ronald Ross, K.C.B., F.R.S., F.R.C.S., R.A.M.C.T.F. (Major retired M.S.), J. W. W. Stephens, M.D.

Temporary Major R. E. Kelly, M.B., F.R.C.S. (Captain R.A.M.C.T.F.), to be temporary Lieutenant-Colonel.

Majors (acting Lieutenant-Colonels) relinquish their acting rank on reposting: W. J. P. Adye-Curran, August 13th, 1916; W. F. H. Vaughan, January 6th, 1917.

To be acting Lieutenant-Colonels: Major R. B. Ainsworth, whilst in command of a stationary hospital; Major G. W. G. Hughes, D.S.O., Captain R. B. Phillips and Captain A. I. Fortescue, M.B., whilst in command of a field ambulance: Major H. A. Emerson, D.S.O., M.B., whilst in command of a casualty clearing station.

To be acting Majors: Captain W. J. Tobin, whilst in command of a field ambulance; Temporary Captain A. E. Seller whilst in command of troops on a hospital ship; Captain C. E. H. Milner, R.A.M.C.(T.F.), whilst in command of a general hospital.

Temporary Captains to be temporary Majors: J. A. Torrens, M.B., R. H. J. Swan, M.B., F.R.C.S.

Temporary Captain (acting Major) R. H. Jones, M.B., relinquishes his acting rank on reposting.

Temporary Captain G. R. Pennant relinquishes his command on account of ill health.

Temporary Captain (local Major) R. R. K. Paton, M.B., relinquishes his local rank on reposting.

Temporary Captain B. C. Ashton, M.B., and temporary Lieutenant W. M. Crombie relinquish their commissions on appointment to the Indian Medical Service.

The undermentioned having resigned their appointments to the Welsh Hospital, Netley, relinquish their commissions: Temporary honorary Captains J. S. Rowlands, M.D., and T. G. Evans, M.D., temporary honorary Lieutenants W. MacAdam, M.B., and D. J. Harries, M.B.

The undermentioned having resigned their appointments with No. 8 British Red Cross (Baltic and Corn Exchange) Hospital, relinquish their commissions: Temporary honorary Lieutenants C. E. Drennan and C. E. Sparks

Temporary Captains relinquish their commissions: H. H. Scott, M.D., W. B. Thompson, M.B., R. J. H. Cox, M.B., C. L. Morgan, M.D., F. A. Bainbridge, M.D., F.R.C.P., J. Fettes, M.B., O. F. McCarthy, W. Winslow, M.B., C. H. Philips, C. P. V. MacCormack, C. W. Roe, M.C., R. H. Fothergill, M.B., B. M. Collard, R. B. Jackson, T. H. Agnew, J. P. Lavery.

Temporary Lieutenants to be temporary Captains: J. Cameron, M.B., H. A. G. Hadden, G. W. Spencer, M.B., W. A. Cochrane, M.B., W. G. Parker, M.B., J. H. P. B. Barrett, M.D., B. Cox, M.D., W. Dickson, M.D., P. A. Reckless, F.R.C.S., G. J. Jones, M.B., S. J. C. Fraser, M.D., D. Burns, I. Feldman, E. R. Hart, S. A. W. Munro, M.B., D. H. Hall, M.B., J. J. O'Neill, M.B., D. Lees, M.B., G. P. White, M.B., R. M. Rowe, M.D., F.R.C.S., W. Brownlie, M.B., R. Johnson, M.D., T. Dowzer, F.R.C.S.I., E. J. Clark, M.B., W. Paul, M.B., W. Speedy, M.B., R. A. Warters, M.B., A. D. Moffat, M.B., J. J. Clarke, R. E. Illingworth, A. D. Hunt, M.D., A. W. Mather, M.B., A. C. Tait, M.D., C. W. C. Robinson, W. M. Buchanan, W. J. Pearson, M.B., E. L. Christoffelsz, C. F. Maclachlan, J. G. M. Moloney, A. D. Buchanan, M.B., W. D. D. Small, M.D., R. M. Hewitt, M.D., J. P. Fairley, M. C. Bridgman, M.D., A. McNally M.B., A. E. McCulloch, M.B., G. J. Hanley, M.D., G. H. Kearney, M.D., H. C. Fox, M.B., E. W. Martin, M.B., W. M. Muirhead, M.B., J. Bain, M.B., R. R. Watts, M.B., C. M. G. Elliott, F. W. Craig, M.B., J. Oag, M.B., A. McL. Pilcher, M.B., J. F. St.J. Annesley, M.D., A. H. Donaldson, M.B., J. McF. Grier, M.B., F. K. Marriott, M.C., G. W. Huggins, E. C. Sparrow, M.B., A. H. Ernst, R. N. Craig, A. H. G. Burton, M.D., W. G. Porter, M.D., J. A. Macarthur, M.B., T. C. Bowie, M.B., B. Graves, D. S. Robertson, M.B., J. H. C. Fegan, R. Younger, M.B., A. J. L. Speechly, A. N. Cox, M.D., W. S. T. Connell, H. G. Carlisle, M.D., F. C. Stewart, M.D.

Temporary Lieutenants relinquish their commissions: T. M. Body, H. A. R. E. Unwin, M.B., F.R.C.S., D. M. Hanson, H. Farncombe, M.B., J. Massey, M.B., M. J. Harkin, M.B., W. A. L. Marriott, M.B., D. A. Thomson, M.B., A. Brebner, H. Tonks, F.R.C.S., G. O. Scott, C. M. Scott, M.C., J. Dunbar, M.B., S. McComb, M.B., C. E. Jones-Phillipson, M.D., F.R.C.S., F. J. C. Blackmore, J. Bryan, O. Le F. Milburn, H. W. P. Parrott, M.B., R. A. R. Green, M.B., T. Winning, M.B., G. F. Palmer, M.D., L. W. Oliver, A. L. Singer, M.B., I. J. Balkin, M.B., E. G. Pringle, M.D., W. Stevenson, M.B., M. Campbell, M.D., R. Montgomery, M.D., G. FitzGerald, M.B., C. S. Rivington, W. B. Mercer, M.B., S. Stockman, M.B., F. J. Eager, J. McConnell, M.B., W. M. Nairn, M.B., H. de L. Crawford, M.B., W. W. Jones, M.B., J. S. Johnson, M.B., T. G. H. Drake, M.B., A. H. B. Kirkman, F.R.C.S.E., A. E. Whitmore, M.D.

Temporary Lieutenants relinquish their commissions on account of ill health: T. Anwyl-Davies, A. S. Paterson, M.B.

The notification in the *London Gazette* of July 21st, 1915, regarding Henry D. McCall is cancelled. (Substituted for notice in the *London Gazette* of January 4th, 1917.)

The name of temporary honorary Lieutenant Herbert Edward Durham, F.R.C.S., is as now described, and not as in the *London Gazette* of November 13th, 1916.

E. S. Phillips to be temporary honorary Lieutenant whilst serving with the British Red Cross Hospital, Netley.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain H. M. Williams to be acting Major whilst in command of a field ambulance.

Captain J. O. Hamilton, M.B., relinquishes his commission on account of ill health.

Lieutenants to be Captains: T. Blackwood, M.B., J. P. Broom, M.B., A. C. Brown, M.B., J. W. Dalglish, M.B., J. F. Duthie, M.B., J. Ewing, M.B., E. G. S. Hall, M.B., R. W. MacDonald, M.B., D. B. McIntosh, M.B., J. W. Maclean, M.B., A. F. McMillan, M.B., R. Rodger, M.B., J. A. Buchanan, M.B., G. Lapage, M.B., J. M. H. Campbell, M.B., P. D. H. Chapman, E. B. Alabaster, J. B. Steven, M.B., K. J. T. Wilson, M.B., R. Isbister, M.B., T. Gray, M.B., M. Dwyer, J. M. Downie, H. S. Moore, M.B., R. B. Stewart, M.B., R. L. Portway, D. F. Standing, M.B., R. J. Staley, M.B., W. J. Vance, W. F. T. Haultain, M.B., G. J. Key, M.B., A. H. Craig, M.B., G. Ewen, M.B., W. D. Whamond, M.B., D. D. Evans, W. H. Dye, G. E. Kidman, F. J. Murphy, M.B., A. Fowler, M.B., A. G. Stevenson, M.B., A. C. MacDonald, O. Johnston, M.B., W. C. Borrie, S. J. Henderson, M.B., R. B. Hick, W. O. F. Sinclair, M.B.

To be Lieutenants: J. Burke, H. D. McIlroy, H. St. H. Vertue, M.B., C. J. Penny, S. A. T. Ware, H. J. Blampied, J. H. Thomas, D. J. Thomas, R. R. Traill, L. G. Blackmore, L. S. Gathergood, K. N. G. Bailey, and M. C. Joynt, from the University of London Contingent O.T.C.; H. Franklin, M.B., from Leeds University Contingent O.T.C.; R. W. Lush, E. R. Longstaff, W. Andrew.

Lieutenant (on probation) J. P. Macnamara, M.B., is confirmed in his rank.

Lieutenant (on probation) A. F. Grimbly relinquishes his commission on appointment to the Royal Navy.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Temporary Lieutenants (Canadian Militia) to be temporary Captains: H. E. Brown, from Lieutenant R.A.M.C.; P. W. Barker, from Captain R.A.M.C. To be temporary Captains: G. O. Scott, M.D., W. F. Hale, G. W. Morden, M.D.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Major (temporary Lieutenant-Colonel) P. R. Ash relinquishes his temporary rank on ceasing to command a field ambulance.

To be acting Lieutenant-Colonels: Captain (temporary Major) R. W. Brimacombe whilst commanding a casualty clearing station; Captains (temporary Majors) C. S. Brebner, M.D., and G. Mackie whilst commanding a field ambulance.

Captain (temporary Major) J. Grounds relinquishes his temporary rank on alteration in posting.

Captain S. F. Linton, M.B., to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Captain R. A. Hooper, M.B., from 1st Northern General Hospital, to be Captain.

Captain A. G. Whitfield relinquishes his commission on account of ill health.

Lieutenants to be Captains: A. G. Reid, M.B., T. L. Ashforth, and W. A. Milne, M.B.

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

Captain F. G. Bennett, from a field ambulance, to be Captain.

Captain A. Rodger, M.B., from a mounted brigade field ambulance, to be Captain.

Captain B. N. Ash resigns on account of ill health.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

APPLECROSS PARISH COUNCIL,—Medical Officer for the Torridon District.—Estimated emoluments, £350 per annum.

ASHTON-UNDER-LYNE: DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Assistant House-Surgeon. Salary, £160 per annum.

BATH: EASTERN DISPENSARY. — Resident Medical Officer. Salary, £140 per annum.

BIRKENHEAD UNION INFIRMARY. — Junior Female Resident Assistant Medical Officer. Salary, £300 per annum.

BIRMINGHAM AND MIDLAND HOSPITAL. — House-Surgeon. Salary, £200 per annum.

BIRMINGHAM GENERAL DISPENSARY. — Resident Medical Officer. Salary, £250 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

BUXTON: DEVONSHIRE HOSPITAL.—Assistant House-Physician. Salary, £100 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—Two House-Surgeons. Salary, £175 per annum.

DUNDEE DISTRICT ASYLUM.—Assistant Resident Medical Officer. Salary, £300 per annum.

DUNDEE MATERNITY AND CHILD WELFARE SCHEME.—Medical Practitioner (female). Salary, £350 per annum.

GREAT YARMOUTH HOSPITAL.—House-Surgeon. Salary, £200 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £200 per annum.

HANTS COUNTY ASYLUM, Fareham.—Temporary Assistant Medical Officer (male). Salary, £6 6s. per week.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) House-Surgeon; (2) Assistant Casualty Medical Officer. Salary, £60 per annum.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

MANCHESTER CORPORATION. — Temporary Medical Superintendent at the Abergele Sanatorium, North Wales. Salary, £300 per annum,

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—Lady House-Surgeon. Salary, £120 per annum.

PORTSMOUTH: ROYAL PORTSMOUTH HOSPITAL. — House-Surgeon (male). Salary, £250 per annum.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E. —House-Surgeon.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Third House-Surgeon. Salary, £50 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—(1) House-Physician; (2) Junior House-Surgeon. Salary, £150 and £120 per annum respectively.

SUNDERLAND EYE INFIRMARY. — Temporary House-Surgeon. Salary, £400 per annum.

SUNDERLAND: ROYAL INFIRMARY. — Lady House-Surgeons. Salaries: Senior, £250; juniors, £200 per annum.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—Senior Resident Medical Officer. Salary, £250 per annum.

WEST HAM UNION.—Assistant Medical Officer at the Sick Home. Salary, £300 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Clonakilty (Cork), Helston (Cornwall), Morriston (Glamorgan), Wansford (Northampton), Woodstock (Oxford).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ELLISON, H. B., M.B., B.C.Camb., Certifying Factory Surgeon for the Frodsham District, co. Cheshire.

GEORGE, R. J., M.D.Edin., Certifying Factory Surgeon for the Paignton District, co. Devon.

HIGGINSON, Charles Gaskell, M.D.Durh., M.R.C.S.Eng., Civil Surgeon at the Second Birmingham War Hospital, Northfield.

HUTTON, A., M.B., Ch.B.Aberd., Certifying Factory Surgeon for the Wartle District, co. Aberdeen.

JOHNSTON, J., M.D.Edin., Assistant Medical Superintendent to Townley's Military Hospital, Bolton.

JONES, T., L.R.C.P.and S.Edin., Certifying Factory Surgeon for the Amlwch District, co. Anglesea.

KNOX, J. E., M.B., C.M.Edin., Certifying Factory Surgeon for the Esher District, co. Surrey.

MOSLEY, R. V. A., M.B., Ch.B.Vict., District Medical Officer of the North Bierley Union.

PRIDHAM, W F, M.R.C.S., L.R.C.P., District and Workhouse Medical Officer of the Torrington Union.

ROLSTON, John R., M.R.C.S.Eng., L.R.C.P.Edin., Honorary Consulting Ophthalmic Surgeon to the Plymouth Garrison.

TOOKER, J. P., L.R.C.P.Lond., District Medical Officer of the Barnstaple Union.

WATSON, J. C., M.B., Certifying Factory Surgeon for the Lydbrook District, co. Gloucester.

ST. THOMAS'S HOSPITAL — House appointments:—The following appointments have been made: Casualty Officers and Resident Anaesthetists: H. J. Blampied, M.R.C.S., L.R.C.P.; D. G. Churcher, M.R.C.S., L.R.C.P.; E. S. Orme, B.A.Cantab., M.R.C.S., L.R.C.P.; S. A. T. Ware, M.R.C.S., L.R.C.P. Resident House-Physicians: W. T. Beswick, B.A.Cantab.; A. Mavrogordato, M.A.Oxon., M.R.C.S., L.R.C.P.; M. W. H. Miles, M.R.C.S., L.R.C.P.; W. G. Woolrich, B.A.Cantab. Resident House-Surgeons: L. C. Moore, H. C. Jennings, M.R.C.S., L.R.C.P.; G. W. J. Bousfield, P. Sai, M.R.C.S., L.R.C.P. House-Surgeon to Block 8: D. C. Bluett, M.R.C.S., L.R.C.P. Obstetric House-Physician: J. R. Harris, M.R.C.S., L.R.C.P. Ophthalmic House-Surgeon: W. Marriott. Clinical Assistants: Throat, P. G. S. Davis; Urological Department, Y. J. Cieh, M.R.C.S., L.R.C.P.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTHS.

BRIGGS.—On February 16th, at the Old Vicarage, Whitwick, Leicestershire (the residence of her father, Lieutenant-Colonel Burkett, R.A.M.C.), the wife of Captain John Briggs, R.F.C., of a daughter.

SUCKLING.—On February 15th, at 5, Marine Terrace, Margate, the wife of John Jerome Suckling, M.B., B.S.Lond., of a daughter.

MARRIAGE.

WATSON—TEEVAN.—On February 1st, at St. James, Spanish Place, W., Colonel C. Gordon Watson, C.M.G., F.R.C.S., of 82, Harley Street, to Geraldine, daughter of the late Charles James Teevan, of Woodside Court, Croydon.

DEATH.

WOODCOCK.—On February 17th, at 27, Nottingham Place, Louisa Woodcock, M.D., B.S.Lond., M.A.Trin.Coll.Dublin, aged 51.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—Second Milroy Lecture, by Dr. W. J. Howarth: Meat Inspection, with special reference to the developments of recent years.

THURSDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—Third Milroy Lecture, by Dr. W. J. Howarth: Meat Inspection, with special reference to developments of recent years.

ROYAL SOCIETY OF MEDICINE:

SECTION OF OBSTETRICS AND GYNAECOLOGY, 8 p.m.—Specimens. Communications:—Dr. Hubert Roberts: (1) Degeneration of Cervical Fibroid; (2) Calcified Fibroid. Dr. E. W. Scripture: Psychic Dyspareunia Treated by Mental Analysis. Dr. Herbert R. Spencer: (1) Undiagnosed Cancer of the Cervix; (2) Supravaginal Amputation of the Uterus. Dr. Blacker: Supravaginal Amputation of Uterus.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF LARYNGOLOGY, 4 p.m.—Cases, etc.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C.—Monday and Wednesday, 5 p.m., Dr. W. Harris: Morphology of the Brachial Plexus in its Relation to Surgery.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	MARCH.
1 Thurs.	London: Insurance Acts Rural Practitioners Subcommittee.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 3RD, 1917.

CONTENTS.

	PAGE
MOBILIZATION OF THE PROFESSION:	
CONFERENCE CALLED BY THE DIRECTOR OF NATIONAL SERVICE	41
BRITISH MEDICAL ASSOCIATION—CURRENT NOTES:	
DOMICILIARY TREATMENT OF EXPECTANT MOTHERS AND YOUNG CHILDREN	41
MEDICAL EXAMINATION OF WOMEN SEEKING EMPLOYMENT IN MUNITION WORKS	41
NAVAL AND MILITARY APPOINTMENTS	43
MEDICAL STUDENTS: STATISTICAL STATEMENT FROM THE GENERAL MEDICAL COUNCIL	42
INSURANCE:	
ADMINISTRATION OF THE INSURANCE ACTS	42
COUNTY OF LONDON INSURANCE COMMITTEE	43
VACANCIES AND APPOINTMENTS	44
BIRTHS, MARRIAGES, AND DEATHS	44
DIARY	41

MOBILIZATION OF THE PROFESSION.

CONFERENCE CALLED BY THE DIRECTOR OF NATIONAL SERVICE.

THE following letter from the Director-General of National Service has been received by the Chairman of the Central Medical War Committee:

National Service Department.

St. Ermin's, Westminster, S.W.,
22nd February, 1917.

Dear Sir,

The organization of the medical profession with a view to meeting the needs both of the military and civil population is one with which this department is now concerned. Up to the present the work of providing the army with qualified medical men has been undertaken by the Central Medical War Committee, with the assistance of the Committee of Reference for England and Wales and the Scottish Medical Service Emergency Committee. It is clear, therefore, that in considering what further steps should be taken, these bodies should be consulted and their opinions fully considered. Accordingly I have decided to call a conference, comprising three representatives of the Scottish Medical Service Emergency Committee, four from the Central Medical War Committee, and two from the Committee of Reference, over which I have asked Sir Donald MacAlister, the President of the General Medical Council, to preside, and I should be very much obliged if your Committee would be good enough to nominate representatives from amongst their number who would be prepared to attend. Particulars of the time and place at which the Conference will be held will be arranged as soon as the names of all the representatives have been received.

The Chairman will be furnished with terms of reference, but for your information I may say that the following will be among the subjects upon which it is desired that the Conference should express an opinion:

1. Whether the service to be given by members of the profession should be compulsory or voluntary.

2. What arrangements should be made for the collection and distribution of fees or other form of remuneration in cases where doctors leave their own practices or take on the practices of others.

3. What arrangements should be made (*a*) centrally, and (*b*) locally, for redistribution of medical men; and

4. What should be the relations between any central executive or advisory body representing the profession and this department.

I am, yours faithfully,
A. NEVILLE CHAMBERLAIN,
Director-General.

T. Jenner Verrall, Esq., LL.D., Chairman,
Central Medical War Committee,
429, Strand, London, W.C.

WE have received a communication from the Scottish Medical Service Emergency Committee stating that at a conference of Local War Committees for Scotland the following resolution was adopted:

That this conference of secretaries of Local War Committees, being informed that further substantial calls are likely to be made on the profession, is of opinion that these calls can only be met by mobilizing the whole profession.

BRITISH MEDICAL ASSOCIATION.

CURRENT NOTES.

DOMICILIARY TREATMENT OF EXPECTANT MOTHERS AND YOUNG CHILDREN.

THE special committee which, as stated in the SUPPLEMENT of February 17th, has been appointed by the Committee of Chairmen of Standing Committees of the Association to consider possible legislation in regard to the domiciliary treatment of expectant mothers and young children, held its first meeting on February 22nd, when it decided to ask the President of the Local Government Board to receive it as a deputation to make representations on the subject. The constitution of the committee was given in the previous note; since then Sir Malcolm Morris has been co-opted as a member, and Dr. Alice Benham (London) has been appointed in place of Dr. Mabel Ramsay (Plymouth).

MEDICAL EXAMINATION OF WOMEN SEEKING EMPLOYMENT IN MUNITION WORKS.

The Medico-Political Committee of the British Medical Association has under consideration the matter of the fee offered through labour exchanges for the medical examination of women seeking employment in munition areas. The Committee was informed that the fee paid was usually 2s. 6d., and that the report required to be made showed that the examination was intended to be thorough. The Committee looked upon the fee as inadequate and as in no way commensurate for the amount of work and responsibility the examination entailed. It has therefore made representations to the Ministry of Munitions, and has been informed that the matter had been referred by that Ministry to the Ministry of Labour.

MEDICAL STUDENTS.

We have received the following statistical statement from the President of the General Medical Council:

Students in Actual Attendance on Courses of Instruction in Preparation for Medical Degrees or Diplomas.

JANUARY, 1917.

	First Year, Qualifying in 1921.			Second Year, Qualifying in 1920.			Third Year, Qualifying in 1919.			Fourth Year, Qualifying in 1918.			Fifth Year, Qualifying in 1917.		
	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.
London (only) ...	217	174	391	183	133	316	71	54	125	229	44	273	425	51	476
England	602	325	927	374	210	584	175	99	274	341	68	409	539	78	617
Scotland	366	239	605	235	184	419	180	131	311	314	74	388	359	71	430
Ireland	481	110	591	378	78	456	217	31	248	196	22	218	190	15	205
Total	1,449	674	2,123	987	472	1,459	572	261	833	851	164	1,015	1,088	164	1,252

Total students in attendance 6,682.

MAY, 1916.

London (only) ...	251	122	373	145	68	213	43	44	87	479	39	518	269	38	307
England	558	226	784	280	109	389	140	65	205	619	71	690	375	55	430
Scotland	404	311	715	267	154	421	213	80	293	258	55	313	366	74	440
Ireland	460	99	559	226	32	268	166	18	184	201	19	220	181	11	192
Total	1,422	636	2,058	783	295	1,078	519	163	682	1,078	145	1,223	922	140	1,062

Total students in attendance 6,103.

INSURANCE.

ADMINISTRATION OF THE INSURANCE ACTS.

THE report of a commission of investigation appointed by the Faculty of Insurance to consider the operation, position, and prospects of national insurance has been issued. Though it is printed in a manner to give it the appearance of an official Government publication, and though it opens with the statement that it originated in a meeting held at the instance of the Faculty of Insurance in the House of Commons on June 29th, 1916, it is an entirely unofficial publication. As soon as the Insurance Acts Committee of the British Medical Association became aware, through notices in the lay press, that such a commission had been appointed by the Faculty of Insurance it communicated with the Insurance Commissioners inquiring whether the Commission of the Faculty of Insurance was authorized to include matters connected with the medical service under the Insurance Acts in its inquiry. The Commissioners replied that as the inquiry was to be conducted by a body which had no official standing, the question of the scope of the inquiry was not one with which any Government department was concerned, and pointed out that for reasons arising out of the present national situation questions affecting the position of medical practitioners who had entered into agreements under the Insurance Act were advisedly excluded from the review by the official Departmental Committee on Approved Society Finance and Administration appointed in January, 1916. In a note published in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of September 16th, the Insurance Acts Committee expressed the opinion that the Government would no doubt, at a more fitting time, hold a full and impartial inquiry into the whole question of medical benefit, and advised panel practitioners to ignore any unofficial inquiry that might be made.

As the Faculty of Insurance has thought fit to issue the report and place it on sale, we think it will be convenient to members of the Association if we give a short account of its scope.

The chairman of the Commission was first Mr. John Hodge, now Minister of Labour, and afterwards Mr. G. W. Currie, M.P.; the other members included one woman, one employer, and six representatives of friendly societies, and the President of the Poor Law Union Association for England and Wales.

It appears that sixty-seven witnesses were examined, and that of these twenty were medical practitioners; seven are described as of the National Medical Union, two as of the Panel Medico-Political Union, and two are mentioned as of the British Medical Association. It is proper to note that these gentlemen were not official representatives of the Association, which, as has been stated, considered the investigation, so far as it concerned the medical service, to be inopportune, and declined to give evidence before it.

The conclusions of the Commission as regards the health services are summarized as follows:

HEALTH SERVICES.

(*a*) That the medical benefit, the sickness benefit and the maternity benefit have undeniably been a great advantage to the community. We look forward to their useful development in many ways.

(*b*) That the drug service is very fairly good and represents, on the whole, reasonably good value for the money spent upon it. Treatment as distinct from drugs should, we think, receive greater attention, and the system of medical aid societies and institutional treatment generally might with advantage be encouraged. We believe that a relatively small increase in expenditure would secure a marked improvement in these services.

(*c*) That the tuberculosis scheme cannot be regarded as a success; and that, in all probability, much better results would be obtained were the existing system of overlapping control brought to an end and the whole responsibility vested in one public health authority.

(*d*) That it is impossible to expect fully satisfactory results from any of the health services unless and until housing conditions, both urban and rural, are improved.

The report admits that so long as the war lasts no great changes in the relations between medical men, the public, and the State are either desirable or practicable. It states that there is no doubt that the medical services under the Act "represent a very considerable step in advance upon the conditions which obtained prior to the Act," and of the defects in the various services, some are regarded as mainly due to administration, while some "appear to be inseparable from any form of medical service involving an enormous working-class population, many of whom spend their lives in an environment which, from a medical point of view, cannot possibly be described as favourable." It is suggested that a system under which a second medical opinion could be obtained when required would be an improvement, and the opinion is expressed that, though the services rendered are improving, "the standard of medical treatment is none too high, and unless a pretty rapid improvement is forthcoming within, say, the next five years, the practicability of establishing a State medical service will call for serious consideration." The view that the Act presents a temptation to malingering is not accepted as commonly true.

It is suggested that the Act proceeds on the footing that the prescription of drugs is the foundation of medical attendance, whereas the future may impose an increasing reliance upon treatment as opposed to drugs and "a fuller development of the hospital as a focal point in health administration," but it is curious to find that in this connexion the work of certain of the medical aid societies is especially praised. The drug service is stated to vary a good deal from place to place, and "its principal weaknesses appear to be chiefly due to sheer lack of money." Wholesale statements that the drugs supplied are not fairly good are regarded as not to be accepted.

What we are led to regard as the worst fault of the drug service is that financial pressure and the great burden of clerical work placed upon medical men not infrequently lead to the prescription and dispensing of a comparatively cheap drug, the actual quality of which would not be questioned, instead of a rather more suitable and more costly article.

Though such devices as "block prescribing," the use of "stock mixtures," and "Rep. mist." prescriptions are admitted to be time-saving, it is argued that these considerations do not altogether justify them, and it is stated "that the evidence points to a fear of surcharge not infrequently exercising an unfavourable influence upon prescriptions." No conclusion, however, is reached as to "how far the occasional necessity for surcharge could be obviated by some modification of the existing distribution of funds amongst doctors."

The results of the Acts as regards sanatorium benefit are looked upon as disappointing. It is held that the problem was largely miscalculated, and that the results fall far short of the expectations raised five years ago. Better access to early cases and isolation of late and infectious cases are regarded as essential; it is said that most of the evidence was in favour of handing over the whole treatment of tuberculosis to the public health authorities. On one point, however, the report is emphatic, namely, that until housing conditions are substantially improved, which means a large expenditure, "it is impossible to expect really satisfactory results from any national health insurance scheme."

Maternity benefit is held to have been most successful in practice, as being easy to administer and popular with insured persons and administrators of approved societies. The idea is put forward that if the suggested schemes of mothercraft and infant welfare come to anything, there might be co-operation between the mothercraft institution and the approved society with its maternity benefit under the Insurance Act.

The action of the recent Departmental Committee in making far-reaching financial proposals before a proper valuation of societies has been taken is deprecated, and the method of tampering with the sinking fund proposed by the committee is condemned. Nothing, it is said, should be done that would destroy the smaller societies that are doing good work, and any action that would lay successful approved societies under tribute to an indefinite extent to societies in deficiency is condemned. The report regards it "as plain beyond a doubt that a state of serious financial embarrassment must have existed for some time, and threatens to become more and more accentuated as time goes on." The Government, it is said, has admitted that in about thirty millions sterling of the funds of approved societies invested without reference to the views of their own office bearers there has been a depreciation of about four and a half millions sterling, and it is held that "depreciation on anything like this scale certainly raises the question of the position of the National Debt Commissioners as investment advisers in respect of insurance funds." The amount of deficiency in the working of societies cannot be ascertained at present, but it is believed to be serious, and it is hinted that there has been improper concealment of the facts. The position must, it is believed, be still further aggravated when the effects of disablement benefit are more fully manifest, and it is suggested that the Government might be well advised to consider whether disablement benefit between the ages of, say, 65 and 70 should not be regarded as falling within the old age pensions scheme. It is held that Parliament definitely made itself responsible for the Act, and that insured persons are therefore entitled to look to Parliament for a remedy. The war threatens to cause a burden on approved societies, in respect to disabled soldiers and sailors, which their resources are not fitted to carry, and it is said that "the State should provide all the money required to pay for the war; no portion of its cost should be thrown upon insured persons as such through their approved societies." The state into which the finances of the Act have fallen is attributed "very largely to the supposed requirements of the positions of political parties," and the hope is expressed that any suggested amendments will be looked on "as matter lying outwith the sphere of partisan conflict."

INSURANCE COMMITTEES.

COUNTY OF LONDON.

Funds for Sanatorium Benefit—The meeting of the London Insurance Committee on February 22nd was wholly occupied with the adjourned discussion of the report of the special subcommittee appointed to consider the funds available for sanatorium benefit (BRITISH MEDICAL JOURNAL SUPPLEMENT, February 17th, p. 31). Mr. Handel Booth, speaking in the name of the chairman of the subcommittee, offered to withdraw the general observations, such as those which related to the infectiousness of tuberculosis, in deference to medical criticism, but he insisted on the recommendations, and said that even within the last month persons certified as suitable for institutional treatment had been taken to the workhouse infirmary. Mr. Kingsley Wood, the vice-chairman of the committee, said that under these proposals there need be no fear of any disturbance of the financial arrangements with the doctors; their £36,000 a year (representing the amount of the additional capitation fee) was quite secure. Dr. H. H. Mills protested against the implication that it was financial reasons which stimulated the medical opposition, and Dr. W. B. Richmond emphatically repudiated the statement of a lay member that the medical representatives had fought the report line by line and had offered no constructive suggestions. They were all agreed that there were many reasons why they should ask for an enlarged sanatorium benefit fund. But the report was based on the hypothesis that every insured person was entitled to treatment in an institution; this was not the intention of the Act. The medical members were anxious that cases really suitable for sanatorium treatment should receive it. Dr. R. V. Donnellan referred to the insuperable difficulty of segregating all persons who were likely to be agents of infection, and pointed out that the consumptive was not dangerous unless he contracted dirty habits, and the policy should be to teach him hygiene rather than to enforce indiscriminate isolation. Dr. Ethel Bentham thought that it would be a public misfortune if the report went through with the authority of the Insurance Committee. More than 90 per cent. of the medical members of the committee were against it. The criticism was not confined to the medical members, and among others who spoke in favour of the reference back was Mr. F. R. Anderton, chairman of the Public Health Committee of the London County Council. On a division, however, the motion to refer back was lost by 16 votes against 26, and it was agreed to forward the report to the Local Government Board, the chairman of the Joint Committee, and the Insurance Commissioners, and to appoint a deputation to wait on all three.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Temporary Surgeons: G. Sparrow M.C., to the *Crescent*, for Queensferry R.N. Hospital; M. Fawkes to the *Vivid*; F. B. Eykyn to the *President*; J. A. McVea to the *Pembroke*; E. I. Parry to the *Dreadnought*; G. Hoffmeister to the *Victory*, additional, for Haslar Hospital; J. R. L. Willis, M.B., to the *Queen*, vice Aitken; R. Aitken to the *Prince of Wales*, vice Willis; J. A. B. Snell to the *Vivid*, additional; H. H. Bailey to the *Inflexible*, vice Rothwell; H. I. G. Rutherford to the *Tiger*, vice Dakers; G. E. W. Lacey to the *Victory*, additional; G. S. Sowden, M.B., to the *Colossus*.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Temporary Colonel F. D. Bird, C.B., M.B., F.R.C.S., reverts to temporary Lieutenant-Colonel on reposting.

Lieutenant-Colonel H. H. Brown, M.B., is retained on the active list under the provisions of Articles 120 and 522 of the Royal Warrant for pay and promotion and to be supernumerary.

Lieutenant-Colonels to be acting Colonels whilst employed as Assistant Directors of Medical Services: R. W. Clements, D.S.O., M.B., H. Herrick, T. H. J. C. Goodwin, C.M.G., D.S.O.

Captain H. C. D. Rankin, M.B., to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Temporary Captain J. E. Stacey, M.B., relinquishes his commission on account of ill health caused by wounds and is granted the honorary rank of Captain. (Substituted for notice in the *London Gazette* of January 29th.)

The undermentioned are granted temporary rank whilst employed at the Craiglockhart War Hospital: As Major, W. H. Bryce, M.B.; as Captain, W. H. R. Rivers M.D., F.R.S.

The undermentioned having ceased to be employed with No. 5 British Red Cross (Anglo-American) Hospital, relinquish their commissions: Temporary honorary Captain A. G. Wilkins, M.B., temporary honorary Lieutenant P. L. Hope.

Temporary Captain W. J. D. Smyth to be Lieutenant and is granted the temporary rank of Captain with seniority next below E. Jamieson.

The notification in the *London Gazette* of January 10th regarding temporary Captain G. A. Lilly is cancelled.

Temporary Captains relinquish their commissions: C. Gordon, M.B., W. A. Brown, M.B., A. M. Ross, E. S. Moorhead, M.B., C. Banting, M.D., F.R.C.S.

To be temporary Captains: S. Ritson, F.R.C.S., R. A. Jones.

Temporary Captain N. J. Watt, M.B., relinquishes his commission on account of ill health.

Temporary Lieutenants to be temporary Captains: J. J. O'Kelly, H. Stewart, M.B., S. L. Haslett, M.B., G. Sutherland, M.B., F. G. Heard, D. L. Sewell, M.B., W. E. Waller, M.B., J. R. Griffith, N. Grace, M.D., P. G. Temple, G. T. L. Murphy, M.B., D. M. Baillie, M.D., C. B. F. Tivy, M.B., H. V. Forster, M.B., J. Bamforth, M.D., E. E. Semmence, G. Hart, D. Smith, M.B., J. Potter, E. R Dermer, A. J. Anderson, M.B., J. S. Part, M.D., D. J. Clark, M.B., G. G. Buchanan, M.B., F. M. Davies, J. L. Cochrane, M.B., R. C. Harkness, M.B., F.R.C.S., G. Jackson, M.B., E. W. N. Hobhouse, J. G. Slade, M.D., J. W. E. Cole, M.B., D. J. O'Brien, E. M. Balthasar, W. W. Halstead, G. E. Anderson, T F. Moran, W. S. McGowan, M.D., J. P. Douglas, M.B., T. W Ruttledge M.B., P. G. Leeman, M.B., F. H. McCaughey, M.B., C. H. Seville, M.B., G. F. C. Healy M.D., W. G. Jones, J. Williamson, C. H. C. Byrne, E. W. G. Young, M.B., J. S. Crawford, M.D., C. E. Sharp, M.D., P. Hudson, H. M. Bouchier-Hayes, J. M. O'Reilly, M.B., H. McW. Daniel, M.B., A. P. Hart. M.B., A. N. W. Colahan, M.B., H. Stobie, R. Nicol, M.B., J. E. Cable, M.B., E. H. Wood, M.B., W. A Muir, M.D., D. S. Steele-Perkins, G. C. Robinson, J. Colgan, M.B., A. G. East, M.B., W. J. Macdonald, M.B., C. S. Read, M.D., G. Cranstoun, W. Roche (substituted for notification in the *London Gazette* of February 13th).

Temporary honorary Lieutenants of the St. John Ambulance Brigade Hospital to be temporary honorary Captains: S. A. Henry, C. E. S. Jackson, W. Wilson.

Temporary Lieutenants relinquish their commissions: G. B. S. Soper, F. L. Spalding, H. Bond, C. G. Merrick W. G. G. Coulter, J. P. Brown, M.B., J. S. Leslie, G. S. Robinson, M.B., W. E. Taylor, J. McIlraith, M.D., W. Dixon, M.B., T. M. R. Waddell.

To be temporary Lieutenants: E. Ashby, K. J. A. Davis, F.R.C.S., L. V. Gatt, M.D., J. L. H. Paterson, M.B., M. C. Irwin M.B., W. G. Cobb, M.B., A. F. Campbell, M.B., H. N. Webber, D. Mitchell, H. H. R. Bayley, G. W. Ancrum, M.B., J. Cameron, M.D., J. C. Pearce, M.D., M. J. Ryan, P. O. W. Browne, M.B., G. P. Jones, R. Maclean, D S. E. Milligan, H. W. Catto, M.B., J. Freeman, M.D., J. Aylen, R. C. L. Batchelor, M.B., G. H Joseph, M.B., C. J. G. Bourhill, M.D., D. Anderson, M.B., G. F. B. Simpson, M.D., F R.C.P.E., J. E. Ratcliffe, D. C. Ogilvie, W. F. Box, M.B., A. R. H Harrison, A. R. J. Douglas, M.D., F.R.C S., M. S. Fraser, M.D., F.R.C.S E., H. Cardin, temporary honorary Lieutenant N. S. Sherrard, M. Munro, M.B., temporary honorary Lieutenant H. Archer, E. W. H. Cruickshank, M.B., W P. Wippell, R G. Stirling, J. R. Dick, M.B., T. T. M. Dishington, M.B., W. A. Clement.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: G. Chesney, M.B., A. R. Steven, M.B., J. Ross, A. Johnstone, M.B., A. F. Cook, M.B., W Griffiths, M.B., W. A. Malone, J C. Preston, M.B., G. S. Mather, M.B., A. C. Dickey, M.B., E. G. Fishe, M.B.

To be Lieutenants: V. R. Smith, A. R. Dingley, and G. A Harrison from University of London Contingent O.T.C.; E. Parker, M.B., from Dublin University Contingent O.T.C.; J. E. E. de Robillard, P. A. Buxton, D. C. Bluett, A. T. Woolward.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel W. Patterson, T.F.R., to be Major (temporary).

Major (temporary Lieutenant-Colonel) A. E. Jerman, M.B., relinquishes his temporary rank on ceasing to command a field ambulance.

To be acting Lieutenant-Colonels whilst commanding a field ambulance: Captains (temporary Majors) T. B. Layton, M.B. (August 22nd, 1916), A. A. Hingston, M.B. (October 16th, 1916), P. Moxey (August 22nd, 1916), E. A. Houchin (February 22nd, 1917), F. G. Dobson, M.B. (December 1st, 1916) Captain A. J. Williamson (December 16th, 1916).

Captain P. T. Rutherford, from Attached to Units other than Medical Units, to be Captain.

Captain A. W. Falconer, M.D., is seconded whilst holding a temporary commission in the R.A.M.C.

Lieutenants to be Captains: D. Cameron, M.B., J. Chalmers, M.B., E. McM. Dunlop, M.B., A. C. Hepburn, M.D., D. Campbell, M.B.

C. W Yates to be Lieutenant.

Lieutenant J. M. Orr. M.D., resigns his commission.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

APPLECROSS PARISH COUNCIL.—Medical Officer for the Torridon District.—Estimated emoluments, £350 per annum.

ASHTON-UNDER-LYNE: DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Assistant House-Surgeon. Salary, £160 per annum.

BEDFORD COUNTY HOSPITAL.—House-Physician. Salary, £150 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—House-Surgeon. Salary, £200 per annum.

BIRMINGHAM CITY.—Assistant Tuberculosis Officer. Salary, £350 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £160 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CAMBRIDGESHIRE, ETC., MENTAL HOSPITAL.—(1) First Assistant Medical Officer; (2) Junior Assistant Medical Officer. Salary £300 and £200, rising to £350 and £250 per annum respectively.

DUNDEE DISTRICT ASYLUM.—Assistant Resident Medical Officer. Salary, £300 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—Assistant Casualty Medical Officer. Salary, £60 per annum and £5 washing allowance.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LONDON COUNTY COUNCIL.—Two Women Medical Inspectors in the Public Health Department. Salary, £300 per annum, rising to £400.

MANCHESTER CORPORATION.—Temporary Medical Superintendent at the Abergele Sanatorium, North Wales. Salary, £300 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.

NEWCASTLE-UPON-TYNE EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £300 per annum, rising to £350.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—House-Surgeon.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £1[illegible] per annum.

SOUTHAMPTON PARISH INFIRMARY.—Resident Assistant Medical Officer. Salary, £250 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—(1) House-Physician; (2) Junior House-Surgeon. Salary, £150 and £120 per annum respectively.

SUNDERLAND: ROYAL INFIRMARY.—Lady House-Surgeons. Salaries: Senior, £250; juniors, £200 per annum.

WEST HAM UNION.—Assistant Medical Officer at the Sick Home. Salary, £300 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

FRANCIS, H., M.D.Durh., District Medical Officer of the Basford Union.

SEAL, P. H., M.B., B.S.Lond., District Medical Officer of the South Molton Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

MARRIAGE.

ROBERTS—BAIN.—At Christ Church, North Sydney, on December 6th, 1916, W. Edgar Roberts, Surgeon, H.M.A.S. *Brisbane*, to Eilee daughter of Mrs. Bain, "Weewanella," Neutral Bay, Sydney.

DEATH.

BARRETT.—On February 7th, at Park Surgery, Cwmparc, Glam James Wilkie Collingwood Barrett, L.R.C.P., M.R.C.S., aged 51.

DIARY FOR THE WEEK.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF BALNEOLOGY AND CLIMATOLOGY, 5.30 p.m.—Demonstration of Mensuration Apparatus used for Physical Treatment. Paper: Mr. J. Roddie: Manipulation Bath.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	MARCH.
7 Wed.	London: Special Subcommittee *re* Possible Legislat affecting Expectant Mothers and Children, 2.30 p.m.
15 Thurs.	London: Propaganda Subcommittee, 2.30 p.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 10TH, 1917.

CONTENTS.

	PAGE
British Medical Association—	
CURRENT NOTES:	
R.A.M.C. Territorial	45
Certificates under the Workmen's Compensation Act	45
Rural Practitioners Subcommittee	45
Organization of the Medical Profession	45
MEETINGS OF BRANCHES AND DIVISIONS	45
NAVAL AND MILITARY APPOINTMENTS	47
INSURANCE:	
Local Medical and Panel Committees	46
Pharmacopoeia of the Cheshire Insurance Committee	46
Seamen's National Insurance Society	46
Parliamentary Notes	46
Correspondence	47
VACANCIES AND APPOINTMENTS	48
BIRTHS, MARRIAGES, AND DEATHS	48
DIARY	48

BRITISH MEDICAL ASSOCIATION.

CURRENT NOTES.

R.A.M.C. Territorial.

The profession is indebted to Major Wheler for bringing forward the case of the officers of the Territorial branch R.A.M.C., in the House of Commons in the debate on the Army Estimates. The member for the Faversham division of Kent had no difficulty in showing that these officers had good reason for a feeling of soreness. So far from receiving recognition for their patriotic action in joining the Territorial Force before the war, they had suffered in pay and other conditions of service. As is reported in our Parliamentary notes, the Under Secretary of State announced that the Secretary for War had appointed a committee to inquire into the system of promotion in the new armies and the Territorial Forces, and assured Major Wheler that the points he had raised, as far as the R.A.M.C. Territorial were concerned, were included in the terms of reference. It is the intention of the British Medical Association to submit evidence to the committee, both written and oral, and, among other points, to raise the question of the promotion of majors R.A.M.C. Territorial to the rank of lieutenant-colonel.

Certificates under the Workmen's Compensation Act.

Medical practitioners are reminded that when a workman requires a certificate for presentation to an employer in connexion with a compensation claim, the doctor should invariably point out that the Act of Parliament makes the employer liable to pay for every certificate of the kind. The patient should therefore be asked whether he has a written authority from the employer to get a certificate for which the latter will pay, and unless that be so, the patient should be requested to go back and ask the employer for a written authorization. It should also be remembered that the Annual Representative Meeting, 1912, decided that the minimum fee for a certificate should be 2s. 6d., and that for initial examinations with report the minimum fee should be 10s. 6d., or if such a report were given by a member of the staff of a voluntary hospital, not less than one guinea.

Rural Practitioners Subcommittee.

A meeting of the Rural Practitioners Subcommittee of the Insurance Acts Committee was held on March 1st, when there were present: Mr. H. B. Brackenbury, in the chair; Dr. T. Cuming Askin (East Suffolk), Dr. W. Grant (Lanarkshire), Mr. R. Harding (Radnorshire), Mr. A. Linnell (Northamptonshire), Dr. Wood Locket (Wiltshire), and Dr. J. Cleasby Taylor (Northumberland). Among the matters discussed was that of mileage, and instructions were given that one or more model schemes should be prepared for the consideration by the Subcommittee at its next meeting. Recommendations to the full Committee on other matters will be considered at the next meeting of the Insurance Acts Committee.

Organization of the Medical Profession.

Some practitioners who read the memorandum by the York Medical and Panel Committee in the Supplement of February 24th have expressed surprise that its statements have been allowed to go unchallenged. This is not the case, and we would remind those who have felt disappointed that a full and detailed discussion prepared by the Insurance Acts Committee of the British Medical Association was printed in the Supplement of February 17th, 1917; reprints may be obtained on application to the Medical Secretary.

Meetings of Branches and Divisions.

CAPE OF GOOD HOPE—EASTERN PROVINCE BRANCH.

The annual meeting of the Branch was held on January 12th, when Dr. R. T. Harrison was in the chair.

Election of Officers.—The ballot for officers resulted as follows:

President: Dr. H. F. Bell-Walker (Bedford).
President-elect: Dr. A. J. Lea (Grahamstown).
Honorary Secretary and Treasurer: Dr. E. G. Dru Drury (Grahamstown).
Council: Drs. A. Cowper, R. T. Harrison, G. C. Purvis, E. A. Seale, F. A. Saunders (Grahamstown); J. H. du Toit (Adelaide), E. Keys (Uitenhage), G. Porter Mathew (Port Elizabeth), J. Raux (Murraysburg), A. V. Shine (Steynsburg), J. A. Van Niekerk (Hanover).
Members of South African Committee: Dr. H. F. Bell-Walker (*ex officio*), Dr. E. G. Dru Drury (Grahamstown).
Representative at Representative Meetings: Dr. R. C. Mullins (Grahamstown).
Member of Central Council: Dr. T. W. Greenlees (London).

Financial Statement.—The financial statement, showing a gain of £9 5s. 5d. on the year's work, was adopted.

Annual Report.—The report of the Honorary Secretary was adopted. It gave an account of the activities of the Branch during the year, and suggested that, as it at

present worked under the old Branch rules and those of the Grahamstown Division, the two sets should be fused together. The membership of the Branch was 37.

Preventives of Conception.—Letters were presented from twenty-five societies of women regarding legislative control of the sale of preventive appliances, and it was stated that the views expressed were identical in tenor and form with those expressed by Dr. C. T. Anderson in his presidential address to the Western Province Branch on the training of girls. The meeting decided to do all in its power to further the recommendation of the appeal, and pointed out that the address had inadvertently given rise to the belief that the evil was more widespread than was the case, and expressed the opinion that more power lay in the hands of parents and teachers than in the effect of legislative acts.

MUNSTER BRANCH.

AT a meeting of the Branch Council on March 3rd, 1917, when Dr. D. J. O'CONNOR, F.R.C.P.I., President, was in the chair, twenty-three members were elected. The Memorandum by the Association as to the organization of measures for prevention and treatment of venereal diseases was read, as also the circular letter (D 10) on the future of the profession, and the Memorandum as to the organization of the profession by the York Local Medical and Panel Committee.

THE LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

A LIST of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

WEST RIDING OF YORKSHIRE.

AT a meeting of the Local Medical and Panel Committee on February 9th it was reported that the Insurance Committee had agreed to sanction for a period of twelve months the payment of 3d. per prescription in respect of all dressings and appliances, the new procedure to become operative as from September 18th last. It was decided to ask the Insurance Committee that the new procedure should commence as from April 1st next. It was agreed that the operation of circumcision was one which could consistently with the best interests of the patient be properly undertaken by a general practitioner of ordinary professional competence and skill.

A subcommittee was appointed to consider the circulars issued by the British Medical Association with reference to the future of the profession.

RENFREW COUNTY.

At a meeting of the Panel Committee on January 24th it was decided to approve the use of liquor sedans in a case in which a practitioner had found this preparation to possess distinct advantages over the *B.P.* equivalent. Microbene was also approved as being a reliable antiseptic. It was agreed to recommend the Insurance Committee to renew for 1917 the arrangements for dispensing by practitioners in rural areas which were in force during 1916, and to make representations to the Commissioners with regard to the interpretation of Section 33 of the Amending Act.

INSURANCE NOTES.

PHARMACOPOEIA OF THE CHESHIRE INSURANCE COMMITTEE.

QUITE a number of Insurance and Panel Committees are now finding that the work of pricing prescriptions and the cost is considerably reduced by the adoption of a formulary which at the same time is a great convenience to panel practitioners. The London Pharmacopoeia has already been noticed and it has been adopted by several other insurance committees in various parts of the country, but perhaps one of the most complete formularies is the *Pharmacopoeia Cestriensis*, based on the pharmacopoeia of St. Bartholomew's Hospital, modified to suit insurance purposes by the Local Medical and Panel Committees of the County of Cheshire. It is now being issued by the Cheshire Insurance Committee to the doctors and chemists of the county. In the preface are collected a number of notes which should be of great service as tending to facilitate good prescribing while avoiding unnecessary cost. It is noted that the more important alkaloidal drugs such as digitalis, and potent remedies such as arsenic, are sparingly used in the formulary, as it has been thought better to leave such drugs to be added to other mixtures according to the needs of particular cases. Many omissions are also to be noted; for example, there are no mixtures of potassium bromide, calcium chloride, or ammonium benzoate, and ergot and aletris are not represented, as it was considered that there is no advantage in elaborating into mixtures such drugs as these, which can with therapeutic propriety and economical advantage be used with simple water. With a view to economy, attention is drawn to the great saving by the use of the concentrated medicinal waters, which cost only about one-third of the *British Pharmacopoeia* aquae. The use of the methylated liniments instead of the spirit liniments of the *British Pharmacopoeia* is also recommended on the ground of economy. The fact, too, is noted that many drugs, such as aspirin, izal, lysol, heroin, and others bearing proprietary names, cost far more if prescribed under their proprietary names than if prescribed by their official or chemical names, and a fairly complete list is given of such drugs with their corresponding names. Attention is called to the necessity of signing all prescriptions in full, not simply using initials or autograph rubber stamps, while deputies or locumtenents should sign the name of their principal and add their own initials. The completeness of the formulary is shown by the fact that it contains over eighty mixtures, in addition to practically all the preparations needed in ordinary practice, and reference to the drug tariff will seldom be necessary, as the formulary includes all the preparations contained in the tariff which are prescribed separately, thus bringing the total prescriptions to 353. The book is well bound, of a size convenient for the pocket, and is interleaved for additional notes.

SEAMEN'S NATIONAL INSURANCE SOCIETY.

Attendance on Members.

AT the Blackpool County Court on February 21st Dr. G. J. Waldron Johnston of Fleetwood sued Mr. Sidney H. Godfrey, the General Secretary of the Seamen's National Insurance Society, for £65 14s. 6d. for professional services rendered and medicines supplied to members of the society.

Dr. Johnston was appointed by the society in January, 1913, to attend sick members, but on June 29th, 1915, received a month's notice to terminate the agreement. He claimed £36 14s. 6d. as due when the notice expired on July 29th, 1915, and £29 in respect of attendance on members since the termination of the agreement.

As regards the first claim, it was alleged that Dr. Johnston had charged sums in excess of those he had agreed to charge, and he admitted that he had made mistakes and overcharged in certain items. He had also supplied members going to sea with sufficient medicine for ten days, whereas the society claimed that it was not responsible for the medical benefit of its members whilst at sea, and that a bottle to last more than two days should not be given.

In support of the second claim it was stated that the society allowed its members to select their own medical men, and that the local representative of the society had sent members to Dr. Johnston since the termination of his agreement. This was denied, and the secretary stated that members would not have received permission to be attended by Dr. Johnston after the termination of the agreement.

His Honour, Judge Sturges, K.C., held that there was no contract between the defendant society and Dr. Johnston to pay for any professional services after those professional services were put an end to. He gave judgement for the plaintiff for £29 14s. 6d., with costs on the first claim, the defendant to have costs of issue of resisting the claim of plaintiff for fees for services rendered after July 29th.

INSURANCE ACT IN PARLIAMENT.

THE PAYMENT OF PANEL DOCTORS.

IN the Commons, on Monday, Mr. Chancellor asked Sir E. Cornwall whether he was aware that certain Insurance Committees declined to pay balances due to practitioners

for the year 1915 unless a special form of receipt was signed, and whether, as these moneys were payable unconditionally, he would see that the doctors concerned received equitable treatment. Sir E. Cornwall replied that no particular form of receipt had been prescribed by the Commissioners, but he would be glad to consider in any particular cases which Mr. Chancellor had in mind any proposals to remove irritation or lighten the pressure of work upon doctors.

TREATMENT OF TUBERCULOSIS IN WALES.

In the Commons, on February 27th, Mr. Haydn Jones asked Sir Edwin Cornwall how many men and boys, and how many women and girls, insured and uninsured respectively, in Wales and Monmouthshire, were examined during 1916 by the tuberculosis experts of the Welsh National Memorial Association, in conjunction with and on behalf of Welsh county and county borough councils and insurance committees; how many were found or suspected to be suffering from tuberculosis; the total number of persons, both insured and uninsured, suffering from tuberculosis in Wales and Monmouthshire who received institutional treatment during 1916 by the Welsh National Memorial Association, in conjunction with and on behalf of Welsh county and county borough councils and insurance committees; and how many insured persons were now on the waiting lists. Sir Edwin Cornwall gave the following statistics in reply:

Number of persons who were examined during 1916 by the tuberculosis physicians:

(*a*) Insured men and boys	2,904
(*b*) Uninsured men and boys	2,853
(*c*) Insured women and girls	825
(*d*) Uninsured women and girls	3,747
	10,329

Number found to be suffering from tuberculosis:

(*a*) Insured men and boys	1,532
(*b*) Uninsured men and boys	1,065
(*c*) Insured women and girls	486
(*d*) Uninsured women and girls	1,596
	4,679

Number suspected to be suffering from tuberculosis and still under observation on December 31st, 1916:

(*a*) Insured men and boys	328
(*b*) Non-insured men and boys	488
(*c*) Insured women and girls	100
(*d*) Uninsured women and girls	719
	1,635

Number who received institutional treatment during 1916 in hospitals and sanatoriums:

(*a*) Insured men and boys	1,540
(*b*) Uninsured men and boys	726
(*c*) Insured women and girls	482
(*d*) Uninsured women and girls	1,099
	3,827

The number of persons suffering from tuberculosis in Wales and Monmouthshire entitled to sanatorium benefit and recommended by Insurance Committees for institutional treatment in sanatoriums now on waiting list awaiting admission was *nil*.

CORRESPONDENCE.

ORGANIZATION OF THE MEDICAL PROFESSION.

DR. GARRATT (Chichester) writes: I trust that other Medical and Panel Committees will follow the example set by that of York. Then only shall we be able to insist on our plain rights, including the following:

1. The doctor attending be judge of how often he visits chronic cases. Where society rules require them, weekly certificates be given without attendance, as was done formerly. Ample provision is made under the Act against neglect of patients, nor do sick persons under 70 require more protection than those who are older.

2. Annual return of all insured persons receiving "disablement benefit" be made by all societies to the Commissioners, as is done for those over 70, and the "medical benefit pool" credited for each one.

3. An auditor chosen by the panel doctor have access to all accounts.

At present, by jugglery with club rules and certificates, carried out only after our contracts were signed, and aiming solely at the convenience and aggrandization of society officials, the latter are empowered, in violation of all parliamentary intention, to impose annually upon rural practitioners thousands of miles of utterly superfluous travelling, and thus often to render them inaccessible to those really requiring their services. No excuse is put forward for this injustice, which is repudiated even by society officials who are conversant with rural life. Now, if all classes of persons insured through societies those receiving disablement benefit are the most immobile and the most continuously supervised. Any society can at any time count and locate all its own. On the other hand, those over 70 are under no control, and may move without leave. Nevertheless the Commissioners, who require and receive annually from every society a complete return of the latter class, take no steps to discover the true number of the former, which it is to the interests of the Government and societies alike to conceal to our detriment, although they could be counted to a unit. They ask us instead to accept an actuarial computation, mere guesswork, details of which are withheld, controlled by audits of which we hear nothing. Despite the notorious failure of similar calculations in connexion with this Act we are to accept this one blindly without a word. The chronic class must, quite apart from unnumbered military casualties, increase steadily year by year until their number grows, from none when the Act came into force, to a multitude exceeding, in proportion to the healthy, any attained in contract work before, by just so much as the average health of club members, who were selected lives, exceeded formerly that of the remainder of the working class. Small wonder that a procedure, which omits annual count of them, produces an appearance of progressive "inflation" of lists wherein they are very properly contained. Finally, of the cases assumed to balance them, many are persons in arrears of contribution. These are no gain, but heavy loss to us, as can readily be shown. The contribution year ends on July 1st, thirteen weeks then elapse before a defaulter is suspended from benefit and notice sent by his society to the Insurance Committee. The latter then, at their convenience, informs the doctor, who may continue attending far into November, 1917, a person for whom not a penny has gone into the medical benefit pool since June, 1916. When the same body of officials that require us to accept their unsupported computation of the uncounted numbers of disabled persons goes on to assert that all persons falling in arrears are a source of profit to us, it is surely time to insist that the collection and distribution of the funds are controlled by parties in whom we can place more confidence. The only way by which this, and other reforms urgently necessary, can be brought about is by forming ourselves into a trade union with ample funds behind us. Disagreeable as the idea is to most of us, there is no time to be lost.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeon W. R. Trythall to the *Vivid*. Staff Surgeon W. Bradbury, M.B., to the *Undaunted*. Temporary Surgeons: D. L. Lees to the *New Zealand*; R. W. Pritchard to the *Vivid*, additional for Plymouth Hospital; G. Hamilton, M.B., and A. E. Gow, M.D., to Haslar Hospital; A. R. S. Warden to the *Victory*, additional; J. S. Geikie, M.B., to the *Agincourt*; F. W. Nunneley, M.B., to the *Victory*, additional for R.N. Barracks; F. C. S. Broome to the *Drake*; J. F. Pace, M.B., to the *Victory*; E. J. Tongue to the *Pembroke*; G. W. Carte, M.B., to the *Calgarian*, vice Tongue.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: C. E. Manning, L. P. Garrard.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Captain A. T. J. McCreery, M.C., M.B., to be local Major whilst employed on embarkation duties.

L. C. Bruce, M.D., F.R.C.P. (Captain R.A.M.C., T.F.), to be temporary Major whilst employed at the Murthly War Hospital.

Temporary honorary Major C. H. Miller, having ceased to be employed with the British Red Cross Hospital, Netley, relinquishes his commission.

Temporary honorary Captain H. W. Carson, F.R.C.S., having ceased to be employed with No. 10 British Red Cross (Lady Murray's) Hospital, relinquishes his commission.

A. de W. Snowden, M.D., to be temporary honorary Major whilst employed with the British Red Cross Hospital, Netley.

Temporary Captain F. G. Heard relinquishes his commission on account of ill health.

Temporary Captain M. M. Townsend relinquishes his commission.

Temporary Captain Albert Ernest Salkeld is dismissed the service by sentence of a general court-martial.

Temporary Lieutenants to be temporary Captains: R. C. L. Batchelor, M.B., D. G. MacArthur, M.D., F. W. Lyle, M.D.

Temporary Lieutenants relinquish their commissions: A. Neville, M. Jenkins.

INDIAN MEDICAL SERVICE.

Colonel W. H. B. Robinson, C.B., appointed Inspector-General of Civil Hospitals, Central Provinces.

The services of Captain P. M. Rennie, M.B., have been placed at the disposal of the Chief Commissioner, Delhi, for appointment as Health Officer, Notified Area, Delhi.

Lieutenant-Colonel W. H. Ogilvie, M.B., promoted to be temporary Colonel while holding the appointment of Assistant Director, Medical Services, with effect from September 2nd, 1916.

Major R. M. Carter, F.R.C.S., promoted to be temporary Lieutenant-Colonel whilst employed with inland water transport, with effect from August 8th, 1916.

Majors to be Lieutenant-Colonels: E. S. Peck, M.B. (December 12th, 1914), T. A. O. Langston (December 25th, 1915).

The services of Captain R. Knowles have been placed temporarily at the disposal of the Chief Commissioner, Assam.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: B. J. Daunt, W. Saunderson, M.B., H. J. Wright, M.B., D. Columbos, M.B., W. R. Dickinson, H. T. Lamb, C. C. Harrison, F. B. Jago, T. Wilson.

To be Lieutenants: F. Portas, J. R. Harris, F. C. A. Frith, W. G. Verniquet, C. W. Armstrong, from the University of London Contingent O.T.C., M. W. H. Miles, M. Morrison, M.B.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

The relinquishment of his temporary commission by Lieutenant-Colonel J. McCombe in the *London Gazette* of February 2nd is cancelled.

Temporary Major S. N. Davis from general list to be temporary Major.

Temporary Captain J. S. Gladwin, from a Canadian Infantry Battalion, to be temporary Captain.

Temporary Captain J. G. Wilson resigns his temporary commission at his own request.

The surname of temporary Lieutenant-Colonel G. R. Philip is as now described, and not Phillip as in the *London Gazette* of December 21st, 1916.

GENERAL LIST.

G. W. Morden, M.D., to be temporary Captain without pay and allowances (substituted for notification in the *London Gazette* of February 20th).

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel A. M. McIntosh to be temporary Colonel whilst holding the appointment of Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Major G. G. Turner, M.B., F.R.C.S., is restored to the establishment.

Temporary Major T. B. Wolstenholme, M.B., to be acting Lieutenant-Colonel whilst commanding a casualty clearing station.

Captain (temporary Major) J. H. Stephen, M.B., to be Major.

Captain L. C. Bruce, M.D., is seconded whilst holding a temporary commission in the R.A.M.C.

Lieutenants to be Captains: L. A. Celestin, W. Sharrard, M.B.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

ASHTON-UNDER-LYNE: DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Assistant House-Surgeon. Salary, £160 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—House-Surgeon. Salary, £200 per annum.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary commencing at £250 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

BURNLEY UNION.—Resident Assistant Medical Officer. Salary, £250 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CAMBRIDGESHIRE, ETC., MENTAL HOSPITAL.—(1) First Assistant Medical Officer; (2) Junior Assistant Medical Officer. Salary, £300 and £200, rising to £350 and £250 per annum respectively.

CARLISLE: CUMBERLAND INFIRMARY.—House-Surgeon. Salary, £200 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House-Surgeon. Salary, £200 per annum.

GALWAY: COUNTY HOSPITAL.—Resident Medical Officer and Compounder of Medicine. Salary £100 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £250 per annum.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LIVERPOOL PARISH.—Resident Assistant Medical Officer for the Brownlow Hill Institution. Salary, £300 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.

NEWCASTLE-UPON-TYNE EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £300 per annum, rising to £350.

OLDHAM ROYAL INFIRMARY.—(1) Second House-Surgeon. (2) Third House-Surgeon. Salary, £250 and £200 per annum respectively.

PETERBOROUGH INFIRMARY.—House-Surgeon (Male). Salary, £150 per annum, rising to £200.

PORTSMOUTH: ROYAL PORTSMOUTH HOSPITAL.—House-Surgeon. Salary, £250 per annum.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—(1) House-Surgeon. (2) Casualty Officer.

READING: ROYAL BERKSHIRE HOSPITAL.—House-Surgeon. Salary, £250 per annum.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, S.W.—Lecturer on Mental Diseases.

SOUTHAMPTON BOROUGH ISOLATION HOSPITAL.—Resident Medical Officer. Salary, £300 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—(1) House-Physician; (2) Junior House-Surgeon. Salary, £150 and £120 per annum respectively.

SUNDERLAND: ROYAL INFIRMARY.—Lady House-Surgeons. Salaries: Senior, £250; Juniors, £200 per annum.

WARRINGTON INFIRMARY AND DISPENSARY.—(1) House-Surgeon. Salary, £250 per annum. (2) Senior and Junior House-Surgeons. Salary, £200 and £150 per annum respectively, and war bonus at the rate of £50 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces a vacancy at Gravesend, co. Kent.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BYWATER, H. G., M.R.C.S., L.R.C.P., Resident Assistant Medical Officer of the Brownlow Hill Workhouse of the Liverpool Parish.

DUNCAN, D., M.B., C.M.Aberd., Certifying Factory Surgeon for the Chester-le-Street District, co. Durham.

DYSON, W., M.D.Vict., Dermatologist to the Salford Royal Hospital.

FRENCH, G. J., M.R.C.S., L.R.C.P., Medical Officer to the Ecclesall Institution of the Ecclesall Bierlow Union.

GALE, A. K., M.R.C.S., L.R.C.P., Consulting Medical Officer of the Ecclesall Institution of the Ecclesall Bierlow Union.

GIBSON, Robert, M.D., Ch.B., Dermatologist (temporarily) to the Salford Royal Hospital.

HINCKS, A. C., M.B., Ch.B.Birm., Certifying Factory Surgeon for the Wells District, co. Somerset.

MACALPINE, J. Barlow, M.B., Ch.B.Vict., F.R.C.S., to take charge of the Genito-Urinary Department of the Salford Royal Hospital.

O'DWYER, J., L.R.C.P. and S.Irel., Certifying Factory Surgeon for the Tipperary District, co. Tipperary.

OLIPHANT, F. B., M.B., C.M.Edin., Certifying Factory Surgeon for the Bridport District, co. Dorset.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTH.

DICKSON.—On March 4th, at Nelson Place, Newcastle, Staffordshire, the wife of Robert H. Dickson, F.R.C.S., a son.

MARRIAGE.

FARNFIELD—WINDSOR-WATSON.—On Wednesday, March 7th, 1917, at All Souls', Hastings, by the Rev. H. Collinson, B.A., John Stewart Farnfield, M.R.C.S., L.R.C.P., London, to Annabel Windsor-Watson, widow of John Watson, solicitor, Liverpool.

DEATHS.

LAWSON.—On February 18th, at 16, Ventnor Villas, Hove, Sussex, late of Holme House, Hebden Bridge, Yorks, Joseph Lawson, M.B., B.A.T.C.D., L.R.C.S.I., L.M., aged 70 years.

MAJOR.—On February 28th, at his residence, Hungerford, Berks, Harry Pike Major, M.R.C.S., L.S.A., M.D.St.And., J.P., aged 80 years.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—8.30 p.m., Sir Robert Armstrong-Jones, M.D., Hon. Major R.A.M.C.: The Psychology of Fear and the Effects of Panic Fear in War Time.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF PSYCHIATRY.—4.30 p.m., Dr. Laura Foster: Histological Examination of the Ovaries in 100 Cases of Mental Disease and Normal Controls. Staff Surgeon M. Kojima, I.J.N.: Studies on Endocrine Organs of Dementia Praecox. (The above will be communicated by Major F. W. Mott, who will demonstrate the histological observations.)

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W.—9 p.m., Mr. Charles Heath: Diagnosis and Treatment in Otitis Media.

ROYAL SOCIETY OF MEDICINE:

SECTION OF SURGERY.—5.30 p.m., Major Jocelyn Swan: Early Excision of Severely Infected Gunshot Fractures involving the Joints of the Upper Extremity to obtain Mobility.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF DERMATOLOGY.—4.30 p.m., Cases. 5 p.m., Dr. Pernet: Cases.

FRIDAY.

SECTION OF ELECTRO-THERAPEUTICS.—8.30 p.m., Address by Professor W. M. Bayliss, F.R.S.: The Origin of the Electric Currents led off from the Human Body.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	MARCH.
15 Thurs.	London: Propaganda Subcommittee, 2.30 p.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 17TH, 1917.

CONTENTS.

	PAGE
GENERAL MEDICAL COUNCIL:	
EXECUTIVE COMMITTEE	49
BRITISH MEDICAL ASSOCIATION:	
PROMOTION OF MAJORS R.A.M.C.(T.F.)	49
ASSOCIATION NOTICES	50
MOBILIZATION OF THE PROFESSION	50
NAVAL AND MILITARY APPOINTMENTS	51
INSURANCE:	
NATIONAL INSURANCE AUDIT (Third Report)	50
CORRESPONDENCE: Sanatorium Benefit.—The Future of Medical Service	50
NON-PANEL DOCTORS AND INSURANCE CERTIFICATES ...	51
VACANCIES AND APPOINTMENTS	52
BIRTHS, MARRIAGES, AND DEATHS	52
DIARY	52

GENERAL MEDICAL COUNCIL.

EXECUTIVE COMMITTEE.

A MEETING of the Executive Committe of the General Medical Council was held on February 26th, when Sir Donald MacAlister, President, was in the cha r.

REGISTRATION OF INDIAN DIPLOMAS AND DEGREES.

The Executive Committee, af er c nsidering further communicat on received from the Government of India with reference to the College of Physicians and Surgeons of Bombay, re affirmed its dec sion not to recognize for registration in the Colonial List, Indian diplomas granted by bodies other than the universities of India.

It was also resolved to inform the Principal of the Madras Medical College that the Executive Committee was not prepared to recognize the L.M.S. degree of the University of Madras if the pass marks were of a lower standard than those required to obtain the c rresponding degree of the University of Bombay. The Committee added that it had been informed that it was the intention of the other Indian universities whose L.M.S. degree had been recognized by the General Council to discontinue granting this or any other degree of lower standard than the M.B., B.S. degrees.

RECIPROCITY WITH BRITISH COLUMBIA.

From correspondence read it appeared that the College of Physicians and Surgeons of British Columbia had proposed that reciprocity should not take effect until one year after the war. The President directed a reply to be sent stating that the date depended on the decision of His Majesty in Council, and that he understood that communications were still passing between the two governments with reference to the proposed regulations of the College of Physicians and Surgeons. It was added that the proposal to postpone reciprocity until after the war did not appear to be acceptable, as one purpose in pushing the proposal was to ensure that practitioners from British Columbia should, by becoming registrable in the United Kingdom, be eligible for commissions in the R.A.M.C.

BRITISH MEDICAL ASSOCIATION.

PROMOTION OF MAJORS R.A.M.C.(T.F.).

THE following Memorandum has been forwarded by the British Medical Association to the Committee appointed to inquire into anomalies of promotion in the Territorial Force and New Armies:

The British Medical Association, which includes among its members a very large number of the medical practitioners holding His Majesty's Commission in the Royal Army Medical Corps (Territorial Force), desires to submit the following memorandum upon the above question to the Departmental Committee:

Many majors R.A.M.C.(T.F.) went out with the Expeditionary Force early in the war attached to their Territorial (combatant) unit as regimental medical officers, but while so attached are debarred from promotion to the rank of lieutenant-colonel, inasmuch as paragraph 102 of the T.F. Regulations provides that an officer of the corps posted to a regimental unit will not, whilst so attached, be eligible for promotion in the corps above the rank of major.

In view of this regulation, and under the provisions of para. 107 of the T.F. Regulations, many such officers were transferred to medical units, hospitals, hospital trains, hospital ships, sanitary posts, etc., but still were shown in the Army List as attached to their regiment, etc.

Majors, prior to becoming eligible for promotion to the rank of lieutenant-colonel, have to pass examination D (written) (para. 281 of the T.F. Regulations), but even when thus fully qualified, and when recommended by the C.O.'s as suitable for promotion to lieutenant-colonel rank, such promotion is not granted because their names are still shown in the Army List as "attached to units other than medical."

Territorial majors R.A.M.C.(T.F.) who, in the course of war, have been attached to large general hospitals abroad, and who have risen to be in charge of medical and surgical divisions thereof, are refused promotion when recommended for it by their C.O.'s for the above-mentioned reasons. They are informed that they may obtain promo-

tion by going home and getting transferred there, but it is an anomaly, as well as humiliating to the individual, that an officer doing really useful work abroad should have to cease doing that useful work and come home in order to obtain the promotion he has earned by reason of the good work so given up. Many majors continue with that rank in France, feeling that by doing so they are serving the country more usefully than they could at home even with the higher rank and pay of lieutenant-colonel.

Many officers who at the time of mobilization (August 5th, 1914) refused to go abroad are now at home and have been promoted, thus stepping over the heads of those who *did* go abroad but have been refused promotion so long as they are on foreign service.

The Association respectfully submits that this anomaly should cease, and that arrangements should be made which would allow of majors R.A.M.C.(T.F.), attached to Territorial (Combatant) Units as regimental medical officers being promoted to the rank and pay of lieutenant-colonel without having to return home, provided, of course, that they have been properly recommended, and are otherwise eligible.

Association Notices.

SUGGESTED CHANGES OF BOUNDARIES.

Adjustment of Areas of Oxford and Reading Divisions.

NOTICE is hereby given to all concerned of a proposal made on behalf of the Oxford and Reading Divisions that Wallingford U.D. and Wallingford R.D. be transferred from the area of the Oxford to that of the Reading Division of the Oxford and Reading Branch. The matter will be determined in due course by or on behalf of the Council. Any member affected by the proposed change, and objecting thereto, is requested to notify the fact, and his or her reason therefor, to the Medical Secretary, 429, Strand, London, W.C. 2, not later than April 17th.

MOBILIZATION OF THE PROFESSION.

AT the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, on March 6th, the following resolution, moved by Mr. J. McGregor Robertson, seconded by Dr. John Brown, was approved:

> That the Royal Faculty of Physicians and Surgeons of Glasgow approves of the principle of the organization of the whole nation to secure the successful and rapid conclusion of the war, so that all fit persons shall be liable to be called on by the Government to render such service in naval, military, or civil departments as they may be deemed suitable for, due regard being paid to age, training, and circumstances; if and when this proposal is carried into actual practice by the Government the Royal Faculty will be prepared to render all possible assistance in the organization of their own profession.

INSURANCE.

NATIONAL INSURANCE AUDIT.

THIRD REPORT.

THE National Insurance Audit Department has issued as a White Paper an account of its work for 1916; it is the third report since the insurance commenced. It begins by explaining that it has been necessary to modify the form of audit to a large extent owing to the depletion of the staff, which, since the war commenced, has been reduced from 739 to 341. Under the temporary scheme of audit it has been impracticable specifically to disallow irregular charges, but sufficient has been done to establish that the course of administration is in order, and the auditors report in detail on all discovered cases of fraud and in general terms on other material defects.

Attention is again directed to the unsatisfactory character of the accountancy work of the smaller societies and branches, but some excuse is made for this on the ground that in many cases secretaries of societies have had to be replaced by persons entirely unacquainted with the work, while in other cases the officers of societies and branches have been working under such pressure in munition works that they have not been able to give proper attention to their official duties. Out of a thousand representative branches 21 per cent. had faulty contribution registers, 15 per cent. improperly kept benefit registers, and 11 per cent. imperfect membership registers. The most usual defect in the payment of benefits was overpayment due to the neglect of penalty arrears. In the year under review, in 568 cases the auditors were unable to obtain branch books and accounts, or these were presented in a state unfit for audit, and in some of these cases even the head offices of societies seemed to exercise but little effective control on their branches. Similar failure to produce proper accounts occurred in 133 cases of centralized societies. Special reports have had to be made on 163 cases of established irregularities or frauds involving sums amounting to over £4,000, and it is suggested that in many cases the fraud would not have occurred or would have been immediately discovered if reasonable businesslike precautions had been taken by the committees of management. In the case of centralized societies very few defects were found in the banking arrangements, but with regard to branches, out of a representative group nearly 7 per cent. showed unsatisfactory banking arrangements. In some cases it was actually found that blank cheques had been signed or banking accounts not opened at all, and frequently cash and bank accounts were so fused together that it was impossible to tell whether the balance was in the hands of individual officials or with the bankers. With regard to reserve values it is said that the present state of the membership records cannot be regarded as satisfactory for reserve value and valuation purposes.

The scope of the audit of the accounts of Insurance Committees has had to be modified in the same way as that of approved societies, but it is satisfactory to find that with few exceptions the accounts have been well and carefully kept. In a number of cases, however, attention has had to be called to improper or excessive payment of expenses or subsistence allowances to members of committees in connexion with attendance at conferences or meetings, or for journeys undertaken in the discharge of official duties, and in other cases the approval of the Commissioners had not been obtained to the remuneration of officers, or remuneration has been paid in excess of the amount approved. Attention is also called to the too liberal interpretation by committees of their powers in supplying ordinary food, clothing, and domestic necessities as part of domiciliary treatment.

The Audit Department already deals with the accounts of the Welsh National Memorial Association and the Drug Accounts Committee of Scotland. The total expenditure of the last-named committee in the period under review was £3,198, and it is announced that the department will in future deal with the accounts of the Association of Insurance Committees formed in England and Wales for the joint pricing of prescriptions.

CORRESPONDENCE.

SANATORIUM BENEFIT.

DR. H. DOWNES (Ilminster) writes: Dr. Camac Wilkinson very truly remarks that sanatorium benefit is honeycombed with amateurism. The amateur hygienist, now so familiar a figure on county committees, wishes to see the treatment of tuberculosis entirely taken out of the hands of the general practitioner, but no satisfactory alternative is provided. The London Insurance Committee attributes want of success in the treatment of tuberculosis to three causes: (1) The unwillingness of the insured persons to report themselves to their doctors; (2) the inability of the doctor to make a diagnosis; (3) the omission on the doctor's part to utilize the services of the tuberculosis officer as a consultant. There is very little truth in (1), but (2) may be freely admitted; (3) implies a remedy, and in what does this consist? The practitioner of many years' standing is asked to invoke the assistance of men whose claim to be regarded as consultants often consists merely in the fulfilment of the stereotyped requirements of a tuberculosis committee—namely, "six months' residentship in a general hospital and special experience in tuberculosis" (a three months' course at a special hospital). In a district with which I am acquainted (not that in which I practise) three tuberculosis officers were appointed. One was a general practitioner with no special experience, another was a school medical officer and the third had formerly been a sanatorium physician but had relinquished the work for a considerable time; of these, only the last had had special opportunities

of studying tuberculosis, and these were to form the body of special consultants to whom the general practitioner was to look for guidance and support. Another pernicious system is to appoint one chief tuberculosis officer and place under him several juniors of slight experience. The chief tuberculosis officer, who may be really skilled in his subject, having a large area to superintend, is often not accessible when he is wanted, and the practitioner is offered the advice and opinion of a junior. It may be argued that time will provide a sufficient supply of experienced tuberculosis officers, but many years must elapse before that desirable condition of things is attained. In the meantime is it remarkable that many of us prefer to keep the treatment of cases in our own hands? Mature judgement and experience are needed for the successful diagnosis and treatment of tuberculosis; we are hardly likely to look for much assistance from newly-emancipated house-physicians.

The old difficulty still exists. When we notify early cases they are kept waiting for months before they are admitted to sanatoriums. The money that is now wasted upon so-called "health visitors," and in other ways, would be better expended in procuring the early admission of suitable cases to sanatoriums.

THE FUTURE OF MEDICAL SERVICE.

Dr. GEORGE MAHOMED (Bournemouth) writes: It is always pleasant to find public opinion veering towards views that one has put forward to formerly inattentive ears. More than twenty years ago I wrote a pamphlet called the State and the Doctor, in which I sketched a scheme of State medical service. Like Dr. Gordon Ward, I suggested three grades—the first approximating to Poor Law work or panel practice; the second, after examination, tending to specialized work, as public health or jurisprudence; the third inspectorial, approximating to the rank of inspectors under Local Government Board, advisers of Privy Council, medical visitors in lunacy, etc. In another paper, called The Divisional Meeting, I proposed the idea of a roster for emergency visits, police calls, etc. My objects in proposing such a scheme (in a time of profound peace) were: (1) To provide a career for such as were anxious to do medical work but were not attracted by private practice; (2) to enable certain work to be done which was not and is not yet done, such as keeping up by inspections and drilling the knowledge, particularly among policemen and railwaymen, which is imparted spasmodically by first aid classes, by the establishment of *médecins vérificateurs* and jurisconsults, and other work of organization, research, etc., by which the public would benefit.

Before the war the profession was not enamoured of a State service, but the lay mind was beginning to favour it. Since the calling away of so many men from private practice there are many converts to a State service, and the laymen are more anxious than ever to bring it about.

I should like to warn enthusiasts, however, who assumed that private practitioners were mostly ignorant not to expect a millennium. After all, the greatest stimulus to professional keenness is the monetary; and, as Dr. Brackenbury well says, the adoption of a State system does not favour initiative and the acceptance of responsibility.

NON-PANEL DOCTORS AND NATIONAL INSURANCE CERTIFICATES.

IN order to minimize as much as possible the inconveniences caused to doctors who attend insured persons in their private capacity, the Association has published books of certificates which, it is believed, will meet the requirements of approved societies, so far as is practicable in the case of certificates not given under the obligations of the official medical certification rules. The form of certificate is sufficiently like the official form to remove many of the difficulties which insured persons who have been attended by private doctors have had in satisfying the requirements of their approved societies, but is sufficiently distinct from the official form to show at once that it is being used by a doctor who is attending the patient in a private capacity—that is to say, either by a doctor who is not on a panel, or by a panel doctor other than the one on whose list the insured person is.

The Association has shown the certificates to the Insurance Commissions for England, Scotland, and Wales, and they raise no objection to the issue of them by the Association to medical practitioners for use when attending insured persons not being their panel patients, and not being persons whom they are attending as medical officers of institutions under Section 15 (4), or in virtue of "own arrangements" under Section 15 (3).

The books are being issued at cost price. They contain 50 certificate forms, and may be obtained from the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C., price 6d. each, post free.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following notifications are announced by the Admiralty: Fleet Surgeon M. Cameron to the *Pembroke*, additional. Staff Surgeon C. R. M. Baker, M.B., to the *Victory*, additional. Surgeons H. P. Parker, M.B., to the *Tamar*, additional for Hong Kong Hospital; A. H. Joy to the *Egmont* and for Malta Dockyard; H. W. Hull to the *Pembroke*, additional; E. MacEwan to the *Crescent*, additional. Temporary Surgeon F. S. Williams, M.B., to the *Roxburgh*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon H. L. Murray promoted to Staff Surgeon. Surgeon D. D. F. Macintyre, M.B., to the *Pembroke*, additional. To be Surgeon Probationers: I. R. Spark, W. B. Parr.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel G. A. Moore, C.M.G., M.D., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a division.

The undermentioned to retain the acting rank of Lieutenant-Colonel: Captain T. S. Eves, M.B., whilst commanding a field ambulance; Major D. O. Hyde, D.S.O., M.B., whilst commanding a casualty clearing station; Major B. B. Burke, D.S.O., whilst commanding a stationary hospital.

To be acting Lieutenant-Colonels whilst commanding a field ambulance: Captain T. H. Scott, M.C., M.B.; temporary Captains F. F. Muecke, M.B., F.R.C.S., L. D. Shaw, M.B., and R. E. Drake-Brockman.

Major W. Riach, C.M.G., M.D., to be acting Lieutenant-Colonel whilst commanding a casualty clearing station.

C. Christie, M.B., to be temporary Major.

The notification in the *London Gazette* of February 22nd, 1917, regarding temporary Captain W. J. D. Smyth is cancelled.

Captain B. Biggar, M.B., is seconded for service with the Egyptian army.

Temporary Captains relinquish their commissions: W. S. Heron, M.B., H. W. Doll, W. T. James, M.B., S. B. Faulkner, M.B., E. L. Mansel, M.D., P. W. White, M.B., J. P. Fitzpatrick, H. A. Gillespie, M.B., J. T. Smeall, M.C., M.B., S. G. Tippett, M.B., H. W. Ward, F. W. Hird, M.B.

Temporary honorary Captain R. S. Bernard (Fleet Surgeon R.N. ret.) relinquishes his commission.

To be temporary Captains: A. G. Leitch, T. S. G. Martin, R. S. Miller, M.D., A. R. J. Douglas, M.D., F.R.C.S. (substituted for announcement in the *London Gazette* of February 21st, 1917), H. Hebblethwaite (Major T.F.Res.), T. J. Burton, M.D., F. A. Murray, M.D., H. J. Cooper, M.B.

Temporary Lieutenants to be temporary Captains: E. Baldwin, T. Davidson, M.B., J. H. Patterson, J. S. Dickson, M.B., W. T. Patterson, M.B., G. Collins, J. R. Briscoe, M.B., P. W. Brigstocke, M.B., H. W. Barber, M.B., H. E. Williams, M.B., P. R. Eskell, H. M. Wilson, M.B., H. R. Davies, M.D., H. N. Rankin, M.B., L. F. West, C. H. G. Philp, M.B., W. O. Roberts, H. P. Caithness, M.D., H. Gardiner-Hill, W. H. Hart, M.B., H. A. Boyle, M.B., S. E. Bethell, M.B., C. A. L. Evans, A. C. MacKay, W. Corbet, M.B., J. H. Waterhouse, M.D., E. R. Dermer, J. B. Robertson, M.B., G. M. Vevers, G. O. Hempson, J. B. Stevenson, M.B., W. J. Dilling, M.B., K. T. Limbery, L. R. Pickett, A. McCawley, D. J. Evans, J. A. Tippett, P. H. Young, M.B., E. B. Barnes, J. B. Rae, M.B., J. M. Ross, M.B., C. I. Hannigan, M.B., O. W. Gange, J. G. Leslie, M.B., C. D. Coyle, M.B., L. G. Reynolds, G. L. Pillans, W. L. Paterson, D. J. Bedford, A. F. Wilson-Gunn, M.B., W. H. Pearse, A. Traill, M.B., M. Moran, A. R. Mitchell, M.D., W. O. Welply, M.D., J. M. Stalker, M.B., D. Crellin, P. Black, L. F. Hirst, M.D., R. C. Hewitt, J. C. O'Farrell, E. G. Dingley, P. H. Wells, A. B. MacMaster, M.D., W. M. Christie, M.B.

Temporary Lieutenants relinquish their commissions: G. Hart, C. B. Cameron, M.D., J. E. Carmichael, M.D., L. Page, E. M. Ashcroft, M.B., H. E. Allanson, M.D., N. A. Boswell, M.B., W. Hughes, M.B., J. E. Bromley, M.D., H. N. Ingham, M.B., J. E. Mullan, J. K. Garner, T. T. O'Callaghan, D. M. Hunt, J. Penman, E. C. E. Barnes, A. C. D. Newton, J. McHaffie, M.D., N. Garrard.

To be temporary Lieutenants: H. E. Batten, F.R.C.S., E. Whalley, J. L. D. Lewis, G. T. Watson, M.B., F.R.C.S., D. Lynch, M.B., W. M. Oakden, F.R.C.S., W. J. Oliver, M.B., J. M. Dickson, M.D., C. G. Lees, M.B., J. G. Reidy, C. L. Ievers, H. B. Emerson, R. M. Liddell, M.B., H. H. Moyle, J. C. Jones, M.B., F. E. Mathews, C. J. Marshall, M.D., F.R.C.S., R. S. Drew, M.B., D. F. Brown, M.B., W. Venis, H. N. Wright, R. J. Lytle, M.D., J. F. Allen, V. J. Bonavia, M.D., I. C. Edwards, M.D., C. P. Crouch, M.B., F.R.C.S., W. Grier, M.B., C. B. Richardson, V. M. Walsh, J. S. Byrne, M.B., W. T. Harris, J. F. Blackett, M.D., E. M. Brown, M.B., H. H. Bywater, M.D., F.R.C.S.E., H. Harrison, G. H. U. Corbett, M.B., P. M. Tolmie, F. Humphreys, M.B., C. A. R. Nitch, M.B., F.R.C.S., J. W. Shields, M.B., A. H. H. Barclay, P. W. L. Andrew, J. P. Grainger, J. N. Beadles, M.B., J. Holland, M.B., J. Good, A. G. Harvey, M.D., E. E. Owens, C. H. Bannerman, P. Quinn, M.B., N. B. Stuart, M.B., J. T. Titterton, M.B., A. B. Moffatt, M.B., P. L. Hope, A. R. H. Geyer, M.B., D. R. Acheson, M.B., R. Stewart, M.B., W. L. Nicholson, M.B., W. Butterley, M. P. O'Brien, J. Martin, R. C. Hutchinson, M.B., F. R. Smyth, P. Allan, M.B., L. C. Rorke, S. H. Davison, M.D., J. P. Ryan.

W. B. Hayes, M.D., to be temporary honorary Lieutenant whilst employed with No. 8 British Red Cross (Baltic and Corn Exchange) Hospital.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain R. T. C. Robertson, M.B., to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Lieutenant (on probation) T. Parr, M.B., is confirmed in his rank.

To be Lieutenants: F. R. Leblanc and A. A. Fitch, from University of London Contingent O.T.C.; J. W. Gordon and J. A. Tolmie, from Edinburgh University Contingent O.T.C.; E. A. C. Langton, R. Woodside, A. A. Prichard, G. M. Herriott, M.B.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Surgeon-General G. C. Jones, C.M.G., relinquishes his appointment as Director of Medical Services, Canadian Contingents, and is specially employed as a medical commissioner; temporary Major W. H. Laughlin, from a Canadian Infantry Battalion, to be temporary Major; Lieutenant W. G. G. Coulter (R.A.M.C.) to be temporary Captain; temporary Captain R. D. Rankin relinquishes his temporary commission. The notification regarding Lieutenant H. E. Brown (Canadian Militia) in the *London Gazette* of February 14th, 1917, is cancelled.

SOUTH AFRICAN MEDICAL CORPS.

To be temporary Lieutenants: H. Sterne-Howitt and G. A. Beyers.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Major (temporary Lieutenant-Colonel) T. Holt, M.D., to relinquish his temporary rank on alteration in posting.

Majors G. W. Miller, M.B., H. E. Corbin, and P. R. Ash to be acting Lieutenant-Colonels whilst commanding a field ambulance.

Major R. J. R. C. Simons, ret. list R.A.M.C.(T.F.), is granted the honorary rank of Lieutenant-Colonel.

Major R. Stirling, M.D., to be acting Lieutenant-Colonel whilst commanding a casualty clearing station.

Captain (temporary Lieutenant-Colonel) O. L. Rhys M.D., relinquishes his temporary rank on ceasing to command a field ambulance.

Captains (temporary Majors) to be Majors: A. Elliot, M.D., W. D. Watson.

Captains (acting Lieutenant-Colonels) F. Coleman and S. F. Linton, M.B., relinquish their acting rank on ceasing to command a field ambulance.

Captain A. K. Dawson, M.D., to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Captain (temporary Major) A. Don, M.B., F.R.C.S., to relinquish his temporary rank on alteration in posting.

Lieutenants to be Captains: J. Anderson, M.B., R. W. Nevin, M.D., D. F. Torrens, M.B.

Lieutenant C. E. Proctor resigns his commission.

To be Lieutenants: Sergeant R. McKenzie, Private W. E. Evans, from the R. Highlanders (T.F.).

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BIRKENHEAD UNION INFIRMARY.—Junior Female Resident Assistant Medical Officer. Salary, £300 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—House-Surgeon. Salary, £200 per annum

BIRMINGHAM GENERAL DISPENSARY. — Resident Medical Officer. Salary, £250 per annum.

BOLTON UNION.—Resident Assistant Medical Officer for the Fishpool Institution. Salary, £383 5s. per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CANNING TOWN WOMEN'S SETTLEMENT HOSPITAL, Plaistow, E.—(1) Assistant Physician. (2) Assistant Surgeon.

CARLISLE: CUMBERLAND INFIRMARY.—House-Surgeon. Salary, £200 per annum.

COLCHESTER: ESSEX COUNTY HOSPITAL.—Two Lady House-Surgeons.

GRIMSBY COUNTY BOROUGH.—Lady Assistant Medical Officer. Salary, £350 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £250 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

IPSWICH: EAST SUFFOLK AND IPSWICH HOSPITAL.—Lady Resident.

KENSINGTON AND FULHAM GENERAL HOSPITAL, Earl's Court, S.W.—Resident Medical Officer. Salary, £150 per annum.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House-Surgeon. Salary, £150 per annum.

LONDON THROAT HOSPITAL, Great Portland Street, W.—House-Surgeon, non-resident. Honorarium, £50 per annum.

MANCHESTER CITY.—First Assistant Medical Officer to the Baguley Sanatorium for Tuberculosis. Salary, £300 per annum.

MANCHESTER CORPORATION.—Assistant Tuberculosis Officer. Salary, £350 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House Surgeon. Salary, £120 per annum.

NORWICH: NORFOLK AND NORWICH HOSPITAL.—Two House-Surgeons (male). Salary, £400 per annum.

OLDHAM ROYAL INFIRMARY.—(1) First House-Surgeon. (2) Second House-Surgeon. (3) Third House-Surgeon. Salary for (1) and (2), £250, and for (3) £200 per annum.

PLAISTOW FEVER HOSPITAL, E.—Resident Medical Officer (lady). Salary, £250 per annum.

PETERBOROUGH INFIRMARY.—House-Surgeon (male). Salary, £150 per annum, rising to £200.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—House-Surgeon. Salary, £120 per annum.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—House-Surgeon.

READING: ROYAL BERKSHIRE HOSPITAL.—House-Surgeon. Salary, £250 per annum.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Senior Obstetric Assistant. Salary, £153 per annum.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Temporary Assistant Physician.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—(1) House-Physician. (2) Junior House-Surgeon. Salary, £150 and £120 per annum respectively.

TRURO: ROYAL CORNWALL INFIRMARY. — House-Surgeon. Salary, £150 per annum.

WARRINGTON INFIRMARY AND DISPENSARY.—(1) House-Surgeon. Salary, £250 per annum. (2) Senior and Junior House-Surgeons. Salary, £200 and £150 per annum respectively, and war bonus at the rate of £50 per annum.

WILTS COUNTY EDUCATION COMMITTEE.—Dental Surgeon. Salary, £250 per annum.

WINCHESTER: ROYAL HAMPSHIRE COUNTY HOSPITAL.—Resident Medical Officer. Salary £300 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Glynneath (Glamorgan), Gravesend (Kent).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BHANDARI, R. N., M.B., Ch.B.St. And., House-Surgeon to the Victoria Central Hospital, Liscard.

SHEEHAN, George P., L.R.C.P.and S.Irc., Assistant Medical Superintendent to the Peamount Sanatorium.

SQUIRE, J. Edward, C.B., M.D., F.R.C.P., Consulting Physician to the St. Marylebone General Dispensary, vice Dr. W. Cayley.

WEBB, C. H. S., M.B., M.S., Assistant Surgeon to Middlesex Hospital.

WHITE, William Henry, M.D., M.R.C.P., Consulting Physician to the St. Marylebone General Dispensary, vice Dr. E. Liveing.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTH.

BENTLEY.—On March 3rd, at Northend, Ashford, Kent, the wife of R. J. Bentley, M.B., B.S., of a son.

DEATH.

BEATLEY.—At 4, St. Mary's Terrace, Newcastle-on-Tyne, William Crump Beatley, M.D., in his 61st year.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.—5 p.m., Third Lumleian Lecture by Dr. G. A. Sutherland: Modern Aspects of Heart Disease.

THURSDAY.

HARVEIAN SOCIETY, Stafford Rooms, Tichborne Street, Edgware Road, W.—8.30 p.m., Harveian Lecture by Mr. Ernest Lane, F.R.C.S.: The Treatment of Syphilis.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.—5 p.m., First Goulstonian Lecture by Dr. C. H. Miller: Paratyphoid Infections.

ROYAL SOCIETY OF MEDICINE:

SECTION OF NEUROLOGY, National Hospital, Queen Square, Bloomsbury.—8 p.m., Clinical Meeting.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:

SECTION OF STUDY OF DISEASES OF CHILDREN.—4.30 p.m., Cases. Papers:—Dr. H. C. Cameron: Status Lymphaticus. Major Hunter, C.A.M.S.: A Remarkable Condition in Two Brothers.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—Lettsomian Lectures by Colonel Cuthbert Wallace, C.B., A.M.S.: War Surgery of the Abdomen. Monday, Wednesday, and Friday, at 8.30 p.m.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	MARCH.
29 Thur.	London: Grants Subcommittee, 12 15 p.m.
	London: Organization Committee, 2.15 p.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 24TH, 1917.

CONTENTS.

	PAGE
BRITISH MEDICAL ASSOCIATION:	
CURRENT NOTES:—ADVISORY COMMITTEE	53
ASSOCIATION NOTICES	53
WAR BONUSES FOR IRISH POOR LAW MEDICAL OFFICERS	53
INSURANCE:	
LOCAL MEDICAL AND PANEL COMMITTEES	55
NAVAL AND MILITARY APPOINTMENTS	55
VACANCIES AND APPOINTMENTS	56
INSTITUTIONS FOR MENTAL DEFECTIVES:	
ROYAL EARLSWOOD INSTITUTION	54
ROYAL ALBERT INSTITUTION, LANCASTER	54
ROYAL EASTERN COUNTIES INSTITUTION, COLCHESTER	54
WESTERN COUNTIES INSTITUTION, STARCROSS ...	54
MIDLAND COUNTIES INSTITUTION, KNOWLE ...	54
MAGDALENE HOSPITAL SCHOOL, COMBE DOWN, BATH...	54
BIRTHS, MARRIAGES, AND DEATHS	56
DIARY	56

British Medical Association.

CURRENT NOTES.

ADVISORY COMMITTEE.

THE following letter has been received from the Chairman of the National Health Insurance Joint Committee:

I am desired by Sir Edwin Cornwall, Chairman of the Joint Committee for National Health Insurance, to inform you that he is establishing a new Advisory Committee under Section 58 of the National Insurance Act, 1911, to take the place of the existing Advisory Committee of the Joint Committee. He is anxious that the new body should be much smaller in number, and composed of persons having direct practical experience in the working of National Health Insurance.

He directs me to inform you that he has decided to appoint one medical member of the Committee, who should be a general practitioner with personal experience, not only as a panel practitioner in the treatment of insured persons, but also of the general working of the Insurance Act in its various medical aspects.

He will be glad if the British Medical Association, as the body appointed by the Conference of Local Medical Committees and Local Panel Committees to represent them in relation with this department, will suggest to him the name of a medical practitioner suitable for the appointment above described. In making this request he wishes it to be understood that he is inviting members to join the new Committee by reason of their interest in and experience of National Health Insurance work, and in order that this knowledge and experience may thus be available for the assistance of the department and himself, and not that individual members should serve on the Committee as representatives of particular interests.

I am to add that Sir Edwin Cornwall intends also to appoint a Medical Advisory Committee for the further assistance of himself and the Joint Committee in regard to all medical and health matters generally in connexion with this department, and will consult the British Medical Association at a later stage as to persons suitable for appointment on this other body.

The Chairman of Council having referred the above communication to the Insurance Acts Committee, immediate steps are being taken to submit to the Joint Committee the name of a medical practitioner for appointment on the Advisory Committee.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

SOUTH MIDLAND BRANCH: BUCKS DIVISION.—Dr. Arthur E. Larking (Secretary, Stoneleigh House, Buckingham) gives notice that a meeting of this Division will be held at the Red Lion Hotel, High Wycombe, on Tuesday, April 3rd, to which all practitioners are invited. Lunch at 1.30 p.m.; meeting at 2.15 p.m. As this meeting is primarily to ascertain the views of the local profession on the future of the Insurance Act in its relation to the medical profession, and also to discuss certain very ominous signs of encroachment on the work of general practitioners, it is hoped all will make an effort to attend.

WAR BONUSES FOR IRISH POOR LAW MEDICAL OFFICERS.

THE Irish Medical Secretary, on behalf of the Irish Committee of the British Medical Association, has written to the Local Government Board (Ireland) stating that complaints have been addressed to the Irish Office of the British Medical Association regarding the action of the Local Government Board in refusing to sanction war bonuses voted by boards of guardians to their Poor Law medical officers. It appears that the main grounds upon which the Local Government Board bases its refusal to sanction war bonuses for Irish Poor Law medical officers are: (1) That war bonuses were only intended for civil servants whose salaries did not exceed £3 a week, which the Local Government Board states excludes Poor Law medical officers; (2) that in some of the unions in which war bonuses were voted there were already graded scales of salaries, as the result of which Poor Law medical officers had received increased remuneration.

The Irish Medical Secretary, in his letter to the Local Government Board, pointed out that the reasons given by it for refusing to sanction the war bonuses voted by boards of guardians had in fact very little substance. The statement that Poor Law medical officers were excluded from the scheme of war bonuses because their incomes exceeded £3 a week does not hold on examination. Very few Irish Poor Law medical officers have anything approaching £3 a week from their Poor Law appointments and private

practices when their official and professional working expenses are deducted. Moreover, the civil servant whose salary does not exceed £3 a week is generally a young unmarried man with few domestic responsibilities who has, unlike the Poor Law medical officer, the working expenses of his office paid for him. The second cause—the existence of graded scales of salaries—assigned by the Local Government Board for refusing to sanction war bonuses voted to Poor Law medical officers is not justifiable for the reason that those graded scales of salaries, in addition to being altogether inadequate from the start, were nearly all fixed in ordinary or pre-war times, when cost of living and locomotion was not half what it is at the present time. It must further be remembered that the Irish Poor Law medical officer, while he experiences in his official capacity all the disadvantages of a civil servant, enjoys very few or none of his privileges. The Poor Law medical officer has no fixed hours for duty: he is on duty the whole twenty-four hours; and when he has reached 70 or 75 years of age, with the infirmities generally accompanying such an age, he is altogether dependent on the goodwill of his board of guardians for a pension. If the pension is granted it is generally less than that of an efficient police constable, who retires generally at the age of 45, while still young enough to make a second start in life. Although the Local Government Board is not in a position to sanction war bonuses, it is understood that it is ready to sanction the amount of such war bonuses either as graded scales of salaries, or that the bonuses should be used to improve the graded salaries already in existence.

INSTITUTIONS FOR MENTAL DEFECTIVES.

THE year 1916 has, owing to war exigencies, not seen any considerable addition to the accommodation for persons dealt with under the Mental Deficiency Act, 1913. Contemplated county council schemes for such provision have remained in abeyance, and Poor Law authorities have had to make the best of vacant workhouse accommodation recognized by the Board of Control under Clause 37 of the Act. In one or two instances guardians have combined to form a joint institution for defectives, and in the north-eastern counties as many as twenty-four unions have co-operated in the formation of a residential certified institution at Prudhoe Hall, Northumberland. The bulk of the work of training the younger class of mental defectives (outside the metropolis) still remains in the hands of the voluntary institutions.

Royal Earlswood Institution.

The board of management (in their report presented April 27th, 1916) regret a depletion of financial resources and an unavoidable increase of expenditure owing to the war. The administration of the Mental Deficiency Act on lunacy lines is deplored as entailing in the case of mental defectives "unnecessary formalities which impede and are detrimental to the economic interests of voluntary institutions." The report of the medical superintendent (Dr. C. Caldecott) states that during 1915 the admissions and readmissions numbered 60 (45 males, 15 females), the discharges 27, and the deaths 20. There remained in the institution on December 31st, 1915, 497 patients (342 males, 155 females). The average number in residence during the year was 490, and the death rate (calculated on this) 4.08 per cent. The general health had been satisfactory but there had been an epidemic of influenza; 30 per cent. of the deaths were attributed to tuberculosis and 20 per cent. to epilepsy. Dr. H. F. Stephens (assistant medical officer) had carried out some interesting investigations as to serum reactions in the cases of 100 male patients, with the general result that the reaction was found definitely positive in 12, weakly positive in 16, and doubtfully positive in 14, being strongest and most frequent in patients between 16 and 21 years of age. In 72 per cent. of the "Mongols" the Wassermann test gave negative results. As the routine work of the institution has, owing to war depletions of the staff, pressed with increased weight upon the medical officers (two of whom only are now resident), it is most creditable to Dr. Stephens to have found time to prosecute these scientific researches, which we trust may be followed up in other similar institutions. The visiting commissioners of the Board of Control, while expressing general approval of the work of the institution, emphasize the desirability of even more manual training.

Royal Albert Institution, Lancaster.

The report of the Central Committee for 1916 opens with an expression of gratitude for the loyal support of subscribers. The financial problems of the war have prevented contemplated extensions to provide for 500 additional patients to meet increased demands consequent on the operation of the Mental Deficiency Act, but by internal rearrangements of the building, including the absorption for patients of the late medical superintendent's house more accommodation has been acquired, and the patients in residence on June 30th, 1916, numbered 720 (475 males and 245 females). The report of the medical superintendent (Dr. W. H. Coupland) states that 100 patients (68 males, 32 females) were admitted during the twelve months terminating June 30th, 1916; the number discharged was 72, the deaths 13, and the daily average resident 705. The death-rate, calculated upon this, was 1.8 per cent. There had been an extensive epidemic of scarlet fever, involving 80 persons, and 3 deaths had resulted, all patients of the Mongolian type; 4 deaths were attributed to some form of tuberculosis. Mention is made of improvements in the training of low-grade cases as well as of efficient work in the workshops, garden, and farm. No fewer than 27 of the staff, and 11 patients and ex-patients, are known to be serving with the colours, and a former assistant medical officer (Dr. B. W. Hunter) has been decorated with the D.S.O.

Royal Eastern Counties Institution, Colchester.

The board of directors acknowledge the whole-hearted support of their subscribers and ladies' associations during 1915. The average daily number of patients in residence during that year was 445, a considerable increase on previous years. The new annexe (Bristol House) has been brought into use, and a house for 30 older girls has been rented pending the erection of a special wing, extra demands for the care and protection of female patients having of late years considerably increased. The medical superintendent (Dr. F. Douglas Turner) states that 98 patients were admitted (54 males, 44 females), 8 had been discharged and 37 died, the percentage of deaths (8.31) being higher than in any year since 1904. There had been two outbreaks of scarlet fever, and two patients had died from it, and there had also been a severe epidemic of measles (55 cases and 10 deaths). The number of deaths from all forms of tuberculosis was 11 (2.47 per cent. of the average number resident), compared with an average for the last ten years of 1.11. Open-air treatment and sleeping under a veranda throughout the year is resorted to in the case of some 10 or 12 tuberculous cases. Over twenty of the male trained staff had been called to the colours. Dr. Turner has now the much-needed aid of a clinical assistant to help him in his routine medical duties.

Western Counties Institution, Starcross.

The brief annual report for 1915 of the Committee states that at the end of the year there were 334 inmates (231 boys and 103 girls). The institution is now certified under the Board of Education as well as under the Board of Control and the Committee states that no great difficulty has arisen from working under this dual authority. Dr. Bertha Mules is the acting medical officer while Dr. J. H. Ilett is serving with the R.A.M.C. Educable cases only are received into this institution, and manual and industrial occupations are specially taught, with very valuable results. Some of the older boys have been usefully employed by the farmers in the vicinity.

Midland Counties Institution, Knowle, near Birmingham.

The year 1915 began with 128 inmates (82 males and 46 females). A new infirmary has recently been erected.

Magdalene Hospital School, Combe Down, Bath.

This institution has accommodation for 34 mental defectives (male and female). It is remarkable for being the modern representative of an ancient hospital for lepers founded in the twelfth century.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

MIDDLESEX.

AT the monthly meeting of the Middlesex Panel Committee on March 15th the chief item of business was the consideration of the report of the subcommittee appointed to inquire into the future working of the Insurance Acts. It dealt with all the important points of possible improvement and contained many interesting suggestions, including one that lapse from insurance should not take effect during the current medical year. With some slight modifications the report was adopted, and it was decided to forward it to the British Medical Association.

SURREY.

At a meeting of the Panel Committee on January 19th it was resolved to point out to the British Medical Association that the very large influx of women to insurance at the present time vitiated the method by which the Insurance Commissioners arrive at the constitution of the Central Medical Benefit Fund. It was decided not to ask practitioners to send in their statistics of attendances for 1916 to the British Medical Asscciation. It was agreed to press the Insurance Commissioners through the County Committee for a more satisfactory explanation of the method by which they arrive at the degree of inflation of the county registers so far as it affects treatment and dispensing.

EAST SUFFOLK.

At a meeting of the Panel Committee on March 13th the county medical officer of health was present and discussed with the Committee various matters relative to the treatment of tuberculosis and the scheme for the prevention and treatment of venereal diseases. It was resolved that the "record of progress" reports of cases of tuberculosis, which in ordinary cases are required once a quarter, should be sent to the county medical officer of health within one week from the date of their receipt. It was resolved to ask practitioners to do all they possibly can to induce patients suffering from tuberculosis to fill in Form Med. 1 (application for sanatorium benefit) with a view to their transference from the medical benefit side to the sanatorium benefit side.

WARWICKSHIRE.

At a meeting of the Local Medical and Panel Committee on March 13th it was decided that the Insurance Acts Committee of the British Medical Association sufficiently represented Local Medical and Panel Committees without any need at present for further action.

The practice of the Insurance Committee in keeping a small sum in hand for contingencies after settlement, the balance being brought forward from year to year, was approved.

A letter was read from the Insurance Committee urging the importance of domiciliary treatment, and those present, while not considering that the provision for the treatment of consumption was entirely satisfactory, agreed to use their influence to secure fulfilment by all practitioners of their obligation as to domiciliary treatment.

HEREFORDSHIRE.

At a meeting of the Local Medical and Panel Committee on February 19th it was reported that there was a total balance for 1915 due to doctors on the panel of £832 11s. 7d., as against a debit in 1914 of £393, leaving a sum of £439 11s. 7d. for distribution for the final settlement for the two years, with the addition of a sum of about £20 transferred from the 1914 Drug Fund to the general account. It was decided to appoint a committee to act with a similar committee appointed by the local Division of the British Medical Association, with the following reference:

To consider the present system of National Health Insurance so far as it affects the relation of the medical profession to the public health and the treatment of disease; to make suggestions for the improvement of that system; and to report to the local Division and to the Local Medical and Panel Committee.

It was decided to readopt the old scheme for the distribution of the 1917 Special Mileage Grant. It was reported that the action of the Panel Committee in respect of the Suspense Register appeared to be bearing fruit, and that steps were being taken by the Insurance Committee to reduce the number of suspense slips to reasonable limits.

TYRONE.

At a recent meeting of the County Tyrone Local Medical Committee Dr. E. C. Thompson, D.L., was unanimously re-elected chairman, and Dr. A. H. R. Duncan and Dr. J. J. Todd honorary secretaries. Dr. Thompson and Dr. W. Lyle were selected to represent the County Tyrone medical profession on the County Insurance Committee.

The Committee had under consideration a lengthy pamphlet issued on behalf of the Council of the Irish Medical Association criticizing the action of the Tyrone Local Medical Committee and some of its members who had resigned from the Irish Medical Association as a protest against its having elected as members two ex-medical advisers under the Insurance Act. Dr. Lyle indignantly repudiated the motives attributed to him and other members of the County Tyrone Local Medical Committee in the pamphlet. The Committee unanimously decided to support Dr. Lyle and other members of the Committee in any action they might take to refute misrepresentations in the pamphlet.

The Committee strongly urged that the County Council should add at least two representatives of the Tyrone doctors to the County Council Tuberculosis Committee. The Committee also expressed the opinion that representatives of the medical profession should be appointed to all public boards and committees which have to deal with public health and other questions requiring medical knowledge, such as is the case in asylum boards, county hospitals, and pension committees.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following notifications are announced by the Admiralty: Fleet Surgeon H. B. Beatty has been placed on the retired list with the rank of Surgeon-General. Fleet Surgeon E. B. Pickthorn to Chatham Dockyard. Temporary Surgeons: C. L. Sutherland, M.B., to the *Victory*, additional; W. P. Starforth to the *Victory*, additional, for R.N. Division, vice Cox; W. O. Lodge, M.B., to the *Berwick*; A. Orr-Ewing to the *Victory*, additional, for Haslar Hospital and to the *Woolwich*; R. D. Neagle to the *Zealandia*; J. C. McLelland to the *Victory*, additional, for Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Staff Surgeon H. L. Murray to the *Victory*, additional. To be Surgeon Probationers: A. E. Blackley, G. Harrell, A. C. Lornie.

ARMY MEDICAL SERVICE.

Colonel A. P. Blenkinsop, C.B., to be temporary Surgeon-General whilst employed as Director of Medical Services of an expeditionary force.

Lieutenant-Colonel G. B. Stanistreet, C.M.G., to be an Assistant Director-General (temporary).

ROYAL ARMY MEDICAL CORPS.

Temporary honorary Major H. L. Tidy, M.D., having resigned his appointment at the British Red Cross Hospital, Netley, relinquishes his commission.

Temporary honorary Major C. H. Milburn having ceased to be employed with No. 2 British Red Cross Hospital relinquishes his commission.

Temporary Captain C. B. Dobell, M.D., to be temporary Major.

Temporary Lieutenants to be temporary Captains: C. H. L. Rixon, T. McC. Sellar, M.B., E. Ashby.

A. G. Shera, M.B., to be temporary honorary Captain whilst employed with the British Red Cross Hospital, Netley.

Temporary Captains W. F. L. Day, M.B., E. M. Litchfield, and H. Child relinquish their commissions on account of ill health.

Temporary Captain Thomas Weir McCubbin is dismissed the service by sentence of a general court-martial.

Temporary Captains relinquish their commissions: H. D. Duke and M. A. Farr.

Temporary Lieutenants relinquish their commissions: J. B. Brown, M.B., R. C. Robinson, M.D., J. P. Ziervogel, F.R.C.S.I., J. F. Young, M.B.

To be Lieutenants: G. Taylor, M.B., F. G. M. Simpson, M.B., G. B. Bartlett, A. H. Manfield, A. W. Hall, O. H. Bulloch, M.B., C. H. Mellock, H. O'Neill, M.B., O. F. D. Airth, M.B., I. R. R. Brogden, F. G. Chandler, M.B., W. J. Purdy, M.B., J. E. Foreman, R. M. Danks, J. Rae, M.D., S. M. Wilcox, M. W. Danzig, M.B., P. Cheal, W. Lumsden, M.B., H. D. McCall, M. A. Teale, A. Bevan, M.D., A. W. G. Clark, M.B., W. Templeton, M.B., J. Marshall, M.B., C. C. Kennedy, J. M. H. Caldwell, M.B., W. G. McConnell, E. G. Bark, M.B., A. W. C. Bennett, C. Burnett, M.B.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: J. D. Dyson, H. M. Alexander, C. A. W. Ramsay, F. B. Macaskie, F. Gamm, M.B., J. A. Murray, E. Kean, M.B.,

R. Chevassut, M.B., J. H. Albinson, M.B., R. Colley, M.B., A. K. Robb, M.B., J. J. Landers, M.B., J. E. Kitchen, E. Lipman, M.B., J. C. Attridge.

To be Lieutenants: G. V. Davies, from University of London Contingent O.T.C., J. B. Mudge, H. A. G. Dykes.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Major (acting Lieutenant-Colonel) G. W. Miller, M.B., relinquishes his acting rank on ceasing to command a field ambulance.

Major C. E. Bean, F.R.C.S., relinquishes his commission on account of ill health.

Captain (temporary Majors) T. H. Chittenden, M.D., and R. Waterhouse, M.D., to be acting Lieutenant-Colonels whilst commanding a field ambulance.

Captain (temporary Major) F. Ward, M.D., relinquishes his temporary rank on alteration in posting.

Captain R. C. S. Smith, M.B., from East Anglian Casualty Clearing Station, to be Captain.

Lieutenants to be Captains: A. E. Crabbe, J. R. Mitchell, M.B.

R. K. Ellison to be Lieutenant.

Attached to Units other than Medical Units.—Major W. B. MacKay, C.M.G., M.D., from T.F. Res. to be Major. Captains to be Majors: H. W. Laing, M.D., A. C. Farquharson, M.D. Captain J. A. Simpson, M.B., relinquishes his commission on account of ill health. Lieutenant J. W. Anderson, M.B., to be Captain.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BEVERLEY: EAST RIDING LUNATIC ASYLUM.—Temporary Female Assistant Medical Officer. Salary, £250 per annum.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer Salary, £2 0 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—House-Surgeon. Salary, £200 per annum.

BLACKPOOL: VICTORIA HOSPITAL.—House-Surgeon. Salary, £250 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

GLAMORGAN COUNTY ASYLUM, Bridgend.—Temporary Assistant Medical Officer. Salary, £6 6s. per week.

GREENOCK CORPORATION.—Lady Medical Practitioner in connexion with Maternity and Child Welfare Scheme. Salary, £350 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £250 per annum.

IPSWICH: EAST SUFFOLK AND IPSWICH HOSPITAL.—Lady Resident.

KENSINGTON AND FULHAM GENERAL HOSPITAL, Earl's Court, S.W.—Resident Medical Officer. Salary, £150 per annum.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Second Lady Resident Medical Officer. Salary, £200 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House-Surgeon. Salary, £150 per annum.

LIVERPOOL: ROYAL SOUTHERN HOSPITAL.—Two House-Surgeons.

LURGAN UNION.—Female Resident Medical Officer for the Workhouse and Fever Hospital. Salary, £100 per annum.

MANCHESTER CITY.—First Assistant Medical Officer to the Baguley Sanatorium for Tuberculosis. Salary, £300 per annum.

MANCHESTER CORPORATION.—Assistant Tuberculosis Officer. Salary, £350 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £150 per annum.

METROPOLITAN HOSPITAL, Kings and Road, E.—Temporary Medical Officer for the Tuberculosis Dispensary.

OLDHAM ROYAL INFIRMARY.—(1) Second House-Surgeon. (2) Third House-Surgeon. Salary for (1) £250, and for (2) £200 per annum.

PETERBOROUGH INFIRMARY.—House-Surgeon (male). Salary, £150 per annum, rising to £200 after six months.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) House-Physician; (2) Casualty House-Surgeon; (3) Temporary Anaesthetist. Salary for (1) and (2) at the rate of £120 per annum.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—House-Surgeon.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Senior Obstetric Assistant. Salary, £153 per annum.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Temporary Assistant Physician.

ST. BARTHOLOMEW'S HOSPITAL, E.C.—Assistant Ophthalmic Surgeon.

ST. PETER'S HOSPITAL, Henrietta Street, W.C.—Junior Anaesthetist.

SHEFFIELD: ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—(1) House-Physician (2) Junior House-Surgeon. Salary, £150 and £120 per annum respectively.

SUFFOLK HOSPITAL, Ampton Hall, near Bury St. Edmunds.—Resident Medical Officer. Salary, £400 per annum.

TRURO: ROYAL CORNWALL INFIRMARY.—House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Atherstone (Warwick), Minehead (Somerset).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BATES, J. E. L., M.R.C.S., L.R.C.P., District Medical Officer of the Croydon Union.

BENNER, Mrs. M. A., M.B., Ch.B.Glasg., Medical Officer of the Antenatal and Child Welfare Scheme, Newport.

COOPER, H. G., M.B., B.C.Camb., Certifying Factory Surgeon for the Altrincham District, co. Chester.

DRAPER, T. M., M.R.C.S., L.R.C.P., District Medical Officer of the Watford Union.

FORGE, G. B., M.R.C.S., L.R.C.P., District Medical Officer of the Chertsey Union.

FRIER, C., M.B., C.M.Edin., Medical Officer of the Workhouse of the Grantham Union and District Medical Officer of the Grantham (Out-relief) Union.

LISTER, T. D., M.D.Lond., Consultant for Chest Cases to the Prince of Wales's Hospital for Officers, Marylebone Road, W. (Great Central Hotel).

NEWLAND, F. C., M.D Dubl., Certifying Factory Surgeon for the Cleobury Mortimer District, co. Salop.

SCHOLEFIELD, H., M.B., Ch.B.Vict., District Medical Officer of the Wakefield Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTHS.

BOOTH.—On March 19th, at "Wyngarth," Brock Hill Road, Mapperley Plains, Notts, the wife of Captain N. Booth, M.B., B.S.Lond., R.A.M.C., of a daughter.

SIBBALD.—On March 16th, to the wife of Ian Graham Sibbald, M.B., St. Margaret's, Crewkerne, Somerset, a daughter.

MARRIAGE.

STRATON—ROBERTSON.—On the 7th inst., at St. Matthew's Church, Ealing, by the Rev. Sadler Phillips, vicar of the parish, Arthur Arbuthnot Straton, M.D., F.R.C.S., temporary Captain R.A.M.C., third son of C. R. Straton, F.R.C.S., of Wilton, to Mabel, third daughter of Mr. and Mrs. James Robertson, of Warwick Road, Ealing.

DEATH.

MURDOCH.—On 9th inst., at Fruids Park, Annan, Dumfriesshire, William Murdoch, M.D.Edin., aged 62 years.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.—5 p.m., Second Goulstonian Lecture by Dr. C. H. Miller: Paratyphoid Infections.

THURSDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.—5 p.m., Third Goulstonian Lecture by Dr. C. H. Miller: Paratyphoid Infections.

WEDNESDAY.

HUNTERIAN SOCIETY, Skin Department of St. Bartholomew's Hospital.—4 p.m., Dr. H. G. Adamson: Demonstration on Interesting Cases.

ROYAL SOCIETY OF MEDICINE.—*Section of Odontology:* Monday, 5 p.m., Cases. 6 p.m., Exhibition and Report (followed by a Discussion) on Gunshot Injuries of the Jaws. *Section of Medicine:* Tuesday, 5.30 p.m., Lantern Demonstration (Dr. C. R. Box and Mr. Walter Edmunds): Autochromes illustrating the Rashes of Specific Fevers.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		MARCH.
27	Tues.	London: Contract Practice Subcommittee, 2.30 p.m.
29	Thur.	London: Grants Subcommittee, 12 15 p.m.
		London: Organization Committee, 2.15 p.m.
		APRIL.
3	Tues.	Bucks Division, Red Lion Hotel, High Wycombe. Lunch 1.30 p.m.; Meeting, 2.15 p.m.
4	Wed.	London: Journal Committee, 2 p.m.
18	Wed.	London: Finance Committee, 2 p.m.
25	Wed.	London: Council Meeting.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 31ST, 1917.

CONTENTS.

	PAGE
British Medical Association—	
MATERNITY AND CHILD WELFARE (DEPUTATION TO THE PRESIDENT OF THE LOCAL GOVERNMENT BOARD)	57
CURRENT NOTES: EMERGENCY SETTLEMENT FOR 1916.—ADVISORY COMMITTEE...	58
ASSOCIATION NOTICES: MEETING OF COUNCIL	58
MEETINGS OF BRANCHES AND DIVISIONS	58
TREATMENT AND TRAINING OF DISABLED SOLDIERS ...	59
INSURANCE: LONDON INSURANCE COMMITTEE	59
NAVAL AND MILITARY APPOINTMENTS	59
VACANCIES AND APPOINTMENTS	60
BIRTHS, MARRIAGES, AND DEATHS	60
DIARY	60

British Medical Association.

MATERNITY AND CHILD WELFARE.

DEPUTATION TO LORD RHONDDA.

A CONFERENCE took place on Friday, March 16th, between Lord Rhondda, President of the Local Government Board, and representatives of the British Medical Association on the position of the medical profession in regard to the maternity and infant welfare proposals of the department.

In opening the proceedings, Lord RHONDDA said that there was a large amount of overlapping in the various Government departments supervising the health of the country. This could hardly fail to lead to friction, unnecessary expense, and waste of energy. The public were becoming aware of this, and were already insisting that some action should be taken to remedy the position. He referred to the bill he proposed to introduce dealing with maternity and infant welfare and stated that he estimated it to be possible to save 50,000 young lives a year. He felt strongly that the necessary steps for this purpose should be taken forthwith, and hoped to secure the active co-operation of the general practitioner, whose influence he recognized as being very wide. He had an idea that there had been a feeling of suspicion towards the Local Government Board on the part of the general practitioner. He was most anxious entirely to remove that feeling; he wanted the help of the general practitioner in securing the success of his scheme. He considered that the only satisfactory method of preventing overlapping was to have one health department, and he thought a way of securing the necessary co-operation with the general practitioner might be to have an Advisory Medical Council to assist the department.

Sir CLIFFORD ALLBUTT thanked Lord Rhondda for meeting the representatives of the British Medical Association, and welcomed his remarks as to co-operation with the general practitioner, of whose abilities and efficiency he had personal knowledge gained by many years' experience as a consulting physician. He expressed his cordial approval of the work which was being done to secure child welfare, and emphasized the importance of working with the family doctor in this as in other matters. He feared that of late the responsibilities of the family doctor were being diminished through certain work being taken partially out of his care—such work as the treatment of infectious diseases, the care of children, and the treatment of tuberculosis and venereal diseases. Such a diminution must lead to deterioration in the quality of medical men entering into this important branch of the profession. The best way of utilizing the services of the general practitioner might be by means of rotas or committees. The general practitioner should not be overloaded with the administrative work, as that would take the life out of his professional energy and interest in research. Sir Clifford Allbutt expressed the opinion that it was essential that research centres should be within the reach of the general practitioner. He fully agreed with and for many years had urged the desirability of having a Ministry of Health. He indicated certain methods in which more use could be made of the general practitioner, and urged that they should be kept in touch with the homes, the family histories, and the confidences of the patients.

Dr. BRACKENBURY stated that the confusion in the various health services was obvious to all concerned in such work. He instanced the fact that nine doctors (working under the regulations of five Government departments) might be concerned at various times with the medical care of a single family. This confusion could best be remedied from the centre, and he expressed the opinion that the Ministry of Health should deal with that subject alone. Which department became the Ministry was not important so long as the following three principles were embodied: (1) That the clinical as well as the preventive side should be represented, and with an equal status; (2) that the salaried medical officer should not undertake treatment of individuals; (3) that the general practitioner should be used as much as possible. The British Medical Association was ready to elaborate a scheme for utilizing the general practitioner in a unified health department. While in sympathy with the idea of the maternity and child welfare centres, he felt that they were not as successful as they ought to be, partly because the right people were not being attracted to them, owing to the fact that the interest and participation of the private practitioner were not encouraged. He thought the patient should be followed to the home, and that there should be appropriate treatment there. In many places there were no centres; in many there were voluntary agencies only. This work was not receiving the sympathetic co-operation of the profession, and therefore was not so successful as it ought to be; but he could not promise hearty co-operation from the general practitioner while the present conditions continued. The work could be extended to the homes only by the family doctor, and this should be done on proper lines, and not by salaried officials employed at the centres. The committees running this work should be representative of voluntary agencies and the medical profession, as well as of the public. The medical profession should have a part in framing and carrying out any scheme, and it was essential that any actual treatment of individuals should be carried out by private practitioners.

Dr. H. J. CAMPBELL gave his experience of the work of the Bradford scheme, and stated his opinion that it was neither so effective nor so economical as it ought to be.

Dr. BOSTOCK HILL agreed as to the need for the sympathetic aid of the general practitioner. There was a suspicion on the part of the general practitioner against the salaried section, and the reform must consist in a combination of the two sections, though he considered that the general practitioner should be willing to work under the whole-timer, who would act as organizer.

Mr. E. B. TURNER laid it down that the administrative officer should administer and the clinical man should treat the patient. Afterwards there was a more general discussion of the proposals for conferring further powers on local authorities. It was stated it would be necessary to extend domiciliary treatment if it was desired to get the profession to take an interest in the work. There must be some inducement to get the right people to go to the centres, and the general body of the profession could be relied upon to see to this if it were made an integral part of the scheme.

Lord RHONDDA expressed a desire to see particulars of the scheme which the British Medical Association was willing to draw up, though he could not bind himself to adopt it, nor promise to hold back the bill to carry out the views of the deputation. He might say, however, that the measure he had in mind was an enabling bill only, and that it would in no way preclude the carrying out of such measures as the deputation proposed in regard to infant welfare. He thanked the deputation for coming and repeated that he wanted their help in the work.

CURRENT NOTES.

EMERGENCY SETTLEMENT FOR 1916.

AT a conference on March 16th, 1917, between the Executive Subcommittee of the Insurance Acts Committee and the English Insurance Commissioners, the question of an early settlement of the 1916 medical benefit accounts was discussed; a letter has since been received from the Insurance Commissioners recapitulating the announcement made on that occasion with regard to the emergency settlement for 1915. The letter states that in order to avoid the delay which under war conditions would have been entailed by a strict adherence to the prescribed method of calculating the amount of the General Medical Benefit Fund, the Commissioners undertook, at the request of the profession, to carry out the calculations by an alternative method designed to secure the same result. This course was adopted, and an emergency settlement effected with Insurance Committees, and by them with doctors and others. The completion of the calculation of the amount of the General Medical Benefit Fund according to the strict prescribed procedure has rendered it possible to compare the amount which would have been due upon a strict settlement with the amount which was distributed under the emergency settlement. On a total sum (in round figures) of four million pounds, the actual amount distributed on the emergency settlement exceeds the amount which would have been due by approximately £11,000 only for England and Wales together. This overpayment will, in accordance with the conditions of the emergency settlement, fall to be deducted from the General Medical Benefit Fund for the year 1916. The Commissioners understanding that it is the general desire that an emergency settlement for 1916 should be carried out on corresponding lines—that is, by taking the actual amount which would have been due for 1915, and by adjusting that amount in the manner explained in connexion with the first emergency settlement so as to arrive at the amount distributable for 1916—will give the matter their immediate attention.

ADVISORY COMMITTEE.

The following reply has been sent to the letter of the Chairman of the National Health Insurance (Joint) Committee which was printed in the SUPPLEMENT on March 24th, 1917, page 53:

March 27th, 1917.

Sir,

Advisory Committee.

Since the receipt of your letter of the 12th inst., and the consequent taking of steps to secure nomination of a medical practitioner, the Association has seen in the lay press, with some surprise, an apparently authoritative statement as to the size of the new Committee. It had been assumed that as there was to be only one medical member, the Committee was intended to be quite small in number, and it appears to the Association that one medical representative on a Committee of thirty-one advisory to the National Health Insurance Commission is quite inadequate. The Association is aware that the Committee will, of course, be concerned with many matters entirely outside the question of medical, sickness, and maternity benefits, and notes that the members are not appointed as representative of special interests, but it is a fact that the National Insurance Act, 1911, requires that the Committee shall contain "duly qualified medical practitioners who have personal experience of general practice." In view of the extent of the work of the Committee as affecting the insured population itself, and as necessitating an expert knowledge of professional questions as applied to National Health Insurance, it appears to the Association that on a Committee of the suggested size it is obviously desirable that there should be not less than three medical representatives.

It is noted from your letter that it is your intention to appoint a Medical Advisory Board for the assistance of yourself and the Joint Committee with regard to medical and health matters generally, and that you will consult the Association as to persons suitable for appointment thereon, but it appears that such a body, obviously valuable, would have no statutory status. The Association therefore desires to urge upon you the appointment of additional medical members of the statutory Advisory Committee.

In the meantime, subject to the above observations and to the hope that immediate and favourable consideration may be given to the suggestion, the Association desire to nominate for appointment Mr. H. B. Brackenbury, M.R.C.S., L.R.C.P., of 21, Quernmore Road, Stroud Green, London, N. Mr. Brackenbury is a general practitioner and a member of the Middlesex and London Panels. He is the Chairman of the Insurance Acts Committee of the Association and of the Middlesex Panel Committee, a member of the Local Medical Committee, and has had a very considerable administrative experience on other public bodies.

I am, Sir, your obedient Servant,
ALFRED COX,
Medical Secretary.

Sir Edwin Cornwall,
National Health Insurance (Joint) Committee,
Buckingham Gate, London, S.W.

Association Notices.

MEETING OF COUNCIL.

THE next Meeting of Council will be held on Wednesday, April 25th, in the Council Room, 429, Strand, London, W.C.

By order.
GUY ELLISTON,
Financial Secretary and Business Manager.

March 29th, 1917.

BRANCH AND DIVISION MEETINGS TO BE HELD.

SOUTH MIDLAND BRANCH: BUCKS DIVISION.—Dr. Arthur E. Larking (Secretary, Stoneleigh House, Buckingham) gives notice that a meeting of this Division will be held at the Red Lion Hotel, High Wycombe, on Tuesday, April 3rd, to which all practitioners are invited. Lunch at 1.30 p.m.; meeting at 2.15 p.m. As this meeting is primarily to ascertain the views of the local profession on the future of the Insurance Act in its relation to the medical profession, and also to discuss certain very ominous signs of encroachment on the work of general practitioners, it is hoped all will make an effort to attend.

Meetings of Branches and Divisions.

SOUTH-EASTERN OF IRELAND BRANCH.

AN ordinary meeting of the South-Eastern of Ireland Branch was held at Kilkenny on March 7th, when Dr. A. B. STEPHENSON, President, was in the chair. The notice of motion standing in the name of Dr. LAFFAN—namely, "That all possible steps be taken to vindicate the rights of the Poor Law medical profession to act as County Councillors and members of other public bodies"—was adjourned, owing to the absence of Dr. Laffan.

At a meeting of the Branch Council held subsequently the following resolutions were passed unanimously:

That no member of this Branch meet in consultation any practitioner who formerly held the post of medical adviser (certifier) under the National Health Insurance Act, unless and until such medical adviser (certifier) expresses his regret for his action in a manner satisfactory to the members of the Branch.

That the Draft Circular C be sent to non-members residing within the area of the Branch.

TREATMENT AND TRAINING OF DISABLED SOLDIERS.

THE following Army Council instruction has been issued:

War Office,
March 13th, 1917.

449.—The Continued Treatment and the Training of Discharged Soldiers.

1. Local War Pensions, etc., Committees have now been very generally established, and it is important that Officers i/c Hospitals should be placed in relation with these Committees in a manner to be presently described.

2. With reference to A.C.I. *1912* of 1916, it must be borne in mind that so long as in-patient treatment is required, whether by means of *curative* manual exercises or by other means, and accommodation is available, soldiers will be retained in the appropriate hospitals.

3. On the termination of such treatment, if the men are considered to be unfit for further service, they will be brought before an Invaliding Board, but will not be discharged from hospital until the date of their actual discharge from the service—that is, 21 days after their discharge has been approved by the Invaliding Board.

4. When a soldier has been approved for invaliding from the Army, and when he is subsequently discharged from hospital, some further treatment as an out-patient may be necessary. Such out-patient treatment may often be afforded at a military hospital, and whenever a Local Committee presents such cases for treatment this should be afforded for as long a period as may be required. For many of these cases also an appropriate system of technical training may be desirable. The provision of the means for such training rests with the War Pensions Statutory Committee in London, but information bearing upon such matters should be placed at the disposal of the Local Committee concerned, and Officers i/c Hospitals should assist with advice or in any way that lies within their power.

5. In order that Local Committees may be able to make themselves fully acquainted with the needs of men whom it is proposed to invalid, the fullest facilities will be given to duly accredited representatives of these Committees to visit and confer with the hospital authorities and the men concerned.

6. As soon as the soldier has been approved for invaliding from the Army, the Officer i/c the Hospital will forward to the Secretary of the Local Committee of the district in which the man proposes to reside a card (A.F. W. 3555), giving full particulars with regard to the man, his disability, and of the treatment recommended for him. This card will be sent by the Local Committee receiving it to the Officer i/c the Hospital in which the man is to receive out-patient treatment, who will return it to the Committee with a note on it when the treatment is completed. A copy of the card given to the man at the time of his discharge will remain in his possession.

7. It will be necessary to give the widest possible publicity to the facilities thus to be afforded to discharged soldiers, and to this end a poster has been issued by the War Pensions Statutory Committee, copies of which should be displayed in a prominent position in each ward and in any other convenient and conspicuous position in the hospital.

The lists of Local Committees therein referred to will be supplied by the War Pensions Statutory Committee, 2, Abingdon Street, S.W.

8. An initial distribution of the posters and cards referred to in this Instruction will be made as soon as supplies are available to all Central Hospitals, and further supplies of the latter should be demanded in the usual manner. Further copies of the poster will be supplied on application to the War Pensions Statutory Committee.

9. The D.D.M.S. of the Command will furnish to the Statutory Committee and to the Local Committee lists of the military hospitals which will serve the various districts concerned; also a list of Special Hospitals in the Command, stating the nature of the special treatment afforded in each.

10. The details connected with the attendance of men for further treatment will be arranged locally by Officers i/c Hospitals in consultation with the Secretaries of the Local Committees.

24/Gen. No./5471 (A.M.D. 2).

INSURANCE.

INSURANCE COMMITTEES.

LONDON.

Supply of Glycerine and Syrups.—At the meeting of the London Insurance Committee on March 22nd the Economy Committee was requested to take further measures to prohibit the use of glycerine for therapeutic purposes and to limit as far as possible the use of syrups as flavouring agents, and the Panel Committee was asked to give its support and to urge upon practitioners the need for economy in these respects. A recommendation that if a chemist was unable to dispense glycerine when required for an insurance prescription he should delete this item from the prescription and inform the prescriber accordingly was lost. It was stated that it was quite possible that in the near future certain chemists would be without any stock of glycerine whatever.

Payments to Panel Practitioners.—It was agreed that payment be made in respect to the quarter ending June 30th at the rate of 1s. 3d. per insured person in two instalments of 8d. and 7d.

Administrative Expenses of Pharmaceutical and Panel Committees.—A letter was read from the National Insurance Audit Department withdrawing the recent report of the auditor, who had decided that the sum allotted to the Pharmaceutical and Panel Committees for administration expenses should be on the basis of 1d. in all in respect of each insured person instead of 1d. a year. The Committee, however, stated that, while this was satisfactory so far as it went, the wording of the statute was ambiguous, and accordingly a recommendation was carried asking the Panel and Pharmaceutical Committees to undertake to indemnify the Insurance Committee in respect of payments above the sum mentioned should it be held in any legal proceedings that such payments were not within the competence of the Committee.

Sanatorium Benefit.—It was agreed that the deputation to wait upon the Chairman of the Joint Committee of Insurance Commissioners and the Local Government Board on the subject of the treatment of tuberculous persons should consist of the chairman and vice-chairman of the Committee, the chairmen of the Finance and Sanatorium Benefit Subcommittees, and one other. A motion that the deputation should consist of the special subcommittee on sanatorium benefit (which includes some members opposed to the report presented and adopted at the last meeting) was withdrawn.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE

THE following appointments are announced by the Admiralty: Fleet Surgeons C. R. Rickard to the *Maidstone*, vice O'Malley; M. H. Knapp to the *Inflexible*, vice Cridland; C. C. Macmillan, M.B., D.S.O., to the *Blake*, vice Knapp. Surgeon E. C. Holton to the *Halcyon*. Temporary Surgeon N. V. Williams, M.B., to the *Vivid*, additional. M. Neilson, M.B., to the *Vivid*.

Fleet Surgeon H. B. Beatty has been placed on the retired list with the rank of Deputy Surgeon-General, and not of that of Surgeon-General, as stated last week.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationer: L. Mosses.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant Colonel James G. Gill to be acting Colonel whilst employed as Deputy Director of Medical Services of a Division.

Major Sir J. Bland-Sutton, F.R.C.S., R.A.M.C.(T.F.), to be temporary honorary Lieutenant-Colonel.

To be acting Lieutenant-Colonels: Major F. E. Roberts, D.S.O., whilst commanding a stationary hospital, Major E. F. Q. L'Estrange whilst commanding a field ambulance.

Colonel J. Turton, F.R.C.S. (T.F.Res.A.M.S.) to be temporary Major.

Captain E. W. H. Groves, M.D., R.A.M.C. (R.A.M.C T.F.), to be temporary Major.

The notifications regarding the following in the *London Gazette* of January 22nd and February 15th and 22nd, 1917, respectively, are cancelled: Temporary Captain J. S. Hall, M.B., temporary Lieutenants T. C. Bowie and G. C. Robinson.

Temporary Captains relinquish their commissions: J. W. Hutton, S. A. Montgomery, M.B., A. C. Turner, R. A. Hughes, M.D., G. J. W. Keigwin.

Temporary Lieutenants to be temporary Captains: T. Mulcahy, J. M. N. Paton, M.B., W. A. Berry, M.D., W. S. Melville, M.B., A. T. Gibb, M.B., E. H. Cameron, M.B., F.R.C.S.E., H. V. A. Gatchell, G. Macdonald, M.B., J. E. S. Sheppard-Jones, A. S. Burgess, M.B., R. P. Smith, M.B., W. M. McLaren, M.B., A. D. Morris, C. K. Carroll, C. B. Tudehope, M.B., A. Sandison, M.B., D. P. Thomas, A. G. Alexander, M.D., W. G. Harnett, M.D., A. J. Chillingworth, H. M. Harrison, R. A. Quinn, M.B., J. I. Enright, M.B., J. G. T. Thomas, B. S. Simmonds, M.B., D. S. Graham, A. A. E. Newth, M.B., J. R. Wylie, M.B., H. W.

Harding, M.D., G. C. B. Hawes, C. W. Morrison, M.B., J. S. Annandale, M.B., A. Morgan, J. T. H. Madill, M.B., N. J. Judah, M.B., J. B. Yelf, J. F. MacKenzie, M.B., J. E. Manlove, C. O'Malley, M.B., C. Townshend, M.D., J. B. Galligan, M.B., D. T. Evans, M.B., J. G. Lee, M.B., P. A. McCallum, M.B., W. Scot, E. Nuttall. J. Cathcart, M.B., W. G. Thomas, E. B. Morley, M.B., G. L. Lawlor, J. B. Fairclough, P. C. Conran, R. E. McLaren, M.D., S. R. Prall, E. C. Lindsey, W. Thomas, E. J. Dermott, D. C. Suttie, M.C., M.B.

To be temporary Captains: W. A. Brown, M.B., J. A. Glover, M.D. (late temporary Captain), F. W. Jackson, A. T. Wysard (Staff Surgeon R.N. retired), M. McK. McRae, M.B.

H. Maclean, M.D., to be temporary honorary Captain.

Temporary Lieutenants relinquish their commissions: W. Butement, M.B., E. G. Barker, D. H. Foley, E. Reavley, M.D., F. D. Crew, M.B., G. W. Young, M.D., H. Hannigan, M.B., H. T. Finlayson, M.B., C. H. F. Bailey, R. N. Hartley, W. J. Porteous, M.B., A. J. D. Rowan, M.B., T. R. Davey, E. K. Williams, J. Watt.

To be temporary Lieutenants: R. McCaffrey, M.B., A. B. Jones, M.B., A. R. Leggate, M.B., B. P. Hynes, M.B., A. L. Candler, M.B., F.R.C.S., F. J. Lawson, M.B., L. J. Spence, M.B., J. Acomb, M.B., T. Howell, F.R.C.S.E., F. W. Hartley, S. Upton, M.B., R. J. Dick, M.D., W. H. Bennett, W. H. Orton, M.B., P. J. Montgomery, M.B., W. L. Tindle, M.B., T. A. Jones, A. V. Boyall, G. B. Messenger, J. G. Bogle, M.B., J. S. Clark, M.B., F. W. Chesnaye, S. Blake, T. Crawford, L. C. Rivett, F.R.C.S., A. Densham, M.B., F. J. Waldmeier, J. M. Shaw, M.B., R. Young, M.B., A. W. Laing, M.B.

Temporary Lieutenant C. J. B. Pasley, from general list, to be temporary Lieutenant, June 15th, 1916 (substituted for notification in the *London Gazette* of July 4th, 1916).

Temporary Lieutenant W. Leslie, M.B., relinquishes his commission on account of ill health.

W. R. Rowlands to be temporary honorary Lieutenant whilst employed with the British Red Cross Hospital, Netley.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: H. Chadwick, M.B., T. O'Mahony, M.B., G. G. Drummond.

To be Lieutenant: W. F. Mason, from Leeds University Contingent O.T.C.

Lieutenant (on probation) D. Stewart is confirmed in his rank.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Captain (temporary Major) W. D. Watson to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Captain (temporary Major) C. Corfield relinquishes his temporary rank on alteration in posting.

Captain L. A. Celestin to be Captain.

Lieutenant C. Jephcott, M.B., to be Captain.

Lieutenant A. H. T. Andrew to be Captain, April 24th, 1915 (substituted for notification in the *London Gazette* of October 9th 1915).

Lieutenant P. W. G. Sargent, M.B., F.R.C.S., is seconded whilst holding a temporary commission in the R.A.M.C.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BIRMINGHAM EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £300 per annum.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £300 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—House-Surgeon. Salary, £200 per annum.

BLACKPOOL: VICTORIA HOSPITAL.—House-Surgeon. Salary, £250 per annum.

BRISTOL ROYAL INFIRMARY. (1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

BURY ST. EDMUNDS: SUFFOLK HOSPITAL, Ampton Hill.—Resident Medical Officer. Salary, £400 per annum.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer (female). Salary, £200 per annum.

DERBYSHIRE COUNTY COUNCIL.—Assistant Medical Officer at the Derbyshire Sanatorium for Tuberculosis, Walton Lane. Salary, £300 per annum.

EDINBURGH: ROYAL ASYLUM, Morningside. Assistant Physician (temporary). Salary, £365 per annum.

GENERAL LYING-IN HOSPITAL, York Road, S.E.—Resident Medical Officer. Salary, £100 per annum.

GLAMORGAN COUNTY ASYLUM, Bridgend. Temporary Assistant Medical Officer. Salary, £6 6s. per week.

GUY'S HOSPITAL, S.E.—Medical Woman as Clinical Assistant in the Venereal Department. Honorarium, 1 guinea per session of two and a half hours

HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill, N.W.—Casualty Officer for Out-patients' Department. Salary, £150 per annum.

HARROGATE INFIRMARY.—Resident House-Surgeon.

HEMEL HEMPSTEAD: WEST HERTS HOSPITAL.—Lady Resident Medical Officer.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House-Physician. Honorarium, 30 guineas for six months.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Second Lady Resident Medical Officer. Salary, £200 per annum.

MANCHESTER CORPORATION. Assistant Tuberculosis Officer. Salary, £350 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £150 per annum.

MANCHESTER UNION.—Locum Assistant Resident Officer at the Crumpsall Infirmary. Salary, £8 8s. per week.

NEWCASTLE-UPON-TYNE EDUCATION COMMITTEE. Assistant School Medical Officer. Salary, £300 per annum, rising to £350.

NORTHAMPTON GENERAL HOSPITAL.—Three House-Surgeons. Salary, £150 per annum.

PECKHAM HOUSE ASYLUM, S.E.—Medical Officer.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) House-Physician; (2) Casualty House-Surgeon; (3) House-Surgeon; (4) Temporary Anaesthetist. Salary for (1), (2), and (3), £100 per annum each

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—House-Surgeon.

ROCHDALE INFIRMARY.—Second House-Surgeon. Salary, £150 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—(1) Two House-Physicians, (2) Two House-Surgeons, (3) Senior Obstetric Assistant, (4) Junior Obstetric Assistant, (5) Assistant Anaesthetist. Salary for (1) and (2), £50; (3) £153; (4) £62; and (5) £93 per annum.

SHEFFIELD: ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

STOKE-ON-TRENT COUNTY BOROUGH.—Temporary Tuberculosis Officer. Salary, £500 per annum.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House-Surgeon. Salary, £120 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Lydd (Kent), Robertsbridge (Sussex).

MEDICAL REFEREE.—Vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of The Lothians and Peebles, to be attached more particularly to the County of Midlothian. Applications to the Under Secretary, Scottish Office, by April 15th.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

DIGHTON, A. Adair, L.R.C.P., L.R.C.S., Medical Ref Prudential Assurance Company, for Cheltenham.

POOLER, H. W., M.B., Ch.B., Medical Officer to Clay Cross, Grassmoor, Shirland, Somercoates, and Stonebroom Infant Welfare Centres, Derbyshire Education Committee, and District Medical Officer of the Chesterfield Union.

VANIA, S. D., L.R.C.P. and S.Edin., L.R.F.P.S.Glasg., House-Surgeon to the Royal Infirmary, Doncaster.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTH.

WISE.—On March 27th, at 31, George Street, Portman Square, W.1, to Dr. and Mrs. Howard Wise, a son.

MARRIAGE.

EASTON—WHITE.—On the 22nd inst., at Wirksworth Parish Church, William Cochrane Cairnie Easton, Captain R.A.M.C., son of the late George Easton, of Ayrshire, to Lilian Dorothy, third daughter of J. H. and Mrs. White, of Alderwasley, Derbyshire.

DEATHS.

DARLING.—At The Hawthorns, 13, Merchiston Place, Edinburgh, on the 20th inst., Elizabeth Dunlop, wife of T. Brown Darling, M.D., and daughter of the late George Barclay, Hunter Square, Edinburgh.

MACKENZIE.—On March 21st, at Marton Lodge, Pontefract, Dudley Mackenzie, beloved husband of Constance Mackenzie, aged 37 years.

OMMANNEY.—On Friday, March 16th, 1917, Captain F. M. M. Ommanney, R.A.M.C.(retired), dearly loved son of the late Colonel Edward Lacon Ommanney, C.S.I., and of Mrs. Ommanney, of Blackheath, aged 38. Requiescat in Pace.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—8.30 p.m. Discussion: The Treatment of Arterio-venous Aneurysm, to be opened by Colonel C. J. Symonds, C.B., R.A.M.C., M.S., F.R.C.S., and Major R. H. Jocelyn Swan, R.A.M.C.

TUESDAY.

RÖNTGEN SOCIETY. Cancer Hospital, Fulham Road, S.W.—8.15 p.m., Discussion on the Future of the British X-ray Industry.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		APRIL.
3	Tues.	London: Central Ethical Standing Subcommittee, 2.30 p.m. Bucks Division, Red Lion Hotel, High Wycombe. Lunch, 1.30 p.m.; Meeting, 2.15 p.m.
4	Wed.	London: Journal Committee, 2 p.m.
18	Wed.	London: Finance Committee, 2 p.m.
25	Wed.	London: Council Meeting.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, APRIL 7TH, 1917.

CONTENTS.

	PAGE
BRITISH MEDICAL ASSOCIATION:	
CURRENT NOTES: MEDICAL OUT-PATIENT TREATMENT OF DISCHARGED SOLDIERS	61
ASSOCIATION NOTICES	61
NAVAL AND MILITARY APPOINTMENTS	61
INSURANCE:	
LONDON PANEL COMMITTEE	61
VACANCIES AND APPOINTMENTS	62
BIRTHS, MARRIAGES, AND DEATHS	62
DIARY	62

British Medical Association.

CURRENT NOTES.

MEDICAL OUT-PATIENT TREATMENT OF DISCHARGED SOLDIERS.

THE following was addressed to the Minister of Pensions on March 30th:

Sir,—It is understood by the British Medical Association that the provision of medical out-patient treatment of discharged soldiers now rests with local War Pensions, etc., Committees.

In these circumstances the Association desires to draw attention to the fact that as at present constituted it is a pure accident if such committees contain members of the medical profession, no provision apparently having been made in the constitution of these committees for the appointment of medical members. Now that these committees have been entrusted with the important and technical work of looking after the out-patient treatment of discharged soldiers, and having regard to the desire of all concerned that all possible action should be taken to ensure the best assistance being forthcoming for these soldiers, the Association urges that immediate steps be taken to remedy the absence of medical representation on Local Pensions, etc., Committees.

If it would be of any assistance to the Central Statutory Pensions Committee, in arranging for representatives of the local medical profession being appointed upon the various Local Pensions Committees throughout the country, the Association would be pleased to place at your disposal the machinery of the Divisions and Branches of the Association in securing nominations from the local profession of medical practitioners for appointment upon local Pensions Committees.—I am, yours faithfully,

JAMES NEAL,
Deputy Medical Secretary.
British Medical Association.

The reply received is as follows:

Ministry of Pensions.

Sir,—Mr. Barnes wishes me to acknowledge receipt of your letter of the 30th instant respecting medical out-patient treatment of discharged soldiers, and to say he fully agrees with you as to the importance of having representatives of the medical profession on local War Pension Committees.

The Minister has accordingly directed me to forward your communication to the Statutory Committee for such action as it may be possible to take under present instructions.

I am, yours faithfully,
(Signed) HERBERT EVANS,
Private Secretary.

The Secretary, British Medical Association.

Association Notices.

SUGGESTED CHANGES OF BOUNDARIES.

Proposed Dewsbury Division.

NOTICE is hereby given to all concerned of a proposal made by the Leeds Division for formation of a Dewsbury Division of the Yorkshire Branch, of area as follows: Dewsbury county borough, Batley municipal borough, and Mirfield urban district. Written notice of the proposal has been given to the Yorkshire Branch, and the matter will be determined in due course by or on behalf of the Council. Any member affected by the proposed change and objecting thereto is requested to notify the fact, and his or her reason therefor, to the Medical Secretary, British Medical Association, 429, Strand, W.C.2, not later than May 7th, 1917.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

Conditions of Insurance Service.—At the meeting of the Panel Committee on March 27th a long memorandum upon modifications and extensions of the medical and sanatorium benefits, in reply to circulars D 8 and D 9 recently issued by the British Medical Association, was considered. A statement in the memorandum that the relationship between practitioners and insured patients was satisfactory was challenged by some members, but was left as it stood. The memorandum further stated that, speaking generally, the great majority of practitioners found the conditions of service much more satisfactory than under the old club system; the overwhelming majority would prefer the present system to a whole-time salaried service; and the benefits of the Insurance Act, in the opinion of the subcommittee, should be extended to provide all medical, surgical, and special services which the condition of the insured person might demand. These would include the provision of a consultant service; facilities for the use of certain special services, such as anaesthetics, major operations, and radiography; and the extension of the scope of medical benefit to include professional attendance at the confinement of insured women. Provision should also be made for the dependants of insured persons. Among other matters dealt with were the uniform limitation of lists (it was not thought advisable to attempt to secure this at present); the separation of prescribing and dispensing (which was thought to be to the general advantage in great urban areas); and the method of remuneration (as to which an unhesitating expression of opinion was given in favour of the capitation basis). The memorandum was accepted as a provisional statement of general policy, and it was agreed to circularize it among practitioners on the panel, and to ask for criticisms.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeon J. D. Hughes to Devonport Dockyard; W. R. Tyrrhall to the *Temeraire*; A. R. Schofield, M.B., to the *President*, additional, for service at the Admiralty; Staff Surgeon G. T. Verry, to the *Southampton*. Temporary Surgeons: W. E. Boyd, M.B., to the *Vivid*; G. Lillico, M.B., to the *Doris*, vice Melrose; J. F. Pace, M.B., to the *Otway*, vice Bastard; G. F. Jones, M.B., to the *Rinaldo*, vice Bennett; B. W. Dakers, to the *Pembroke*, additional; H. S. Brown, M.D., to Royal Military Dépôt, Deal; E. H. Hugo, M.B., to the *Gibraltar*; A. R. Upton, to the *President*, additional, for Chatham Hospital; S. N. Scott, to the *Minotaur*; W. F. W. Betenson, M.B., to the *Victory*, additional, for Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: D. R. Learoyd, U. J. Gareau, N. R Beattie, G. H. Weeber.

ARMY MEDICAL SERVICE.

Colonel H. A. Bruce, Canadian A.M.C., to be temporary Colonel.

ROYAL ARMY MEDICAL CORPS.

To be acting Lieutenant-Colonels whilst commanding a field ambulance: Major J. Powell, Captains (acting Majors) P. G. M. Elvery, M.C., G. F. Rudkin, D.S.O., C. L. Franklin, M.D., A. D. O'Carroll, M.B., G. H. Stevenson, M.B., P. S. Tomlinson, B. Johnson, M.B., E. M. Middleton, temporary Captain (acting Major) C. V. Bulstrode.

Majors relinquish the acting rank of Lieutenant-Colonel on reposting: J. Fairbairn, R. P. Lewis.

A. J. J. Johnston, Surgeon-General R.N. (ret.) to be temporary Lieutenant-Colonel.

The following are granted temporary honorary rank whilst serving with No 22 General Hospital. As Lieutenant-Colonel: H. Cabot. As Majors: G. C. Shattuck, E. G. Crabtree. As Captain: E. S. Bridges. As Lieutenants: E D. Busby, E. S. Welles, F. B. Grinnell, E S Fish.

Temporary Captain J. D. Gimlette relinquishes the rank of temporary Major on reposting.

Temporary Captain W. V. Robinson to be temporary Major whilst commanding troops on a hospital ship.

Temporary Captain C. G. G Keane to be Lieutenant, and to be granted the rank of temporary Captain with seniority below J. H. Boag.

The name of temporary Captain Gregor MacKenzie Miller, M.C., M.B, is as now described and not as in the *London Gazette* of October 29th, 1915, and October 25th, 1916.

Temporary Captains relinquish their commissions: D. Lawrie, M.B, T. J. S. Moffett, M.D, T C. Bowie, M.D., G. C. Robinson.

Temporary Lieutenants to be temporary Captains: E. H. Wheeler, F. G Thomson, M D.

To be temporary Captains: F. S. B. Fletcher, M.B., S. G. Billington, M.B., F.R.C.S.E., H. S. Berry, G. B. Flux, M.D., B. N. Murphy, M.C., late Captain R.A.M.C.

Temporary Lieutenants relinquish their commissions: D. C. Wilson, M.D., C B. Richardson, W. J. Greehy.

Temporary honorary Lieutenant W. H. Thomas, F.R.C.S.E, having ceased to be employed with the British Red Cross Society in France, relinquishes his commission.

To be temporary Lieutenants: R. G. Maglione, R. Appleton, M.D., S. W. Milner, J. E. Mitchell, M.D., J. B. Wilkie, M.B., F.R.C.S.E., G. McNeill, M.B., H. C. Quirke, T. McFetridge, M.B., W. L. G. Anderson, M.B., H. C. W. Wood, W. G. Attenborough, M.B., A. G. Stewart, M.B., R. B. Fletcher, M.D., J. G. B. Smith, E. A. Price, N Glegg, M.D., W. H. Miller, M.D., F.R.C.S., C. P. A. Stranaghan, M.B., P. Murphy, M.B., R. J. Croxford, A. E. Baron, E. C. Tamplin, F. Jubb, Temporary honorary Lieutenant T. B. Johnston, M.B., A. M. Caverhill, M.D, L. N. Morris, M.B., C. H. Wagner, M.B., T. B. Davies, M.D., F.R.C.S., H. L. Blackley, M.D., A. Armer, M.D., J. B. McDougall, M.B., D. S. Clarke, J. B. Ball, N. S. Lucas, M.B., D. Young, M B., A. A. Wilkinson, M.B., H E. Graham, M.B., R. A. Campbell, M.D., H. Bardsley, A. W. Hare, M.B., G. Nelson, D. W. Anderson, W. L. M. Day, M.D., E. Wragg, M.B.

INDIAN MEDICAL SERVICE.

Surgeon-General Sir C. P. Lukis, K.C.S.I., M.D., F.R.C.S., Director-General, to rank as Lieutenant-General, September 22nd (substituted for the notification in the *Gazette of India* of September 21st, 1916).

Major G. Tate, M.B, Civil Surgeon, Simla (East), officiated as Civil Surgeon, Simla (West), in addition to his other duties, during the absence on privilege leave for one month of Lieutenant-Colonel Sir James Roberts, Kt, C.I.E., M B., F.R.C S.

Lieutenant-Colonel W. D. Sutherland, M.D., has been confirmed in the appointment of Imperial Serologist with effect from March 1st, 1916.

The services of the following officers have been placed permanently at the disposal of the Bombay Government for civil employment with effect from the dates noted against their names; their services will remain temporarily at the disposal of His Excellency the Commander-in-Chief in India: Captain K G. Gharpurey, I.M.S., October 24th, 1916; Captain H. S Hutchison, I.M.S., October 26th, 1916.

Majors to be Lieutenant Colonels, January 28th: C. A. Lane, M.D., T. R. Kelly, F.R C.S.E., C. H. Watson, E. F. E. Baines, G. O. F. Sealy, F.R.C.S., J. G. P. Murray, M.D., F.R.C.S.E., S. Anderson, M.B. (Brevet Lieutenant-Colonel), F. H G. Hutchinson, M.B., J. L. Marjoribanks, M.D., A. Fenton, M.B., R. W. Knox, D S.O., M.B., F.R.C.S.E.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

To be Lieutenant: A. H. Mitchell from Aberdeen University Contingent O.T.C.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Captains to be temporary Majors: L. J. Rhea, N. B. Gwyn, C. Wollard, S. R. Harrison.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Major H. A. Howes to be Deputy-Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Major A. W. French relinquishes his temporary rank on ceasing to command a field ambulance.

Majors P. R. Ash and E. C. M. Foster and Captain W. V. Wood relinquish their acting rank on ceasing to command a field ambulance.

Lieutenants to be temporary Captains whilst serving with the Medical Unit of the University of London Contingent, Senior Division, O.T.C.: J. H. Ryffel, W. Wright.

Captain A. J W. Stephens, M.B., from Northern General Hospital, to be Captain.

Lieutenants to be Captains: H. England, J. Fraser, M.B., H. W. Beedham, M.B., P. G. Phillips.

To be Lieutenant: G. Bryce.

Attached to Units other than Medical Units.—Captain F. W. A. Stott, M.B, relinquishes his commission on account of ill health.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

ALL SAINTS' HOSPITAL FOR GENITO-URINARY DISEASES, Vauxhall Bridge Road, S.W.—Clinical Assistant.

BLACKPOOL: VICTORIA HOSPITAL.—House-Surgeon. Salary, £250 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £230 per annum.

BOOTLE BOROUGH HOSPITAL.—Junior House-Surgeon. Salary, £170 per annum.

BOURNEMOUTH: CRAG HEAD (MILITARY) HOSPITAL, Manor Road.—House-Surgeon. Salary, £200 per annum.

BRIGHTON: ROYAL SUSSEX COUNTY HOSPITAL.—(1) House-Physician; (2) Junior House-Surgeon. Salary, £80 per annum and war bonuses at the rate of £100 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House Physician; (2) House-Surgeon. Salary, £120 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer (female). Salary, £200 per annum.

CUMBERLAND COUNTY COUNCIL.—Lady Assistant Medical Officer. Salary, £350 per annum.

DERBYSHIRE COUNTY COUNCIL.—Assistant Medical Officer at the Derbyshire Sanatorium for Tuberculosis, Walton Lane. Salary, £300 per annum.

EAST LONDON HOSPITAL FOR CHILDREN, Shadwell, E.—Assistant Resident Medical Officer. Salary, £125 per annum.

HEMEL HEMPSTEAD: WEST HERTS HOSPITAL.—Lady Resident Medical Officer.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Second Lady Resident Medical Officer. Salary, £200 per annum.

LIVERPOOL UNIVERSITY.—Lectureship in Ophthalmology.

LONDON COUNTY COUNCIL.—Assistant Organizers of Children's Care Work. Salary on permanent staff, £100 per annum, rising to £130; temporary, £2 per week, together with war wages of 5s. a week each.

MANCHESTER: ANCOATS HOSPITAL.—House-Physician. Salary, £150 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £150 per annum.

MERIONETH COUNTY COUNCIL, Portmadoc.—Medical Officer of Health. Salary, £500 per annum.

NEWCASTLE-UPON-TYNE EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £300 per annum, rising to £350.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) House-Physician; (2) Casualty Surgeon; (3) House-Surgeon. Salary at the rate of £100 per annum

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—House Surgeon.

ROTHERHAM HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

SHEFFIELD: ROYAL INFIRMARY.—House-Physician. Salary £120 per annum.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House-Surgeon. Salary, £120 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Brynamman (Carmarthen).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

KEMP, C., M.B., C.M.Aberd., Certifying Factory Surgeon to the Morriston District, co. Glamorgan, and Medical Officer and Public Vaccinator for the No. 4 District of the Swansea Union.

KIRK, T J., M.B., Ch.B.Glasg., District Medical Officer of the Stockton Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

DIAMOND WEDDING.

GREENWOOD—SNEWIN.—On April 3rd, 1857, at St. John-at-Hackney, N.E., James Greenwood, Esq., M.D., younger son of George Greenwood, Esq., of Bethnal Green, E., to Emily Sarah, elder daughter of Richard Snewin, Esq., Upper Clapton, N.E.

DEATHS.

HUGILL.—Reported missing October 16th, 1916, now reported killed in action, Valentine Francis Herbert Hugill, aged 22 years, Dispatch Rider attached R.E., Second Lieutenant 16th Royal Fusiliers, attached R.F.C., beloved and only son of Dr. G. F. Hugill, "Elmfield," 197, Balham High Road, S.W.

MACKENZIE BOOTH.—At 1, Carden Place, Aberdeen, on the 29th March, Margaret Mackenzie Shaw, the beloved wife of James Mackenzie Booth, C.M., M.D., Aural Surgeon.

DIARY FOR THE WEEK.

TUESDAY.

SOCIETY FOR THE STUDY OF INEBRIETY, 11, Chandos Street, W.—4 p.m., Discussion on the Instruction of the Public in the Importance of the Prevention and Arrest of Alcoholism, to be opened by Dr. R. Murray Leslie.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	APRIL.
11 Wed.	London: Central Medical War Committee, 11 a.m.
18 Wed.	London: Finance Committee, 2.30 p.m.
25 Wed.	London: Council Meeting, 11 a.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, APRIL 14TH, 1917.

CONTENTS.

	PAGE
BRITISH MEDICAL ASSOCIATION:	
CURRENT NOTES: MEDICAL EXAMINATION OF WOMEN SEEKING EMPLOYMENT IN MUNITION WORKS	63
MEETINGS OF BRANCHES AND DIVISIONS—EDINBURGH BRANCH: EDINBURGH AND LEITH DIVISION	63
ASSOCIATION NOTICES	63
NAVAL AND MILITARY APPOINTMENTS	63
VACANCIES AND APPOINTMENTS	64
BIRTHS, MARRIAGES, AND DEATHS	64
DIARY FOR THE WEEK	64
DIARY OF THE ASSOCIATION	64

British Medical Association.

CURRENT NOTES.

MEDICAL EXAMINATION OF WOMEN SEEKING EMPLOYMENT IN MUNITION WORKS.

As reported in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL of March 3rd, 1917, p. 41, the Medico-Political Committee made representations to the Ministry of Munitions with regard to the inadequacy of the fee of 2s. 6d. usually paid for the medical examination of women seeking employment in munition areas, and pointed out that such a fee is in no way commensurate to the amount of work and responsibility the examination entailed. The following reply has now been received:

April 4th, 1917.

Dear Sir,—In reference to your letter to the Director-General of Munitions Supply of the 13th February, 1917, as you have been already informed, this communication was forwarded to the Ministry of Labour for consideration. I now wish you to assure the Association that the fee to which you object was fixed after consultation with the Medical Advisers to the Ministry, and to state further that no difficulty has been experienced in obtaining the desired medical services on these terms.—Yours faithfully,

(Signed) EDGAR L. COLLINS,
Chief Director.

Meetings of Branches and Divisions.

EDINBURGH BRANCH:

EDINBURGH AND LEITH DIVISION.

A MEETING of the Division was held on April 4th, when Dr. W. STEWART, Chairman of the Division, presided.

Income Tax.—It was reported that a doctor in the area had been put to much annoyance by the assessor as to estimating book debts, but his request to be assessed by the Commissioners having been acceded to the matter was at an end.

Fees.—A letter from the Scottish Secretary was read with reference to the increasing of fees. The CHAIRMAN reported that the Leith practitioners had agreed to raise the ordinary fee for working classes from 2s. 6d. to 3s. Expressions of opinion and experience in this matter were given by Edinburgh practitioners. The general feeling was that the matter should be left to the discretion of each practitioner, but that an increase could be made and easily obtained in many cases. A charge for signing certificates was advocated.

Visits and Consultations.—An advertisement in the newspapers was agreed to on "Doctors, shortage and pressure" with regard to messages being sent before 9.30 a.m., and that visits out of ordinary rounds would be charged extra.

Maternity Service and Child Welfare Scheme.—The CHAIRMAN reported, after interviews with the Public Health Committee, it was found that the Leith practitioners could not at present undertake the work, and a full-time lady medical officer had been appointed at a salary of £300 under the Town Council. The Edinburgh Royal Maternity has a branch in Leith. The modified Edinburgh scheme was explained shortly by the SENIOR SECRETARY. The Corporation decided to give grants to certain charitable institutions at present doing work akin to that required by the scheme and now to be carried out on a systematic basis. Considerable discussion followed on the grant given for medical services. The following motion was carried by 17 votes to 1 for the previous question:

> That any medical man accepting a post under the Maternity and Child Welfare Scheme should receive such remuneration as will be considered adequate by the Association.

It was agreed to send this motion to the Town Clerk. A committee, consisting of Drs. M. Dewar, R. Robertson, J. S. Fraser, Oliphant Nicholson, and Shoolbread were appointed to consider the matter and report to an early meeting of the Division.

Venereal Diseases Scheme.—The SENIOR SECRETARY reported an interview with the M.O.H., who stated that the scheme was not yet in preparation. The Association of Medical Officers of Health had met and found some points in the memorandum of the Local Government Board (Scotland) that required elucidation.

Association Notices.

MEETING OF COUNCIL.

THE next Meeting of Council will be held on Wednesday, April 25th, in the Council Room, 429, Strand, London, W.C., at 11 a.m.

By order.

GUY ELLISTON,
Financial Secretary and Business Manager.

March 29th, 1917.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are notified by the Admiralty: Fleet Surgeons J. O'Hea to the *Neptune*, R. R. Horley to the *Duke of Edinburgh*, K. H. Jones, M.B., to the *Royal Arthur*, S. H. Woods, M.B., to the *Cyclops*, J. G. Wallis, M.B., to the *Zealandia*, A. Woollcombe to the *Pembroke*. Staff Surgeons G. Nunn to the *Pembroke*, B. B. Horsfall re-entered on emergency list; T. A. Smyth to the *Liverpool*. Temporary Surgeons G. W. Carte, M.B., to the *Albemarle*, H. P. Margetts to the *Victory*, N. S. Hewitt to Plymouth Hospital, R. W. Townley and J. L. Pringle, M.B., to the *Pembroke*.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: A. W. Fawcett, A. H. Harkins.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

The name of temporary Colonel Percy William George Sargent, D.S.O., M.B., F.R.C.S. (Lieutenant R.A.M.C., T.F.) is as now described, and not as in the *London Gazette* of November 18th, 1914, March 20th, and August 24th, 1915, and August 24th, 1916.

Temporary Major A. G. P. Gipps, F.R.C.S., relinquishes the rank of temporary Lieutenant-Colonel on reposting.

Temporary Major A. E. Webb-Johnson, D.S.O., M.B., F.R.C.S., to be acting Lieutenant-Colonel whilst commanding a general hospital.

Major S. A. Smith, D.S.O., C.A.M.C., to be temporary Major.

Temporary Captain W. P. Yetts to be temporary Major.

E. C. Stabb, F.R.C.S., to be temporary Major whilst employed at the Manor (County of London) War Hospital.

T. G. Moorhead, M.D., to be temporary honorary Major.

Temporary Lieutenant W. J. May, M.B., relinquishes his commission.

H. McLean to be temporary Lieutenant

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain W. J. Reid, M.B., relinquishes his commission.

Lieutenants to be Captains: D. R. Hennessy, J. A. C. Kidd, M.B., S. J. V. Furlong, M.B., J. Y. McLean, D. Roger, M.B.

J. R. John, from University of London Contingent O.T.C., to be Lieutenant.

INDIAN MEDICAL SERVICE.

Lieutenants to be Captains, March 31st: G. H. Mahoney, M.B., G. Covell, M.B., W. R. Stewart, M.B., K. R. Rao, J. G. O. Moses, M.B., H. Chand, V. Mahadevan, A. C. L. O'S. Bilderbeck, M.B., J. W. Van-Reenen, M.B., B. F. Beatson, M. J. Roche, M.B., N. D. Puri, M.B., P. C. Roy, M.B., M. Das, J. B. Vaidya, J. M. R. Hennessy, A. G. Cowper, W. M. Lupton, H. H. Brown, C. H. N. Baker.

Captain N. N. G. C. McVean, M.B., is transferred to the permanent half-pay list subject to His Majesty's approval, with effect from January 19th, 1917.

Subject to His Majesty's approval, the following promotions have been made:—Captains to be Majors, February 1st: A. F. Hamilton, M.B., F.R.C.S., A. D. White, M.B., A. A. McNeight, M.B., N. M. Wilson, J. S. O'Neill, M.C., M.B., W. S. Nealor.

Subject to His Majesty's approval, Colonel G. W. P. Dennys, C.I.E., Bengal Supernumerary, and temporary Lieutenant K. K. Dadachanji, are permitted to retire from the service with effect from January 10th, and January 22nd, 1917, respectively.

The correct names of temporary Lieutenants Ramchandra Bhima Subramanyam and Abdul Hamid Butt are as now stated and not as published in Army Department Notifications No. 60 and 125, dated January 19th and February 2nd, 1917, respectively.

Temporary Lieutenants to temporary Captains: Kamberanda Kariapa Mandana, October 27th, 1916; Jehangir Kaikhusro Nariman, November 23rd, 1916.

OVERSEAS CONTINGENTS.

SOUTH AFRICAN MEDICAL CORPS.

Temporary Major P. S. Clark, M.B., to be temporary Lieutenant-Colonel without extra pay. To be temporary Majors: F. Pershouse, M.B., with seniority, January 27th, 1915; D. M. MacGregor, with seniority, August 15th, 1915. To be temporary Captains: A. Jassinowsky, M.B., with seniority, December 1st, 1914; J. A. Black, M.B., H. F. Collins.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Captain H. Pinto-Leite to be Deputy Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Major W. E. Miles, F.R.C.S., is restored to the establishment on vacating the appointment of Deputy Assistant Director of Medical Services.

Captain W. J. Deighan relinquishes his commission on account of ill health contracted on active service, and is granted the honorary rank of Captain.

Captain T. S. Allan to be temporary Major whilst in command of a military hospital.

Captains relinquish their commissions on account of ill health: A. J. Archibald, M.B., W. Lowe.

Lieutenants to be Captains: J. S. Cooper, J. B. Hogarth.

To be Lieutenant: A. G. Harrington.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BARROW-IN-FURNESS: NORTH LONSDALE HOSPITAL.—Second House-Surgeon. Salary, £250 per annum.

BATH: EASTERN DISPENSARY.—Resident Medical Officer. Salary, £140 per annum.

BOURNEMOUTH: CRAG HEAD (MILITARY) HOSPITAL, Manor Road.—House-Surgeon. Salary, £200 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician: (2) House-Surgeon. Salary, £120 per annum.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £160 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House-Surgeon. Salary, £200 per annum.

CHICHESTER: ROYAL WEST SUSSEX HOSPITAL.—House-Surgeon. Salary, £150 and war bonus of £50 per annum.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer (female). Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

HUDDERSFIELD: STORTHES HALL ASYLUM, Kirkburton.—Locumtenent. Salary, £7 7s. per week.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Second Lady Resident Medical Officer. Salary, £200 per annum.

LIVERPOOL PARISH.—Resident Assistant Medical Officer for the Brownlow Hill Institution. Salary, £300 per annum.

MAIDSTONE: WEST KENT GENERAL HOSPITAL.—Assistant House-Surgeon. Salary, £125 per annum.

MANCHESTER: ANCOATS HOSPITAL.—House-Physician. Salary, £150 per annum.

MANCHESTER COUNTY ASYLUM, Prestwich.—Locumtenent. Salary, £7 7s. per week.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £150 per annum.

MERIONETH COUNTY COUNCIL.—Medical Officer of Health. Salary, £500 per annum.

NETLEY: WELSH HOSPITAL.—Medical Officer. Salary, £400 per annum.

NORTHAMPTON GENERAL HOSPITAL.—House-Surgeons. Salary, £150 per annum each.

NOTTS EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £300 per annum.

PETERBOROUGH INFIRMARY.—House-Surgeon (male). Salary, £150 per annum for first six months, rising to £200.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—House-Surgeon.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) House-Physician; (2) Casualty House-Surgeon; (3) House-Surgeon. Salary, £100 per annum.

READING: ROYAL BERKSHIRE HOSPITAL.—Resident Clinical Assistant. Salary, £150 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Examiners: (1) In Anatomy and Physiology for the Fellowship; (2) Under the Conjoint Examining Board.

SHEFFIELD: ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SHROPSHIRE: SHIRLETT SANATORIUM.—Temporary Assistant Resident Medical Superintendent. Salary, £300 per annum.

STAFFORD: STAFFORDSHIRE GENERAL INFIRMARY.—House-Surgeon. Salary, £300 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House-Surgeon. Salary, £150 per annum.

WINCHESTER: ROYAL HAMPSHIRE COUNTY HOSPITAL.—Lady Assistant Resident Medical Officer. Salary, £250 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CLARKE, A. E., M.D.Lond., Certifying Factory Surgeon for the Rickmansworth District, co. Hertford.

DOBBIN, J. R., M.B., Ch.B.Edin., District Medical Officer of the Bury St. Edmund's Union.

HANRATTY, J. J., M.B., B.Ch.Belf., Resident Assistant Medical Officer of the Salford Union Infirmary.

JOHNSTON, J., M.D.Edin., Medical Superintendent to Townleys Military Hospital, Bolton.

NAISH, Mrs. Lucy, M.B.Lond., Lady Tutor in Anatomy, University of Sheffield, vice Miss Sophia Witts, M.D.Lond., resigned.

NIXEY, F. H., M.B., Ch.B., Assistant Medical Officer of the St. James's Infirmary of the Wandsworth Union.

SEAL, P. H., M.B., B.S.Lond., District Medical Officer of the Barnstaple Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTHS.

GWYNNE-MAITLAND.—On March 31st, at 27, Augustus Road, Edgbaston, to Dr. and Mrs. T. Gwynne-Maitland, a son.

PINSON.—On April 5th, 1917, at 242, Stockport Road, Cheadle, Cheshire, the wife of K. B. Pinson, M.B., M.R.C.S., of a daughter.

POWELL.—April 5th, 1917, at Belle Vue House, Cheltenham, the wife of Dr. Hugh Powell, of a son.

STARKEY-SMITH.—On April 7th, at The Manor House, Hungerford the wife of Gordon Starkey-Smith, M.D.Lond., of a daughter.

MARRIAGE.

CARSON—THOMAS.—The marriage of Captain Holden Carson, R.A.M.C., third son of Mr. Thomas Carson, of Larne, Ulster, to Miss Nesta E. Thomas, the younger daughter of Alderman Illtyd Thomas, J.P., of Ely, Cardiff, took place on Wednesday, April 4th, at Llandaff Cathedral, the Venerable Archdeacon Buckley, B.D., officiating.

DEATHS.

BARKER.—On April 5th, Henry Martyn Barker, M.D., of "Staincliff," Sandown, Isle of Wight.

WHARTON.—On April 7th, at Lyndale, Queen's Road, Oldham, Joseph Wharton, M.R.C.S.Eng., L.R.C.P.I., L.S.A., in his 75th year.

DIARY FOR THE WEEK.

TUESDAY.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester Square, W.C.—4.30 p.m., Cases. 5 p.m., Captain W. Griffith, R.A.M.C.: Skin Diseases as Military Disabilities.

THURSDAY.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Tichborne Street, Edgware Road, W.—8.30 p.m., Dr. P. J. Cammidge: Treatment of Diabetes by Alimentary Rest.

ROYAL SOCIETY OF MEDICINE.—*Section of Dermatology:* Thursday, 5 p.m., Major H. MacCormac: Skin Diseases as seen in War Conditions in France. *Section of Electro-Therapeutics:* Friday, 8.30 p.m., Dr. H. J. Gauvain: Heliotherapy and *X* rays in the Treatment of Surgical Tuberculosis.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		APRIL.
17	Tues.	London: Insurance Acts Committee, 2.30 p.m.
18	Wed.	London: Finance Committee, 2.30 p.m.
25	Wed.	London: Council Meeting, 11 a.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, APRIL 21ST, 1917.

CONTENTS.

	PAGE
BRITISH MEDICAL ASSOCIATION:	
CURRENT NOTES: THE NEW INSURANCE ADVISORY COMMITTEE	65
MEETINGS OF BRANCHES AND DIVISIONS	65
ASSOCIATION NOTICES: MEETING OF COUNCIL	65
NAVAL AND MILITARY APPOINTMENTS	6
VACANCIES AND APPOINTMENTS	66
BIRTHS, MARRIAGES, AND DEATHS	66
DIARY	66

British Medical Association.

CURRENT NOTES.

THE NEW INSURANCE ADVISORY COMMITTEE.

As already reported in the SUPPLEMENT of March 24th, 1917, the Association was asked to nominate one medical practitioner on the new Advisory Committee appointed by the Chairman of the Joint Committee of Insurance Commissioners. In doing so it expressed the opinion that the statutory Advisory Committee was bound under the National Insurance Act, 1911, to contain duly qualified medical *practitioners*, and that in view of the work of the Committee, which necessitated an expert knowledge of professional questions connected with National Insurance, it appeared to the Association that, on a committee of the suggested size, it was desirable that there should not be less than three medical representatives.

Sir Edwin Cornwall has expressed his willingness to confer with the representatives of the Association on this matter, and the Insurance Acts Committee at its meeting on April 17th has accepted the invitation, but in doing so has expressed the following opinions:

1. That the recently formed Advisory Committee is not a properly constituted statutory body, having regard to the wording of Section 53 of the 1911 Act, inasmuch as (*a*) the duty of the statutory Advisory Committee is the giving of advice and assistance to the Commissioners in connexion with the making and altering of all regulations under Part I of that Act, for which purpose it should be a properly balanced committee, capable of so advising and assisting, and (*b*) the Committee, as at present composed, is incapable of advising on regulations concerning medical benefit, which, as they are incorporated in every insurance practitioner's agreement, gravely affect those members of the profession.

2. That if the Advisory Committee be re-formed so as to make it a properly balanced statutory committee, the Association will be glad to nominate additional practitioners.

3. That the policy indicated by the setting up of the present Advisory Committee, if continued, is likely to do more to make the medical profession seriously consider the advisability of discontinuing service under the Acts than possibly any other action would do, inasmuch as it might be interpreted as an indication of the intention to increase the influence of the Approved Societies at the expense of the medical profession.

4. That if a properly constituted statutory Advisory Committee be set up, the medical members of which might or might not be consulted separately upon medical matters, there is no need for a separate medical Advisory Committee, either statutory or other.

Meetings of Branches and Divisions.

EDINBURGH BRANCH:
SOUTH-EASTERN COUNTIES DIVISION.

A MEETING of the Division was held at St. Boswells on March 22nd, when Dr. P. C. MCROBERT presided.

Resignation of Representative on Branch Council.—Letters were read from Dr. Carlyle Johnstone intimating his resignation as representative on the Branch Council, and expressing his thanks for the silver bowl presented to him by the members on his retirement.

Annual Report.—The annual report and financial statement showing a balance in hand of £4 16s. 1d. were passed and approved.

Venereal Disease.—The proposed arrangements for the treatment of venereal diseases having been discussed Dr. MCROBERT moved the following motion, which was carried:

> That the Secretary should notify all panel committees within the area of the Division that it is the view of the Division that it is to the interest of the local profession that schemes for the treatment of venereal diseases should embrace the establishment of clinics at the cottage hospitals or other institutions available, each clinic to commence with to be under the supervision of specialists competent to give demonstrations and instruction in the technique of modern methods of treatment, in order that ultimately the local profession should retain the treatment of venereal diseases in its own hands.

Future Policy with Reference to National Health Insurance.—The meeting agreed on replies to the questions issued by the Insurance Acts Committee (SUPPLEMENT, January 27th, p. 13).

The late Dr. J. R. Hamilton.—The meeting instructed the Secretary to convey to Mrs. Hamilton an expression of the sympathy of members of the Division, who fully appreciated the keen interest which for many years Dr. Hamilton had taken in everything that affected the prospects of the Association and his profession, and deplored his loss.

Association Notices.

MEETING OF COUNCIL.

THE next Meeting of Council will be held on Wednesday, April 25th, in the Council Room, 429, Strand, London, W.C., at 11 a.m.

By order.

GUY ELLISTON,
Financial Secretary and Business Manager.

March 29th, 1917.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeon M. Cameron, M.B., to the *President*, additional, for duties at Medical Department, Admiralty. Temporary Surgeons: F. J. Breakell to Haslar Hospital; N. Jennings, M.B., to the *Highflyer*; J. A. Hadfield, M.B., to the *Pembroke*, additional, for Chatham Hospital; R. McM. Bowman to the *Victory*, additional, for Haslar Hospital; F. B. Cripps, M.B., to the *Monarch*, vice Bailey; F. L. Cassidi, M.B., to the *Vivid*, for disposal; G. M. Stathers, M.B., to the *Leander*; A. O. Courtis, to the *Victory*, additional, for disposal; K. M. Ross, to the *Vivid*, additional, for Plymouth Hospital. To be temporary Surgeons: C. S. Owen, Surgeon Probationers (R.N.V.R.) W. T. Beswick and E. D. Broster.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: N. D. Dunscombe, I. M. Thompson.

ARMY MEDICAL SERVICE.

Colonel J. H. Daly is retained on the active list and to be supernumerary.

ROYAL ARMY MEDICAL CORPS.

To be temporary Majors: A. G. Phear, M.D., F.R.C.P., R. O. Moon, M.D., F.R.C.P.

B. Crothers to be temporary honorary Major whilst employed with No. 22 General Hospital.

C. A. R. Nitch, M.B., F.R.C.S., to be temporary Captain (substituted for notification in the *London Gazette* of March 18th, 1917).

Temporary Captains relinquishing their commissions on account of ill health: J. A. Mescall, W. C. McN. Dickey, F. D. Atkins, M.B.

The name of temporary Captain Edward Faulkner Ackery is as now announced, and not as in the *London Gazette* of May 10th, 1916.

The undermentioned, having resigned their appointments under the British Red Cross Hospital, Netley, relinquish their commissions: Temporary honorary Captain J. F. Mackay, temporary honorary Lieutenant R. S. Topham.

Temporary Captains relinquish their commissions: F. W. H. Hutchinson, J. P. Walker, M.B., A. H. Conder, A. Wiley, F. H. Rudge, N. G. Horner, M.B., R. Fielding-Ould, M.D., C. S. Pantin, M.D., F.R.C.S., A. C. Freeth, M.B., S. J. Henry, M.B., J. W. Wood, R. M. Clarke, M.B., G. M. De Vine, M.B.

To be temporary Captains: P. J. S. O'Grady, M.B., C. Weller.

Temporary Lieutenants to be temporary Captains: F. J. Strachan, M.C., M.B., F. B. Young, M.B., A. M. Masters, M.D., C. E. Molino, R. B. Eadie, M.B., J. W. Potter, M.B., R. H. Bridge, M.B., F.R.C.S., G. C. Berg, E. L. Hopkins, L. M. Mayers, G. W. Young, M.D., T. P. Buist, M.B., C. E. G. Bateman, A. E. Foerster, W. G. Weston, M.B., G. B. Mason, W. H. Thomas, J. Hewat, M.B., E. A. Morgan, C. W. Walker, R. H. L. O'Callaghan, M.D., H. S. Gaskell, M.B., G. F. Forde, W. J. McIvor, M.B., R. J. P. Waugh, M.B., B. P. Allinson, T. W. Mason, G. J. Knaggs, R. W. Chapman, M.B., A. Walker, M.D., W. J. Evans, J. N. Deacon, M.B., F. A. O'Donnell, A. Pimm, P. Figdor, M.B., W. A. Curry, M.D., F.R.C.S., D. S. Taylor, W. J. Tulloch, M.D., C. Cairnie, M.B., W. K. Bell, D. L. McKenna, M.B., G. F. Nelson, M.D., C. V. Kebbell, D. Rees, J. A. O'Dea, M.B., E. E. Chipp, G. C. W. Williams, F.R.C.S.E., H. Hannigan, M.B., J. F. Gill, M.B.

S. E. T. Shann, M.B., to be temporary honorary Captain whilst employed with No. 5 British Red Cross Hospital.

Temporary Lieutenants relinquish their commissions: J. Dunlop, M.B., C. L. Forde, M.B., J. K. Bell, S. A. McClintock, M.D., R. B. Gorst, M.B., J. L. Power, R. V. Murphy, C. Costello, M.B., H. W. Paddell, M.D.

To be temporary Lieutenants: H. S. Thomas, L. J. Hood, M.B., G. F. Fismer, M.D., F.R.C.S.E., C. T. Galbraith, M.C., M.B., E. H. R. Altounyan, M.B., A. C. Meek, M.B., H. A. Lane, W. J. Johnston, A. N. Collier, G. H. F. Graves, G. M. Simpson, M.D., C. H. Booth, J. T. Brown, M.B., R. J. Duthie, M.B., A. W. Gill, M.D., J. H. Hall, J. A. Bateman, M.B., C. O. Bodman, M.D., A. Shelley, M.B., J. McCartney, M. B. Taylor, D. L. Davies, F. D. Simpson, M.D., F.R.C.S.E., L. du Vergé, L. D. H. Baugh, M.B., P. C. Bushnell, C. F. Hardie, M.B., H. B. Pare, M.B., H. G. White, L. A. H. Bulkeley, M.B., J. Gaff, M.B., E. D. Keane, M.B., H. S. A. Hogg, M.B., G. R. Dobrashian, M.B., Lieutenant R. G. Hill, M.B., from 2nd East Anglian Brigade, R.F.A.(T.F.), J. A. A. Boddy, F. C. H. Bennett, M.B., S. B. Couper, R. W. Pearson, M.D., J. E. English, M.B., A. C. Hallowes, M.B., A. H. Clough, H. G. Clough, H. G. Steel, J. P. McVey, M.B., W. B. Jack, M.D., R. J. Helsby.

The notification in the *London Gazette* of March 24th regarding temporary Lieutenant G. W. Young, M.D., is cancelled.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Captain (acting Lieutenant-Colonel) T. H. Chittenden, M.D., reverts to the acting rank of Major on alteration in posting, with precedence as from July 11th, 1915.

Captain (temporary Major) W. D. Sturrock, M.D., to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Major (temporary Lieutenant-Colonel) L. P. Demetriadi, M.D., F.R.C.S., relinquishes his temporary rank on ceasing to command a casualty clearing station.

Captain O. L. Appleton to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Captain G. C. E. Simpson, M.B., F.R.C.S., to be acting Lieutenant-Colonel whilst commanding a casualty clearing station.

Captain E. G. Annis to be acting Major whilst in command of a field ambulance.

Captain G. J. M. Martin relinquishes his commission on account of ill health.

Lieutenant J. Steele, M.B., to be Captain and to remain seconded.

Lieutenant J. S. Ranson to be Captain.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

ANGLO-RUSSIAN HOSPITAL, 32, Victoria Street, S.W.—Two Surgeons.

BARNSLEY: BECKETT HOSPITAL.—Two vacancies on the honorary medical staff.

BARROW-IN-FURNESS: NORTH LONSDALE HOSPITAL.—Second House-Surgeon. Salary, £250 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £200 per annum.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL (Boscombe Branch).—House-Surgeon. Salary, £125 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £160 per annum.

BURY AND DISTRICT JOINT HOSPITAL BOARD.—Medical Superintendent. Salary, £250 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CLINICAL RESEARCH ASSOCIATION, Watergate House, York Buildings, Adelphi, W.C.—Qualified Medical Man or Woman experienced in Clinical Laboratory Work.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

MAIDSTONE: WEST KENT GENERAL HOSPITAL.—Assistant House-Surgeon. Salary, £125 per annum.

MANCHESTER: ANCOATS HOSPITAL.—House-Physician. Salary, £200 per annum.

MANCHESTER CITY.—Locumtenent at the Baguley Sanatorium for Tuberculosis. Salary, £350 per annum.

NETLEY: WELSH HOSPITAL.—Medical Officer. Salary, £400 per annum.

NEWCASTLE-UPON-TYNE: ROYAL VICTORIA HOSPITAL.—(1) Four House-Physicians, (2) Five House-Surgeons, (3) Two Accident Room House-Surgeons, (4) One House-Surgeon each to the following departments: (*a*) Aural and Ophthalmic, (*b*) Gynaecological, (*c*) Skin and Venereal, (*d*) Out-patient Dressing.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—(1) Assistant Physician; (2) Assistant Surgeon (females).

NORTHAMPTON GENERAL HOSPITAL.—(1) House-Surgeon; (2) Two Junior House-Surgeons. Salary for (1) £200, and for (2) £150 per annum.

NOTTS EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £300 per annum.

PRESTON ROYAL INFIRMARY.—Resident Medical and Surgical Officer. Salary, £120 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

SHEFFIELD: ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SHROPSHIRE: SHIRLETT SANATORIUM.—Temporary Assistant Resident Medical Superintendent. Salary, £300 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—House-Physician (female). Salary, £100 per annum.

STAFFORD: STAFFORDSHIRE GENERAL INFIRMARY.—House-Surgeon. Salary, £300 per annum.

STIRLINGSHIRE SECONDARY EDUCATION COMMITTEE.—School Medical Inspector. Salary, £300 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (female). Salary, £150 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Annan (Dumfries), Brampton (Cumberland), Tamworth (Stafford).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

MACKENZIE, J. J. R., M.B., Ch.B., Certifying Factory Surgeon for the Wansford District, co. Northampton.

OLIPHANT, F. B., M.B., C.M., District and Workhouse Medical Officer of the Bridport Union.

OUTRED, C. D., M.R.C.S., L.R.C.P., D.P.H., Certifying Factory Surgeon for Gravesend, co. Kent.

SELLERS, W. H. I., M.B., C.M., Medical Referee under the Workmen's Compensation Act, 1906, for No. 4 County Court Circuit, and to be attached more particularly to the Preston, Garstang, Chorley, and Lancaster County Courts, vice Dr. J. Rigby, deceased.

EDINBURGH ROYAL INFIRMARY.—The following appointments have been made:—Resident Physicians: A. Robertson, to Professor Gulland; C. Simpson, to Dr. Graham Brown; D. W. M'Lean, to Dr. Rainy. Resident Surgeons: J. T. C. M'Auslin, M.B., C.M.Edin., to Mr. Hodsdon; J. D. White, to Mr. Wallace: R. L. Galloway, to Mr. Miles; J. Thompson, to Mr. Dowden; C. R. C. Moon, to Mr. Scot Skirving; A. O. Ross, W. D. Brunton, and A. Strachan, to Mr. Jardine, S.O.P.D.; C. J. van der Merwe, M.B., Ch.B., to Dr. Barbour; H. G. Smith, to Mr. Brewis. Clinical Assistants: T. Ewing, B.A., B.Sc., M.B., Ch.B., and E. R. Webber, M.D., to Dr. Logan Turner.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTHS.

KELLOCK.—On April 15th, at 2, Upper Wimpole Street, the wife of Thomas H. Kellock, M.C., F.R.C.S., of a son.

PEARSON.—On 13th inst. at the Nursing Institute, Cromer, to Dr. and Mrs. S. V. Pearson, of Mundesley, a daughter.

DEATHS.

CUTTING.—On the 2nd inst., at West View, Stalham, Norfolk, Ernest Buxton Cutting, M.R.C.S., L.R.C.P.Lond. (Bart's), aged 49.

DUNBAR.—On April 17th, at the Park, Treharris, Glam., Stewart Dunbar, M.B., C.M. (late of Glasgow), aged 45 years.

PATTERSON.—Killed in action on April 12th, Robert Arthur Patterson, Second Lieutenant, Rifle Brigade, and Jesus College, Cambridge, aged 21, second son of Charles S. Patterson, M.B., M.R.C.S., and Mrs. Patterson, "The Benhams," Eastbury, Berks, and nephew of Robert A. Patterson, "Elmcroft," Woking, Surrey.

PENMAN.—At Fleetwood, on April 2nd, after a short illness, Margaret Malvina Andrew, the wife of P. Mitchell Penman, M.B., C.M.

POTTER.—On April 9th, 1917, suddenly, at Brighton, Henry Percy Potter, M.D., F.R.C.S., D.P.H., of Kensington Infirmary, for 37 years Medical Superintendent, aged 63 years.

DIARY FOR THE WEEK.

ROYAL SOCIETY OF MEDICINE.—*Section of Study of Disease in Children:* Friday, 4.30 p.m., Exhibition of Cases and Specimens. Paper by Dr. H. C. Cameron: Status Lymphaticus from the Clinical Standpoint.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	APRIL.
25 Wed.	London: Council Meeting, 11 a.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, APRIL 28TH, 1917.

CONTENTS.

	PAGE
WAR OFFICE CALL ON ALL MEDICAL MEN UNDER 41	67
LETTER OF THE SECRETARY OF STATE FOR WAR TO MEDICAL MEN OF MILITARY AGE	67
DETAILED INSTRUCTIONS TO RECRUITING OFFICERS	68
CENTRAL MEDICAL WAR COMMITTEE	68
SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE	69
INSURANCE:	
LOCAL MEDICAL AND PANEL COMMITTEES	69
BRITISH MEDICAL ASSOCIATION:	
COMPULSION ON THE MEDICAL PROFESSION ALONE	69
MEDICAL INTERESTS IN FUTURE INSURANCE LEGISLATION	69
THE SUPPLY OF PETROL TO MEDICAL PRACTITIONERS	69
NAVAL AND MILITARY APPOINTMENTS	69
VACANCIES AND APPOINTMENTS	70
BIRTHS, MARRIAGES, AND DEATHS	70
DIARY	70

WAR OFFICE CALL ON ALL MEDICAL MEN UNDER 41.

THE action of the War Office in instructing Recruiting Officers all over the country to call up immediately all medical practitioners of military age is one of such momentous importance, both to the profession and to the community, that it seems well to trace in chronological order the various steps taken by quoting the telegrams issued by the Director of Recruiting.

It should be said that the decision to issue the notice was put into force without consultation with the Central Medical War Committee or the Committee of Reference. The Presidents of the Royal Colleges of Physicians and Surgeons were, we understand, consulted by the Army Medical Department on Wednesday evening, April 18th, the day on which the first telegram was sent out, but the President of the Royal College of Physicians and the member of the Council of the Royal College of Surgeons who attended on behalf of the President declined to take any responsibility. Late on the same evening certain members of the Central Medical War Committee were informed by telephone of the action which was being taken. They were requested to visit the Director-General A.M.S. on the following morning; at this interview, while recognizing fully the obligation on the medical profession to do everything in its power to meet the emergency created by the torpedoing of hospital ships, they could only point to the steps the Central Medical War Committee had already taken, including its application, in which the Scottish Medical Service Emergency Committee joined, to the Director of National Service for a scheme of substitution as the necessary preliminary to calling up men under 41 engaged in industrial practice. They pointed out the difficulties which must arise owing to the failure of the War Office to consult the Central Medical War Committee and the Committee of Reference, and that, obviously, they were not in a position to give any undertaking without consulting these committees.

The Executive Committee met on the following day, but did not feel justified in doing more than issue to local Medical War Committees an explanation of the manner in which the instructions of the Director of Recruiting would operate (see below).

Steps were taken to summon a joint meeting of the Central Medical War Committee and the Committee of Reference, and this meeting, which was very largely attended, took place on Tuesday, April 24th. The resolution unanimously adopted by it, together with an explanatory memorandum issued by the Central Medical War Committee, and Lord Derby's letter, which, for the present, eases the situation, will be found in the body of the JOURNAL at p. 551.

INSTRUCTIONS ISSUED BY THE DIRECTOR OF RECRUITING.

The telegrams of instruction sent out by the Director of Recruiting to recruiting officers were issued with the sanction of the War Cabinet, but we feel convinced that the history of the question and the facts of the present situation cannot have been present to the minds of all its members.

On Wednesday, April 18th, the Director of Recruiting issued a telegram (2051 D.R.I.) to all Recruiting Officers, instructing them "to issue immediately calling-up notices to all medical practitioners of military age on their registers to report in seven days."

On the following day, Thursday, April 19th, another telegram (2089 D.R.) was addressed to all Commands and Groups in Great Britain, directing that all Recruiting Officers should be instructed to compile an accurate list of all qualified medical and surgical practitioners resident in their sub-areas, and forwarding a copy of the letter printed below from the Secretary of State to all doctors of military age, which was to be immediately distributed through sub-area offices to all doctors affected. The telegram proceeded:

A. C. I. 435 of 1916 is to be regarded as cancelled in individual cases seven days after the issue of the calling-up notice unless the doctor concerned shows that he has submitted his case for decision to the Central Medical War Committee or Scottish War Emergency Committee, and has not received a reply. Instructions as to the disposal of medical men reporting in response to calling-up notices will be issued prior to Thursday, April 26th.

Letter of the Secretary of State for War.

War Office, April 21st, 1917.

Sir,

I am desired by the War Cabinet to ask your earnest consideration of the following matter:

The enemy, in total disregard of the accepted tenets of civilized warfare, have deliberately instituted a submarine campaign against hospital ships.

It has therefore become essential that a large number of hospitals should be established overseas in the various theatres of war for the treatment of the sick and wounded.

In order to allow of this being done, and done with great rapidity, it has become essential to secure the services of every member of the medical profession who can possibly be spared from this country. The figures in the possession of the Government make it plain that the number of doctors who could be spared from this country are more than are needed to supply the military requirements if adequate steps are taken, by the doctors over age or by other means, for doing the work in this country of the men who must now be taken for medical service overseas.

For these reasons the War Cabinet have decided, as the first step in this process, that every medical man of military age must be called up at once under the Military Service Acts, in order that he may thus be made available

at once, and that, if he cannot be spared from his locality without arrangements being made for carrying on his work, his case may be immediately investigated and decided upon, and steps taken for securing a substitute for that work.

Every medical man thus summoned must, therefore, communicate immediately to the Central Medical War Committee (or the Scottish War Emergency Committee), if he is of opinion that circumstances (personal or public) make it impossible for him to go—*e.g.*, that he can only be spared from his present duties when some arrangements have been made for doing his present work.

May I express the earnest hope that every doctor over military age will immediately offer his services to the local Medical War Committee of his area as willing to undertake any substitution work within his capacity which would help to release any man of military age who cannot otherwise be spared.

The War Cabinet recognize to the full the great services that the medical profession has rendered during the present war, and regret that the barbarous action of the enemy compels a further call on their services, and a resort by the Government to measures which the Army Council had intended to avoid, and could still have avoided, but for this new phase of German outrage. They recognize that the new procedure must involve additional sacrifices for the people of these islands, and must fall heavily on the medical profession. But the War Cabinet trust and believe that this call will be met in the same splendid spirit with which previous calls have been met, and that members of the medical profession and the public whom they serve will ungrudgingly make whatever sacrifices may be necessary in order that our soldiers abroad may have the same attention and care which medical science provides for their comrades at home.

I am, Sir, your obedient servant,

DERBY.

Detailed Instructions to Recruiting Officers.

A further telegram (3016 D.R.) was dispatched to Commands and Groups in Great Britain on Saturday, April 21st, 1917, and copies were sent by post to all Area Commanders, as follows:

In continuation of War Office Telegram No. 2080 D.R.1. of 19th April, 1917, following procedure is to be adopted by all R.Os. in connexion with disposal of medical men reporting in response to calling up notices issued under authority of War Office telegram No. 2051 D.R.1. of 18th April, 1917.

In case of a doctor who on reporting applies for commission at once R.Os. will get him to sign forms of new contract and of application now in transit to you. R.O. will dispatch forms immediately they are signed by express post to Secretary, War Office, A.M.D.1. and instruct doctor to return home for the time being but to be ready to join for Service at 48 hours' notice on or after May 6th.

In case of doctor who states he has made all arrangements to join for service forthwith and refuses to return home R.O. will wire name, address, and full particulars to "Dehorted" London, and issue first class warrant to doctor to proceed to London, giving him orders in writing to report to A.M.D., Adastral House, Victoria Embankment.

In case of doctor who refuses to apply for commission R.O. will complete enlistment in accordance with ordinary procedure, post as private to R.A.M.C. and dispatch on third class warrant to Blackpool with orders in writing to report to R.A.M.C. Dépôt there.

In case of doctor who since receiving calling-up notice has applied to Central Medical War Committee or to Scottish War Emergency Committee for decision in his case R.O. will instruct him to return home and wait letter announcing decision, at same time informing him that he must be prepared to join for service at forty-eight hours' notice on or after 6th May.

To provide for cases of doctors not to be taken for service it is ruled that a doctor holding a certificate of Central Medical War Committee or Scottish War Emergency Committee dated subsequent to 19th April 1917 showing his case to be reserved for a period will be treated as exempted from service within the period shown on the document.

For general information of medical practitioners applying to R.Os. it is announced that old arrangements whereby one month's notice was given to join has been definitely cancelled. A.C.I. 485 of 1916 is modified in accordance with instructions above.

In further reference to War Office telegram 2089 D.R.1. supply of letters from S. of S. to medical practitioners has been dispatched to-day. Arrange for speediest possible distribution and

Forward to Secretary, D.R.1. War Office, lists in duplicate of medical practitioners with addresses to whom calling-up notices and letters have been sent and of any other medical men of military age in sub-area if such exist.

The most important difference in the agreement a medical practitioner receiving a commission in the R.A.M.C. is now required to sign is that the period of service shall continue until the termination of the present emergency or until his services are no longer required, whichever shall first happen. The earlier agreement required a medical officer to engage for a period of twelve calendar months or until his services were no longer required, whichever might first happen. Another respect in which the new agreement differs is that there is no mention of the allowance of £30 in respect of the provision of outfit, but the gratuity is retained and will amount to £60 sterling for each twelve months or part thereof. In the particulars to be supplied by the applicant the only difference appears to be that a statement as to present employment has now to be made, and that there is no inquiry as "date when free to join for duty."

Temporary Officers now Serving.

The War Office has also issued a form for the renewal of contract of temporary officers R.A.M.C. in the following terms:

I hereby offer and agree to renew my Contract for service with the army until the termination of the present emergency or until my services are no longer required, whichever shall first happen. This renewal will have effect from the day after the completion of my last Contract, should my services then be required.

The terms of pay to be as in my original agreement, with a gratuity of £60 sterling for each twelve months or part thereof.

Dated this.....day of.....191

.....Signature.

.....Witness.

CENTRAL MEDICAL WAR COMMITTEE.

A MEETING of the Executive Committee of the Central Medical War Committee was held on April 20th, and on the following day, on its instructions, a letter was issued to the Honorary Secretaries and Chairmen of Local Medical War Committees in England and Wales, stating that the Subcommittee had conferred with the military authorities on certain essential questions of procedure, and that it had been ascertained that this would be as follows:

1. If the medical man is prepared to accept a commission and proceed immediately for service, he will sign a form of contract, provided by the recruiting officer, which will be for the duration of the war. He will then await instructions, holding himself in readiness, in the event of his application being approved, to join for service at forty-eight hours' notice on or after May 6th.

2. If the medical man is of opinion that his circumstances (personal or public) make it impossible for him to go at once, for example, as stated in Lord Derby's letter, that he can only be spared from his present duties when some arrangements have been made for doing his present work, he should communicate immediately with the Central Medical War Committee, in which case he will not be called to the colours until his case has been considered. But subject to such consideration he must hold himself in readiness to join for service, if so required, on or after May 6th.

3. If the medical man has already been granted postponement, after appeal, by the Central Medical War Committee, he should present to the recruiting officer a form of certificate which is being sent to him from this office. This will be treated by the recruiting officer as an exemption from service within the period shown on the document.

4. If the medical man is not prepared in any circumstances to accept a commission in the R.A.M.C. he must inform the recruiting officer to this effect, whereupon he will be enlisted as a private and sent to Blackpool to report to the R.A.M.C. Dépôt.

It is to be noted that the privilege of one month's notice formerly granted under the enrolment scheme is now cancelled.

The letter went on to request Local Medical War Committees to take the following steps forthwith:

(*a*) To communicate the contents of this letter to all the doctors in your area who are liable under the Military Service Acts.

(*b*) To consider the list of medical men in the area of your committee and forward to this office, not later than the first post on Friday next, the names of all doctors in the area as to whom the Committee cannot as yet say definitely that their work can be carried on if they join the army at once.

(*c*) To begin immediately to consider carefully what arrangements can be made for releasing as soon as possible those doctors of military age who cannot be spared at once. A further communication on this subject will be sent to you within the next few days.

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

The Scottish Medical Service Emergency Committee also issued a statement which was published in the Scottish newspapers on April 21st as follows:

(*a*) If a qualified medical practitioner who is attested under the group system, or is in one of the classes under the Military Service Act, 1916, and who is enrolled under the scheme of the Central Medical War Committee, or the Scottish Medical Service Emergency Committee, or has been provisionally accepted by the War Office, receives a notice paper calling him up, he should return it to the recruiting officer, together with his certificate of enrolment or W.O. letter. The notice will then be cancelled, and the practitioner will remain in reserve until selected for a commission in the Royal Army Medical Corps.

(*b*) If a medical practitioner has attested under the group system, or is in one of the classes under the Military Service Act, 1916, but who has not enrolled under the scheme of the Central Medical War Committee, or the Scottish Medical Service Emergency Committee, nor been provisionally accepted by the War Office, he will be dealt with in the ordinary course.

British Medical Association.

COMPULSION ON THE MEDICAL PROFESSION ALONE.

AT a meeting of the Edinburgh and Leith Division on April 17th the following resolution was passed unanimously:

> That this meeting strongly protests against any measure of compulsion being applied to the medical profession which is not at the same time applicable to the whole community.

MEDICAL INTERESTS IN FUTURE INSURANCE LEGISLATION.

THE following reply is sent by the Birkenhead Panel Committee to the numerous communications it receives from bodies purporting to represent the panel practitioners in the proposed future legislation to amend the Insurance Acts:

The panel practitioners in Birkenhead have decided that their interests in any future insurance legislation are best left in the hands of the body representative of the medical profession in the country—namely, the British Medical Association.

THE SUPPLY OF PETROL TO MEDICAL PRACTITIONERS.

THE following letter has been sent to the Petrol Control Committee:

April 21st, 1917.

Sir,

The announcement in the *Times* and other lay papers yesterday that drastic new petrol restrictions may be looked for in a few days, and that medical practitioners will only be allowed a reasonable monthly maximum, has caused very great uneasiness in the profession.

The Association is of opinion that any restriction of the amount of petrol obtainable by medical practitioners for professional purposes would cause very serious difficulties throughout the country. As will have been observed from Lord Derby's letter published in the newspapers to-day, drastic action is being taken in calling up medical men of military age. This will throw increased work on those left, and will render the free use of the motor car more than ever necessary. We shall be glad, therefore, to have an immediate assurance from the Petrol Control Committee that no restriction will be placed on the use of petrol by medical practitioners.

It would help very much to relieve the anxiety of the profession in this matter if some assurance can be published in the next issue of the BRITISH MEDICAL JOURNAL that no medical practitioner will be deprived of the full amount of petrol essential for carrying on his professional duties, and I trust, therefore, that you will be able to let me have a reply not later than Wednesday morning next.

I am, Sir, your obedient Servant,
(Signed) ALFRED COX,
Medical Secretary.

The Secretary, Petrol Control Committee,
19, Berkeley Street, W.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

BEDFORDSHIRE.

AT a meeting of the Local Medical and Panel Committee on February 13th a letter was read from the Clerk to the Insurance Committee inquiring if any action had been taken under Article 9 of the Medical Benefit Regulations, 1916. It was decided to inform the Clerk that no action could be taken in the matter, as the Committee had not received a report of the pricing establishment in regard to prescriptions issued by medical practitioners on the panel since June, 1916, and then only for the months of January and February, 1916. It was decided to draw the attention of medical practitioners to the absolute necessity for rendering accounts for attendance on soldiers at the termination of each individual illness, and that the necessary forms could be obtained from the Clerk to the Insurance Committee. A subcommittee was appointed to consider the future policy of the British Medical Association as regards National Health Insurance.

COUNTY OF FORFAR.

AT a meeting of the Local Medical Committee on February 14th a circular from the York Medical and Panel Committees recommending the Committee to form a trade union was allowed to lie on the table. It was agreed to deduct one penny for each five insured persons from each quarterly cheque payable to the respective practitioners for the past three quarters of the year.

At a meeting of the Panel Committee held on the same day a letter was read from the Secretary of the Forfar Factory Workers' Union pointing out that in many cases the first intimation he received of an illness was considerably after the time the member had been examined by the doctor, as shown on the first certificate, and requesting that when a member fails to ask for a certificate on the proper date, and later demands one covering the first day of treatment, the doctors, when filling in the certificate, would make the necessary remarks in the space provided. It was agreed to send a reply, pointing out that the fault appeared to lie with the patients in not delivering the first certificate timeously. It was agreed to allocate the remuneration for mileage for 1916 on the 1915 basis.

RENFREW COUNTY.

AT a meeting of the Panel Committee on February 28th the memorandum from the York Panel Committee, advocating the necessity of organizing on trades union lines, was further considered along with circular M.21 from the British Medical Association. The matter was carefully considered, and, after discussion, it was unanimously agreed to support the policy of the British Medical Association as set forth in circular M.21, the Committee holding that the claims of the York Panel Committee in favour of trades union organization were not well founded.

It was reported that the Commissioners had informed the Insurance Committee that the question of the interpretation of Section 33 of the National Insurance Act, 1913, was under consideration. It was resolved that no contribution should be made to the expenses of the checking bureau.

It was agreed to recommend practitioners to accept the suggestions of the Scottish Insurance Commissioners with the object of effecting an earlier settlement for 1916. The Commissioners suggested that retrospective adjustment for enlistments affecting the year 1916 should cease to be made by Insurance Committees after March 31st, 1917, and that this modification should apply to the quarterly accounts of index slips as well as of medical slips.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeons E. G. E. O'Leary to the *Vivid*; E. F. Ellis to the *Princess Royal*, vice Miller; W. H. Pape to the *Pembroke*, additional, for disposal. Staff Surgeons C. R. M. Baker, M.B., to Shotley Sick Quarters, vice Rowan-Robinson; F. G. Goble to the *St. Vincent*, vice Beattie. Surgeons Q. H. Richardson to the *Vivid*; C. F. Willis to the *Halcyon*; E. C. Holtom to the *Vivid*, additional, for disposal. Temporary Surgeons E. Hafferman, M.B., to the *Pembroke*; T. B. Ashley to the *Victory*, for Royal Naval Division; E. D. Broster, J. L. Blair, and W. V Cabe to the *Vivid*, additional, for Plymouth Hospital; J. G. Stevens and D. Heard, M.B., to the *Pembroke*, additional, for Chatham Hospital; M. Pearson, L.D.S., L. P. L. F. Edwards, E. M. Atkinson, J. P. Ross, D. G. Churcher, R. E. Rampling and C. C. Owen to the *Victory*, additional, for Haslar Hospital; J. L. Lamond, M.B., to the *Victory*, additional, for disposal; T. R. S. Thompson, M.B., T. L. P. Harries, M.B., D. W. Warren, and J. H. B. Hogg, M.B., to the *Vivid*, additional, for Plymouth Hospital; M. Neilson, M.B., to the *Leander*; R. A. Hobbs to the *Albion*, additional; R. M. Barrow and R. L. Glass to the *Pembroke*, additional, for disposal. To be temporary Surgeons: W. J. G. N. Braithwaite, M.B., C. G. Terrell, M.B., P. E. F. Frossard, and W. A. Mein.

ROYAL NAVAL VOLUNTEER RESERVE.

Staff Surgeon A. D. Cowburn to the *Vivid*, additional, for disposal. Surgeon Probationers U. J. Gareau to the *Lurcher*, vice Higginson;

A. H. Harkins to the *Laurel*. To be Surgeon Probationers: A. Markson, R. C. Brown, C. E. Manning, M. W. Le Bel, J. B. Taylor, A. Macdonald, R. M. Macpherson, H. A. A. Pargoter, F. J. Stevenson, E. R. Sarra, G. A. Goolden.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Temporary Colonel C. J. Symonds, C.B., M.D., F.R.C.S. (Major R.A.M.C.(T.F.)), reverts to the rank of temporary Lieutenant-Colonel on reposting.

Major W. Butler, R.A.M.C.(T.F.), to be temporary Lieutenant-Colonel whilst in charge of the Belmont War Hospital.

Lieutenant-Colonel H. H. Balfour, S.A.M.C., to be temporary Major whilst serving with the South African General Hospital, Richmond.

Captain B. H. Slater to be temporary Major.

A. M. Paterson, M.D., F.R.C.S., to be temporary Major.

Temporary Captain G. S. Samuelson, M.D., to be temporary Major whilst commanding troops on a hospital ship.

Temporary Captain F. G. Crookshank relinquishes his commission.

Captain R. C. Carlyle, M.B., is seconded for service with the Egyptian army.

E. Harding to be temporary honorary Captain whilst employed with No. 22 General Hospital.

H. T. Thomson to be temporary honorary Captain whilst serving with No. 11 Stationary Hospital.

Temporary Lieutenant G. F. B. Simpson, M.D., F.R.C.P., F.R.C.S.E., to be temporary Captain.

W. R. Carter, M.B., to be temporary honorary Captain whilst employed with the British Red Cross Society in France.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Colonel J. T. Fotheringham, C.M.G., Canadian A.M.C., to be temporary Surgeon-General.

Lieutenant-Colonel G. E. Armstrong (Canadian Militia) to be temporary Lieutenant-Colonel, November 18th, 1916 (substituted for notification in the *London Gazette* of February 21st, 1917, incorrectly describing this officer under General List in error).

Temporary Lieutenant-Colonel W. L. Watt, Canadian A.M.C., to be Assistant Director of Medical Services.

Temporary Lieutenant-Colonel J. McCombe, Canadian A.M.C., is graded for purposes of pay as Assistant Director of Medical Services whilst employed in branch of Director of Medical Services.

Temporary Major D. Donald to be temporary Lieutenant-Colonel.

To be temporary Captains: Corporal C. R. Worthington, P. D. Saylor, J. L. Walker, R. G. Moffat, and temporary Lieutenant H. B. Thomson, from R.A.M.C.

The surname of Captain E. Gardiner is as now described, and not Gardner, as in the *London Gazette* of July 1st, 1916.

Temporary Major S. A. Smith, D.S.O., resigns his commission on appointment to the R.A.M.C.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain J. H. Bayley to be acting Lieutenant-Colonel whilst commanding a field ambulance from February 20th to March 4th.

Captain P. S. Vickerman to be temporary Lieutenant-Colonel whilst holding a special appointment.

Lieutenants to be Captains: J. M. Courtney, G. R. Barry, M.B., M. McGillivray, M.B., T. D. Renwick, T. Crisp, M.B., A. L. Giblin, M. McG. Russell, M.B., R. C. B. Ramsay, M.B., A. L. V. Davin, M.B., W. Richards, M.B.

Lieutenant (on probation) G. R. Waller relinquishes his commission.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel W. K. Clayton to be temporary Colonel whilst an Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel R. R. Sleman, M.D., is restored to the establishment.

Lieutenant-Colonel J. Young, M.D., is restored to the establishment.

The announcement which appeared in the *London Gazette* of January 20th regarding Major R. J. R. C. Simons is cancelled.

Captain (temporary Lieutenant-Colonel) P. Moxey relinquishes his temporary rank on ceasing to command a field ambulance.

Captain (acting Lieutenant-Colonel) A. A. Hingston, M.B., reverts to the temporary rank of Major on ceasing to command a field ambulance with precedence as from November 10th, 1914.

Captain W. J. Reid, M.B., is restored to the establishment.

Captain D. W. Hardy, M.B., is seconded whilst holding an appointment as Deputy Assistant Director of Medical Services.

Captain (temporary Major) J. W. Keay, M.B., to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Lieutenant A. C. Ainsley to be Captain.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House-Surgeon. Salary, £125 and extras.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

BURY AND DISTRICT JOINT HOSPITAL BOARD. — Medical Superintendent. Salary, £250 per annum.

BURY INFIRMARY. – Junior House-Surgeon. Salary, £150 per annum.

CAMBERWELL: PARISH OF ST. GILES.—Two Locumtenent Assistant Medical Officers at the Infirmary. Remuneration, £7 7s. per week

CHELTENHAM EDUCATION COMMITTEE. — Assistant Medical Officer of Health and School Medical Officer. Salary, £325 per annum, rising to £350.

CHELTENHAM EYE, EAR, AND THROAT FREE HOSPITAL.—Assistant Surgeon. Salary, £300 per annum.

CHESTER ROYAL INFIRMARY.—Assistant House-Surgeon. Salary to commence, £150 per annum.

DERBYSHIRE ROYAL INFIRMARY.—Two House-Surgeons. Salary, £200 per annum.

GREENWICH UNION.—Assistant Medical Officer of the Infirmary and Workhouse. Salary, £200 per annum.

HARROGATE INFIRMARY.—Resident House-Surgeon.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

KENT COUNTY COUNCIL, Maidstone. — Tuberculosis Officer. Salary, £500 per annum.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Second Lady Resident Medical Officer. Salary, £200 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Temporary Anaesthetist. Honorarium, 25 guineas per annum.

MANCHESTER: ANCOATS HOSPITAL.—House-Physician. Salary, £200 per annum.

MANCHESTER CITY.—Locumtenent at the Baguley Sanatorium for Tuberculosis. Salary, £350 per annum.

MANCHESTER CORPORATION.—Temporary Assistant Tuberculosis Officer. Salary, £400 per annum.

MARLBOROUGH UNION.—Medical Officer for the 2nd District. Salary, £75 per annum.

MIDDLESBROUGH EDUCATION COMMITTEE.—School Dentist (temporary). Salary for full time, £250 per annum, and for part time by arrangement.

NOTTINGHAM CHILDREN'S HOSPITAL.—Lady House-Surgeon. Salary, £200 per annum.

NOTTINGHAM CITY ASYLUM.—Locumtenent. Salary, £7 7s. per week.

NOTTINGHAM GENERAL HOSPITAL. — Two Assistant House-Surgeons. Salary £250 per annum.

NOTTS COUNTY COUNCIL—Second Assistant Tuberculosis Officer. Salary, £400 per annum.

PETERBOROUGH INFIRMARY.—House-Surgeon. Salary, £150 per annum for first six months, rising to £200.

PRESTON ROYAL INFIRMARY.—Resident Medical and Surgical Officer. Salary, £120 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—Temporary Anaesthetist. Honorarium, £25 a year for afternoon attendances, and £25 a year for fortnightly morning attendances, etc.

RHONDDA URBAN DISTRICT COUNCIL EDUCATION COMMITTEE.—Dental Surgeon. Salary, £300 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

SHEFFIELD ROYAL INFIRMARY. — House-Physician. Salary, £120 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—Anaesthetist (female). Honorarium, 10s. 6d. per attendance.

SUNDERLAND: MONKWEARMOUTH AND SOUTHWICK HOSPITAL.—House-Surgeon. Salary, £150 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (female). Salary, £150 per annum.

YORKSHIRE: WEST RIDING COUNTY COUNCIL.—Two temporary School Medical Inspectors. Salary, £320, rising by £20 per annum to £400.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ANDREW, Miss A. W., M.B., Ch.B., Assistant Medical Officer to the Sheffield Union Hospital.

BOYD, R. M., M.B., Ch.B. Aberd., Certifying Factory Surgeon for the Braemar District, co. Aberdeen.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTH.

WORMALD.—At 10, Grosvenor Terrace, Darlington, on April 22nd, the wife of T. L. Wormald, M.D., Captain R.A.M.C., of a son.

MARRIAGES.

GORDON—DENT. — April 23rd, 1917, at Christ Church, Leeson Park, Dublin (by special licence), by the Rev. I. Percy Phair, M.A., Rector, Stuart Ernest Gordon, L.R.C.P.I. and L.M., L.R.C.S.I. and L.M., elder son of the late Dr and Mrs. Alexander Gordon, of Dublin, and Daisy, eldest daughter of Mr. and Mrs. T. Dent, Staindrop, co. Durham.

MACKAY—ASHWORTH.—On the 13th inst., at the Unitarian Church, Chorlton-cum-Hardy, by the Rev. Charles Peach, Alexander Morrison Mackay, Captain R.A.M.C.(T.F.), 1/1st E. Lancs. Field Ambulance, elder son of Mr. J. Mackay and Mrs. Mackay, Belmont, Bolton, to Dora, eldest daughter of Mr G. W. Ashworth and Mrs. Ashworth, Mainalon, Chorlton-cum-Hardy.

DIARY FOR THE WEEK.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Tuesday and Thursday, 5 p.m., Oliver-Sharpey Lectures by Dr. Charles Bolton: Pathology of Cardiac Dropsy.

ROYAL SOCIETY OF MEDICINE.—*Section of Obstetrics and Gynaecology:* Thursday, 8 p.m., Annual General Meeting. Exhibition of Specimens Communications by Mr. Gordon Ley: Decidual Reaction in a Uterine Fibroid. Mr J. D. Malcolm: Post-operative Tympanites. Dr. Cuthbert Lockyer: Ovarian Pregnancy. *Section of Laryngology:* Friday, 4 p.m., Annual General Meeting. Exhibition of Cases and Specimens.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

10.5
3R
Nat. hist. lib.
UNIVERSITY OF ILLINOIS LIBRARY
JUN 7 1917

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MAY 5TH, 1917.

CONTENTS.

PAGE

Matters Referred to Divisions.

ANNUAL REPRESENTATIVE MEETING, 1917: PROVISIONAL AGENDA ... 71
ANNUAL REPORT OF COUNCIL, 1916-17 ... 72
TABLE OF CONTENTS ... 72
BALANCE SHEET ... 75
APPENDICES ... 100
MEDICAL STUDENTS IN COMBATANT SERVICE ... 105
TEMPORARY COMMISSIONS, R.A.M.C. ... 105

PAGE

BRITISH MEDICAL ASSOCIATION:
SUPPLY OF PETROL TO MEDICAL PRACTITIONERS ... 105
ASSOCIATION NOTICES: ELECTION OF COUNCIL, 1917-18—GRANTS IN AID OF SCIENTIFIC RESEARCH ... 105
NAVAL AND MILITARY APPOINTMENTS ... 105
VACANCIES AND APPOINTMENTS ... 103
BIRTHS, MARRIAGES, AND DEATHS ... 103
DIARY ... 106

SPECIAL NOTICE TO MEMBERS.

Every member is requested to preserve this "Supplement," which contains matters specially referred to Divisions, until the subjects have been discussed by the Division to which he belongs.

BY ORDER.

MATTERS REFERRED TO DIVISIONS.

British Medical Association.

ANNUAL REPRESENTATIVE MEETING, LONDON, 1917.

THE Annual Representative Meeting of the Association will be held in London on Thursday, July 26th, 1917, and following day(s) as may be necessary.

PROVISIONAL AGENDA.

(NOTE.—*In view of paper shortage, this Provisional Agenda includes only such items as are known to require the consideration of the Divisions.*)

ANNUAL REPORT OF COUNCIL.

(For Annual Report of Council see page 72 of this SUPPLEMENT.)

(A) PRELIMINARY.

PRESIDENTSHIP, 1917–18.

1. **Motion:** That the Recommendation of the Council be adopted (see page 72 of this SUPPLEMENT, paragraph 2.)

REMAINDER OF ANNUAL REPORT UNDER HEADING "(A) PRELIMINARY."

2. **Motion:** That the remainder of the Annual Report of the Council under heading "(A) Preliminary" (page 72, paragraphs 1–5) be approved.

(B) FINANCE.

3. **Motion:** That the Annual Report of the Council under heading "(B) Finance" (page 74, paragraphs 6–18) be approved.

(C) CENTRAL MEDICAL WAR COMMITTEE.

4. **Motion:** That the Annual Report of the Council under heading "(C) Central Medical War Committee" (page 80, paragraphs 19–30) be approved.

(D) ORGANISATION.

ALTERATIONS OF BY-LAWS (see also under National Health Insurance, Item 26, below).

(1) *Substitutes for Representatives.*

5. **Motion:** That Recommendation A of the Council be adopted (see page 83, paragraph 31).

(2) *Elected Membership of Organisation Committee.*

6. **Motion:** That Recommendation B of the Council be adopted (see page 84, paragraph 32).

(3) *Representation of Central Ethical Committee on Journal Committee.*

7. **Motion:** That Recommendation C of the Council be adopted (see page 84, paragraph 33).

(4) *Representation of Public Health Committee on Medico-Political Committee.*

8. **Motion:** That Recommendation D of the Council be adopted (see page 84, paragraph 34).

(5) *Representation of Insurance Acts Committee on Finance Committee.*

9. **Motion:** That Recommendation E of the Council be adopted (see page 84, paragraph 35).

GROUPING OF BRANCHES FOR ELECTION OF COUNCIL, 1918–19.

(*a*) *Home Branches.*

10. **Motion:** That Recommendation F of the Council be adopted (see page 84, paragraph 36).

(*b*) *Oversea Branches.*

11. **Motion:** That Recommendation G of the Council be adopted (see page 84, paragraph 37).

REMAINDER OF ANNUAL REPORT UNDER HEADING "(D) ORGANISATION."

12. **Motion:** That the remainder of the Annual Report of the Council under heading "(D) Organisation" (page 83, paragraphs 31–50) be approved.

(E) JOURNAL.

13. **Motion:** That the Annual Report of the Council under heading "(E) Journal" (page 85, paragraphs 51–53) be approved.

(F) SCIENCE.

14. **Motion:** That the Annual Report of the Council under heading "(F) Science" (page 85, paragraphs 54–56) be approved.

(G) MEDICAL ETHICS.

QUESTION OF MEDICAL REFEREE OR INSPECTOR INFORMING MEDICAL ATTENDANT OF MODIFICATION OF TREATMENT OF A CASE.

15. **Motion:** That Recommendation A of the Council be adopted (see page 85, paragraph 57).

16. **Motion:** That Recommendation B of the Council be adopted (see page 85, paragraph 57).

REMAINDER OF ANNUAL REPORT UNDER HEADING "(G) MEDICAL ETHICS."

17. **Motion:** That the remainder of the Annual Report of the Council under heading "(G) Medical Ethics" (page 85, paragraphs 57–62) be approved.

(H) MEDICO-POLITICAL.

ORGANISATION OF MEASURES FOR PREVENTION AND TREATMENT OF VENEREAL DISEASE.

(1) *Affirmation of Principles Provisionally Adopted by A.R.M. 1916.*

18. **Motion:** That Recommendation A of the Council be adopted (see page 86, paragraph 64).

(2) *Remuneration for Clinical Posts.*

19. **Motion:** That Recommendation B of the Council be adopted (see page 88, paragraph 65).

20. **Motion:** That Recommendation C of the Council be adopted (see page 88, paragraph 65).

21. **Motion:** That Recommendation D of the Council be adopted (see page 88, paragraph 65).

22. **Motion:** That Recommendation E of the Council be adopted (see page 88, paragraph 65).

23. **Motion:** That Recommendation F of the Council be adopted (see page 88, paragraph 65).

MINISTRY OF HEALTH.

24. **Motion:** That Recommendation G of the Council be adopted (see page 89, paragraph 75).

REMAINDER OF ANNUAL REPORT OF COUNCIL UNDER HEADING "(H) MEDICO-POLITICAL."

25. **Motion:** That the remainder of the Annual Report of the Council under heading "(H) Medico-Political" (page 86, paragraphs 63–93) be approved.

(I) NATIONAL HEALTH INSURANCE.

ALTERATIONS OF BY-LAWS (*contd.*).

Constitution of Insurance Acts Committee.

26. **Motion:** That the Recommendation of the Council be adopted (see page 92, paragraph 94).

REMAINDER OF ANNUAL REPORT UNDER HEADING "(I) NATIONAL HEALTH INSURANCE."

27. **Motion:** That the remainder of the Annual Report of the Council under heading "(I) National Health Insurance" (page 92, paragraphs 94–135) be approved.

(J) PUBLIC HEALTH AND POOR LAW.

28. **Motion:** That the Annual Report of the Council under heading "(J) Public Health and Poor Law" (page 97, paragraphs 136–8) be approved.

(K) HOSPITALS.

FUTURE POSITION OF VOLUNTARY HOSPITALS.

29. **Motion:** That the Recommendation of the Council be adopted (see page 97, paragraph 140).

REMAINDER OF ANNUAL REPORT UNDER HEADING "(K) HOSPITALS."

30. **Motion:** That the remainder of the Annual Report of the Council under heading "(K) Hospitals" (page 97, paragraphs 139–41) be approved.

(L) SCOTLAND.

31. **Motion:** That the Annual Report of the Council under heading "(L) Scotland" (page 98, paragraphs 142–50) be approved.

(M) IRELAND.

32. **Motion:** That the Annual Report of the Council under heading "(M) Ireland" (page 99, paragraphs 151–6) be approved.

(N) OVERSEA BRANCHES.

33. **Motion:** That the Annual Report of the Council under heading "(N) Oversea Branches" (page 99, paragraphs 157–8) be approved.

By Order,
ALFRED COX,
Medical Secretary.

May 2nd, 1917,

ANNUAL REPORT OF COUNCIL, 1916-17.

CONTENTS.

	PAGE
(A) Preliminary	72
(B) Finance	74
(C) Central Medical War Committee	80
(D) Organisation	83
(E) Journal	85
(F) Science	85
(G) Medical Ethics	85
(H) Medico-Political	86
(I) National Health Insurance	92
(J) Public Health and Poor Law	97
(K) Hospitals	97
(L) Scotland	98
(M) Ireland	99
(N) Oversea Branches	99

(A) Preliminary.

QUESTION OF ANNUAL MEETING, 1917.

1. For the third year in succession, the War conditions make it impossible to hold the usual Annual Scientific Meeting. The Council has thus with regret found itself obliged to postpone still further the Annual Meeting which but for the War would have been held at Cambridge in 1915.

The Council has arranged that the Annual Representative Meeting shall be held in London, on Thursday, July 26th, commencing at 10 a.m. The Annual General Meeting will be held on Friday, July 27th, at 2 p.m.

PRESIDENTSHIP, 1917-18.

2. The Council recommends:

Recommendation.—That Sir Thomas Clifford Allbutt, K.C.B., LL.D., be re-elected President of the Association for 1917-18.

3. OBITUARY.

Roll of Honour.

Killed on Service.

Capt. John Henry Dyke Acland, R.A.M.C.
Capt. Henry Begg, R.A.M.C.
Capt. Julius Henry Beilby, R.A.M.C. (T.F.)
Capt. Hugh Kennedy Birley.
Capt. Gilbert Vere Bogle, N.Z.M.C.
Surgeon Frederick W. T. Clements, R.N.
Lieut. Harry Rathbone Griffith, R.A.M.C.
Capt. Thomas Errol Guthrie, R.A.M.C.
Capt. George Robert Hitchin, R.A.M.C. (T.F.)
Capt. Thomas Lewis Ingram, R.A.M.C.
Lieut. Raymond Jones, R.A.M.C.
Lieut. Charles Patrick Kelly, R.A.M.C.
Fleet-Surgeon Francis F. Lobb, R.N.
Capt. A. T. Logan, R.A.M.C.
Capt. Alexander Petrie Low, R.A.M.C. (T.F.)
Capt. W. R. O'Farrell (*Missing*).
Capt. Harold Frederick Hood Plant, R.A.M.C.
Capt. John Cecil Rix, R.A.M.C.
Lieut. Douglas Rodgers, R.A.M.C.
Capt. Charles Edgar Holton Smith, R.A.M.C.
Capt. Thomas Strain, R.A.M.C. (*Accidentally killed*).
Capt. Alfred Maurice Thomson, R.A.M.C.
Lieut.-Col. Arthur Nimmo Walker, R.A.M.C.
Capt. Arthur John Waugh, R.A.M.C.

Died of Wounds.

Lieut. Malcolm Edward Ball, R.A.M.C.
Capt. Frank Lee Cleland, R.A.M.C.
Capt. Stuart Millard Graham, A.A.M.C.
Major Arthur Anderson Martin, N.Z.A.M.C.
Capt. Charles Kenneth McKerrow, R.A.M.C.
Capt. Robert William Michell, R.A.M.C.
Capt. Charles Mill Nichol, R.A.M.C.
Capt. William Garrow Shand, R.A.M.C.

Died on Active Service

Capt. Elfred Chalmers Austin, R.A.M.C.
Major Charles Henry Benham, R.A.M.C. (T.F.), Chairman of the Brighton Division; Representative for several years in the Representative Body; Secretary of Section Bacteriology and Pathology, 1913.

Major Ernest Brice, R.A.M.C.
Fleet-Surgeon W. R. Center.
Capt. John Cropper, R.A.M.C.
Capt. Edward Wilkinson Deane, A.A.M.C.
Capt. Robert Donald, R.A.M.C. (T.F.)
Lieut. G. S. Engineer, I.M.S.
Lieut. Guy Verney Fletcher, R.A.M.C.
Lieut.-Col. Pultenay Charles Gabbett, I.M.S.
Major Norman Ernest Jasper Harding, R.A.M.C.
Major Walter Linney Hawksley, R.A.M.C. (T.F.)
Capt. Milward Cecil Hayward, R.A.M.C. (T.F.)
Capt. Robert Francis Hebbert, I.M.S.
Major Charles James Holmes, R.A.M.C.
Col. Sir Victor Horsley, F.R.S., A.M.S., Former Chairman of Representative Meetings; and Member of Council and of many Committees.
Lieut.-Col. Ernest Hudson, I.M.S.
Lieut.-Col. A. H. Lister, C.M.G., R.A.M.C. (T.F.)
Capt. Harry Francis Golding Noyes, R.A.M.C.
Lieut.-Col. Cedric Barkley Prall.
Major Frank Charles Pereira.
Surgeon P. D. Pickles.
Lieut.-Col. Cubitt Sindall Rundle, I.M.S.
Lieut. A. L. Thornley, R.A.M.C., late Hon. Secretary, Cardiff Division.
Lieut. Frederick Whitaker, R.A.M.C.
Dr. Eliot William Welchman (Admiralty Transport Service).

4. The Association also has to deplore the loss of the following Members:—

Name.	Offices held.
Dr. William Alexander ...	Chairman of the Bournemouth Division.
Dr. Alexander Ballantyne ...	Ex-President of the Edinburgh Branch.
Dr. Thomas Barr	President Otological Section, 1888.
Dr. James Brown Bird ...	President of the Border Counties Branch in 1910.
Sir Thomas Lauder Brunton, Bart., F.R.S.	Secretary of Section Physiology, 1875, and Vice-President of same section, 1877; President of Section Pharmacology and Therapeutics, 1886; Address in Medicine, 1891.
Dr. Duncan Burgess	Member of Council of Association; Vice-President of Section Medicine, 1908.
Dr. Olive Claydon	Member of Insurance Acts Committee of the Association.
Sir Thomas Boor Crosby, M.D., LL.D.	The first medical practitioner to become Lord Mayor of London.
Dr. Evan Naunton Davies ...	President of the South Wales and Monmouthshire Branch, 1907.
Mr. R. W. Doyne	Secretary of Section Ophthalmology, 1895, and President, 1904.
Sir Frederick Eve	Secretary of Section Surgery, 1892; Vice-President of Section Diseases of Children, 1894, and President of same Section, 1901.
Dr. Karl Grossmann	Member of Council of Lancashire and Cheshire Branch; Representative in Representative Meetings, 1903 to 1907; One of the local Secretaries of the Liverpool Meeting, 1912; Vice-President of the Section Ophthalmology at Aberdeen, 1914.
Sir James F. Goodhart, Bart.	Secretary of the Section Pathology and Bacteriology 1883; Vice-President of the same Section in 1886 and 1895; President of the Section Diseases of Children in 1891; Delivered Address in Medicine at Cheltenham Meeting, 1901.
Dr. Leonard King Havelock Hackman	Secretary of the Portsmouth Division; Temporary Secretary Portsmouth Local Medical and Panel Committees; Secretary Portsmouth Local Medical War Committee.
Dr. John Rogerson Hamilton	Member of Council of the Association; Chairman of Scottish Committee, and member of various Committees; Secretary of Section Obstetrics and Gynaecology, 1896; President of the Border Counties Branch, also the Edinburgh Branch.
Col. James Harper, A.D.M.S.	Secretary Army and Navy and Ambulance Section, 1900, and Vice-President of the Section in 1910.
Dr. Henry Hetley	Late President of the South-Eastern Branch.
Mr. Walter Hamilton Hylton Jessop	President of Section Ophthalmology, 1901.
Dr. H. W. G. Lander... ...	Chairman Altrincham Division 1903-4; President of the Lancashire and Cheshire Branch, 1908.
Dr. John T. Leon	Chairman of Portsmouth Division.
Dr. John Hepburn Lyell ...	Secretary of the Perth Branch.
Dr. William Grant Macpherson	A member of the Scottish Committee.
Dr. Isaac Mossop	Chairman of Bradford Division; President Yorkshire Branch.
Dr. Mary Charlotte Murdoch..	Vice-President of the East York and North Lincoln Branch, 1909.
Dr. H. H. Phillipps-Conn ...	Formerly Member of Council and Honorary Secretary of the Reading and Upper Thames Branch.
Dr. St. Clair Brockway Shadwell	Member of the Council of the Association, and Council of the Metropolitan Counties Branch, and Representative at the Representative Meetings.
Prof. Sir Alexander Russell Simpson, M.D., LL.D.	Vice-President of Section Obstetric Medicine, 1875, Vice-President, 1895, and President, 1898.
Dr. George Mann Smith ...	President of Bath and Bristol Branch.
Dr. Walter W. H. Tate ...	Secretary of Section Obstetrics and Gynæcology, 1899, Vice-President, 1907.
Mr. Walter Ley Woollcombe..	Chairman of Plymouth Division.

Dr. Joseph Adams, Dr. William Corsar Anderson, Dr. William Anderton, Dr. J. Whitfield Blandford, K.H.P., Dr. Philip Grierson Borrowman, Surgeon-Major Robinson Boustead, I.M.S., Dr. Charles Matthew Brady, Dr. John Munro Campbell, Lieut.-Col. Roland Playfair Campbell, C.A.M.C., Dr. Wm. Cayley, Dr. Alfred Chawner, Dr. James Dunbar-Brunton, Dr. Arthur Charles England, Dr. John Farrington, Dr. Charles Edward Fitzgerald, Dr. Charles John Gibb, Lieut.-Col. George Michael James Giles, I.M.S., Dr. James Gilroy, Lieut.-Col. Andrew Robertson Gordon, Dr. Henry Graff, Dr. Edwin Benjamin Gray, Dr. Andrew Johnston Hall, Dr. J. Wilson Hamill, Dr. John Harold, Dr. W. A. Haslam, Col. Thomas Holbein Hendley, C.I.E., Dr. Herbert Vigers Hickman, Canon E. F. Hoërnlé, M.B., Dr. James Gilbert Hope, Dr. Robert James Horn, Dr. F. C. Plumptre Howes, Capt. Cuthbert Edmund Arnold Huddart, R.A.M.C., Dr. Philip John Jackson, Prof. James Jamieson, Dr. James Hunter Johnston, Dr. Lanphier Vernon Jones, Dr. D. T. Glyn Jones, Dr. George Kendrick, Dr. James Armstrong Kilpatrick, Dr Arnold William Warrington Lea, Dr. Frederick Lever, Dr Richard Lowther, Deputy Surgeon-General C. J. Mansfield, M.V.O., M.D., R.N., Lieut.-Col. George Archibald Marshall, Dr. Thomas Pullar Monteath, Dr. John Moorhead, Dr. Thomas Hamilton Moorhead, Dr. Timothy Murphy, Dr. P. C. O'Brien, Dr. William Orange, C.B., Dr. John Griffith Owen, Dr. Clifford

Crawshaw Pickles, Dr. Alexander Barr Pollock, Dr. Alexander Clement Rayner, Dr. Charles J. Renshaw, Lieut.-Col. William Selby, D.S.O., Col. Johnston Shearer, C.B. I.M.S., Dr. Charles Chapman Skardon, Dr. Joseph William Smith, Dr. George Stevens, Dr. William Symington, Dr. Isobel Addey Tate, Dr. Adam Robert Turnbull, Dr. Thomas James Walker, Dr. William Woolmington Webber, Lieut.-Col. Russell Elliott Wood, R.A.M.C. (T.F.), Dr. George Thomas Woods.

Benevolent Funds.

5. During the year 1916 the Association received on behalf of Epsom College £402. 9s. 6d., the Royal Medical Benevolent Fund £579. 12s. 4d., and the Royal Medical Benevolent Fund Society of Ireland £26. 5d.

All these Societies are doing good work on behalf of the less fortunate members of the medical profession and their dependants and are deserving of generous support. The Royal Medical Benevolent Fund Guild is also rendering invaluable aid in cases of peculiar stress arising out of the War.

Contributions may be sent to 429, Strand, W.C. 2, when they will be forwarded to their proper destinations.

(B) Finance.

Accounts for Year ending 31st December, 1916.

6. For the third year the War has overshadowed the finances of the Association. The caution urged in the last Annual Report has proved a sound policy. After providing the usual amounts against depreciation, and after provision for all visible liabilities and an expenditure of £2,704 by the Central Medical War Committee, the year 1916 shows a balance of £10,937 to carry to the surplus funds of the Association. The financial resources are thereby consolidated and materially strengthened.

The Balance Sheet.

7. Various items of income and expenditure are set out in such detail that little by way of explanation can be added to the actual figures. The assets at the close of 1916 show only slight variation from the previous year. The stock of paper was larger, for which the Association is indebted to the foresight of the officers and the Chairman of the *Journal* Committee. The paper in hand stands in the books at the actual cost price, a proportion at 2d. per lb. For much inferior paper the price now demanded is 7d. per lb. The liquid assets are returned at the prices prevailing on 31st December, 1916. Since then there has been a tendency for gilt-edged securities to harden. The liabilities are normal and represent ordinary outstanding accounts. Members will welcome the disappearance of the item "Loan from the Bank." For eight years this large amount of borrowed capital has been a source of weakness and possible danger. When the loan was contracted, originally to finance the rebuilding of the central premises, money was cheap, and it was regarded as a purely temporary measure, to be replaced by the issue of Debentures. For reasons familiar to members, this issue never materialised. With the struggle round the Insurance Act the borrowing from the Bank and other sources was seriously increased, and by the close of 1913 the loans from outside had reached the large amount of £55,600. On 31st December last the balance sheet shows that this amount had been reduced to £11,600, a remarkable recovery, from the embarrassing position of three years earlier.

Revenue.

8. The receipts from the subscriptions of members are less by £3,000. This shrinkage was foreshadowed last year, and with the large number of members transferred from civil life to military services, such a variation was to be expected; Members serving abroad, it will be remembered, pay a smaller subscription, £1 5s. The *Journal* Revenue is dealt with later. The smaller income from Investments is due to the higher rate of income tax. The rents for portions of the central premises not occupied by the Association are increased by an additional letting.

General Association Expenses (Abstract A).

9. The General Association Expenses show a reduction of £1,180; of this £760 is represented by a reduction in the interest the Association has had to find for its loans. The reduction in legal expenses is satisfactory, but the outlook for the current year in this respect is less favourable. The increase in petty cash is primarily due to the provision of teas for the frequent meetings of Committees.

Central Meeting Expenses (Abstract B).

10. The Central Meeting Expenses represent an increased expenditure of £1,377. Of the total expenditure under this head the Central Medical War Committee involved an additional £2,000. With this exception, the Committee expenditure as a rule shows curtailment all round.

Central Premises Expenses (Abstract C).

11. The Central Premises expenses involve an increase of £272 for which rates and taxes are chiefly responsible.

Central Printing, etc. (Abstract E).

12. The general printings are down. The postage also would have shown a decline, had not the revised postal rates involved a considerable increased expenditure during the year.

Central Staff Expenses (Abstract D).

13. The central staff expenses call for little comment; as a net result they are less by £226. The Association has lost to the Army a valuable portion of its staff, and the pressure placed upon those remaining has been considerable. The Council takes this opportunity of recording its appreciation of the loyalty and care with which the Staff has worked in the interest of the Association.

Journal Account (Abstract G.).

14. Of the Editorial expenditure the contributions to the *Journal* are less by £365, due to the exigencies of the time requiring a material curtailment of the literary pages. The cost of printing the *Journal* and Supplement was less by £587. Owing to the reduction in the number of pages in the *Journal* the decrease would have been considerably greater, but for the advance all round in the cost of production. The price of paper has advanced to more than double the rate prevailing before the War, and it looks as though it may go considerably higher under the Paper Restriction Order. Without the large decrease in the size of the *Journal* this extra cost of material would have proved a severe burden. As to the future supply of paper, the outlook is obscure. The importation of paper-making material has been restricted by half. Application was made that the *Journal* might be placed on the list of essential publications, but without success. The Association after placing all its resources at the disposal of the Government to co-operate in securing for the Navy and Army an adequate supply of medical officers, might have expected more appreciative treatment. As it is, the *British Medical Journal*, to which neutral countries look for the records of progress in medicine and surgery, has to stand in for its supply of paper against all and every publication. The cost of postage would have shown a larger decrease but for the amended newspaper postal rates introduced in November, 1915. The ultimate result of expenditure in the Managerial side is a decrease of £363.

Journal Revenue.

15. Turning to the *Journal* revenue, the receipts from advertisements reached £18,149 or £1,434 less than the previous year. The decrease is serious and so long as the War lasts the revenue from this source can hardly be expected to recover. The reduction in publishers' announcements and in advertisements of vacancies and a curtailment of motor advertisements mean a considerable loss. Of vacancies in the pre-War days, the *Journal* would have on an average six pages a week, at the present time all such advertisements will go on a single page. Evidence of the increasing popularity of the *Journal* among readers outside the Association, is shown by the fact that sales have gone up by £261. Construed into copies this represents an additional outside circulation of about 250 copies each week. To meet the total cost of production of the *Journal* £4,366 has been taken from members' subscriptions as against £3,340 the previous year. In 1913 the last complete year before the War, when the *Journal* revenue reached the much larger sum of £28,932, it was necessary to draw £11,033 from members' subscriptions to meet the cost of production in that year.

British Medical Association.

Balance Sheet 31st December, 1916.

Dr. **Cr.**

LIABILITIES.

1915 £		1916 £ s. d.	£ s. d.
417	To Subscriptions paid in advance	486 0 0	
1,084	,, Advertisements ditto	828 1 3	1,314 1 3
330	,, Contributions	289 0 6	
9	,, Reporting	15 15 0	
87	,, Engraving	42 13 9	
389	,, Printing Journal	415 0 3	
542	,, Paper for Journal	751 6 8	
446	,, Miscellaneous Printing...	752 15 6	
72	,, Stationery	126 5 6	
35	,, Repairs	54 1 0	
58	,, Legal Charges	167 18 3	
517	,, Rates and Taxes, Insurance and Electricity	630 17 7	
8	,, Plant and Type...	3 16 10	
6	,, Sundries	3 3 1	
29	,, Library Books	22 13 5	
32	,, Journal and Editor	34 9 6	
	,, Repairs to Typewriting Machines	9 17 6	
	,, Scottish Committee	184 0 0	3,513 14 4
	,, **Loans**—		
14,000	Bank ...	— — —	
9,500	Central Insurance Defence Fund—Secured by charge on £3,200 Bank of England Stock and £6,400 Midland Railway Consolidated 2½% Perpetual Guaranteed Preferential Stock	11,000 0 0	
600	Central Emergency Fund	600 0 0	11,600 0 0
56	,, Exhibition Account Reserve per contra		56 19 7
28,200	,, **Total Liabilities**		16,484 15 2
	,, **Surplus Account**—		
108,887	Balance on January 1st, 1916	121,765 0 7	
12,877	Balance of Income over Expenditure for 1916 brought from Revenue or Profit and Loss Account ...	10,937 19 2	
121,765	**Balance being total of Excess of Assets over Liabilities** ...		132,702 19 9
			£149,187 14 11

ASSETS.

1915 £		1916 £ s. d.	£ s. d.
3,759	By Subscriptions in arrear	3,387 9 4	
1,992	,, Advertisements ,, ...	2,214 17 8	
238	,, Sundry Sales	260 1 8	
208	,, Furniture and Fittings	208 18 10	
1,837	,, Library	1,744 10 2	
1,182	,, Plant and Type	701 14 6	
1,461	,, Paper Stock	2,083 7 3	
412	,, Accrued Rent	412 10 0	
122	,, Cash at Office	42 2 9	
13	,, Cash at Bank	356 16 5	
	,, INVESTMENTS—		
128,516	,, Freehold—429, Strand, Agar Street, and Harvey's Buildings ...	128,516 6 9	
	,, Less amount written off	1,000 0 0	127,516 6 9
6,204	,, £3,200 Bank of England Stock @ 199½	6,384 0 0	
3,760	,, £6,400 Midland Railway Consolidated 2½% Perpetual Guaranteed Preferential Stock @ 48¼	3,088 0 0	9,472 0 0
	,, Exhibition Account—Cash at Bank	56 12 2	
	,, ,, ,, Cash in hand	0 7 5	56 19 7
			£149,187 14 11

(The above Assets do not include the unexpended Balances of Capitation Grants held by the various Branches or the Balance held by the Irish Committee.)

Revenue or Profit and Loss Account for the Year ending 31st December, 1916.

		1915. £ s. d.	1916. £ s. d.	1916. £ s. d.
General Association Expenses	*Abstract A*	2,760 16 3		1,580 2 2
Central Meeting Expenses	„ *B*	4,579 13 0		5,956 18 5
Central Premises Expenses	„ *C*	1,826 2 5		2,098 5 5
Central Printing, Stationery, and Postage Expenses	„ *D*	1,246 19 8		1,095 1 9
Central Staff Expenses	„ *E*	6,792 7 9		6,566 1 7
Library Account	„ *F*	417 18 1		433 8 0
Journal Account Expenses	„ *G*	26,767 11 11		26,382 10 3
Grant to Irish Committee	„ *H*	1,000 0 0		500 0 0
Capitation Grants to Branches		2,487 14 4		2,413 13 4
Subscriptions Written off for Deaths		141 2 0		108 14 6
Arrears Written off		2,349 0 4		1,578 17 11
		£50,369 5 9		£48,683 13 4
Written off for Depreciation of Premises		1,000 0 0	1,000 0 0	
Library—Written off towards Depreciation		200 0 0	200 0 0	
Plant and Type—Ditto		500 0 0	500 0 0	
Investments—Ditto		1,408 0 0	592 0 0	
		3,108 0 0		2,292 0 0
Balance of Income over Expenditure—Carried to Balance Sheet		12,877 15 8		10,937 19 2
		£66,355 1 5		£61,913 12 6

	1915. £ s. d.	1916. £ s. d.
Subscriptions	40,301 3 2	37,248 14 5
Journal Account, Total Receipts	See *Abstract G* 23,427 0 5	21,985 17 8
Interest on Investments	473 3 7	403 11 8
Rent received and accrued	2,073 8 1	2,250 8 9
Returned Scientific Grants	80 6 2	25 0 0
	£66,355 1 5	£61,913 12 6

Abstract H.]

Irish Committee.

Financial Statement for the Year ending 31st December, 1916.

	£ s. d.
To Balance from 1915	415 10 0
„ Contributions from Central Funds of British Medical Association	500 0 0
	£915 10 0

	£ s. d.	£ s. d.
By Rent, Rates, Taxes, Light, Water, &c.	59 4 3	
„ Printing and Stationery	11 16 6	
„ Postages	11 19 7	
„ Sundries	21 0 0	
		104 0 4
„ Salaries—Irish Medical Secretary	600 0 0	
„ „ Clerk	52 0 0	
		652 0 0
„ Travelling Expenses	—	46 4 11
„ Balance	—	113 4 9
		£915 10 0

JOSEPH GIUSANI, M.D., *Chairman.*
THOMAS HENNESSY, *Irish Medical Secretary.*

Abstract A.

General Association Expenses.

	1915. £ s. d.	1916. £ s. d.
Auditors' Fee	157 10 0	157 10 0
Bank Charges	56 5 11	52 17 0
Donation to Charing Cross Hospital	10 10 0	10 10 0
Corporation Duty	239 12 8	124 0 10
Interest on Loans	1,267 15 4	501 12 0
Legal Expenses	594 9 4	302 7 11
Repairs and Hire of Typewriter Machines	3 1 6	23 9 2
Office—Petty Cash	139 15 3	198 2 5
Parliamentary Papers	11 12 4	11 4 1
Scientific Grants	91 0 0	40 0 0
Stamping Subscription Receipt Books	57 10 0	54 3 4
Rent of Telephones	51 0 0	60 0 0
Sundries	28 3 11	36 18 5
History of the Association	52 10 0	—
Lists Supplied by General Medical Council	—	7 7 0
	£2,760 16 3	£1,580 2 2

Abstract B.

Central Meetings Expenses.

	1915. £ s. d.	£ s. d.	1916. £ s. d.	£ s. d.
Annual Meeting—Section Expenses		3 15 6		1 2 0
Representative Meetings—				
Railway Fares	270 19 3		299 13 11	
Printings	263 1 0		293 10 0	
Sundries	43 16 10		42 1 7	
		577 17 1		635 5 6
Council—				
Railway Fares	388 8 0		437 14 2	
Printings	483 17 0		405 18 0	
Sundries	27 17 3		5 11 0	
		900 2 3		849 3 2
		1,481 14 10		1,485 10 8

Committees.

Agenda Committee				5 0 8
Chairmen of Standing Committees—				
Railway Fares	98 18 8	—	9 5 8	
Printings	72 4 6	—	4 3 0	
Amount Voted to Metropolitan Branch for Expenses	50 0 0	—	—	
		221 3 2		13 8 8
Central Ethical Committee—				
Railway Fares	75 5 9		60 17 11	
Printings, &c.	146 15 6		73 19 6	
Fees *re* Young Case	36 15 0		—	
		258 16 3		134 17 5
Central Medical War Committee—				
Railway Fares	247 8 8		798 1 0	
Printings	155 17 6		494 17 6	
Typists and Clerical Assistance	117 17 8		672 8 6	
Postages	141 0 0		486 15 4	
Scottish Service Medical Emergency Committee	—		100 0 0	
Stationery	—		125 0 0	
Repairs, Shelving, &c.	—		22 0 0	
Sundries	—		5 1 1	
		664 3 10		2,704 3 5
Carried forward		£2,625 18 1		£4,343 0 10

Committees—*continued.*

	1915. £ s. d.	£ s. d.	1916. £ s. d.	£ s. d.
Brought forward		2,625 18 1		4,343 0 10
Dominions Committee—				
Railway Fares	1 4 0		—	
Printings	3 5 0		—	
		4 9 0		—
Election Returns Committee—				
Railway Fares	13 17 0		7 14 2	
Printings	13 3 6		10 13 6	
		27 0 6		18 7 8
Finance Committee—				
Railway Fares	65 9 1		72 18 4	
Printings, &c.	75 14 6		101 8 6	
		141 3 7		174 6 10
Hospitals Committee—				
Railway Fares	31 10 9		42 5 9	
Printings	4 6 6		2 0 0	
		35 17 3		44 5 9
Insurance Acts Committee—				
Railway Fares	660 19 6		369 12 1	
Printings	330 15 6		313 19 0	
Sundries	33 15 1		19 2 6	
		1,025 10 1		702 13 7
Journal Committee—				
Railway Fares	18 14 7		10 14 10	
Printings	20 11 0		19 4 0	
		39 5 7		29 18 10
Loan Fund Committee—				
Railway Fares	—		31 18 9	
Printings	—		27 6 9	
				59 5 6
Medico-Political Committee—				
Railway Fares, &c.	134 7 7		138 12 11	
Printings	130 2 0		88 3 0	
		264 9 7		226 15 11
Naval and Military Committee—				
Railway Fares	15 19 4		—	
Printings	7 7 6		—	
		23 6 10		
Organisation Committee—				
Railway Fares	36 8 5		23 4 6	
Printings, &c.	64 1 0		58 14 6	
		100 9 5		81 19 0
Public Health Committee—				
Railway Fares	11 16 11		34 5 5	
Printings, &c.	7 14 6		10 10 6	
		19 11 5		44 15 11
Science Committee—				
Railway Fares	40 4 11		8 1 1	
Printings	17 8 6		6 14 0	
		57 13 5		14 15 1
Scottish Committee—				
Special Grant	205 9 9		200 0 0	
Printings	9 8 6		11 14 0	
		214 18 3		211 14 0
Special Committee appointed to consider Minute 47 A.R.M.—				
Railway Fares	—		3 6 6	
Printings	—		1 13 0	
				4 19 6
		£4,579 13 0		£5,956 18 5

Abstract C.]

Central Premises Expenses.

	1915.	1916.
	£ s. d.	£ s. d.
Cleaning Offices	319 1 0	331 9 6
Coals, Coke and Wood	111 19 0	120 17 0
General Repairs and Upkeep	212 3 9	250 6 8
Rates, Taxes, Insurance, and Electricity	1,182 18 8	1,395 12 3
	£1,826 2 5	£2,098 5 5

Abstract D.]

Central Printing, Stationery and Postage Expenses.

	1915.	1916.
	£ s. d.	£ s. d.
General Printing	340 1 8	228 3 6
Office—General Postage :—		
Finance Department	284 6 7	238 1 4
Medical Department	197 2 0	155 14 2
Stationery	425 9 5	423 2 9
	£1,246 19 8	£1,095 1 9

Abstract E.]

Central Staff Expenses.

	1915.		1916	
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Financial Secretary and Business Manager	1,000 0 0		1,100 0 0	
Clerical Staff, General Association, Journal, Subscription and Advertisement Departments	3,067 1 5		2,918 14 11	
		4,067 1 5		4,018 14 11
Less Proportion of Salaries debited to Journal Account		1,969 3 6		1,895 0 3
		2,097 17 11		2,123 14 8
Medical Secretary	900 0 0		1,100 0 0	
Deputy Medical Secretary	675 0 0		725 0 0	
Assistant Medical Secretary (1)	517 0 0		102 0 0	
Do. Do. (2)	380 16 8		412 10 0	
Clerical Staff, Medical Department	1,707 1 0		1,592 13 9	
		4,179 17 8		3,932 3 9
TRAVELLING EXPENSES :—				
Finance Department		16 12 0		9 17 5
Medical Department		51 9 6		53 10 0
Contribution to Office Staff Superannuation Fund		375 0 0		375 0 0
Insurance (Fidelity Guarantee)...		71 10 8		71 15 9
		£6,792 7 9		£6,566 1 7

Abstract F.]

Library Account.

1916.		£ s. d.
Jan. 1.	To Balance	1,837 5 5
Dec. 31.	,, Purchase of Books	73 17 0
	,, Binding Books	23 7 9
	,, Salary—Librarian	330 0 0
	,, ,, Librarian's Clerk	97 10 0
	,, Printing and Postage of Circulars, &c.	5 18 0
		£2,377 18 2

1916.		£ s. d.	£ s. d.
Dec. 31.	By Salary—Librarian	330 0 0	
	,, ,, Librarian's Clerk	97 10 0	
	,, Printing and Posting of Circulars, &c.	5 18 0	
			433 8 0
	Amount written off for Depreciation		200 0 0
	Balance carried to Balance Sheet		1,744 10 2
			£2,377 18 2

Abstract G.]

JOURNAL ACCOUNT.

Income and Expenditure Account for the year ending 31st December, 1916.

	1915.		1916.	
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
EDITORIAL.				
Salaries:—Editor	1,250 0 0		1,500 0 0	
,, Assistant Editor	750 0 0		750 0 0	
,, ,, ,, Temporary Assistance	186 18 0		308 14 0	
,, Sub-Editor	400 0 0		400 0 0	
,, Clerical Staff...	772 15 6		814 0 0	
Contributions:—Editor	98 17 6		—	
,, Assistant Editor	137 6 6		150 8 6	
,, Sub-Editor	87 6 0		41 12 6	
,, Editor's Clerk	50 10 6		50 14 0	
,, Medical Secretary	7 14 0		1 1 0	
,, (General) and Reporting	1,360 13 11		995 17 4	
Engraving	124 19 5		177 19 10	
Legal Charges	16 8 8		12 11 0	
Postage	42 0 0		34 0 0	
Analyses	9 19 6		12 1 6	
Travelling, Telephone, Parliamentary Papers, and Sundries...	57 5 7		63 7 0	
Advance Slips circulated to the Press	7 11 0		6 0 10	
Compiling Indices for JOURNAL and SUPPLEMENT ...	66 14 6		64 19 0	
Editorial Petty Cash	19 17 1		11 12 3	
		5,446 17 8		5,394 18 9
MANAGERIAL.				
JOURNAL—Compositors' Wages, Machining, &c. ...	6,455 10 4		6,168 15 3	
,, Paper	6,613 19 3		7,144 19 8	
SUPPLEMENT—Compositors' Wages, Machining, &c. ...	723 17 8		423 15 0	
,, Paper	677 4 0		627 0 0	
Postage for Dispatch of JOURNAL	4,101 8 6		3,898 14 7	
Address Bands for JOURNAL	232 17 0		262 13 11	
Proportion of Managers and Clerks' Salaries ...	1,939 3 6		1,895 0 3	
General Postage	146 10 8		150 5 6	
Printings	92 5 6		81 4 5	
Reprints	128 8 2		125 17 5	
"Secret Remedies"	—		4 13 4	
"More Secret Remedies"	58 0 0		61 9 3	
Stationery (Ledgers, Letter Books, &c.)	77 7 3		76 6 3	
Travelling	7 12 0		—	
Insurance (Workman's Compensation, &c.)	32 1 1		33 6 1	
Sundries	4 9 4		3 10 7	
		21,320 14 3		20,957 11 6
		£26,767 11 11		£26,352 10 3

	1915.		1916.	
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Advertisements	19,583 8 4		18,149 9 8	
Sundry Sales—Journals	2,924 19 0		3,185 17 8	
,, Reading and Binding Covers, &c.	70 10 10		33 7 2	
,, Reprints	192 4 4		188 14 8	
,, "Secret Remedies"	56 11 5		58 17 7	
,, "More Secret Remedies" ...	42 11 1		67 8 3	
Sale of Waste, &c.	5 13 5		11 13 5	
Discounts on Machining, Paper, &c.	551 2 0		240 9 3	
		23,427 0 5		21,985 17 8
Balance from Subscriptions for the cost of production and issue of the JOURNAL		3,340 11 6		4,366 12 7
		£26,767 11 11		£26,352 10 3

Having examined the Balance Sheet, dated 31st December 1916 and Accounts with the books and vouchers of the Association except as regards the Irish Committee Account, and having received all the information and explanations we have required, we report that the Balance Sheet is, in our opinion, properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Association according to the best of our information and the explanations given to us and as shown by the books of the Association

We have verified the Investments of the Association on General Account and on account of the Trust Funds shown and of the Office Staff Superannuation Fund, and we have verified the possession by the Bankers of the Association of the Deeds of the Freehold Property

G. E. HASLIP, M.D.,
Treasurer.

GUY ELLISTON,
Financial Secretary and Business Manager.

PRICE, WATERHOUSE & CO.,
3, Frederick's Place, Old Jewry, London, E.C.,
13th April, 1917.

Conclusion.

16. Earlier it has been represented that the outlook for securing a sufficiency of paper, for the continued production of the materially reduced *Journal* members received during 1916, is extremely uncertain. The Treasurer and Chairman of the Journal Committee are closely watching events and many economies have been effected to mitigate the great advance in cost of paper. It is certain that for some time, even if supplies are forthcoming, the price of paper will advance considerably. So far, the Association with its *Journal* has come well through the War, but without assistance from the Government, which has been sought so far in vain, it is well within the range of possibility that owing to shortage of paper a still further reduction in the number of pages published each week in the *Journal* may have to be faced.

We are now in the third year of the War, such a War as the world has never seen, a War which has dislocated the trade of the world and, outside those industries that have ministered to the War's needs, interfered grievously with expansion and profit. It would seem, therefore, a source of legitimate satisfaction that so far the Association has come through the storm with so little loss. However, the present must be a fateful year for the Country and Empire, and at this moment it is difficult to venture any prediction as to how it may ultimately affect the Association.

Apportionment of Member's Subscription.

17. The following tables show how the subscription of a Member was apportioned towards defraying the expenses of the Association for the year ending 31st December, 1916:—

	£	£ s. d.
General Association Expenses ...	1,580	0 1 7
Central Meeting Expenses ...	5 957	0 6 4
Central Premises Expenses ...	2,098	0 2 2
Central Printing Stationery and Postage Expenses	1,095	0 1 2
Central Staff Expenses	6,566	0 7 0
Library Account	433	0 0 7
"Journal" Account Expenses ...	4,366	0 4 7
Grant to Irish Committee ...	500	0 0 7
Capitation Grants	2,414	0 2 6
Written off Premises, Investments, Plant and Type ...	2,292	0 2 6
Subscriptions written off ...	1,688	0 1 9
Balance to reserve...	10,938	0 11 3
		£2 2 0

Estimate of Expenditure and Receipts for 1917.

18. It is difficult under existing conditions to forecast with any degree of certainty the probable expenditure and revenue for the current year.

EXPENDITURE.

	£
General Association Expenses	2,500
Central Meeting Expenses	7,000
Central Premises Expenses	2,200
Printing, Stationery and Postage Expenses	1,200
Irish Committee Expenses	750
Central Staff Expenses	7,000
Library Expenses	450
"Journal" Account Expenses	28,000
Capitation Grants	2,500
Arrears of Subscriptions	1,700
Reduction of Premises Account	1,000
Depreciation	1,200
Estimated total expenditure, 1917 ..	£55,500
Estimated surplus, 1917	3,000
	£58,500

REVENUE.

	£
Subscriptions	35,000
Investments and Rents	2,600
Advertisements	17,000
Sundry Sales of "Journals," etc.	3,700
Discounts on Paper, &c.	200
	£58,500

(C) Central Medical War Committee.

Meetings and Attendances.

19. August 9th, 1916, to April 13th, 1917.

	Committee.		Sub-Committee.	
	Possible.	Actual.	Possible.	Actual.
Allbutt, Sir T. Clifford, K.C.B. (President B.M.A.)	32	12	—	—
Turner, Dr. E. B. (Chairman, Representative Meetings, B.M.A.)	32	31	31	30
Macdonald, Dr. J. A. LL.D. (Chairman of Council, B.M.A.)	32	5	—	—
Haslip, Dr. G. E. (Treasurer, B.M.A.)	32	21	4	3
Barr, Lt.-Col. Sir James, LL.D.	32	14	—	—
Bell, Dr. Mary C. ...	4	2	—	—
Bolam, Lt.-Col. R. A., R.A.M.C.T.F.	32	13	—	—
Browne, Dr. H. W. Langley	32	12	—	—
Buttar, Dr. Chas. ...	32	32	31	31
Coombe, Major Russell, R.A.M.C.T.F.	31	8	30	14
Fulton, Dr. Adam ...	32	16	—	—
Godlee, Sir Rickman J., Bart.	32	32	—	—
Greer, Major W. J., R.A.M.C.T.F.	32	6	—	—
Harman, Mr. N. Bishop	32	30	31	27
Hennessy, Dr. Thomas ...	32	—	—	—
Littlejohn, Prof. Harvey	32	8	—	—
Lucas, Major Albert R.A.M.C.T.F.	32	12	—	—
Morgan, Dr. D. Naunton	32	27	—	—
Ogston, Sir A., K.C.V.O.	—	—	—	—
Osler, Sir Wm., Bt., M.D.	32	—	—	—
Rayner, Dr. Edwin ...	32	19	—	—
Richmond, Dr. B. A. ...	32	28	31	27
Shipley, Dr. A. E., F.R.S.	32	5	—	—
Shore, Dr. T. W. ...	32	27	—	—
Taylor, Dr. Frederick ...	32	26	—	—
Verrall, Mr. T. Jenner, LL.D.	32	30	31	26

The record of Sub-Committee meetings takes no account of a considerable number of meetings for Assessment purposes.

Officers of the Committee.

20. Mr. T. Jenner Verrall, LL.D., was re-elected Chairman, Dr. Charles Buttar, Chairman of the Executive Sub-Committee, and Mr. Bishop Harman and Dr. Alfred Cox, Secretaries.

New Members.

21. Since the last Annual Meeting, two members of the Committee have resigned—Sir Alexander Ogston, at the beginning of the Session, on proceeding to Italy on military service, and Major Russell Coombe early in April. The latter vacancy has not yet been filled. The former was filled in March by the appointment of Dr. Mary Bell, of Harley Street, London, on the nomination of the Federation of Medical Women. Many questions have arisen concerning the employment of medical women in military capacities, and are still more likely to arise in connection with any scheme of mobilisation of the medical profession, and the Committee was glad to take this opportunity of appointing a woman practitioner to the Committee.

The Committee desires to place on record its regret at losing Sir Alexander Ogston and Major Russell Coombe, and its appreciation of their services.

EXTENT OF THE WORK OF THE COMMITTEE.

22. It may be interesting to members of the Association to have some indication as to the extent of the work of the Committee. This may be gauged by the record of the meetings of the full Committee and its Sub-Committee. But this gives only a faint idea of the constant demands upon the time of members of the Committee, and particularly of the Sub-Committee. When calls are being made of the Local Committees a great deal of preparatory work is done in the office which requires to be checked by the Sub-Committee, and this has necessitated at times almost daily informal meetings, of which no record has been kept.

Further evidence of the amount of work that has been done, and of the calls it has made on the resources of the Association may be gathered from the fact that there are at the present time, besides 4 members of the Association's clerical staff who have from the beginning been constantly and exclusively engaged on the work, 16 additional clerks so employed, together with 3 clerks who have been kindly lent by the National Health Insurance Commission and who have been of great assistance in the work. Further, within the last two months it has been found necessary to appoint someone with considerable administrative experience who could act as chief of the staff under the Secretaries, and Mr. J. A. Cumming, a retired Indian Civil Servant, has been appointed and is proving most helpful in the conduct of the work of the Office.

CONCESSION FROM THE GOVERNMENT AS REGARDS RAILWAY FARES.

23. The Committee has succeeded in obtaining the payment of third-class railway fares for members of the Committee attending Committee and Sub-Committee meetings, also for those witnesses who attend to assist the Committee in dealing with appeal cases. The concession began on February 1st, 1917.

SUPPLY OF MEDICAL MEN FOR THE ARMY.

24. It is a matter of public knowledge that our Army has been continuously and largely increased. *Pari passu* with this, there has been a great demand for medical men, which the Committee has done its best to supply. Frequent conferences have been held with the D.G.A.M.S., at which these demands and the difficulties of supply have been freely discussed. Increasing attention has had to be given to the difficulties of squaring the military demands with civilian necessities. Up to the present these difficulties have been overcome by the readiness of practitioners over military age to take over the responsibilities of their younger colleagues and thus release them for military service, and the Committee desires most gratefully to acknowledge the splendid services of the Local Medical War Committees, which, by organising such arrangements, have performed a most difficult and delicate service with great self-sacrifice, and generally speaking with great discretion. The primary selection of the men who can most easily be spared is at the best a very invidious task, and the Committee is glad to report that, on the whole, it has been done with a remarkable absence of friction.

It will be realised that the difficulties of both Local and Central Committees increase rapidly as depletion proceeds, and the central calls can now only be made with great deliberation and after much detailed calculation. The effort of the Central Committee has been to distribute its calls as equitably as possible, bearing in mind not only the resources of each area on paper, but the information supplied by the Local Committees as to the nature of local practice, the special needs of the areas, and the capacity of the remaining practitioners to bear the increased burden which will be put on them by the removal of the younger men.

It must be borne in mind that though the Military Service Acts render every man under 41 liable to be called upon for military service, it does not follow that every such man can in fact be called upon, and this constitutes one of the main difficulties of the Committee in meeting military demands. Some men are ineligible from a medical point of view, some by reason of foreign extraction, others cannot be taken because it has up to the present been found impossible to provide for medical attendance on the civilian population in their absence. One of the Committee's chief functions is to secure that in calling on medical men for military service due regard is paid to civilian requirements. If this were not so steadily borne in mind there would be a repetition in the medical sphere of what occurred in agriculture, for example, where enlisted men have had to be returned to civil life because it was found that work which is necessary in the national interest could not be carried out in their absence. Consideration of these facts will lead to a clearer understanding of the problems of substitution calling for mobilisation of the whole profession which fall to be considered in the next section.

At its meeting on April 11th, the Committee had before it a report on the available assets from which to meet present and future military demands for doctors, and came to the conclusion that the time had arrived when it was necessary that the authorities should be told that these resources were getting dangerously low. It was felt that future demands causing substantial reduction in the number of doctors in civil practice, could only be met by calls which would be bound to give rise to expressions of dissatisfaction and anxiety on the part of the public. The Committee was of opinion that such a situation should not be allowed to arise without a clear realisation by the authorities that further depletion of the civil profession could not be undertaken on the sole responsibility of the Committee. An intimation of this opinion was accordingly sent to the authorities concerned.

On April 19th the Committee became aware that the War Cabinet had instructed the War Office to send calling-up notices to every medical man under 41, and a letter, which appeared in the public press on April 21st, was afterwards forwarded by Lord Derby, Secretary of State for War, to each of these men. The reason for this sudden step, as stated by Lord Derby, was the action of the Germans in torpedoing hospital ships, thus necessitating the retention abroad of large numbers of wounded, with a consequently largely increased demand for the services of doctors outside this country. The step took the Committee and the profession by surprise and upset for the moment the whole machinery so laboriously built up, by which the selection of medical men for commissions had been carried out with due regard to civilian requirements. The Committee was called together at short notice and, in conference with the Committee of Reference, passed the following resolution :—

> That the Central Medical War Committee and the Committee of Reference cannot continue to bear the responsibility in the eyes of the medical profession and of the community, for protecting the medical needs of the civil community, while meeting the requirements of the Army, unless they still have the duty of deciding how many doctors and which individuals can in fact be spared at any given time from civil work in a particular place to enter military service. And that therefore unless the War Office will undertake not to grant any commission to a doctor even though volunteering for service whom the Committees consider to be for the time being indispensable for civil work, the Committees will be unable to take any further part in the selection of doctors for military service.

This, accompanied by a memorandum giving the reasons which had led the Committee to its decision, was sent to the War Cabinet, the Secretary of State for War, and the Director-General A.M.S., on April 25th (for memorandum see *B.M.J.* April 28th, 1917, p. 551.) On April 25th the following letter was received from Lord Derby :—

> Gentlemen,
>
> I am in receipt of your letter of April 25th, and in answer to it I beg to state that I agree that the procedure prevailing up to last week with regard to the selection of doctors shall be continued, and I will further agree not to give a commission to any doctor except on the recommendation of your Committee.
>
> Your Committee is asked to provide the Army with doctors by May 1st, and doctors per week after that date, until the requisite number has been found. In the event of the number so asked for not being forthcoming, I must reserve to myself the right at any time to reconsider the position.
>
> I trust that this arrangement will be agreeable to your Committee, and that they will continue doing the excellent work for the War Office that they have done in the past.
>
> Yours faithfully,
> (Signed) DERBY.
>
> 25th April, 1917.

It is hoped that Secretaries of Local Medical War Committees who for some days were driven almost to distraction by the appeals for advice from the men suddenly called up will realise that the delay in sending them information was due simply to a determination not to send any advice until the Committee had ascertained from the military authorities what the exact position was.

MOBILISATION OF THE MEDICAL PROFESSION.

25. It has long been apparent to the Committee that, if the war were prolonged and the demand for doctors continued, a stage would be reached at which it would be impossible to secure the numbers required, unless by some means or other doctors who are eligible for service but cannot be spared, could be replaced by doctors who can be spared from the districts in which they practise and are not eligible for military service. In December last, experience of the current and previous calls, together with a knowledge of the immediate future demands of the military authorities, led the Committee to pass the following resolution :—

> That this meeting approves of the principle of mobilisation of the medical profession, apart from any question of general mobilisation of the whole community, so that every individual whose name is on the Medical Register shall be held bound to give such service as he is competent to give when required to do so by the State.

It was at this time proposed, after reporting to the Council of the Association, to approach the whole profession in co operation with the Committee of Reference and the Scottish Medical Service Emergency Committee, with a view to ascertaining the opinion of each practitioner as to the desirability of organising a voluntary scheme of mobilisation. The Scottish Medical Service Emergency Committee was asked for its opinion on the proposal and expressed its approval thereof, afterwards consulting a meeting of representatives of Scottish Local War Committees, which also approved the idea.

The appointment of the Director-General of National Service, however, introduced a new factor, and on December 20th, 1916, it was decided to seek an interview with him on the subject, together with representatives of the other Central Committees. A letter stating the opinion of the Committee, as expressed in the resolution quoted above, was sent to the Prime Minister, who expressed his appreciation of the suggestion made by the Committee and said that he had referred the matter to the D.G.N.S.

It is to be regretted that owing to the pre-occupation of the Director-General of National Service with other matters, the proposed joint interview with him never took place. The Committee prepared a letter to every member of the profession, urging that it was the duty of each to assist in making successful a voluntary mobilisation of the whole profession on similar lines to those which were being pressed upon every member of the public. But the issue of this letter, which was intended to be circulated with the approval of the D.G.N.S., was suspended after an interview which representatives of the Committee had with Mr. Chamberlain, and accordingly the medical profession (which was advised by Mr. Chamberlain not to respond to the appeal which was being made to the general public, because special arrangements would be made for doctors) has had no opportunity of showing whether it would or would not have responded adequately to a voluntary appeal.

The next development was the receipt of a letter from the D.G.N.S., dated February 22nd, 1917, intimating that he proposed to call a conference under the Chairmanship of the President of the General Medical Council to discuss certain questions connected with the mobilisation of the medical profession. This letter was published in the Supplement of the *British Medical Journal* of March 3rd, 1917. It contained the following questions on which the opinion of the representatives was desired :—

> (1) "Whether the service to be given by members of the profession should be compulsory or voluntary."
>
> (2) "What arrangements should be made for the collection and distribution of fees or other form of remuneration in cases where doctors leave their own practices or take on the practices of others."
>
> (3) "What arrangements should be made (*a*) centrally; (*b*) locally, for redistribution of medical men," and
>
> (4) "What should be the relations between any central executive or advisory body representing the profession and this Department."

The Committee gave careful consideration to these questions and passed the following resolutions thereon :—

> That the representatives, while expressing the opinion of this Committee that a compulsory scheme is the only one likely to be successful, be given a free hand to vote in the matter as may seem expedient to them after hearing the opinions expressed at the Conference.
>
> That the remuneration for substitute service, not under military authority, should be secured by professional arrangements made so as to stimulate a maximum medical service, and not by the payment of salaries by the Treasury; but the adoption of this principle may be found to necessitate the provision of Treasury grants to a central fund in the hands of the Committee responsible for the substitution, wherewith it could meet unavoidable deficiency in individual cases.
>
> That the existing arrangements of responsibility, vested, in concert with the Government Departments concerned, in the C.M.W.C., the Committee of Reference and the Scottish Committee, with their utilisation of their respective local Committees in the selection of doctors for military service, be continued for the purpose of selection for substitution service, and that the functions of any single body set up for the United Kingdom by the D.G.N.S. should be advisory, and it should be composed mainly of representatives of the three Committees named.

The Conference took place on March 14th and 15th, and was attended by the following :—

> *Representing the C.M.W.C.*:—Drs. T. Jenner Verrall, E. B. Turner, Chas. Buttar, and B. A. Richmond.
>
> *Representing the Scottish Medical Service Emergency Committee*:—Drs. Norman Walker, John Adams, and J. C. McVail.
>
> *Representing the Committee of Reference*:—Dr. Frederick Taylor and Sir Rickman J. Godlee, Bart.
>
> Together with Mr. Bishop Harman and Dr. Alfred Cox, Mr. T. H. Graham, and Mr. F. G. Hallett, Secretaries of the three Committees.

The Conference formulated its opinions on the various questions submitted to it, and these are now under the consideration of the Director-General of National Service.

UTILISATION OF MEN FOUND UNFIT FOR GENERAL SERVICE

26. Since its establishment the Committee has repeatedly pressed on the attention of the Director-General, A.M.S., the desirability of granting commissions to men not passed for general service at home and abroad. It was found that many such men—some passed for Garrison Duty at home and abroad, others for Home Service only—were in very active practice, and as the difficulties of supplying the demands of the Army increased, the Committee became convinced that the difficulty of meeting them ought to be met in part by giving Commissions to such of these practitioners as could be spared from civil work, and placing them in suitable military positions. The Committee is glad to report that the military authorities have now agreed to this course, and men from both classes are now being granted commissions when their names are put forward by the Committee.

EMPLOYMENT OF COMMISSIONED OFFICERS OF MILITARY AGE IN HOME APPOINTMENTS.

27. Representations have from time to time been made to the Director-General, A.M.S., in favour of the substitution, wherever possible, of older men for those younger commissioned men who are employed at home but are eligible for service abroad. A census of all the men employed in Military Hospitals at home was taken by the authorities, and since then many of the younger men have been replaced by older men, also by men who though of military age are unfit for service abroad.

CANCELLING OF THE VETO ON RESIGNATION OF OFFICERS IN THE R.A.M.C.

28. As indicated in the letter of the D.G.A.M.S. which was read at the Representative Meeting, 1916, it was found possible, very shortly after that Meeting, to cancel the order which retained on service medical officers of military age who had completed their contract of service and wished to resign. The cancelling of the order was reported to the Committee on August 25th, 1916. During the operation of the order the Committee had very many letters on the subject from various parts of the Empire, and it was evident that the order had given rise to very considerable inconvenience to men who for various reasons had arranged to come home at the end of their contract.

PROTECTION OF THE PRACTICES OF MEN WHO ARE ON ACTIVE SERVICE.

29. The Committee has had a considerable amount of evidence which shows that either from thoughtlessness or other causes, the interests of some of the men on service are being very inadequately protected. This particularly applies to private practice. After consultation with the Committee of Reference and with the Council, the Committee sent to every member of the profession in England and Wales who was not known to hold a Commission, a circular (W. 89) which contained detailed suggestions as to the ways in which the interests of men on service could be protected. Many expressions of approval were received, and the Committee has reason to believe that the circular has been useful. It is unfortunately the case that, however loyal the men remaining at home may be, the private practices of men who are serving inevitably suffer in a greater or less degree. It is all the more important, therefore, that no stone should be left unturned to minimise the loss as much as possible. Several cases have been brought to the notice of the Committee in which practitioners seemed to have deliberately refused to comply with the local arrangements for protecting the practices of men on service which are now in operation practically all over the Kingdom, and the Committee has done what it could to bring home to the offenders the unpatriotic and unprofessional nature of their action. The Association has already given an assurance that its machinery would be utilised to the fullest possible degree in order that suitable cases should be brought before the General Medical Council. Evidence in these cases is not always easy to procure, but the Committee has had reported to it recently one case in which the evidence appears to be conclusive, and the matter has been referred to the Central Ethical Committee of the Association for further proceedings.

TREATMENT OF THE DISCHARGEABLE DISABLED SOLDIER.

30. The question of what should be the procedure as regards men who are unfit for further military service has received a great deal of attention from the Committee during the past Session.

Many of such men will always remain limited as to the amount and nature of the work of which they will be capable, but with proper treatment and training much can be done to improve their capacity. If turned adrift without treatment and training, it seems certain that many of them would be content to live on their pensions, and instead of becoming useful citizens, would rapidly degenerate. Military practice was understood to favour the dismissal of such men from the Army as soon as it is definitely decided that there is no prospect that they would ever be able to serve again. The care of such men as are discharged devolves upon the Statutory Pensions Committee with the aid of the Local Pensions Committees throughout the country. Inquiry failed to show that any arrangements had been made by that authority for the medical or surgical treatment of discharged men.

In co-operation with the Committee of Reference, representations have been made to the Statutory Pensions Committee, and on several occasions to the Secretary of State for War.

On November 3rd, 1916, Mr. Lloyd George, then Secretary of State for War, received a deputation from the Committee, together with deputations from the Statutory Pensions Committee and the Unionist War Committee, when all three bodies joined in pressing upon the Minister the view expressed above. Mr. Lloyd George, while expressing his personal inclination for the policy placed before him, pointed out that there were military objections to it. He stated that a report on the subject was being prepared for him by his advisers, and after he had considered it he would consult with representatives of the three bodies.

At a subsequent date a report on the whole subject, explaining how the policy of the Committee could be carried out in detail, was prepared by joint representatives of the Committee of Reference and the C.M.W.C., and after approval was sent *inter alia* to the Premier, the Secretary of State for War, the Director-General Navy Medical Service, the Director-General Army Medical Service, and the Vice-Chairman of the Statutory Pensions Committee. Later the Committee was consulted by the Secretary of State for War as to the respective merits of two schemes which had been placed before him, and expressed its strong preference for the one which most fully embodied the policy advocated by the Committee. The Prime Minister wrote thanking the Committee for the consideration it had given to the matter, but since that time nothing definite has transpired, and it is impossible to say with any degree of certainty what policy, if any, has been adopted by the Government.

The Committee noted that the Statutory Pensions Committee with its great responsibilities in regard to the medical treatment of discharged disabled soldiers, contains no medical representative, and that even its Disablement Sub-Committee, which is specially charged with this part of the main Committee's reference, has only one medical member. Moreover, there is no provision for medical representation on the Local Pensions Committees. Representations on the subject have been made to the Minister for Pensions, who has expressed his agreement with the views of the Committee on this subject, and stated that he had passed the matter on to the Statutory Pensions Committee for such action as was possible under its constitution.

(D) Organisation.

ALTERATIONS OF BY-LAWS.

(See also para. 94).

(1) *Substitutes for Representatives.*

31. Under By-law 37 as it at present stands, a substitute for a Representative in the Representative Body can be elected only for a given Meeting of that body and if the Representative appointed for the year has actually shown inability or unwillingness to attend that Meeting. The Council considers that a Constituency should be able, when electing a Representative for the year, to appoint at the same time a deputy or deputies who, or one of whom, would act in the event of the Representative being unable or unwilling to attend a given Meeting. In practice a number of Constituencies already attempt to appoint deputies when they appoint their Representatives. Under the By-law as it stands, this procedure is irregular. In the opinion of the Council it should be regularised and encouraged.

The Council recommends :

Recommendation A.—That the A.R.M., 1917, adopt, to take the place of existing By-law 37, the following By-law :

Deputy-Representatives.

37 (1) Each Constituency may elect a member of the Association, or one out of several members nominated by way of succession (not being the Representative or Deputy-Representative of any other Constituency) to act as Deputy in the place of any Representative of that Constituency at any Representative Meeting in the event of that Representative being unable or unwilling to attend such Meeting, and any such Deputy shall for the purposes of such Meeting be the Representative of the Constituency so electing him.

(2) Any such Deputy may be elected either (a) with authority to act generally (in the event aforesaid) at any Representative Meeting held during the year of office of the Representatives, or (b) with authority to act (in the event aforesaid) at any specified Representative Meeting or Meetings.

(3) Where the Deputy is to be authorised to act generally, he may be elected at the time and in the manner provided by By-law 35 with respect to the election of Representatives, and his name and address shall be notified under clause (4) of that By-law. Where he is to be authorised to act only at any specified Representative Meeting or Meetings, he may be elected at any time before the holding thereof by the Constituency in General Meeting or by such Officer or Member of any Division comprised in the Constituency as may have been authorised in that behalf by the Rules of the Division or Divisions composing the Constituency or by a resolution of the Constituency.

(4) The Chairman of Representative Meetings or any person authorised by him in that behalf shall on being reasonably satisfied that any member is entitled under this By-law to act as Deputy at any Representative Meeting cause to be issued to him a ticket of admission to that Meeting.

(5) The election of a member as a Deputy under this By-law shall not constitute him a member of a Branch Council under By-law 16 or of an Executive Committee under By-law 19, but shall entitle him to take part in any election of members of Council under paragraph (c) of By-law 46 which may take place at or at the time of any Representative Meeting at which he is acting as Deputy under this By-law.

(2) *Elected Membership of Organisation Committee.*

32. In the opinion of the Council the number of elected members of the Organisation Committee, viz, 3 elected by the Representative Body and 3 by the Council, a total of 6, is unduly small, in view of the importance of the work of the Committee and the fact that experience has shown that it is sometimes difficult to secure a satisfactory attendance at its meetings.

The Council recommends:

Recommendation B.—That the A.R.M. 1917, amend the Schedule to the By-laws as to the Organisation Committee by substituting under the heading "Appointed by the R.B." and "Appointed by the Council," respectively, the figure "4" for the present reading "3."

(3) *Representation of Central Ethical Committee on Journal Committee.*

33. In view of the need for co-ordination between the work of the Journal and Central Ethical Committees, it has been the practice of the Council yearly by special resolution to empower the Journal Committee to invite to its meetings the Chairman of the Central Ethical Committee. In the opinion of the Council it is desirable that this arrangement be placed on a permanent footing.

The Council recommends:

Recommendation C.—That the A.R.M., 1917, amend the Schedule to the By-laws as to the Journal Committee by inserting therein, under the heading "Additional Members *ex-officio*," the words "The Chairman of the Central Ethical Committee."

(4) *Representation of Public Health Committee on Medico-Political Committee.*

34. Similarly, in view of the need for co-ordination of the work of the Public Health and Medico-Political Committees, it has been the practice of the Council to authorise the Medico-Political Committee to invite the Chairman of the Public Health Committee to attend its meetings. In the opinion of the Council this arrangement should be placed upon a permanent basis.

The Council recommends:

Recommendation D.—That the A.R.M., 1917, amend the Schedule to the By-laws as to the Medico-Political Committee by inserting therein, under the heading "Additional Members *ex-officio*," the words "The Chairman of the Public Health Committee."

(5) *Representation of Insurance Acts Committee on Finance Committee.*

35. The Council considers that in view of the importance of the work of the Insurance Acts Committee, and the financial aspects of that work, it is desirable that the Chairman of that Committee should be a member *ex-officio* of the Finance Committee. The Chairmen of the Organisation, Journal, Science, Medico-Political and Central Ethical Committees are already members *ex-officio* of the Finance Committee.

The Council recommends:

Recommendation E.—That the A.R.M., 1917, amend the Schedule to the By-laws as to the Finance Committee by substituting in the second column, "Additional Members *ex-officio*," for the words (7th and 8th lines) "and Central Ethical," the words "Central Ethical and Insurance Acts."

GROUPING OF BRANCHES FOR ELECTION OF COUNCIL, 1918-19.

(a) *Home Branches.*

36. The Council recommends:—

Recommendation F.—That the Home Branches be grouped for election of 24 members of Council, 1918-19, under By-law 46 (a) in the same way as for 1917-18.

(*For the* 1917-18 *grouping see B.M.J. Supp., May 8th*, 1915, *p.* 201.)

(b) *Oversea Branches.*

37. The Council recommends:

Recommendation G.—That the Oversea Branches be grouped for election of 7 members of Council, 1918-19, under By-law 46 (b) in the same way as for 1917-18.

(*For the* 1916-17 *grouping see Supplement, May 8th*, 1915, *p.* 202. *The* 1917-18 *grouping was similar, except that the Grenada Branch was included in the Canada and West Indies group*).

GROUPING OF DIVISIONS FOR ELECTION OF REPRESENTATIVE BODY, 1917-18.

(a) *Home Divisions.*

38. Subject to certain adjustments in respect of changes of Divisions, the Council has provisionally grouped the Home Divisions in Constituencies for election of Representatives, 1917-18, in the same way as for 1916-17. The Council has authorised the Organisation Committee finally to decide the grouping on publication of the 1917 Annual List of Members.

(b) *Oversea Divisions.*

39. The Council has made each Division and Division-Branch an independent Constituency.

REPORTS OF DIVISIONS AND BRANCHES FOR 1916.

40. Notwithstanding the unfavourable conditions, satisfactory reports have been received from the large majority of the Divisions and Branches. A specially gratifying feature is that the reports continue to show improved financial co-ordination between Branches and Divisions.

The Council wishes to express its warm appreciation of the work done during the session by the Officers and Executives of the Divisions and Branches under exceedingly difficult circumstances.

41. MEMBERSHIP.

1916.		1915.	
New Members	674	New Members	806
Resigned	747	Resigned	1,056
Died	251	Died	285
Removed in Arrears	509	Removed in Arrears	379
Expelled	1	Expelled	7
	1,508	Erased from Medical Register by G.M.C.	1
Erased from Medical Register by G.M.C.			1,728
Decrease	834	Decrease	922

Membership, December 31st, 1916 ... 20,445
Membership, December 31st, 1915 ... 21,279

The Council considered Min. 175 of the A.R.M., 1916, as to the effect of the War upon the financial position of practitioners, and the need for increase in the membership of the Association as the only body which voices the opinion of the profession and carries weight with the Government and with the public, and is taking appropriate action.

GRANTS TO BRANCHES.

(a) *Home Branches.*

42. Grants for 1917 varying from 1s. to 4s. per member are being made to those Home Branches which require grants and have furnished satisfactory reports for 1916.

(b) *Oversea Branches.*

43. Grants to the Oversea Branches have been made on the same basis as in previous years, viz., at the rate of 4s. per member who has paid the full subscription for the year, and 2s. per member, elected after June 30th, who has paid half the ordinary subscription.

(c) *Supplementary Grants.*

44. Supplementary grants have been made to the Bath and Bristol and North of England Branches.

RULES.

45. 138 of the 207 Home Divisions, and 37 of the 41 Home Branches, are now in possession of Rules of Organisation. Divisions and Branches not yet in possession of such Rules are asked to apply to the Medical Secretary for copies of the new Model Rules.

INCREASED LENDING LIBRARY FACILITIES.

46. The Council has made arrangements whereby it is anticipated that increased lending library facilities will shortly be available for members. Notice of the arrangements will be given in the *Journal.*

CHANGES OF AREAS.

47. During the year the following amalgamations of Division areas have been made:—Carlow with Kilkenny, Lewisham with Woolwich, Ealing with South Middlesex, Willesden with Harrow. St. Pancras and Islington Division has been absorbed partly in City Division and partly in Hampstead Division. Adjustments have been made of the areas of the Morpeth, North Northumberland, Manchester, and Stockport, Macclesfield and East Cheshire Divisions.

UNDER CONSIDERATION.

48. Question of holding a Conference of Secretaries in 1917.

49. Proposals for formation of a Dewsbury Division, and Fiji and Nyasaland Branches.

50. Executive procedure of Association.

(E) Journal.

51. In its report last year the Council referred to the difficulties which had then to be faced in the production of the *Journal* owing to shortage of paper. Since then the difficulties in the way of securing an adequate supply of paper have become increasingly great and enhanced prices have had to be paid for the paper it has been possible to obtain. This matter is more fully discussed in the section of the report dealing with finance, and it will be sufficient here to say that economies have been practised and the number of pages published each week has been materially reduced. The future is uncertain, but it is possible that members may have to face further curtailment in the size of the *Journal.* In spite of this its position among its contemporaries has been maintained and many gratifying tributes to its value as a medical periodical have been received from members serving with the British Armies abroad and at home. The attention of the profession has been so absorbed in the war that the amount of clinical matter coming forward for publication on subjects not relating to war wounds, injuries and diseases, has greatly diminished, and efforts are being made to obtain in larger numbers papers of what may be called "civilian clinical interest."

52. Since the last annual report Mr. C. Louis Taylor, who has been a member of the staff of the *Journal* for over thirty years, and for the last twenty, Assistant Editor, has been compelled to retire owing to failing health. The Council, on behalf of the Association, has conveyed to Mr. Taylor its appreciation of the great value of his services, adding the hope that he may long be spared to enjoy his well-earned rest.

Dr. N. G. Horner has been appointed in his place. Dr. Horner qualified in 1906, took his medical degree at Cambridge in 1910, and has served for two years in the R.A.M.C.

53. The price of the *Journal* to non-members of the Association has been raised from 6d. to 8d.

Close supervision has been exercised over the advertisements, with results which it is hoped will be considered satisfactory.

(F) Science.

STATE RECOGNITION OF SCIENTIFIC WORK.

54. The Joint Committee of the Association and the British Science Guild, appointed in accordance with Minute 164 of the A.R.M., 1916, has circularised the British Universities and other bodies employing medical practitioners engaged in scientific research, with a view to obtaining information as to their salaries, pensions, security of tenure, etc. Communications were addressed to the Secretary of State for the Colonies and to the Chairman of the L.C.C. asking that a deputation be received from the Joint Committee in order to discuss the proposals of the British Science Guild regarding the payment of scientific experts called in by Government departments and municipalities. A reply was received from the former to the effect that owing to pressure of engagements he could not receive a deputation, and from the latter that the practice of the County Council, when employing experts of any kind, was to remunerate them according to the scale generally accepted as adequate for the services rendered, and that in these circumstances the Committee of the County Council dealing with the matter did not think a deputation would serve any useful purpose. The Annual Meeting of the British Science Guild, to which the Association's representatives on the Joint Committee have been invited, will be held at the Mansion House on April 30th, when an address on "National Reconstructions" will be given by Lord Sydenham.

MIDDLEMORE PRIZE.

55. The Council has decided to award the Middlemore Prize in 1917 for the best Essay on "Disorders of the eye and of its functions induced by War injuries not directly affecting the eye."

RESEARCH SCHOLARSHIPS: SCIENCE GRANTS.

56. In view of the War conditions, the Council does not propose to appoint Research Scholars for 1917-18, but is prepared to receive applications for grants in aid of scientific research.

(G) Medical Ethics.

QUESTION OF MEDICAL REFEREE OR INSPECTOR INFORMING MEDICAL ATTENDANT OF MODIFICATION OF TREATMENT OF A CASE.

57. The Council recommends:

Recommendation A.—That the appended memorandum on the question of whether a medical referee or inspector should inform the medical attendant of any modification in the treatment of a case which he finds it necessary to recommend to his employer as desirable, be approved (Appendix I.).

Recommendation B.—That the following Rule be added to those already approved by the Representative Body in respect of the position of medical practitioners called upon to examine (otherwise than by request of the patient or persons acting upon his behalf) patients who are under the care of other practitioners:—

> If the medical inspector finds it necessary to report to his employer that any modification in the treatment which is being carried out is in his opinion necessary to the more rapid recovery of the case, he shall so inform the medical attendant.

(*For the Rules already approved by the R.B., see Appendix II.*)

IMPROPER CONDUCT OF A PANEL PRACTITIONER.

58. The Council considered, and made representations to the General Medical Council as to the conduct of a medical practitioner, whose name had, as a result of the findings of a Statutory Inquiry Committee, been removed by the Commissioners from the Panel List. It was anticipated that the General Medical Council would accept the report of the Statutory Inquiry Committee as evidence, but the Penal Cases Com-

mittee of that Council having intimated that the Association must be prepared to prove the case *de novo*, and without any assistance from the official documents of the Insurance Inquiry Committee, and that some of the more serious charges were not suitable as subjects of inquiry by the General Medical Council, the Council of the Association has decided to take no further proceedings in the case.

Steps will be taken through the Direct Representatives on the G.M.C. to ascertain on what ground that Council ruled out as an unsuitable subject of inquiry charges which if substantiated seem to the Council of the Association to affect very seriously the credit and reputation of a member of the profession.

Complaint by Doctor on Active Service as to manner in which his practice was being carried on by Local Practitioners.

59. A case in which local practitioners were alleged to be appropriating to themselves the patients of a doctor on military service was investigated by the Central Ethical Committee, with a view to bringing it to the notice of the General Medical Council. Unfortunately, however, the evidence was not sufficiently full as, in the opinion of the Solicitor, to justify the case being advanced as a test one in order to obtain a decision by that Council.

Alleged Breach of Conditions of Scheme approved by a Local Medical War Committee.

60. The Central Ethical Committee considered a case in which a member of the Association was alleged to have failed to observe the conditions of a scheme approved by the Local Medical War Committee for the protection of men on Service, and referred the matter for investigation under the Ethical Rules by the Branch to which the member belongs.

Rules.

61. Up to the present the Council has approved the adoption of the Revised Rules governing procedure in Ethical matters, as approved by the A.R.M., 1915, by 145 out of 207 Home Divisions, and by 33 out of 41 Home Branches. Thus there are still 62 Home Divisions and 8 Home Branches which are not in a position to deal with Ethical matters.

Action against the Association and Others.

62. Trial of the action for conspiracy, libel and slander brought against the Association and five Members of the Coventry Division by the four medical officers of the Coventry Dispensary, referred to in the last Annual Report of Council, has been postponed.

(H) Medico-Political.

Organisation of Measures for Prevention and Treatment of Venereal Disease.

(1) *Affirmation of Principles provisionally adopted by A.R.M., 1916.*

63. The Council placed before the Divisions in the Supplement of July 8th, 1916 a report and recommendations in respect of the matters dealt with in the report of the Royal Commission on Venereal Diseases, and in the Memoranda then being issued by the Local Government Board to County and County Borough Councils as to organisation of medical measures against these diseases. The time at the disposal of Divisions in July, 1916, for consideration of the report and recommendations being so short, only provisional decisions were arrived at by the A.R.M., 1916, on the various subjects raised, and that Meeting instructed the Council to refer these decisions to the Divisions, with a view to formulation of a definite policy of the Association. In view of the importance of the matter, the provisional decisions of the A.R.M. 1916, were referred by the Council to the Medico-Political, Public Health and Hospitals Committees jointly, and were issued by these Committees to the Divisions in October, 1916, with the comments of the joint Committees, and a request for the opinions of the Divisions.

64. The replies of the Divisions not having warranted any modification in the provisional resolutions, the Council submits the resolutions for final adoption by the Representative Body.

The Council recommends:

Recommendation A.—That the following be adopted as the policy of the Association in the matter of the diagnosis and treatment of venereal disease:—

Representation of Medical Profession on Committees for dealing with Local Schemes.

(i.) That it is essential for the satisfactory working of any scheme for the diagnosis and treatment of venereal diseases that the local medical profession shall be asked to nominate representatives who shall be entitled to serve upon any Committee having the organisation and control of any such arrangements.

Confidential Certification and Registration of Cause of Death.

(ii.) That arrangements should be made for the confidential registration or certification of the causes of death, the proposals of the Registrar-General being commended for consideration. *(Recommendation 1 of Royal Commission.)*

Uniform Records of Sickness in Institutions.

(iii.) That the Local Government Board should devise a uniform system of records of sickness in Hospitals and Poor Law establishments, with the object of securing accurate statistical information as regards the prevalence of disease among persons who receive institutional treatment. *(Recommendation 3 of Royal Commission.)* The cost of these should be borne by the Local Government Board.

Facilities for Diagnosis of Venereal Diseases.

(iv.) That extended facilities should be made available for the diagnosis of venereal diseases by laboratory methods. The local authorities concerned should include in such service the provision of laboratory facilities having for their object the prevention, diagnosis, and treatment of diseases in general. In any schemes framed by local authorities the fullest use should be made of the laboratory facilities at Universities and Hospitals.

Treatment of Venereal Diseases.

(v.) That measures should be taken to render the best modern treatment of venereal diseases readily available for the whole community, and the arrangements should be such that persons affected by these diseases will have no hesitation in taking advantage of the facilities for treatment which are afforded. *(Recommendation 7 of Royal Commission.)* That every registered medical practitioner should be in a position to insure his patients access to institutional treatment when he considers that course desirable.

Treatment at General Hospitals and General Clinics.

(vi.) That institutional treatment should, as far as possible, be provided at general hospitals and clinics, and local authorities concerned should, as the first step in the preparation of their schemes, approach the general hospitals and the local medical profession in their areas with a view to making arrangements for treatment.

Desirability of Treatment of Syphilis at a Skin Department, and of Gonorrhœa at a Genito-Urinary Department.

(vii.) That inasmuch as—

(1) skin diseases, including syphilis, are a well recognised branch of professional work, and genito-urinary surgery another well recognised branch, each branch requiring special knowledge, methods, and equipment;

(2) patients unwilling to attend a "syphilis," "gonorrhœa," or "venereal diseases" department, are willing to attend a general skin, or general genito-urinary department;

(3) unless such general departments are available, students cannot be adequately trained in modern methods of diagnosis and treatment of venereal diseases, nor practitioners, without undue expenditure of time and trouble, keep up to date their knowledge of them ;

(4) it is important that genêral practitioners shall be as expert as possible in the diagnosis and treatment of venereal diseases, so that hospitals shall not be called upon to deal with cases which should, in the best interests of all concerned, be dealt with by general practitioners ;

it is desirable that, so far as possible, persons suffering from syphilis and considered suitable for hospital treatment should ordinarily be treated in a skin department, and persons suffering from gonorrhœa in a genito-urinary or urological department of the hospital, with suitable arrangements for reference of cases. Each department should have separate divisions for men and women.

Organisation: Accounts: Medical Staff.

(viii.) That a voluntary institution providing a clinic or beds for the treatment of cases of veneral diseease should be carried on in accordance with the following principles :—

(a) that the organisation may run concurrently with that of the institution ;

(b) that the accounts should be kept so as to show the approximate aggregate cost of the treatment of such patients, including the cost of medical attendance and treatment ;

(c) that special medical officers selected as far as possible from amongst the local practitioners should be appointed to carry on the work of the venereal wards or clinics, and should work under the supervision of the honorary staff ;

(d) that the services of all members of the medical staff concerned with the special treatment of such patients shall be paid for by the state and local authority.

Payments to Institutions: Honorary Medical Staffs.

(ix.) That from all payments received by the Governing Body of a voluntary medical institution from the State and local authority in respect of the venereal medical service, a proportion to be agreed upon between the Governing Body and the honorary medical staff should be placed to a Special Fund which shall belong to the honorary medical staff.

Disposal of Moneys belonging to Honorary Medical Staffs of Hospitals.

(x.) That the honorary medical staffs may find the following suggestions valuable in connection with the disposal of the moneys in the Special Fund, and accordingly the Association suggests to the Hospital staffs concerned that one or more of the following methods of distribution of any moneys in the Special Fund may be found suitable :—

(a) to the members of honorary medical staffs for their own personal disposal ;

(b) for the assistance of members of the medical staff in connection with research work ;

(c) for the purchase of instruments, books, etc., for the use of the medical staff or for lending to other members of the profession ;

(d) for the initiation or development of post-graduate teaching in the institution ;

(e) the institution of a local medical benevolent fund, administered by the members of the honorary medical staff, for dealing with necessitous cases (*e.g.* widows and children of former colleagues) ;

(f) grants to any recognised medical benevolent fund or institution ;

(g) for the purpose of remunerating those who do the work ;

(h) otherwise as the majority of the medical staff may decide.

Continuity of Treatment in Hospital and Afterwards.

(xi.) That, when a patient is discharged from an institution, it is imperative for the continuity of treatment that a report as to his treatment during his attendance at the institution should be kept at the institution, and that a copy should be at the disposal of any medical practitioner who applies for it with the sanction of the patient.

Free Treatment at Institutions.

(xii.) That subject to the loyal observance of the directions of the last paragraph of Section IV. 2 of the Local Government Board Circular both in the letter and the spirit, the direction of the preceding paragraph, that a patient who can afford to pay for his own treatment but who refuses to consult a private practitioner, shall not be refused treatment at a provided institution or clinic so long as he is considered to be in an infectious state, is agreed to.

(*Section IV. 2 of Local Government Board Circular.*

It has already been indicated that medical practitioners should be urged to make the fullest possible use of the laboratory facilities provided under the scheme of the Council and that these facilities should be given without cost to the patient or the practitioner. The Board consider similarly that medical practitioners should be encouraged to avail themselves of the facilities provided at institutions for treatment, to attend the clinics held at these institutions, and to arrange for consultations with the medical officers of institutions. In some cases it may be necessary that consultations should take place at the homes of the patients or at the institutions.

The Commission point out in paragraph 149 of their Final Report that some persons may present themselves for treatment at an institution who, in the opinion of the medical officer in charge, can be satisfactorily treated by their own doctor and who can afford to pay for their own treatment. The Commission consider that in such a case the medical officer might properly suggest to the patient that he should consult a private practitioner, but if the patient prefers not to adopt this course, there should be no refusal to treat him at the institution.

Every effort should, however, be made to secure the full co-operation of private practitioners in the treatment of cases. The Board consider that every patient, whether or not he is an insured person under the provisions of the National Insurance Acts, who attends at an approved institution for treatment, may properly be asked whether he has a doctor of his own, and whether he is willing to be treated by that doctor. If the patient has no doctor, or being an insured person has not yet chosen a panel doctor, but is willing to be referred to a private practitioner for treatment in association with the treatment provided at the institution, he should be advised to choose a doctor who would co-operate in his treatment.)

Free supply of Salvarsan, &c.

(xiii) That Salvarsan and other expensive drugs should be supplied gratuitously to all medical practitioners for the treatment of their patients.

Warnings to Patients.

(xiv.) That the obligation should be impressed upon all medical practitioners who treat syphilis and gonorrhœa in institutions or privately to hand cards of instruction and warning to their patients. These cards should be in some such form as those given in the report of the Royal Commission, and should be provided at the public expense. (*Recommendation* 14 *of Royal Commission.*)

(xv.) That in the event of any patient known to be suffering from venereal disease in an infectious form, failing to continue to attend for treatment at the place he has elected to attend, arrangements shall be made whereby private communication shall be made to that patient by an approved officer of the clinic or hospital warning the patient of the danger of neglecting treatment.

Access of Profession to Institutions.

(xvi.) That medical students and practitioners should have reasonable access, for educational purposes, to the treatment of venereal diseases at any institution dealing with these diseases as part of a local authority's scheme (*Recommendation 15 of Royal Commission*), whether they be clinics, wards, laboratories or other place subsidised by State funds.

Detention of Poor-Law Patients Suffering from Venereal Diseases.

(xvii.) That the provisions of section 22 of the Poor Law Amendment Act, 1867, should be available to secure the detention, where necessary, of Poor-Law patients suffering from venereal diseases. If necessary, the applicability of this section to the case of venereal diseases should be made clear by legislation (*Recommendation 18 of Royal Commission.*)

Prohibition of Advertisements of Remedies for Venereal Diseases.

(xviii.) That the Government be urged to put into force the Recommendations of the Select Committee on Patent Medicines regarding the prohibition of all advertisements of remedies for venereal diseases (*Recommendation 24 of Royal Commission*), supported as they are by the frequently expressed opinion of the Association, in view of the statement by the Royal Commission on Venereal Diseases that it had no hesitation in stating that the effects of unqualified practice in regard to venereal diseases are disastrous, and that in its opinion the continued existence of unqualified practice constituted one of the principal hindrances to the eradiction of those diseases (*para 190 of Report of Commission*).

Duty of Medical Profession as Educators of Public.

(xix.) That the Association express its complete agreement with the Recommendations of the Royal Commission, urging the necessity for the better education of the general public on the grievous effects caused by venereal infections to personal life and happiness, on the grave injury done by such infections to the national welfare, and on the best means for their prevention.

(2) *Remuneration for Clinical Posts.*

65. The A.R.M., 1916, instructed the Council to consider the terms and conditions upon which whole-time and part-time service in connection with the schemes for treatment of venereal diseases should be given by the profession and to take necessary action. Having referred the matter to the Divisions and considered their replies,

The Council recommends:

Recommendation B.—That whole-time senior medical officers of clinics set up under schemes for the diagnosis and treatment of venereal diseases should only be appointed in country areas, where the work cannot be distributed among the members of the local profession.

Recommendation C.—That the commencing salaries of whole-time senior medical officers of clinics set up under schemes for the diagnosis and treatment of venereal diseases should not be less than £750 per annum, exclusive of travelling expenses, clerical assistance, cost of stationery and postage, etc.

Recommendation D.—That the following scale of remuneration for part-time senior medical officers of clinics set up under schemes for the diagnosis and treatment of venereal diseases be approved:

	London. (per session.)			Provinces. (per session.)		
For 1 or 2 sessions per week, not exceeding 2½ hours each...	£3	3	0	£2	2	0
For 3 or more sessions per week, not exceeding 2½ hours each...	£2	12	6	£1	11	6

Recommendation E.—That the remuneration of part-time clinical assistants of clinics set up under schemes for the diagnosis and treatment of venereal diseases should not be less than £1. 1s. per session not exceeding 2½ hours.

Recommendation F.—That as regards clinics set up for the diagnosis and treatment of venereal diseases, in exceptional areas where a whole-time assistant is necessary to a part-time senior medical officer, he should, if non-resident, be paid not less than £350 per annum, exclusive of travelling expenses, clerical assistance, cost of stationery, postage, etc.

(3) *Deputation to President of Local Government Board, August, 1916, as to Representation of Medical Profession on Committees for Dealing with Local Schemes.*

66. In accordance with the instruction contained in Min. 67 of the A.R.M., 1916, the Council appointed a deputation which, in August, 1916, urged upon the President of the L.G.B. the need for consultation with and representation of the medical profession in connection with the preparation and administration of local schemes for diagnosis and treatment of venereal diseases. The Council is glad to report that, as a result, a circular was issued by the Board on August 29th, 1916, to the local authorities, recommending that committees of local authorities, to whom the preparation of a scheme was delegated, should invite the local medical profession to nominate two representatives to attend all Committee and Sub-Committee meetings at which the proposed scheme was to be discussed, and to assist the Committee with their special knowledge of the needs of the particular area, one to represent the medical staffs of hospitals and the other the general practitioners of the area.

67. A letter was sent by the Council to the Divisions, Branches and Local Medical Committees, urging the profession of each area to take immediate steps to secure representation on the committees of the local authorities accordingly, and, in many areas schemes thus formulated in consultation with the local medical profession have been successfully launched.

68. The deputation also took the opportunity to urge upon the President of the Board the need for the arrangements as to the supply of salvarsan being placed upon a basis fair to medical practitioners. The Council is gratified to report that, in this respect also, the circular issued by the Board in August, 1916, made concessions to the opinion of the great body of medical practitioners, inasmuch as the Board therein stated that it did not think it desirable to lay down any hard and fast lines (as had been contemplated) with regard to supply of salvarsan and its substitutes, but considered that as a general rule the drugs should be distributed by the M.O.H. or some person acting as his agent, and that he should be required to satisfy himself before issuing a supply that the applicant was a registered practitioner possessing one or other of certain specified qualifications which are well within the reach of practitioners who take any special interest in the subject.

(4) *Issue of Memorandum by Association to Local Authorities and other Bodies.*

69. The A.R.M. 1916 resolved (Min. 129):—

That it be an instruction to the Council after the receipt and consideration of the replies of the Divisions as regards the resolutions of this Meeting on Venereal Diseases, to prepare and issue to the Government bodies concerned, County and County Borough Councils, the principal Voluntary Hospitals, the Divisions of the Association, the Local Medical Committees, and such other bodies and persons as it considers desirable, an explanatory memorandum which shall include the principles on which, in the opinion of the Association, the proposed campaign against venereal diseases should be conducted, as also the terms and conditions under which the medical profession is prepared to give its cordial co-operation.

That a copy of the memorandum in question be issued to the Press.

70. A memorandum was accordingly issued in February, 1917, to the bodies named, and also to the medical officers of such bodies, and to Panel and Insurance Committees. The resulting correspondence has again demonstrated the value of the circulation by the Association to local authorities of its views upon questions of public interest, many expressions of appreciation of the Association's action having been received. Many of the local authorities and other bodies have, at their request, been supplied with additional copies of the memorandum for circulation to their members.

(5) *Prevention of Treatment of Venereal Diseases by Unqualified Practitioners: Venereal Disease Bill of the Government.*

71. The Divisions and R.B. approved the action taken by the Council prior to the A.R.M., 1916, in securing representation on the National Council for Combating Venereal Disease. The Council has since appointed further representatives of the Association to act in consultation with the National Council, with a view to obtaining legislation to make it a criminal offence for any unqualified person to treat, or to offer to treat, by advertisement or otherwise, any form of venereal disease. Subsequently an invitation was received from the Association of Municipal Corporations inviting the Association to join in a deputation to the President of the L.G.B. to press for legislation to prevent treatment of the diseases by unqualified persons, with the result that a joint deputation of the two Associations was received by Lord Rhondda, President of the Board, on January 24th, 1917. The latter stated that measures were being drafted for the purpose of carrying out the policy which has been urged so frequently by the Association. The Council is glad to say that a Bill (the Venereal Disease Bill) was later (March 6th,) introduced in the House of Lords by the Government, the objects of which are to prevent treatment of venereal diseases otherwise than by duly qualified medical practitioners, to control the supply of remedies therefor, and other matters in connection therewith. The Bill has been passed by the Lords, and has been referred to a Standing Committee of the Commons.

(6) *Criminal Law Amendment Bill.*

72. The Criminal Law Amendment Bill introduced by the Government in February 1917, contains a clause making it an offence wilfully to communicate venereal disease, and provisions to extend the Indecent Advertisements Act, 1889, giving effect to the representations made by the Association with a view to bringing certain advertisements within the scope of that Act. The Bill has passed through Standing Committee, and awaits further consideration in the Commons.

(7) *Bacteriological Work in connection with Diagnosis and Treatment.*

73. A communication was addressed in October, 1916, to the L.G.B. deprecating arrangements under schemes of local authorities for diagnosis and treatment of venereal diseases whereby bacteriological work would be carried out by commercial firms. The President intimated that he agreed with the view expressed by the Association.

(8) *Question of Compulsory Notification of Venereal Disease.*

74. In view of publicity given in the press to the question of compulsory notification of venereal disease, the Council published the opinion, expressed by the A.R.M. 1915, that the present time is not opportune for introduction of compulsory notification of these diseases.

MINISTRY OF HEALTH.

75. There appeared in January in a newspaper, an apparently inspired paragraph to the effect that the Local Government Board proposed to introduce legislation to stimulate local authorities to provide midwives and nurses for expectant mothers, and medical attendance and treatment, possibly including domiciliary treatment, for children under five years of age. In view of the effect of such legislation upon the working of the Insurance Acts, a deputation of the Insurance Acts Committee immediately waited upon the Chairman of the Insurance Joint Committee, and as a result, the letter of January 19th contained in Appendix III. was sent to the Joint Committee. At the same time, correspondence took place between the Medico-Political Committee and the Local Government Board (*see* Appendix IV.). As a result of the deliberations of the Medico-Political and Insurance Acts Committees, a Special Sub-Committee of the Committee of Chairmen of Committees was formed to draft a policy of the Association on the matter.

Having very carefully considered the matter, the Council has had no hesitation in arriving at the conclusion that the only possible method of placing the health administration of the country on a sound basis is by the creation of a Ministry of Health, a measure urged upon the Government by the Association as long ago as 1868, and reiterated by the following decisions of the Representative Body :—

A.R.M., 1904. *Minute* 50.—That the British Medical Association believes that the first and most pressing need in this matter is the establishment of an efficiently constituted Central Department, to which all matters affecting Public Health should be specially referred.

A.R.M., 1911. *Minute* 31.—That the Association support the establishment by the Government, in co-operation with the medical profession, of a medical service or services, the cost of which is met by insurance under conditions satisfactory to the profession.

A.R.M., 1911. *Minute* 32.—That any medical service so established should be placed eventually under a Minister of Health.

In view however of the proposed promotion of legislation by the Local Government Board in connection with maternity and child welfare, by means of which the whole situation might be altered in a direction opposed to that favoured by the Association, a deputation of the Association met the President of the Board, Lord Rhondda, on March 16th. An official report of the deputation will be found in Appendix V., but it scarcely does justice to the strong view expressed by Lord Rhondda as to his intention to make use of the general practitioner in any re-arrangement of the present system of health administration.

The deputation brought to the notice of Lord Rhondda the expressed views of the Association upon the question of maternity and child welfare schemes. He, however, expressed his desire to have the views of the Association upon the wider question of a Ministry of Health.

While not yet in a position to submit full details of a scheme for establishment of a Ministry of Health, which involves most difficult questions of local government, the Council is of opinion that it is essential that an authoritative pronouncement should be made as soon as possible, on behalf of the Association, as to certain principles the adoption or rejection of which will fundamentally affect the whole situation.

In presenting its recommendations, the Council would draw attention to the wide publicity and general approval which the proposed Ministry has obtained. There are many inter-departmental questions involved which may retard the establishment of such a Ministry. The information at the disposal of the Council leads it, however, to submit to the Representative Body its firm opinion that the Association should take a strong position in attempting to mould the proposals in such a way as will accord with what are believed to be the best interests of the public and of the medical profession, which, as the Representative Body has long ago recognised, are, in the long run, identical.

The Council recommends :

Recommendation G :

CENTRAL ORGANISATION.

1. That a Ministry of Health should be created, to take over from existing Government Departments such duties as are concerned with the health of the community and to deal with those duties only.
2. That the administrative functions of the Ministry of Health should be carried out by a Board.
3. That the Board should be presided over by a Minister of Cabinet rank.
4. That on the Board there should be members of the medical profession representing in equal numbers the clinical and preventive sides of medicine.
5. That the medical administration of the two sides of the work of the Ministry, clinical and preventive, should be directed by officials of equal status, who shall be medical practitioners.

GENERAL.

6. That in any reconstruction and extension of the present system of providing medical advice and treatment for individuals, it is desirable that such modifications should be made as to attract to the work as many medical practitioners as possible.

LOCAL ORGANISATION.

7. That the country should be divided into suitable administrative areas.
8. That these areas should be such existing local government areas or combinations thereof as will require the services of whole-time administrative medical officers, both clinical and preventive.

9. That for each area there should be a Local Administrative Health Committee, on which the medical profession should be adequately represented.
10. That the Local Administrative Health Committee should consist of representatives (a) of the rating authorities, (b) of the education authorities, (c) of the persons contributing to a scheme of health insurance (including in this employers of labour), (d) the medical profession, (e) public hospitals, (f) dentists, (g) pharmacists, and (h) nurses.
11. That the representatives of (a), (b) and (c) should constitute a bare majority of the Committee.

ADMINISTRATIVE OFFICERS OF LOCAL COMMITTEES.

12. That the principal medical officers of each Committee should be two, who should be of equal status, one representing the clinical side (Chief Clinical Officer) and the other the preventive side of medicine (Medical Officer of Health).
13. That the duties of the Chief Clinical Officer and his staff should be to advise on all questions of medical treatment, and should include the administration of the working of treatment centres and clinics of all kinds, of all domiciliary treatment, and the co-ordination between his department and that of special, general, and mental hospitals and infirmaries in his area.
14. That the duties of the Medical Officer of Health and his staff should be those connected with vital statistics and preventive medicine generally, with the prevention of the spread of infectious diseases, and with the investigation of the causes of preventible disease.

MEDICAL STAFF.

15. That the medical staff under such public authority should be of the following classes:—(a) those engaged exclusively in duties of administration or inspection, (b) those employed as resident officers of institutions, or as officers in charge of special clinics, (c) pathologists, (d) those engaged in giving advice and treatment to individual persons otherwise than under (b).
16. That class (a) should be whole-time salaried officers; classes (b) and (c) should be salaried officers who might be whole-time or part-time, according to the size and character of the institution or the extent of the work required; class (d) should not be salaried officers in any case, but should be paid by some method dependent upon either the actual items of work done, or the number of persons for whom they accept responsibility.
17. That in exceptional cases, pending a complete arrangement of areas, (i.) practitioners in class (a) might be eligible for part-time employment in institutions such as hospitals for infectious diseases; and (ii.) practitioners in class (d) might be eligible for occasional employment in the duties of the other classes.

HOSPITALS, ETC.

18. That for each area, hospitals, clinics, or treatment centres should be recognised or established at which persons entitled to treatment under the public scheme should be able to obtain institutional, consultative or specialist services on the recommendation of their medical attendant; and in connection with which a pathological laboratory should be available.
19. That though there might be hospitals wholly maintained by public funds and admitting only patients eligible for treatment through public services, the continued existence of voluntary hospitals would be necessary, and should be encouraged, as there will be many persons, apart from those for whom the public provision may be made, who might properly obtain institutional treatment with the assistance of the charitable public.
20. That an agreed annual sum should be paid by the Local Administrative Health Committee to voluntary hospitals in respect of treatment given to patients entitled to treatment under the public scheme; and any Hospital Committee undertaking an extension of accommodation for the purpose of such treatment at the request of the Local Committee, should either be subsidised with respect thereto, or be granted facilities for effecting a loan on easy terms.
21. That though resident medical officers at maintained hospitals might be appointed and paid salaries, the main responsibility for treatment should be in the hands of the consulting and visiting practitioners; that these consulting and visiting practitioners, together with those at voluntary hospitals treating patients under the public scheme, should individually or collectively be paid for their sevices by a method dependent upon the number of patients for whom they accept responsibility.

LABORATORIES.

22. That clinical and pathological laboratories should be situated in or as near as possible to the areas they serve, and should have an effective connection with an institution of University rank.
23. That the extent of the work done at these laboratories should be as comprehensive as possible, should not be confined necessarily to work done for public authorities, and should be associated wherever possible with research work.

The matter being urgent, the foregoing draft scheme has been forwarded to the Prime Minister and to the various Government departments in any way affected thereby, with an intimation that the Association is proceeding with the elaboration of its proposals, and that the scheme, although approved by the Council, will not be considered by the Representative Body until July.

OTHER QUESTIONS OF RECONSTRUCTION.

76. The Council has considered the following Minute 47 of the A.R.M. 1916:—

> *Minute* 47.—Resolved: That it be referred to the Council to consider what steps should be taken to organise public opinion, as also the medical profession, for the advancement of medical and allied sciences, and to maintain the honour and interests of the profession in view of the obligations and other consequences likely to result from the War; if thought right, to appoint a Special Committee, or to refer it to the appropriate Committee of the Association to take action and to report to the Council and Representative Body;
>
> In the event of such a Committee being appointed, that it make a report to the next Annual Representative Meeting on the policy of teaching the principles of hygiene, elementary physiology and homecraft to elementary school children at the age of puberty as the best means to be adopted for the success of proposals for child welfare, notification of pregnancy and similar schemes;

and has referred the various matters therein raised to a Special Committee.

MATERNITY AND CHILD WELFARE.

Remuneration of Medical Practitioners for work in connection with Schemes.

77. In view of the interest which sanitary authorities showed in the circulation by the Association of its report on the establishment of maternity and child welfare centres, the Council issued in November, 1916, a circular to county councils and sanitary authorities in England and Wales, and Scotland, stating the views of the Association (A.R.M., 1916, Mins. 135-8), as to payment of practitioners for such work.

WAR PENSIONS COMMITTEES AND MEDICAL REPORTS AS TO DISCHARGED SAILORS AND SOLDIERS.

78. Local War Pensions Committees are requiring of practitioners medical reports as to discharged soldiers and sailors. The Council has expressed the opinion that a fee of 5s. should be charged by practitioners for certificates given to discharged soldiers and sailors for the use of those Committees, and that as regards cases dealt with by medical boards, the board should not be paid a fee per case, but on some other basis. Inasmuch as the form of certificate used for the purposes of the War Pensions Committees in some parts of the country asked practitioners to certify that the incapacity of a discharged soldier or sailor was "incurred on active service or by military training," the Council has expressed the opinion that a practitioner should not certify to that effect unless such fact is within his own knowledge.

TREATMENT OF WIDOWS AND FAMILIES OF SOLDIERS AND SAILORS.

79. The Council has considered the position which has arisen in various parts of the conntry as regards medical attendance upon and treatment of widows and families of deceased soldiers and sailors, as to which no special provision appears to have been made by the Government beyond a sum of 5s. per week for medical comforts for those actually ill, available for use by the local War Pensions Committee. In view of individual practitioners being asked by local War Pensions Committees to arrange special terms for this work, a letter was issued in December, 1916, to Divisions and Branches, stating that the matter was receiving attention, that it was hoped to report fully at an early date, and asking that meantime members of the profession should not enter into any arrangement with the local Pensions Committees for treatment of these cases but treat them individually, whether by inclusion in the local Public Medical Service, if any, or otherwise.

MINISTRY OF MUNITIONS AND MEDICAL CERTIFICATES.

80. The Council considered in October, 1916, a letter from the Ministry of Munitions (1) drawing attention to the fact that some difficulty was being experienced in dealing with applications from workmen for leaving certificates, owing to the fact that medical certificates recommending a change of employment for such workmen were in some cases issued by medical practitioners with what would appear to be insufficient consideration, (2) requesting, in view of the extreme importance of the matter, that the Association would draw the attention of practitioners to the importance of exercising every care before issuing medical certificates to munition workers. Satisfied of the reasonableness and urgency of the request, the Council, through the *Journal*, urged the necessity for the greatest care being exercised by the profession in dealing with applications by workers in munition factories for leaving certificates, and informed the Ministry of Munitions accordingly.

MEDICAL EXAMINATION OF WOMEN SEEKING EMPLOYMENT IN MUNITION FACTORIES.

81. Having been informed that a fee of 2s. 6d. was being offered practitioners through Labour Exchanges for medical examination of women seeking employment in munition areas, the Council represented to the Ministry of Munitions that the fee was inadequate, and incommensurate with the work and responsibility involved. The Ministry of Munitions referred the Council's communication to the Ministry of Labour for consideration, and has now informed the Council that the fee in question was fixed after consultation with the medical advisers to the Ministry, and that no difficulty had been experienced in obtaining the desired medical services on these terms.

SUPPLY OF PETROL: REPAIR OF MOTOR CARS.

82. The Council is glad to have been of assistance to a large number of practitioners who experienced difficulty in obtaining petrol, owing to the system of licences recently introduced, and also in connection with repair of motor cars under the new conditions. It has urged upon the Director-General of Munitions' Supplies that, in view of the serious position created when a medical practitioner is deprived of his car owing to want of facilities for repairs, a special permit should be given, enabling him to secure such special parts as may be necessary and to have the repairs done without delay.

DUTY FREE ALCOHOL IN HOSPITALS.

83. The Council suggested to the Chancellor of the Exchequer that the Association be given an opportunity of nominating representatives upon any Advisory Committee set up by the Government to deal with the question of duty-free alcohol in hospitals, the House of Commons having recently voted a sum, not to exceed £10,000, for grants to hospitals for this purpose. A reply has been received thanking the Association for its offer of assistance which will be borne in mind.

SUPPLY OF COCAINE TO UNREGISTERED DENTISTS.

84. The regulations as to cocaine under the Order in Council restricting the sale and use of cocaine to medical practitioners, pharmacists and registered dentists having been abrogated by a concession made by the Home Secretary to unregistered dentists, whereby the latter would be allowed for a certain period the same privileges as the former, a communication was addressed in October, 1916, to the Home Secretary, urging the Government not to continue further the concession to unregistered dentists. Representations were also made to Members of Parliament. The concession in question has, however, been further extended by the Home Secretary, and is still in operation.

DUTIES OF MEDICAL OFFICERS OF HEALTH.

85. Attention having been drawn to the inclusion among the duties of an assistant medical officer of health of attendance upon midwifery cases on the summons of a midwife, the Council expressed the opinion that the duties of an M.O.H. should not include attendance in respect of such calls. Practitioners who are members of Public Health Committees of Town Councils would be doing useful work on behalf of the public health if they make known the disadvantages of such a duty being included amongst those of an M.O.H.

STATE REGISTRATION OF NURSES.

86. The A.R.M., 1916 (Min. 147), instructed the Council to take into consideration the possibility of establishing by means of the proposed Bill of the College of Nursing Ltd.. the general principles desired by the Association in respect of State Registration of Nurses, and whether the Association would be justified in supporting the Bill. For the present the negotiations with the College of Nursing are interrupted, but the Council has instructed the representatives of the Association on the Central Committee for State Registration of Nurses to join with the other bodies represented on that Committee in any further attempts which may be made to construct an agreed Bill, and meanwhile to aid in the present policy of that Committee in introducing a Bill into Parliament on its own account. The Council has also taken steps to secure that representatives of the medical profession upon provisional and permanent Nursing Councils under any such Bill shall be nominated by the Association.

PRIVATE BILLS IN PARLIAMENT AFFECTING THE PROFESSION.

87. The Council last year reported representations made by it to the General Medical Council to the effect that the latter should, as a statutory body, have reported to it all proposals affecting the profession, contained in Parliamentary Bills, public or private. Correspondence between the General Medical Council and the Privy Council followed, and there does not appear to be any possibility of the General Medical Council obtaining the powers suggested by the Association. It will be remembered that the case which raised the question was that of a private Bill promoted by the London County Council. Public Bills which seem to affect the profession are carefully examined at the Head Office, but private Bills are not available for this purpose. The London County Council has now, however, kindly promised that it will on request supply the Association with copies of any Bills introduced by it into Parliament affecting the profession. Divisions and Branches should carefully watch any proposals, affecting the profession, intended to be introduced into private Bills in respect of their areas, and report to the Head Office any points as to which they wish action in Parliament to be taken or watched.

LEAD POISONING: USE OF ABORTIFACIENTS.

88. In view of the publication in June, 1916, of the recommendation of the National Commission on the Birth Rate that the manufacture and sale of diachylon as a means of procuring abortion should be prohibited or severely restricted, the Council reminded the Privy Council that, after collection of evidence on the point, the Association in 1906 urged that one of the most effective means of preventing the evil would be to schedule diachylon as a poison under the Pharmacy Act. The Council urged that the suggestion be taken into early consideration by the Privy Council, and is glad to note that steps are now being taken for diachylon being so scheduled.

ELECTION OF DIRECT REPRESENTATIVES ON GENERAL MEDICAL COUNCIL.

89. The Council has noted Min. 61 of the A.R.M., 1916, as to the candidates who should be supported by the Association at the election of direct representatives on the General Medical Council. The elections have been temporarily postponed.

RECOGNITION OF CERTAIN MEDICAL AID INSTITUTIONS.

90. Pursuant to resolutions of the A.R.M. 1915, negotiations are in progress with the South Wales and Monmouthshire Friendly Societies Alliance as to the recognition by the Association under certain conditions of medical aid institutions in Wales recognised under Section 15 (4) of the Insurance Act.

CANVASSING: WHOLESALE TRANSFER OF INSURED PERSONS.

91. The following is an instructive example of the power of the Association in looking after the interests of practitioners.

Before the expiration of the period during which insured persons could transfer, a member of the Association on the panel communicated with the Association as to canvassing which he alleged was going on to his detriment on behalf of the medical officer of an approved institution, and requested the assistance of the Association with a view to preventing wholesale transfers from his panel list to that of the institution. A Conference was arranged between representatives of the Association and representatives of the institution, with the result that it was agreed (1) that the committee of the institution would not accept, at the end of the year, patients desiring to transfer from the private practitioner to the institution, subject to any individual case being referred to the Association for decision, (2) that in future the institution would not take, with a view to correction of its lists, any steps such as issue of circulars, house to house visits, etc., without the consent of the Association.

WATER USED IN DOCTOR'S SURGERY FOR DISPENSING.

92. A local Water Board having brought an action against a medical practitioner, the effect of which, if successful, would have been to require the practitioner to pay the commercial rate for water used in his surgery for dispensing, the Council approved action taken in obtaining legal assistance for his defence. The Judge held (a) that the question at issue was whether the water used by the practitioner for making up medicines was used for domestic or trade purposes; (b) that the water was used in mixing medicines in order to make them of a strength suitable for use, which was a purpose for which water was used in every house in the country; (c) that such was a domestic use; and (d) that it was done on a larger scale in the case in question because it was done by a medical practitioner. He accordingly gave judgment for the practitioner with costs.

UNDER CONSIDERATION.

93. Training and certification of masseurs and masseuses.

(I) National Health Insurance.

CONSTITUTION OF INSURANCE ACTS COMMITTEE.

94. The Conference of Representatives of Local Medical and Panel Committees held in October, 1916, expressed the opinion that the direct representation of those Committees on the Insurance Acts Committee should be not less than half the elected members thereof. The Council endorses this proposal for making the Committee more representative of the bodies named.

The Council recommends:

Recommendation: That the A.R.M., 1917, adopt, in substitution for the existing Schedule to the By-laws as to the Insurance Acts Committee, the following amended Schedule:—

"*Otherwise appointed (i.e. Constitution of Committee other than ex-officio Membership.)*

embers of the Association appointed as follows:—

12 elected by the elected Representatives of the Constituencies comprised in the groups of Branches and Divisions formed for the purpose mentioned in By-law 46 (c), the Representatives of all the Constituencies in each such group being entitled together to elect one member of the Committee in the same manner as they elect one member of the Council in pursuance of that By-law.

18 elected by the 4 ex-officio members and the above-mentioned 12 elected members of the Committee acting together, such 18 members to be nominated or qualified as under, viz.:—

15 to be selected so far as possible on a territorial basis from among members nominated by the Local Medical Committees and Panel Committees formed in Great Britain under the Insurance Acts;

1 to be nominated by each of the following bodies, viz.:—

(a) The Association of Registered Medical Women together with the Northern Association of Registered Medical Wom...

(b) The Society of Medical Officers of Health;

(c) The Poor Law Medical Officers' Association of England and Wales;

with power for the members appointed as above provided to co-opt as additional members such number (if any) of non-panel practitioners as shall be required to secure that 4 such practitioners shall be members of the Committee."

DISCHARGED DISABLED SOLDIERS AND SAILORS.

95. The Council has considered the resolutions of the Conference of Representatives of Local Medical and Panel Committees as to the question of wounded and disabled discharged soldiers and sailors and has referred certain resolutions thereon to the consideration of the Insurance Acts Committee and the Committee of Chairmen of Committees. It is hoped to report further on this subject in the Supplementary Report.

This question, as it affects Insurance practitioners, was the subject of discussion with the Commissioners on March 20th, and the following is the agreed report of what occurred:—

The deputation urged that one of the results of the present War was to return to the panel practitioners' hands in a broken condition insured persons who in the ordinary course would have required little or no attendance from them, and thus largely to increase the burden of doctors' responsibilities. Conditions had in this way arisen to which the terms of remuneration agreed to by the medical profession in peace times could not in equity be held to apply; and it was only reasonable, therefore, that in some way an enhanced remuneration should be paid in respect of an increase of risk and work which the profession would not regard as contemplated by their original bargain, though perhaps strictly within its literal terms. A discussion ensued upon this general question.

As regards any practical suggestions, the deputation stated that they were not at present in possession of any statistics upon which they could base any definite proposals as to amounts or rates of enhanced remuneration. It appeared, however, in the course of discussion that it might be possible to derive, from statistics in course of preparation for other purposes, data which would render it possible to consider to what extent an excessive risk attached to the particular class of soldiers invalided from the Service, and also to what extent the War had affected the responsibility of practitioners in other directions. It was agreed that the question should receive further consideration as soon as data were available to enable a comprehensive view to be taken of the problem, on the understanding that any liability to such excessive risk or extra responsibility which had already then accrued should be taken into consideration.

The Commissioners intimated that they had been requested by the Pensions Minister to make themselves responsible for the provision of general practitioner treatment for all discharged soldiers, including not only the great majority of such soldiers who were already entitled to medical benefit, but the comparatively insignificant residue who under the existing Regulations of the Commissioners were not at present eligible.

The Association is now awaiting the data which the Commissioners mentioned at the interview.

CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES, 1916.

96. A Conference of representatives of Local Medical and Panel Committees was held in London on October 19th, 1916, the Association, as in the case of previous Conferences, paying all central expenses and providing clerical assistance. 146 of the 199 Local Medical and Panel Committees in Great Britain appointed representatives, and the representatives of 140 attended. A full report of the proceedings appeared in the B.M.J. Supplement of October 21st and 28th, 1916. The Conference re-affirmed the position taken by the 1915 Conference in regarding the Association as the mouthpiece of the Local Medical and Panel Committees in central negotiations with the Commissioners, and placed on record its appreciation of the work done by the Association for Insurance practitioners during the year. A deputation from the Insurance Acts Committee (B.M.J. Supplement, February 10th, 1917), placed before the Commissioners on December 18th, 1916, the resolutions of the Conference.

REPRESENTATION OF LOCAL MEDICAL AND PANEL COMMITTEES AT FUTURE CONFERENCES.

97. The Conference expressed an opinion that in view of the great disproportion in numbers of the Insurance practitioners represented by the various Panel Committees, it would be advisable that the larger ones should have the right to nominate more than one representative at future Conferences. It has been decided that as an experiment the Committees be allowed at the next Conference to nominate one representative for every 400 or part of 400 practitioners on the medical list of the area on the preceding January 1st.

LONDON PANEL COMMITTEE AND CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES.

98. In connection with the arrangements for future Conferences the Association has under consideration a resolution of the London Panel Committee containing *inter alia* suggestions as to procedure.

NEW AGREEMENT AND MEDICAL BENEFIT REGULATIONS.

99. The Insurance Acts Committee discussed with the Commissioners in August, 1916, the modifications proposed by the latter in the 1917 Regulations and Agreement, in view of the public provision about to be made for treatment of disabled soldiers, and local schemes for prevention and treatment of venereal disease. The Committee pointed out that the proposals might mean new duties for Insurance practitioners, the introduction of which during the War might be held to be a breach of the undertaking given to the Association by the Commissioners that no alterations of the Agreement would be made during the War. The Commissioners replied that the undertaking specifically left open the possibility of alterations becoming necessary by reason of contingencies arising during the War (par. 5 of Memo. 201 I.C., September, 1914); that treatment of discharged soldiers and venereal disease fell obviously within this reservation; that any question of payment for these services (raised by the Committee) could not be separated from the general question of the whole remuneration of doctors attending insured persons; that the medical profession had themselves pressed that discussion of this subject, which had been due at the close of 1915, should be postponed until after the War, as so many of them were abroad; but that whatever was now brought into operation would, of course, be without prejudice to that discussion. The Committee drew attention to the great discontent among Insurance practitioners as to the methods of payment, and stated that until steps were taken to put the matter on a more satisfactory footing, practitioners would strongly resent having further liabilities put on them. The Commissioners having called a meeting of medical members of the Advisory Committee for August 24th, a preliminary Conference of these was held at the Office of the Association, and the position explained to them, especially the discontent with the payment system. (*See* also para. 118.)

100. On August 31st the Insurance Acts Committee considered draft Regulations forwarded by the Commissioners, having reference mainly to the relation of panel practitioners to specialists or consultants. The Committee unanimously came to the conclusion that it preferred no alteration of the Regulations at all, but that if there were to be any alteration, the draft submitted, as amended by the Committee (which amendment was accepted by the Commissioners), was preferable to the original form submitted; and that any new duties that might be carried out by Insurance practitioners must be understood to be undertaken by them without prejudice to the review after the War of the whole question of the proper remuneration for their duties generally under the Acts. The Committee approved the draft Tuberculosis (Domiciliary Treatment in England) Order submitted by the Commissioners.

101. The Committee considered on September 21st the new draft Regulations and a memorandum (227 I.C.) issued by the Commissioners to practitioners with regard to the arrangements for administration of medical benefit, 1917, and issued on September 23rd a letter to Local Medical and Panel Committees (M.3, *B.M.J. Supplement*, September 30th, 1916), advising acceptance of the new Regulations, on the ground that it was to the interest of the public and of the profession, particularly to that part of it working the Insurance Acts, that everything should be done to improve the quality and extend, under suitable conditions, the range of the medical service for insured persons; and also on the ground that the new Regulations imposed on Insurance practitioners nothing that the average practitioner had not always done for such of his patients as required, and could obtain, the services of consultants.

102. The Conference approved the report of the Committee, but expressed the opinion that for the year 1917 the new part of Article 3 should be confined to provision for treatment of venereal disease and treatment of disabled soldiers. This opinion having been communicated by the Association to the Commissioners, a reply was received to the effect:—

(1) That if the suggestion was to be interpreted as a proposal that the Article should be amended by insertion of words explicitly limiting the operation of the new part, it would be a matter of difficulty to accede to the proposal, inasmuch as (a) the object of the new Regulations was not to impose a new kind of obligation upon practitioners, but to provide for more precise definition of an obligation already in existence and recognised by practitioners as incumbent upon them in the discharge of their duties to patients to whom they had undertaken to give adequate medical attendance, (b) limitation of the terms of the Article would by implication narrow the range of the duty already incumbent upon practitioners, thus lowering the standard of adequate medical attendance already obligatory.

(2) That if the intention of the resolution was that the operation of the new part of Article 3 should have effect during 1917 in respect of treatment of venereal disease and treatment of disabled soldiers and sailors only, the Commissioners had no knowledge or expectation of any provision being made to which the Article would apply other than the provision mentioned; that no important general provision by public authorities, other than under the two heads mentioned, could become established without a period of preparation; that this would afford ample notice to the profession; but that, in addition, an assurance could be given that, in the event of any new proposals being mooted for establishment of any such new provision in 1917, the profession would at once be consulted through the recognised channels, in order that it might be considered whether such new provision was one to which the obligations of practitioners under Article 3, in respect of specialist services, would properly and conveniently be applicable, or whether the position thus arising called for amendment of the Medical Benefit Regulations in that respect.

The Committee informed the Commissioners that it accepted the suggestion in (2) above, and that it assumed there would be no question of any new proposals being put forward which were unconnected with the War emergency. The Committee informed the Local Medical and Panel Committees (M. 18), accordingly, that as other early developments seemed unlikely, and the Committee had been given the assurance that it would be consulted in the event of any new proposals being put forward, it assumed that Panel Committees would advise their constituents to accept the assurance given, on the understanding that a careful watch would be kept on any new developments that might arise, and that the Committee would at once inform Medical and Panel Committees of any new developments. The Panel Committees throughout the country adopted this advice.

NEW REGULATIONS: SCHEMES FOR TREATMENT OF VENEREAL DISEASE AND OF DISCHARGED DISABLED SOLDIERS AND SAILORS.

103. The Conference instructed the Committee (Mins. 33, 41, 42-3) to prepare and issue to Local Medical and Panel Committees a model scheme for adoption, if desired, by Panel Committees under the proviso to Article 3 to the 1917 Regulations, as regards treatment of venereal disease and discharged soldiers. The Committee issued a Scheme accordingly (M 20), intimating however that any local Scheme modelled on such lines was not likely to be approved by the Commissioners; that the Committee in issuing it, was not suggesting its adoption by Panel Committees, but merely indicating the general requirements to be borne in mind; that it understood that any local Scheme, to receive approval of the Commisioners, would require to be in such elaborately detailed form that the Committee strongly advised Panel Committees not to adopt any Scheme at all under Article 3; that therefore it did not propose to prepare a model Scheme on the lines which it understood to be necessary; but that if any Panel Committee decided to attempt preparation of a Scheme, it would on application to the Association be given such advice as was possible as to what were believed to be the requirements of the Commissioners.

MEDICAL PROFESSION AND FUTURE OF INSURANCE PRACTICE.

104. In connection with a resolution of the Conference (Min. 34) as to suggestions for amendment of Regulations, the Committee came to the conclusion that in anticipation of reconsideration of the whole bargain between the Government

and the profession in connection with the Act, the whole profession should be consulted and its views ascertained. The Committee accordingly issued to Branches, Divisions and Local Medical and Panel Committees a Memorandum and Questions (D. 8 and D. 9. See *B.M.J. Supplement*, Jan. 27th. 1917), suggesting that, as the question affected the whole profession, a joint Sub-Committee representative of the whole local profession be appointed in each area, (1) to consider the present system of National Health Insurance so far as it affected the relation of the profession to Public Health and treatment of disease, and (2) to suggest improvements. From the replies already received it is obvious the profession is giving the matter careful consideration. The Council hopes to report more fully on this very important question in its Supplementary Report.

Notice as to intended Alterations in Agreement.

105. The Conference recommended (Min. 19) that the Association do all in its power to obtain three months' notice to Panel Committees of any intended alterations in Agreements, to give adequate time for consideration. The matter was laid before the Commissioners on December 18th by deputation, after which the following statement was received :—

> That two separate questions were involved, namely, (a) the length of the period during which the terms of the Agreement are under negotiation (whether centrally or locally), and (b) the length of the period allowed to the individual practitioner in which to determine whether or not to accept the new terms. It was important that these two stages of the proceedings should not be confused.
>
> The present procedure is as follows :—The period during which the doctor is entitled to give notice of his intention to resign from the panel at the end of the year expires on the 19th November, and the notice giving the new terms of the Agreement must reach him not later than fourteen days before that date, *i.e.*, the 5th November. Before issuing such notice it is, of course, necessary for the Insurance Committee to have determined the amendments which they propose to make, and to that purpose they are required by Article 5 (1) of the Medical Benefit Regulations, 1913, to consult the Local Medical and Panel Committees. Before such consultation takes place the Commissioners must inform Insurance Committees of any alterations in the Regulations which will come into force in the ensuing year, and this information must consequently be in the hands of Committees several weeks before the 5th November. In the year 1916, the Commissioners advised Committees of the new Regulations on the 15th September, and suggested to them that Local Medical and Panel Committees should be immediately informed. The Panel Committees therefore received notice of the proposed alterations in the Regulations more than three months before the end of the year, and a period of some seven weeks was available in which Insurance Committees had the opportunity of consulting the Panel Committees before finally determining any local amendments to be made in the local Agreement.
>
> It will be appreciated that in order to allow of Insurance Committees being informed of proposed alterations in the course of September, it is necessary for the Commissioners at a much earlier date to consider the matter in consultation with their Advisory Committee, and to deal with any points brought to their notice on behalf of the profession, and if, as is understood to be the case, the Insurance Acts Committee of the British Medical Association may not infrequently desire to submit points which arise in the course of the negotiations for the opinion of Panel Committees throughout the country, it is obvious that the negotiations may be protracted. Any advantage, therefore, which might accrue from extending the length of any of the stages outlined above must be weighed against the disadvantages of commencing the consideration of amendments at a period in the year when there has not been sufficient opportunity of reviewing the existing arrangements.
>
> The Commissioners were not clear as to the precise object which the resolution put forward by the deputation seeks to obtain, and they would suggest that the matter might be reconsidered in the light of the observations made above.

106. As regards the length of period during which the new Regulations are the subject of central negotiations, the Association is informed that the Commissioners anticipate no difficulty in adhering in 1917 to the procedure followed in 1916, whereby the Regulations were in the hands of Panel Committees some days before October 1st. As to the length of time allowed to individuals to determine whether they will or will not accept the new terms, the Association is still in correspondence with the Commissioners, pressing the view that Panel Committees will not be satisfied unless December 1st is substituted for the present date of November 19th, as the latest date by which practitioners must notify Insurance Committees of their intention not to continue on the Panel. It has been suggested by the Commissioners that such an alteration will not give sufficient opportunity to insured persons to ascertain whether practitioners to whom they might wish to transfer were continuing on the Panel, but as regards this it has been suggested that they should be given to December 7th instead of December 1st for their decision.

Rural Practitioners.

107. The Conference (Min. 89) recommended appointment of a Standing Sub-Committee of the Insurance Acts Committee, to consist of rural practitioners, for the purpose of considering and reporting to the Committee on all matters affecting rural Insurance practice. The Sub-Committee has been appointed and is now engaged on problems specially affecting rural practitioners, as to which it is hoped to report soon.

Payment of Practitioners in Munition Areas.

108. A resolution was passed by the Conference asking the Commissioners to consider the question of payment of practitioners in munition areas with a view to such equitable distribution of funds available for practitioners as would secure to munition areas grants commensurate with their Insurance liabilities. On consultation, however, with the areas chiefly concerned it was decided with their consent not to take the matter further.

Remuneration of Practitioners and Increased Cost of Living.

109. The Conference expressed the opinion (Min. 73) that in view of increase in cost of living, practitioners have a claim to increased remuneration, and that if that claim be not pressed at present this must be considered a contribution to the national cause, and as not prejudicing consideration of the question of remuneration after the War. This expression of opinion was laid before the Commissioners by deputation, and noted by them.

Pensions for Panel Practitioners.

110. The Council has considered the following Minute 200, of the A.R.M., 1916 :—

> *Minute* 200.—Resolved : That the Council be requested to consider the institution of a pension scheme for National Insurance practitioners.

The Council is of opinion that the present is not an opportune time for the consideration of this subject.

Collective Bargaining by the Association on behalf of Panel Practitioners.

111. The Association submitted to the Conference a scheme whereby collective bargaining by the Association on behalf of practitioners might be carried out in connection with the signing of new Agreements. The Conference approved the proposed principles, the representatives of only 3 Insurance areas desiring their dissent recorded. The Association has the scheme under consideration with a view to completion. It is ready to be put in operation if and when required.

Supply of Data to Insurance and Panel Commiteees as to Payment of Practitioners.

112. The Conference asked the Association (a) to request the Commissioners to furnish to Insurance and Panel Committees particulars of the method and details of the figures on which they calculated the medical benefit credits for 1915 and similar particulars for subsequent years (Min. 58), and (b) to urge the desirability of Insurance Committees forwarding each year to Panel Committees the data on which the case value of the area is estimated (Min. 59).

In reply the Commissioners pointed out (1) that the calculations were necessarily of great complexity, and that it would not be practicable to furnish anything which did not form a concise statement embracing all the details for the country as a whole ; (2) that they would be prepared to advise Insurance

Committees to provide Panel Committees, on request, with copies of the statements of figures furnished to Insurance Committees. The Association replied that it desired that Panel Committees should be provided automatically with copies of the statements.

TRAVELLING EXPENSES OF PANEL COMMITTEES.

113. The opinion of the Conference (Min. 91) that steps should be taken to allow the statutory allotment under section 33 (2) of the 1913 Act to be used to defray the travelling expenses of members of Panel Committees attending meetings of these bodies and of authorised Central Conferences, was brought to the notice of the Commissioners.

The following are the views of the Commission :—

"The question whether any particular kind of expenditure comes within the terms of Sub-Section (2) of Section 33 of the Act of 1913 as being 'for the administrative expenses' of a Panel Committee is a legal one depending upon the interpretation to be placed on the Sub-Section ; and the Commissioners have no power to enlarge the scope of the Sub-Section by any administrative action.

"The Commissioners are not entitled to give any binding decision on the legal point involved, but the following observations may be of assistance . . . .

"So far as regards the travelling expenses of members attending the meetings of a Panel Committee, the Commissioners are advised that this expenditure on the part of the member cannot be regarded as forming part of the administrative expenses of the Committee, and cannot therefore be brought within the terms of Section 33 (2). This view is supported by the fact that the repayment (in certain cases) of the travelling expenses of members of Insurance Committees is expressly provided for by Statutory enactments in the proviso to Section 61 (2) of the National Insurance Act, 1911.

"The question of the travelling expenses of selected members of the Panel Committees attending on behalf of the Committee at Central Conferences appears to the Commissioners to stand upon a different footing. The determining factor in this case would be, as they are advised, the objects for which the Conference was summoned. If these objects are in the main the discharge of the statutory functions charged upon Panel Committees through the channel of any central organisation to which they may have affiliated themselves for the purpose, it appears to the Commissioners that such travelling expenses might properly be treated as the administrative expenses of the Panel Committee."

The statement in the last paragraph should be duly noted by Panel Committees in appointing their representatives to the next Conference of Local Medical and Panel Committees.

NEW ADVISORY COMMITTEE.

114. Since the inception of the 1911 Act Advisory Committees have been in existence for England, Scotland, Wales and Ireland, with a Joint Committee for the whole kingdom, for the purpose of advising and assisting the Commissioners in the making and altering of Regulations under Part I. of that Act. Nominees of the Association were appointed on all these Committees. It will be remembered what importance the Association attached to adequate medical representation on such bodies.

On March 12th, 1917, a communication was received from Sir Edwin Cornwall, the recently appointed Chairman of the National Health Insurance Joint Committee (for this letter and ensuing correspondence *see* Appendix VI.).

There were several reasons why it appeared necessary to take prompt action. In a speech, Sir Edwin Cornwall had announced his intention of setting up a small Advisory Committee of about 12 or 15 members, and it was assumed that the invitation was to appoint one medical member on this very small Committee. Furthermore, it was known that the Committee was to meet immediately and discuss very important matters, and it was felt to be necessary to secure that a medical representative should be present if possible from the beginning. The Insurance Acts Committee was therefore consulted by post, with the result that Dr. H. B. Brackenbury was nominated by the Association and appointed by Sir Edwin Cornwall.

The Committee met on April 17th and gave the matter very careful consideration, with the result that the letter dated April 19th was sent.

The Council will report, in its Supplementary Report, the result of its representations on this subject, to which it attaches great importance.

STATE MEDICAL SERVICE.

115. In view of certain paragraphs in the *Times*, the Conference passed a resolution (Min. 97) to the effect that the formation of a State Medical Service would meet with its strongest opposition. Copies of the resolution were sent to the Commissioners and to the *Times*.

MEDICAL RECORDS.

116. In December, 1916, the Association raised the question of the keeping of records in 1917. It pointed out to the Commissioners (1) that recent statistics were unreliable, so many practitioners being on active service, and those left being so fully occupied with more important work, (2) that in view of the incompleteness of the records the Commissioners should consider the advisability of not insisting on the return of Record Cards in 1917, (3) that the average of the past three years might be used for case value purposes.

As a result the Commissioners and Treasury agreed to waive Record Cards as regards 1917, the Exchequer grant remaining unaffected, and agreed to the suggestion as regards case value.

USE OF INSURANCE CERTIFICATES.

117. The attention of the Association was drawn to cases in which certificates given by Insurance practitioners under their agreement to insured persons were used for other than Insurance purposes. The Council expressed the opinion that these certificates were given for the sole purpose of enabling insured persons to obtain sickness or disablement benefits, and that certificates required for any other purpose by insured persons could be charged for by the practitioners. An enquiry was addressed to the Commissioners as to what action if any they could take in one instance where the Secretary of an Approved Society informed an insured person that if he required certificates to supply to other societies, copies of his Insurance Act certificate would be issued free at his request, and that there was thus no need for him to pay a doctor for additional certificates. The Commissioners however replied that a certificate when issued to an insured person becomes his property, and that they have no power to prohibit him from using it for such legitimate purposes unconnected with National Health Insurance as he may think fit.

PAYMENT OF PRACTITIONERS.

118. After conference between the Commissioners and representatives of the Insurance Acts Committee and medical members of the Advisory Committee, in which the representatives of the Association voiced the discontent among Insurance practitioners with regard to the present system of payment, the Commissioners prepared a Memorandum (Memorandum 229, I.C.) explaining the system fully, and supplied copies for circulation to Secretaries of Local Medical and Panel Committees, and representatives of Local Medical and Panel Committees attending the October, 1916, Conference. The Memorandum was published in the *B.M.J.* Supplement of October 13th, 1916. The Commissioners, at the request of the Association, appointed representatives to attend the Conference in October last for the purpose of answering any questions that might arise in the Memorandum. Many questions were asked and were answered by Mr. John Anderson, Secretary of the English Commission. The Conference expressed its thanks for the help thus given in considering what is admittedly a very difficult problem.

PAYMENT OF 1915 ACCOUNTS : EMERGENCY SETTLEMENT FOR 1916.

119. The Commissioners informed the Association on August 26th, 1916, that with the exception of a few cases, less than ten in number, in which certain data were wanting from the Insurance Committees concerned, all the Insurance Committees in England had been supplied with the information necessary to enable them to proceed with a settlement for 1915.

The intervention of the Association thus secured a settlement of doctors' accounts many months earlier than would otherwise have been possible. The Commissioners have since reported that they propose to carry out a similar arrangement for 1916, and the Association has expressed its approval.

FINING OF INSURANCE PRACTITIONERS.

120. Complaints were received that the range of surcharge of the nature of fines for breaches by practitioners of the agreement was excessive and disproportionate. In response to an invitation by the Association, a case was sent in by a Panel Committee. Two points arose, (a) the general question

of the right of the Commissioners to reduce the grant to Insurance Committees and the right of the latter to pass on the reduction to the doctor whose action had occasioned the reduction; (b) the action of the Commissioners in making such a reduction, notwithstanding the fact that the case had been considered by the Medical Service Sub-Committee and its finding that no action be taken had been endorsed by the Insurance Committee. Legal opinion as to (a) was obtained. It was to the effect that if as a result of Departmental Investigation the Commissioners satisfied themselves that a practitioner within a specific area had not carried out the provisions of the Acts, Regulations, or Agreement, and had thus not earned his share of the Treasury grant, it was within the competence of the Commissioners to withhold from the Insurance Committee so much of the Treasury grant as had in their judgment thus not been earned by the practitioner.

In view of this opinion the Association has noted for consideration in connection with amendment of the Acts or Regulations, the fact that in this matter the Commissioners hold the position of complainants, judge and Court of Appeal. Further information is awaited from the Panel Committee as to (b).

Information to be supplied to Panel Committees enabling them to carry out their duties under Regulation 9 (old Regulation 40).

121. In informing Local Medical and Panel Committees in 1915 of the arrangement for the checking of prescriptions for "floating sixpence" purposes, the Association gave full particulars of the statistics which Panel Committees would have submitted to them gratuitously, enabling them to investigate the standard of prescribing in their areas. The statistics to be thus furnished were to relate to (a) the month's prescriptions, (b) the prescriptions given during the whole period of twelve months up to and including that month. The Commissioners, however, found it impossible to carry out the promise as regards (b), as it was not possible to obtain a true average of the number of insured persons on the lists of the doctors for the twelve months ending in May and June respectively. The Council, therefore, approved a proposal by the Commissioners for statistics under (b) being given quarterly instead of monthly, the difficulties experienced thus being obviated.

Communications between Commissioners and Panel Committees.

122. The Association having asked the Commissioners whether it was their usual practice to communicate direct with Panel Committees on matters directly affecting those Committees or through the Insurance Committees, and, if the former, whether it was an oversight that the draft Regulations as to extension of term of office of Panel Committees were forwarded to Insurance Committees and not direct to Panel Committees, the Commissioners replied that their practice depended on the nature of the subject. The Association has informed the Commissioners of its opinion that any communications from them, concerning Panel Committees only, should be forwarded direct to these, and not through Insurance Committees.

Liability for Cost of Treatment given to Insured Persons Suspended from Medical Benefit after their Suspension but prior to Practitioners being Notified thereof.

123. The Council obtained and submits a legal opinion (Appendix VII.) as to who is liable for the cost of treatment given to insured persons suspended from medical benefit after their suspension but prior to practitioners being notified thereof.

The Association again urged upon the Commissioners (Conference Minutes 14 and 15), (i.) that more punctual notice of suspension from medical benefit be given to practitioners, (ii.) that such modification of Regulations be made as will ensure that in future the Medical Registers shall be continuously a correct index of the number of insured entitled to Medical Benefit. The Commissioners pointed out that, while anxious to do all in their power, depletion of staffs of Approved Societies, Insurance Committees and the Commission itself made the task increasingly difficult.

Possible Legislation as Regards Domiciliary Treatment of Expectant Mothers and Young Children: Question of Insurance Acts.

124. As a result of an article in a lay paper as to the intention of the Local Government Board to promote legislation by means of which it would be possible to make use of medical practitioners in whole-time employ of local Councils for domiciliary treatment of young children and expectant mothers, a deputation from the Insurance Acts Committee at once waited on the Chairman of the Joint Committee. Following this a letter dealing with the possible effects of such a proposal on the present system of part-time officers employed under the Insurance Acts was addressed to the Insurance Joint Committee (*see* Appendix III.). The Council deals with the matter in para. 75, under "Medico-Political."

Medical Referees.

125. Application for advice was received from a practitioner as to an offer made to him of a post as referee to an Approved Society and the matter was submitted to the Division, pursuant to Min. 189 of the A.R.M. 1916. The Division approved the appointment of local referees by Approved Societies, provided a minimum fee of 5s. a case was paid, pending establishment of a permanent system of referees under the Act. The Council approved the scheme accordingly.

Insurance Practitioners and Deductions on Account of Mercantile Marine Members.

126. As a result of the Conference raising this question, the Association obtained and published in the *B.M.J. Supplement* of December 23rd, 1916, a full statement by the Commissioners on the subject, which it is believed has been of considerable service to practitioners concerned.

Removal of Names of Insured Persons from Doctors' Lists.

127. The Association made representations to the Commissioners as to cases forwarded from two areas of removal of names of insured persons from doctors' lists. As a result, one of the Insurance Committees concerned was instructed to restore the name to the list of the doctor.

Drug Pricing.

128. In co-operation with the Pharmaceutical Society and the Commissioners, the Association has continued its monthly revision of the prices in the drug tariff.

Stock Mixtures.

129. In conjunction with the Pharmaceutical Society, the Association has approved alteration of the list of stock mixtures issued by the Commissioners by stating ingredients for 80 fluid ounces instead of, as formerly, for doses of half-an-ounce.

Commission of Investigation into Insurance Acts Appointed by Faculty of Insurance.

130. In view of publicity given in the press to the operations of the Commission of Investigation into the Insurance Acts appointed by the Faculty of Insurance, the Council in June, 1916, pointed out to the Insurance Joint Committee that the Association had protested that the present time was most inopportune for impartial enquiry into the terms and conditions of medical service under the Acts owing to absence on Military Service of many practitioners directly affected, and to the necessity of those remaining at home devoting their time to their patients; and stated that the Association would therefore welcome an assurance from the Joint Committee that the general terms of reference of the Commission of Investigation were not intended to include matters comprised within the terms and conditions of the medical service under the Acts, or that the inclusion of such matters was entirely unauthorised, and that they would not be made the subject of departmental consideration until a more appropriate opportunity arose.

The Chairman of the Joint Committee replied that he was not in possession of any information as to the Commission, other than contained in announcements in the lay press, as to what matters it was intended that its investigations should include; that as the body conducting the enquiry had no official standing, the question of the scope of its enquiry was not one with which any Government Department was concerned; and that any questions affecting the position of practitioners who had entered into Agreements under the Acts were advisedly excluded from review by the Government Departmental Committee on Approved Society Finance and Administration, appointed in January, 1916. In view of the evidence given by certain medical bodies and individuals before the Commission in question, the Council published in the Supplement to the *Journal* an article drawing attention to the exact status of the Commission.

METHOD OF ORGANISATION OF PROFESSION.

131. A memorandum by a Local Medical and Panel Committee was recently circulated among Local Medical and Panel Committees and published, deprecating the utility of the Association as the mouthpiece of Insurance practitioners, and setting forth the alleged advantages of the trade union method of organisation for the profession. The Association issued to Local Medical and Panel Committees and Divisions and Branches a letter criticising the memorandum in question and emphasising the advantages of the Association's present method of organisation as against a trade union method. Both documents were published in the *B.M.J.* Supplement (Feb. 17th and 24th, 1917).

132. The Council being of opinion that the great amount of work done by the Association for Insurance practitioners is imperfectly realised by many members and still more by non-members, and that both are therefore likely to be misled by disingenuous and erroneous statements sent to them by certain other organisations, has resolved to issue not less than once a quarter to every Insurance practitioner in the country, a statement setting forth the work of the Association in the special interests of such practitioners. The Council is convinced that it is only by increasing the membership and influence of the one great organisation which can be said to represent the medical profession in general that the interests of all sections of the profession and therefore of the profession as a whole can be maintained.

SICKNESS BENEFIT AND DISEASES DUE TO "OWN MISCONDUCT."

133. In accordance with Minute 203 of the A.R.M., 1916, the Commissioners were informed that in the opinion of the Association no insured person should be refused sickness benefit on the ground that he was suffering from venereal disease. In reply, the Commissioners stated that the rule disqualifying for benefit a member whose incapacity was due to his "own misconduct" was optional, and could be revoked by any society at its pleasure; that the finance of the Acts must be held to include provision for the payment of benefit in such cases; that the problem was in fact not wholly or mainly financial, since the safeguarding of the benefit funds was presumably not the object which societies had in view in originally adopting rules of the kind; that the whole question, of the vital importance of which the Commissioners were aware, was receiving consideration, and that it was hoped to consult Approved Societies shortly as to the position under their rules.

There is much evidence to show that Approved Societies generally are adopting an enlightened attitude on the subject.

Learning that the Departmental Committee on Approved Society Finance was to consider the effect on Approved Societies of the misconduct rule, the Association forwarded to it a Memorandum of Evidence, based on the resolutions of both Representative Meetings and Conferences of Local Medical and Panel Committees. This Memorandum was supported orally by Dr. John Russell, of Burslem, and by the Medical Secretary, and the Association is glad to report that the Committee on the whole supported the policy advocated by the Association.

GRANT FROM CENTRAL INSURANCE DEFENCE FUND.

134. A grant of £100 was made to the widow of a subscriber to the Fund, whose practice had suffered owing to his adherence to the policy of the Association in connection with the Act.

Non-Panel Committee.

135. The Council has appointed a Committee with the following reference:—

> To consider in what manner the Association can best promote the interests of members who have not entered into agreements with Insurance Committees.

The following are the members:—

Sir T. Clifford Allbutt, K.C.B., M.D., F.R.S., Drs. E. B. Turner, J. A. Macdonald, LL.D., G. E. Haslip, M. G. Biggs, H. B. Brackenbury, H. B. Densham, T. A. I. Howell, J. Kennish, E. Nason, and J. Stevens.

(J) Public Health and Poor Law.

UNIFORM FORM FOR NOTIFICATION OF INFECTIOUS DISEASE.

136. The Local Government Board forwarded for the comments of the Association a draft General Order prescribing a uniform form for notification of infectious disease. Confident that adoption of such a system would be of considerable assistance to practitioners, the Council intimated its approval of the draft Order, subject (1) that there should be separate forms (a) for the provinces and (b) for London, thus considerably reducing the printed matter in the case of the provincial form, and (2) that the forms should be printed centrally.

CO-OPERATION BETWEEN ASSOCIATION AND POOR LAW MEDICAL OFFICERS AND MEDICAL OFFICERS OF HEALTH.

137. With a view to closer co-operation between the Association and Medical Officers of Health and Poor Law Medical Officers, a Poor Law Medical Officers Sub-Committee and Medical Officers of Health Sub-Committee have been appointed for consideration of matters affecting Poor Law and Public Health respectively, previous to their consideration by the Public Health Committee of the Association. The Poor Law Medical Officers Association have nominated members to the former, and both the Society of Medical Officers of Health and the Association of County Medical Officers of Health have nominated members to the latter Sub-Committee.

PUBLIC HEALTH AND POOR LAW APPOINTMENTS.

138. Action has been taken in support of the policy of the Association in connection with a large number of appointments. With few exceptions, the action has been successful.

(K) Hospitals.

FUTURE POSITION OF VOLUNTARY HOSPITALS.

139. The present policy of the Association as regards the future of voluntary hospitals is a dual one, namely, a desire to perpetuate and support the voluntary system, and at the same time to establish and support the principle that the State should pay for the medical attendance of persons for whose maintenance it is responsible.

As a result of its consideration of the question of voluntary hospitals in relation to the National Insurance Acts, the Council is of opinion that the time has arrived for a pronouncement by the Association upon the general question of the future of voluntary hospitals. In this connection the Council has had regard to the decisions of the Representative Body (1) that the services of the medical profession should not be given gratuitously to patients who are maintained by public funds (A.R.M., 1908, Min. 676), (2) that the present voluntary system of hospitals should be maintained so long as possible, and that, with that object, the services of the visiting medical staff should continue to be given on an honorary basis (A.R.M., 1913, Min. 290).

The fact of this dual policy does not appear to the Council to constitute any serious difficulty, as, though voluntary hospitals are gradually undertaking more work for the State and receiving payment therefor from public funds, there is a tendency to develop State support of hospitals side by side with voluntary effort and control. It would appear therefore that both the above policies advocated by the Association can be adequately safeguarded by the adoption, where necessary, of the principles first suggested in the Association's Model Scheme for the Treatment of Tuberculosis, approved by the A.R.M., 1914. These at one and the same time enable voluntary hospitals treating patients maintained by public funds to conform with the principle that the services of the profession shall not be given gratuitously in respect of such patients, and at the same time to continue to preserve their voluntary status as regards their purely charitable work.

140. The Council recommends:

[Recommendation.]—That the following principles (first suggested in the Association's Model Scheme for the Treatment of Tuberculosis, approved by the A.R.M. 1914) be adopted by voluntary hospitals treating patients maintained by public funds, so as to avoid the services of the medical profession being given gratuitously to such patients, whilst at the same time continuing their voluntary status as regards their purely charitable work:—

VOLUNTARY MEDICAL INSTITUTIONS RECEIVING PATIENTS MAINTAINED BY PUBLIC FUNDS.

Administration.

A. That a voluntary institution receiving payment from public funds in respect of certain of its patients should be carried on in accordance with the following principles:—

(ii.) That the organisation as regards the patients maintained by public funds may run concurrently with that of the institution;

(ii.) that the accounts should be kept so as to show the approximate aggregate cost of the treatment of such patients, including the cost of medical attendance and treatment;

(iii.) that the services of all members either the resident or honorary medical staff concerned with the treatment of such patients shall be paid for.

Method of Payment of Members of Honorary Medical Staffs.

B. That from all moneys received by the Governing Body of a voluntary medical institution in respect of patients maintained by public funds a proportion to be agreed upon between the Governing Body and the medical staff should be placed to a Special Fund which shall belong to the medical staff.

Mode of Disposal of Special Fund.

That the honorary medical staffs may find the following suggestions valuable in connection with the disposal of the moneys in the Special Fund, and accordingly the Association suggests to the hospital staffs concerned that one or more of the following methods of distribution of any moneys in the Special Fund may be found suitable:—

(i.) To the members of the honorary medical staffs for their own personal disposal;

(ii.) for the assistance of members of the medical staff in connection with research work;

(iii.) for the purchase of instruments, books, etc., for the use of the medical staff or for lending to other members of the profession;

(iv.) for the initiation or development of post-graduate teaching in the institution;

(v.) the institution of a local medical benevolent fund, administered by the members of the honorary medical staff, for dealing with necessitous cases (*e.g.*, widows and children of former colleagues);

(vi.) grants to any recognised medical benevolent fund or institution; or

(vii.) otherwise as the majority of the medical staff may decide.

Question of Nationalisation of Voluntary Hospitals.

141. A special Sub-Committee of the Hospitals Committee has been appointed to consider and report upon the question of the nationalisation of voluntary hospitals, with a view to the Association being prepared with a scheme to minimise any possible dangers arising therefrom in the event of such a procedure coming within the range of practical politics.

(L) Scotland.

Additional Grant to Scottish Committee.

142. The Council has found that the income of the Scottish Committee is inadequate to meet the demands made upon it by the needs of the members in Scotland. It will be remembered that, in 1914, the Council decided to establish a Scottish Office with a whole-time Secretary, at an estimated cost of about £1,350 per year. Had it not been for the War, the Association would have spent in 1915 and 1916 on Scottish organisation, through the Scottish Committee, a sum of about £2,700, whereas the total amount granted to the Scottish Committee in that time has been £400. The Scottish Committee and Council feel that the Association has not been taking as active a part in organising the profession in Scotland and watching its interests as the Association is able and willing to do. Much has been said as to the want of some organisation in Scotland which could deal with Insurance Acts matters peculiarly affecting the Scottish profession, and would be in a position to approach the Scottish Commission direct. A Standing Scottish Sub-Committee of the Insurance Acts Committee has therefore been appointed. In addition, it is essential that the Scottish Committee should work in close harmony with the Colliery and Public Works Surgeons' Committee for Scotland (referred to in para. 147), as the work of the latter vitally affects the interests of a large number of members of the profession. The Scottish Committee proposes to make at once a grant of £50 to the Colliery and Public Works Surgeons' Committee, keeping in close touch with its work by means of direct representation on its Executive.

The Council has therefore increased the grant to the Scottish Committee for the year 1917 by a sum of £200.

Proposal by Scottish Medical Service Emergency Committee for Mobilisation of Whole Medical Profession in Scotland.

143. The Scottish Committee and Council considered a resolution passed by the Scottish Medical Service Emergency Committee in December, 1916, approving the principle of complete organisation of the medical profession during the War and for six months thereafter, in order that every person on the medical register should be bound, when required by the Government, to give such service as he or she was competent to render for naval, military, or civil practice, on the understanding that the organisation of the profession should be in the hands of a Medical Committee appointed by the Government for the purpose. The Scottish Committee also conferred with representatives of the Emergency Committee on the subject. The Scottish Committee and Council approved the resolution of the Emergency Committee, on the understanding (1) that at least one-half of the members of any Medical Committee to be appointed by the Government should consist of general practitioners, (2) that the Association, as representing the general practitioners in Scotland, should have more than one member upon any deputations which might be appointed to wait upon the Director of National Service. The Scottish Committee expressed its willingness to co-operate with the Scottish Medical Corporations in the matter.

Organisation of Measures for Prevention and Treatment of Venereal Disease in Scotland.

144. The Scottish Committee considered the Public Health Venereal Diseases Regulations (Scotland) 1916, and the Memorandum on the subject by the Local Government Board for Scotland, dated November, 1916. The Committee circularized the Branches, Divisions, and Local Medical Committees, drawing their attention to the resolutions of the A.R.M., 1916, and urging them to approach the local authorities with a view to their being consulted in the framing of the schemes, and to appoint a small Committee in each area to co-operate with the medical officers of health in framing the local scheme. The Committee also gave information and advice to Divisions, Branches and Local Medical Committees on specific questions arising out of the Regulations and Memorandum. As a result, many of the medical bodies have taken, or are taking, steps to secure the profession being consulted in the framing of the schemes.

Appointment of Scottish Sub-Committee of Insurance Acts Committee.

145. The Council has set up a Standing Scottish Sub-Committee of the Insurance Acts Committee to consider and report to that Committee on matters peculiar to Scotland respecting the relation of the medical profession to the National Insurance Acts; to report on matters specially referred to it by the parent Committee; to confer with the Scottish Commissioners, as representing the views of Insurance practitioners in Scotland on subjects specially relating to the working of the Insurance Acts in Scotland, as distinct from those which are common to all Insurance practitioners; and, generally, to keep the Insurance Acts Committee in touch with the Local Medical and Panel Committees in Scotland. The Sub-Committee will consist of the members of the parent Committee resident in Scotland, 5 members appointed by the Scottish Committee (at least 3 of whom to be Insurance practitioners), and 8 members appointed by the Panel Committees of Scotland, viz., 4 by Burgh and 4 by County Panel Committees. The meetings of the Sub-Committee will be held in Scotland. It is intended to get the Sub-Committee established with as little delay as possible.

Medical Referees under Insurance Acts.

146. The Scottish Committee has given considerable attention to the proposals made by the Scottish National Conference of Friendly Societies, as to the appointment of Medical Referees, bearing in mind the following decisions of the A.R.M., 1916:—

Min. 183.—Resolved: That pending the establishment of a permanent system of referees under the Insurance Commission, it is desirable that the Association should co-operate in the promotion of a system of temporary arrangements under suitable conditions.

Min. 189.—Resolved: That the fee of 10s. 6d. already approved by the Representative Body for examination of and report on cases submitted to part-time referees under the National Insurance Act, be re-affirmed as the minimum fee for cases examined by practitioners who hold no stated appointment to the Approved Society

submitting the case, and Divisions and Branches be allowed to approve schemes for the payment of practitioners in their areas appointed as medical referees to Approved Societies, provided that where such a scheme involves payment by salary or in accordance with the time occupied, or the acceptance of a fee less than 10s. 6d. per case examined, the scheme shall require the approval of the Council of the Association.

The Scottish Committee has referred the resolutions of the A.R.M. to the Scottish Divisions, together with the proposals of the Conference of Friendly Societies, and has asked them whether they consider that the approval of the Council should be asked for any special scheme of Temporary Referees for Scotland. Owing to the war conditions a number of the Divisions have not yet replied, and the Committee is awaiting these replies before proceeding further.

WORKING ARRANGEMENT BETWEEN SCOTTISH COMMITTEE AND COLLIERY AND PUBLIC WORKS SURGEONS' COMMITTEE FOR SCOTLAND.

147. Subject to certain stipulations as regards the constitution of the Colliery and Public Works Surgeons' Committee for Scotland, including a representation of 3 of the Scottish Committee thereon, the Scottish Committee and Council have recognised the Colliery and Public Works Surgeons' Committee. The Colliery and Public Works Surgeons' Committee is specially concerned in attempting to fix an adequate rate of remuneration for attendance on dependants of workmen. The Council realises the great importance of this subject in view of the possible extension to the dependants of the Medical Benefits of the Insurance Acts. Arrangements have therefore been made whereby the work of the Committee shall be partly subsidised by the Association and helped in every possible way.

REMUNERATION OF MEDICAL PRACTITIONERS UNDER MIDWIVES (SCOTLAND) ACT.

148. As a result of enquiries made by it, the Scottish Committee has been informed that the scale of fees under Section 22 of the Midwives (Scotland) Act, as fixed by the Local Government Board, is £1. 1s. for consultation, to cover one subsequent visit, if required, with mileage at the rate of 1s. per mile.

PRACTITIONERS' CLAIMS FOR EXAMINING RECRUITS FOR THE ARMY.

149. The Scottish Committee has supplied to many practitioners asking therefor, information as to the remuneration chargeable by practitioners for examining recruits for the Army.

UNDER CONSIDERATION.

150. (1) Question of increase of medical fees.
(2) Suggested reconstruction of Scottish Committee.
(3) Report of Central Midwives Board (Scotland).
(4) Medical referees under Insurance Acts.

(M) Ireland.

ELECTION OF CHAIRMAN.

151. Soon after the outbreak of war it was decided that as few meetings of Committees as possible should be held. The Irish Committee, in accordance with this decision, held only two meetings during the past session. At the meeting of the Irish Committee held on the 1st of last November, Dr. Joseph Giusani, Cork, was elected Chairman on the retirement of Mr. R. J. Johnstone, F.R.C.S., Belfast, who has acted as Chairman since his election in October, 1910.

REPRESENTATION OF BRANCHES IN THE UNITED KINGDOM ON THE COUNCIL.

152. The Irish Committee at its meeting on July 11th, 1916, considered a letter from the Medical Secretary of the Association, requesting the Irish Committee to offer any opinion it might hold regarding the general question of the representation of the United Kingdom as a whole under By-laws 46 (a) and (c) as bearing upon that of Ireland. The Committee decided unanimously that it would be inadvisable to interfere with the existing Irish representation on the Council.

GRADED SCALES OF SALARIES FOR POOR LAW MEDICAL OFFICERS: APPOINTMENT OF THEIR LOCUM TENENTS.

153. The Irish Committee urged upon the Irish Local Government Board that as the majority of Boards of Guardians had for many years adopted graded scales of salaries for their Poor Law Medical Officers, it should take the necessary steps to have the Unions in Ireland brought into uniformity on the matter. The Local Government Board replied that in every case where the Poor Law Medical Officers in a Union made application for graded salaries it would urge on Boards of Guardians to adopt such a system. The Irish Committee also urged upon the Local Government Board the importance of Boards of Guardians appointing the locum tenent nominated by the Poor Law Medical Officer going on leave in all cases where satisfactory arrangements were made for the treatment of the sick, as it frequently happened, when Boards of Guardians refused to appoint the substitutes nominated by the Poor Law Medical Officers, that such doctors were compelled, in the interests of their private practice, to forego their much-needed annual holidays towards the expense of which the Treasury makes a special grant. The Local Government Board replied that it was ready in all cases, where proper arrangements had been made for the treatment of the sick, to suggest to the Guardians that they should appoint the locum tenent nominated by the Poor Law Medical Officer applying for leave of absence. It is an ethical rule generally observed in Ireland that no doctor should accept the appointment of locum tenent from a Board of Guardians except on the invitation or with the consent of the permanent medical officer.

IRISH MEDICAL WAR COMMITTEE.

154. The Irish Medical War Committee meets regularly, and has done, since its formation, very important work in recruiting Irish doctors for the R.A.M.C. which has been officially recognised—a compliment which was much appreciated. The Irish Offices of the Association have been placed from the start at the service of the Irish Medical War Committee. Dr. M. R. J. Hayes with the Irish Medical Secretary continue to act as Secretaries of the Committee.

IRISH MEDICAL COMMITTEE.

155. The Irish Medical Committee, a composite body, officially recognised by the Irish National Health Commission as representative of the whole Irish medical profession, transacts on behalf of the profession all business relating to the administration of the Insurance Act in Ireland. The Irish Committee of the Association continues to place the services of its Medical Secretary at the disposal of this Committee.

MEETINGS OF BRANCHES AND NEW MEMBERS.

156. On the whole the Irish Branches, their Councils and Committees, held during the year as many meetings as could be reasonably expected, when there are considered the great demands made on the time of members as a result of their treating so many wounded soldiers sent home from the front, in addition to their increased civilian work owing to the number of their colleagues who have joined the R.A.M.C. At the last meeting (March 3rd, 1917) of the Council of the Munster Branch, twenty-three members were elected, and seventeen members were elected at the last meeting of the Council of the Leinster Branch (March 23rd, 1917).

(N) Oversea Branches.

OVERSEA BRANCHES AND ANNUAL REPORT OF COUNCIL.

157. It is realised that on account of the preoccupation of the medical profession in the Dominions and Colonies with the War, this section of the Annual Report has been of recent years by no means representative either of the work of the Association outside the United Kingdom, or of the importance which the Association attaches to that work. It is hoped in normal times to embody in the Annual Report a much fuller statement than has hitherto been published of the work which the Oversea Federal Committees and Branches do and which they may consider to be of more than merely local interest. The Council is, therefore, inviting the Australian and South African Committees, as representing respectively the Branches in Australia and South Africa, and also the individual Oversea Branches not represented on such Federal Committees, to send as a standing arrangement, for the consideration of the Council with a view to inclusion in its Annual Report, paragraphs summarising the action taken by the Committee or Branch during the previous year.

FUNCTIONS OF SOUTH AFRICAN COMMITTEE.

158. With a view to increased co-ordination and efficiency, the Council has decided that in future no question affecting any Branch or area in South Africa shall be finally dealt with by the Council until the South African Committee has had an opportunity of expressing its views.

J. A. MACDONALD,
Chairman of Council.

April 25th, 1917.

APPENDIX I.

MEMORANDUM ON QUESTION OF WHETHER A MEDICAL REFEREE OR INSPECTOR SHOULD INFORM THE MEDICAL ATTENDANT OF ANY MODIFICATION IN THE TREATMENT OF A CASE WHICH HE FINDS IT NECESSARY TO RECOMMEND TO HIS EMPLOYER AS DESIRABLE.

(See page 85, para. 57, of Annual Report of Council.)

(1) The position of medical practitioners who are called upon to examine on behalf of employers, insurance companies, and persons similarly interested, patients who are under the care of other practitioners was considered by the Association on the instruction of the Annual Representative Meeting, 1909, and Rules for the guidance of those concerned were finally approved by the Annual Representative Meeting, 1912.

(2) These Rules were specially excluded from applying in the case of Certifying Factory Surgeons, but in the absence of any decision to the contrary must be taken as applying to all other practitioners whose duties for the time being are of the nature contemplated in the Rules.

There is therefore no reason to suppose that those practitioners, other than Certifying Factory Surgeons, who may be called upon to make examinations and furnish reports under the Workmen's Compensation Act, 1906, are in any way exempted from the obligations which these Rules impose.

(3) Apparently three classes of medical practitioners are referred to in the Workmen's Compensation Act, 1906.

(a) Any duly qualified medical practitioner may be required to make examinations and furnish reports either at the request of an employer or a workman.

(b) Certifying Surgeons appointed under the Factory and Workshop Act, 1901, or medical practitioners appointed by the Secretary of State to act as Certifying Surgeons for the purposes of Section 8 of the Workmen's Compensation Act, may be required to examine and report upon persons alleged to be suffering from industrial diseases.

(c) Medical referees appointed by the Secretary of State may be required to examine claimants and give final decisions when appeals have been taken to them against the action of the two other classes of medical practitioners performing duties under the Act.

(4) It must be recognised that in all these cases, the practitioners act for persons whose interests are divergent.

They are, however, concerned in the ordinary courtesy and consideration which members of the profession are in every case bound to show to one another, and whilst each must have regard to the rights of those for whom they act, they are not absolved from their professional obligations to one another.

(5) In cases where a medical practitioner is sent by the employer to examine and report upon a workman who has given notice of an accident, with a view to claiming compensation under the Act, it is the duty of the medical practitioner to furnish to the employer, and to the employer only, a confidential report of all circumstances in connection with the case which in the interests of the employer should be made known to him.

(6) It may be found necessary for the medical practitioner to include in such a report a recommendation that in his opinion some modification of the treatment which is being carried out would contribute to the more rapid recovery of the case.

(7) The medical practitioner is expressly debarred by Rule 6 from making any comments to the patient on the treatment of the case, without the concurrence of the medical attendant, but if any recommendations made to the employer in respect of the treatment or future treatment of the case are to be of any value, they must ultimately be communicated to the workman and through him may become known to the medical attendant.

(8) It is obviously desirable that any such information should be made known to the patient through the medical attendant, as otherwise the confidence of the former in the latter might be seriously disturbed, and it is even more desirable that any criticism or suggested modification of the treatment should be communicated to the medical attendant direct, and not through the medium of the patient, who would presumably be quite unable to estimate its significance.

(9) It seems essential therefore on every ground that any recommendation of the examining practitioner in respect of the treatment and future treatment of the case should be communicated by him to the medical attendant who would use his own discretion as to the extent, if any, to which the patient should be informed by him of the recommendations to be made to his employer.

(10) When the medical attendant is present at the examination of the case, no difficulty need be anticipated, and in those cases where either the medical attendant has failed to avail himself of the opportunity of being present or the examination has purposely been made without the medical attendant being notified, it should be the duty of the medical examiner to inform the medical attendant of any such recommendations which he may feel called upon to make to the employer.

(11) The Council therefore **recommends**:—

That the following Rule be added to those already approved by the Representative Body in respect of the position of medical practitioners called upon to examine (otherwise than by request of the patient or persons acting upon his behalf) patients who are under the care of other practitioners):—

If the medical inspector finds it necessary to report to his employer that any modification in the treatment which is being carried out is in his opinion necessary to the more rapid recovery of the case, he shall so inform the medical attendant.

APPENDIX II.

POSITION OF PRACTITIONERS EXAMINING PATIENTS UNDER CARE OF OTHER PRACTITIONERS.

(See page 85, para. 57, of Annual Report of Council.)

RULES.

(Approved by Annual Representative Meeting, 1912.)

(1) Except as hereinafter mentioned, the medical inspector should give the medical attendant such notice of the date, time, and purpose of his visit as will afford reasonable opportunity for the medical attendant to be present should he or the patient so desire.

The exceptions are:—

(a) When circumstances justify a surprise visit.

(b) When circumstances necessitate a visit within a period which does not afford time for notification.

(c) When the medical inspector, after due enquiry made, has no information as to whether the patient is under medical care.

Where the medical inspector has availed himself of any of the above exceptions, it shall be his duty to inform the medical attendant, if any, of the fact of his visit, and the reason for his action.

(2) The medical attendant must not put any unnecessary difficulties in the way of fixing a time convenient to both practitioners.

(3) If the medical attendant fails to appear at the time stated, the medical inspector may proceed with his examination forthwith.

(4) The medical inspector must not, without the consent of the medical attendant, do anything in the course of his examination which involves active interference with the treatment of the case.

(5) Where the medical attendant fails to communicate with the medical inspector, the medical inspector shall, at his discretion, and subject to the consent of the patient, make any examination he may consider necessary.

(6) The medical inspector must not make any comments to the patient which are of the nature of criticisms of, or reflections upon, the treatment, nor must he express, without the concurrence of the medical attendant, any opinion to the patient as to the etiology, diagnosis or prognosis of the case. His duty is strictly confined to examining into such matters as are necessary for the purposes of his report, and reporting to his employer, and to his employer only, his conclusions from such examination.

NOTE.—The above Rules do not apply to Certifying Factory Surgeons.

APPENDIX III.

LETTER SENT, JANUARY 1917, BY INSURANCE ACTS COMMITTEE TO NATIONAL HEALTH INSURANCE JOINT COMMITTEE.

(See page 89, para. 75. and page 96, para. 124, of Annual Report of Council.)

British Medical Association,
Medical Department,
429, Strand, London, W.C.
19th January, 1917.

To the Chairman
National Health Insurance Joint Committee.

Sir,

From an apparently inspired notice in the "Daily News" of the 10th instant, it is understood that the Local Government Board propose to introduce legislation to stimulate local authorities to provide midwives, nurses and medical attendance for expectant mothers, and medical attendance and treatment, possibly including domiciliary attendance, for children under 5 years of age.

The Insurance Acts Committee of the British Medical Association, which is recognised by the Local Medical and Panel Committees in England, Scotland and Wales as their mouthpiece in central negotiations with the Commission, desires to place before you the following observations, which the Committee will be glad to elaborate if desired.

(1.) The late Chairman of the Joint Committee of Commissioners, in a letter dated October 27th, 1916, told this Committee that the Commissioners had no knowledge of present expectation of any additions being made to the responsibilities of Panel practitioners during 1917, beyond those then under discussion, namely, those connected with the treatment of venereal diseases and the treatment of discharged disabled soldiers.

The legislation proposed by the Local Government Board is bound to add to these responsibilities, for a large number of the expectant mothers for whom provision is to be made are insured persons. In the opinion of the Committee it is unfortunate, to say the least, that no official intimation of this proposed legislation has been given to bodies representing Panel practitioners, who have been allowed to discover it by a reference to the lay press.

(2.) There is grave reason for fearing that the contemplated new provision may be developed upon lines which the great majority of the profession would regard as wrong. The Committee submits the following reasons for this opinion:—

(a) The provision of a special service for treatment, including (as it must do if it is to be really effective), domiciliary attendance on pregnant women, nursing mothers and young children, is an example of piecemeal handling of the problem of provision of medical service which is greatly to be deprecated. Criticism both by the medical profession and the public has constantly been directed to the absence of any evidence that any comprehensive survey of this problem has ever been undertaken. All kinds of overlapping at present exist, and the present proposal will aggravate it.

(b) The public and the profession have a right to expect, at a time when many large schemes of social reconstruction are under consideration, that there should be an attempt to arrive at a coherent policy as regards medical service. The methods of dealing with such points as the provision of medical treatment for the dependents of insured persons, provision of specialist treatment for insured persons and their dependents, and the whole question of institutional medical treatment, were deliberately postponed by the Government when the Insurance Act was introduced, though the need for early attention was fully recognised. A matter so deeply affecting the relations of the great majority of the medical profession to their patients as the subject now under discussion, should not be dealt with in a way which precludes a general discussion of the best methods of providing for the community as a whole, such services as general practitioners are best suited to give.

(c) The Committee does not suggest undue delay in making provision which everybody recognises to be important, but such provision should receive full consideration as part of the larger problem, and the fact that there has been no consultation of the medical profession on this subject is a proof that there has been no such consideration.

(d) Schemes for treatment under local authorities and the Local Government Board and Board of Education have tended in recent years to be organised on the lines of employment of doctors to give their whole time to the particular work, e.g., tuberculosis and medical treatment of school children. The doctors appointed have often had previously very little, if any, experience of practice, are confined to a very narrow field of work, and are not therefore given the chance of becoming such valuable physicians and surgeons as they would otherwise be.

This system has an evil influence on the private practitioner, for it cuts off from the field open to him important sections of medical treatment and thus diminishes his usefulness to the general public who must mainly rely upon him. The Committee views with great apprehension the influence on the medical profession of this country of a system which tends to make the general practitioner believe that it is none of his business to keep himself efficient in dealing with tuberculosis, or the emergencies of midwifery, and the diseases of women and young children, because these are the sphere of so-called specialists.

The Committee raises no objection to the employment of whole-time officers as such, indeed it recognises that for certain purposes, *e.g.*, administration and inspection there are advantages in employing officers who, because they are not in intimate personal relations with the individual, are able to take a detached view which renders them more efficient on the administrative side. But this very detachment detracts from their usefulness as medical attendants on the public. The Committee would urge that there should be full use of both administrative and clinical branches of the profession with proper co-ordination.

(e) Development on the lines objected to is already producing a grotesque situation as regards the medical service of the working classes. The ordinary procedure as regards medical attendance on a working man's family may be expected soon to be as follows:—

Father, in all illnesses (except tuberculosis) attended by his insurance practitioner; Mother, in all illnesses (except those connected with child birth and tuberculosis) if an insured person, attended by her panel doctor (probably also her husband's); if not an insured person attended (when she can afford it) by private practitioner (probably her husband's panel doctor), when she cannot afford it, either by the parish doctor or by some medical charity; during pregnancy consults the Maternity Centre doctor; at her confinement attended by a midwife or a doctor provided by the Maternity Centre; if affected by tuberculosis, by a Tuberculosis Officer; Infants and young children up to school age attended by Maternity Centre doctor, after school age attended for "School Diseases" by School Medical Officer, and by private doctor (probably father's panel doctor) when too ill to go to school; after school age and up to 16 attended by private doctor; after 16 attended by panel doctor —probably the same practitioner;. if affected by tuberculosis, the Tuberculosis Officer is introduced.

(f) The absurdity of such an arrangement as the above is emphasised by the fact that as regards insured women the panel practitioner is responsible for their treatment up to and a short time after their confinement. It is apparently proposed that the Maternity Centre doctor should intervene, without any previous knowledge of the woman or her family, for the short time immediately before, and during the confinement and nursing periods. In addition, the Insurance Committee, which is responsible for the administration of maternity benefit, is to be supplanted during this period by another local authority.

(g) It appears to the Committee that such a development as is just described could only be seriously contemplated if the Government has resolved to allow the National Insurance system to die from inanition, or by gradual undermining in favour of a system of whole-time state medical officials. The Insurance Act of 1911 contemplated the extension of the benefits given under that Act when funds permitted, and among the "additional benefits" contemplated were "medical treatment and attendance for any persons dependent upon the labour

of a member." But if the treatment of the expectant mother and her young children is to be handed over to another Department to be dealt with under an entirely different system, it would appear that the Government have decided to abandon any attempts at building up a really inclusive and National system of Health Insurance. If this be so, the Committee submits that such action should not be taken in an apparently casual manner, but should be adopted openly and deliberately by the Government after consultation with the Approved Societies and those concerned in the maintenance, extension and improvement of National Health Insurance. The medical profession is, of course, deeply concerned in this subject.

(3) The Committee would ask what has become of the proposed extension of the medical service under the Insurance Acts for which Parliament voted large grants in 1914? It was then contemplated to provide referees who should be the advisers of the Insurance Committees on matters relating to clinical treatment; to provide treatment centres at which expert advice could be obtained by insured persons on the reference of their panel doctors; to provide pathological laboratories for the examination of specimens and clinical material in order to aid the panel doctor in his treatment of difficult and obscure cases; and to provide a nursing service. It is impossible to believe that simultaneously with these developments the Government would have proposed to place an important section of the treatment of insured persons and their dependents in the charge of another Department and on an entirely different plan. If the proposal by the Local Government Board is the sign that the Government has abandoned its former policy, insured persons, the Approved Societies and the medical profession ought to be told.

Finally, the Committee wishes to make it clear that in raising this question and in submitting the above statement to you, it is inspired by no feeling of hostility to any measures which have for their object the medical care and treatment of mothers and children. Any developments of this kind on the right lines will be welcomed and assisted by the medical profession as a whole and by the British Medical Association as an organisation. But the Committee has felt bound to make these representations, because it feels that the probable future effects of such a development as is now contemplated by the Local Government Board have not been considered, whether as affecting the efficiency of the medical profession and its consequent usefulness to the community or as affecting the general scheme of National Health Insurance."

I am, Sir,
Your obedient Servant,
ALFRED COX,
Medical Secretary.

APPENDIX IV.

CORRESPONDENCE BETWEEN MEDICO-POLITICAL COMMITTEE AND LOCAL GOVERNMENT BOARD, JANUARY, 1917.

(See page 89, para. 75, and page 96, para. 124, of Annual Report of Council.)

British Medical Association,
429, Strand, London, W.C.,
17th January, 1917.

The Secretary,
Local Government Board,
Whitehall, S.W.

Sir,

The Association has noted an apparently inspired statement in the "Daily News" of the 10th inst., to the effect that legislation is to be introduced by the Local Government Board for the purpose of pressing local authorities to take more vigorous action in the matter of maternity and child welfare. The statement would seem to indicate some considerable extension of the work of these authorities in dealing with expectant mothers and children under five years of age, possibly including domiciliary attendance.

In view of the obvious interest of the medical profession in such matters the Association is surprised not to have had some early and official intimation of the possibility of such proposed legislation, particularly having regard to the statement by the late President of the Board, the Right Hon. Walter Long, M.P., in connection with the treatment of venereal diseases—that he considered it most desirable that representatives of the medical profession should be consulted with respect to matters which so closely concerned the profession.

I am instructed to ask whether the Board is in a position to give the Association any information as to the proposed legislation, and particularly as to whether it is proposed to authorise or encourage local authorities to undertake domiciliary attendance in connection with expectant mothers and young children.

I am, Sir,
Your obedient Servant,
ALFRED COX,
Medical Secretary.

Local Government Board,
Whitehall, S.W.,
26th January, 1917.

Sir,

I am directed by the President of the Local Government Board to advert to your letters of the 17th and 23rd instant, with reference to maternity and child welfare and to state that the Board will inform the Association of any proposals to encourage local authorities generally to undertake domiciliary treatment of expectant and nursing mothers and young children. No such scheme is at present in contemplation.

I am, Sir,
Your obedient Servant,
(Signed) H. O. STUTCHBURY,
for Assistant Secretary.

Alfred Cox, Esq., M.B.,
Medical Secretary,
British Medical Association.

APPENDIX V.

MINISTRY OF HEALTH: REPORT OF DEPUTATION FROM ASSOCIATION TO PRESIDENT OF LOCAL GOVERNMENT BOARD, MARCH, 1917.

(See page 89, para. 75, and page 96, para. 124, of Annual Report of Council.)

A Conference took place on Friday, 16th March, 1917, between Lord Rhondda, President of the Local Government Board, and representatives of the British Medical Association, on the position of the medical profession in regard to the Maternity and Infant Welfare proposals of the Department.

In opening, Lord RHONDDA stated that there was a large amount of overlapping in the various Government departments supervising the health of the country which could hardly fail to lead to friction, unnecessary expense, and waste of energy. The public were becoming aware of this, and were already insisting that some action should be taken to remedy the position.

He referred to the Bill he proposed to introduce dealing with Maternity and Infant Welfare, and stated that he estimated it to be possible to save 50,000 young lives a year, and he felt strongly that the necessary steps for this purpose should be taken forthwith.

He hoped to secure the active co-operation of the general practitioner, whose influence he recognised as being very wide. He had an idea that there had been a feeling of suspicion towards the Local Government Board on the part of the general practitioner, and he was most anxious entirely to remove this feeling. He wanted the help of the general practitioner in securing the success of his scheme.

The only satisfactory method of removing overlapping was to have one Health Department, and he thought a way of securing the necessary co-operation with the general practitioner might be to have an Advisory Medical Council to assist the Department.

Sir CLIFFORD ALLBUTT thanked Lord Rhondda for meeting the representatives of the British Medical Association, and welcomed his remarks as to co-operation with the general practitioner of whose abilities and efficiency he had personal knowledge gained by many years' experience as a consulting physician.

He expressed his cordial approval of the work which was being done to secure Child Welfare, and emphasised the importance of working with the family doctor in this as in other matters.

He feared that of late the responsibilities of the family doctor were being diminished through certain work being taken

partially out of his care, *e.g.*, infectious diseases, care of children, tuberculosis, venereal diseases, etc., and that such a diminution must lead to a deterioration in the quality of medical men entering into this important branch of the profession.

He thought that the best way of utilising the services of the general practitioner might be by means of rotas or committees. The general practitioner should not be overloaded with the administrative work which would have the effect of taking the life out of his professional energy and interest in research.

He referred to the proposals of the Government in 1914 for pathological work, and considered it essential that there should be research centres within the reach of the general practitioner.

He fully agreed with, and for many years had urged the desirability of, having a Ministry of Health—this was now generally recognised. He indicated certain methods in which more use could be made of the general practitioner, and urged that they should be kept in touch with the homes, the family histories, and the confidences of the patients.

Dr. BRACKENBURY stated that the confusion in the various health services was obvious to all concerned in the work. He instanced the fact that 9 doctors, (working under the Regulations of 5 Government Departments) might be concerned at various times with the medical care of a single family. He thought this confusion could be better remedied from the Centre.

He thought that the Ministry of Health should deal with that subject alone. He did not mind which Department became the Ministry so long as the following 3 principles were embodied :—

(1) that the clinical as well as the preventive side should be represented, and with an equal status ;

(2) that the salaried medical officer should not undertake treatment of individuals ;

(3) that the general practitioner should be used as much as possible.

He stated that he would be prepared after consultation with his colleagues to elaborate a scheme for utilising the general practitioner in a unified Health Department. He criticised the Maternity and Child Welfare centres. While in sympathy with the idea he felt that they were not as successful as they ought to be, partly because the right people were not being attracted to the centres, which, in turn, was due to the fact that the interest and participation of the private practitioner were not encouraged. He thought the patient should be followed to the home, and that there should be appropriate treatment there. In many places there were no centres, in many there were voluntary agencies only.

This work was not receiving the sympathetic co-operation of the profession, and therefore was not so successful as it ought to be ; but he could not promise hearty co-operation from the general practitioner while the present conditions continue.

The extension of the work to the homes could only be done by the family doctor, and this should be done on proper lines and not by salaried officials employed at the centres.

He considered that the Committees running this work should be representative of voluntary agencies and the medical profession, as well as of the public. The medical profession should have a part in framing and carrying out any scheme, and it was essential that any actual treatment of individuals should be carried out by private practitioners.

Dr. H. J. CAMPBELL gave his experience of the work of the Bradford scheme and stated his opinion that it was neither so effective nor so economical as it ought to be.

Dr. BOSTOCK HILL agreed as to the need for the sympathetic aid of the general practitioner. There was a suspicion on the part of the general practitioner against the salaried section. The reform must consist in a combination of the two sections though he considered that the general practitioner should be willing to work under the whole-timer, who would act as organiser.

Dr. E. B. TURNER laid down that the administrative officer should administer, and the clinical man should treat the patient.

Afterwards there was a more general discussion of the proposals for conferring further powers on local authorities. It was stated it would be necessary to extend domiciliary treatment if it was desired to get the profession to take an interest in the work. There must be some inducement to get the right people to go to the centres, and the general body of the profession could be relied upon to see to this if it were made an integral part of the scheme.

Lord RHONDDA expressed a desire to see particulars of the scheme which the B.M.A. were willing to draw up, though he intimated that he would not bind himself to adopt it, nor could he promise to hold back the Bill till he could carry out the views of the deputation. He might say, however, that the Bill he had in mind was an enabling Bill only, and that it would in no way preclude the carrying out of such measures as the Deputation proposed in regard to Infant Welfare.

He thanked the Deputation for coming, and repeated that he wanted their help in the work.

APPENDIX VI.

CORRESPONDENCE, MARCH AND APRIL, 1917, WITH CHAIRMAN OF NATIONAL HEALTH INSURANCE JOINT COMMITTEE, AS TO NEW ADVISORY COMMITTEE.

(See page 95, para. 114, of Annual Report of Council.)

(a) *Letter from Insurance Commissioners, dated March 12th, 1917.*

"I am desired by Sir Edwin Cornwall, Chairman of the Joint Committee for National Health Insurance, to inform you that he is establishing a new Advisory Committee under Section 58 of the National Insurance Act, 1911, to take the place of the existing Advisory Committee of the Joint Committee. He is anxious that the new body should be much smaller in number, and composed of persons having direct practical experience in the working of National Health Insurance.

He directs me to inform you that he has decided to appoint one medical member of the Committee, who should be a general practitioner with personal experience, not only as a panel practitioner in the treatment of insured persons, but also of the general working of the Insurance Act in its various medical aspects.

He will be glad if the British Medical Association as the body appointed by the Conference of Local Medical Committees and Local Panel Committees to represent them in relation with this Department, will suggest to him the name of a medical practitioner suitable for the appointment above described. In making this request he wishes it to be understood that he is inviting members to join the new Committee by reason of their interest in, and experience of, National Health Insurance work, and in order that this knowledge and experience may thus be available for the assistance of the Department and himself, and not that individual members should serve on the Committee as representatives of particular interests.

I am to add that Sir Edwin Cornwall intends also to appoint a Medical Advisory Committee for the further assistance of himself and the Joint Committee in regard to all medical and health matters generally in connection with this Department, and will consult the British Medical Association at a later stage as to persons suitable for appointment on this other body."

(b) *Letter to Commissioners, dated March 27th, 1917.*

"Since the receipt of your letter of the 12th inst. and the consequent taking of steps to secure nomination of a medical practitioner, the Association has seen in the lay press, with some surprise, an apparently authoritative statement as to the size of the new Committee. It had been assumed that as there was to be only one medical member, the Committee was intended to be quite small in number, and it appears to the Association that one medical representative on a Committee of 31 advisory to the National Health Insurance Commission is quite inadequate. The Association is aware that the Committee will, of course be concerned with many matters entirely outside the question of medical, sickness and maternity benefits, and notes that the members are not appointed as representative of special interests, but it is a fact that the

National Insurance Act, 1911, requires that the Committee shall contain 'duly qualified medical practitioners who have personal experience of general practice.' In view of the extent of the work of the Committee as affecting the insured population itself, and as necessitating an expert knowledge of professional questions as applied to National Health Insurance, it appears to the Association that on a Committee of the suggested size it is obviously desirable that there should be not less than three medical representatives.

It is noted from your letter that it is your intention to appoint a Medical Advisory Board for the assistance of yourself and the Joint Committee with regard to medical and health matters generally, and that you will consult the Association as to persons suitable for appointment thereon, but it appears that such a body, obviously valuable, would have no statutory status. The Association therefore desires to urge upon you the appointment of additional medical members of the Statutory Advisory Committee.

In the meantime, subject to the above observations and to the hope that immediate and favourable consideration may be given to the suggestion, the Association desires to nominate for appointment, Mr. H. B. Brackenbury, M.R.C.S., L.R.C.P., of 21, Quernmore Road, Stroud Green, London, N. Mr. Brackenbury is a general practitioner and a member of the Middlesex and London panels. He is the Chairman of the Insurance Acts Committee of the Association and of the Middlesex Panel Committee, a member of the Local Medical Committee, and has had a very considerable administrative experience on other public bodies."

(c) *Commissioners' Reply, dated March 30th, 1917.*

"I am directed by the Chairman of the National Health Insurance Joint Committee to acknowledge the receipt of your letter of the 27th, suggesting the name of Dr. Brackenbury for appointment on the Advisory Committee, and to say that a communication is being sent to Dr. Brackenbury as to his becoming a member of the Committee.

With regard to the other matter referred to in your letter, Sir Edwin Cornwall desires me to say that he is still of opinion that his proposal to appoint a separate Medical Advisory Committee, with one medical representative on the other Committee, would prove the most satisfactory to the medical profession, and would be most advantageous from every point of view.

Sir Edwin desires me to remind you that the only statutory function of the Advisory Committee is to give advice and assistance in connection with the making and altering of the Regulations. There are many other important matters, in addition to the mere making of Regulations, which will demand his attention in the near future, and in connection with which he hopes to have the assistance of persons of experience of various kinds in the work of National Health Insurance.

Sir Edwin's desire is to work in close co-operation with all the organisations concerned in the administration of the Acts, and he believes that suitable Advisory Committees may be very helpful in this direction.

Sir Edwin directs me, however, to say that before he proceeds with the appointment of a separate Medical Advisory Committee, he would be glad to meet representatives of the medical profession and talk the matter over with them."

(d) *Letter to Commissioners, dated April 19th, 1917.*

"I am instructed to say that the Insurance Acts Committee, representing the British Medical Association, will be glad to take advantage of Sir Edwin Cornwall's offer contained in your letter of 30th March, 1917, to confer with representatives of the Association. The Committee would suggest the afternoon of Tuesday, May 1st, as a suitable time for the proposed conference, but if that date is unsuitable I shall be glad to be informed what early date after that would be convenient.

The Insurance Acts Committee gave very careful consideration to the correspondence which has passed on the subject of the new Advisory Committee, and has expressed the following opinions which it will be glad to amplify when its deputation is received :—

(1) That the recently formed Advisory Committee is not a properly constituted statutory body in accordance with Section 58 of the National Health Insurance Act of 1911, inasmuch as the duty of the Statutory Advisory Committee is to give advice and assistance in connection with the making and altering of all regulations under Part I. of that Act. For this purpose it is essential that it should be a properly balanced Committee containing in due proportions persons capable of so advising and assisting. The Committee as at present composed is, it appears to the Insurance Acts Committee, incapable of advising on regulations concerning medical benefit, which as in the past must in the future constitute an important section of any Advisory Committee's work. As these regulations are incorporated in every Insurance practitioner's agreement they gravely affect these members of the profession, and the Insurance Acts Committee, speaking on behalf of the Local Medical and Panel Committees of the whole country, cannot acquiesce in any action which seems to belittle the importance of this part of the work of the Advisory Committee.

(2) That if the Advisory Committee be reformed so as to make it a properly balanced and constituted Statutory Committee, the British Medical Association will be glad to nominate additional medical practitioners for membership.

(3) That if a properly constituted Statutory Advisory Committee be set up, the medical members of which might or might not be consulted separately on medical matters, there is no need for a separate Medical Advisory Committee, either statutory or other.

(4) That the policy indicated by the setting up of the new Advisory Committee, if continued, is likely to do more to make members of the medical profession consider the advisability of discontinuing service under National Health Insurance than possibly any other action would do, inasmuch as it may be interpreted as an indication of the intention to increase the influence of the Approved Societies at the expense of the medical profession whose work is so essential to the working of the system."

APPENDIX VII.

OPINION OF SOLICITOR AS TO LIABILITY FOR COST OF TREATMENT GIVEN TO INSURED PERSONS SUSPENDED FROM MEDICAL BENEFIT AFTER THEIR SUSPENSION BUT PRIOR TO PRACTITIONERS BEING NOTIFIED THEREOF.

(See page 96, para. 123, of Annual Report of Council.)

"Regard being had to the terms of the Agreement (Form M.B. 40) entered into by the Practitioner with the Insurance Committee, which I understand to be the Agreement uniformly adopted, and to the Regulations which, under the provisions of such Agreement, are to be read into and to form part of it—I am of the opinion that where delay occurs on the part of the Insurance Committee in notifying the practitioner to the unreasonable extent exemplified in the cases submitted to me, the practitioner affected is entitled to claim from the Insurance Committee that he shall be credited with remuneration in respect of the insured person until the notice was received by him from the Insurance Committee of the removal of such insured person's name from his list."

"By virtue of paragraph 14 of the Agreement, any question arising between the practitioner and the Committee on this head must be referred to the Commissioners for decision, the provisions of such paragraph amounting to an agreement for Arbitration between the parties, the reference being to a specified Arbitrator—namely, the Commissioners."

"In giving this opinion, I am assuming that the practitioner has duly discharged such obligations as devolve upon him towards the insured person in question up to the date at which the notice of removal from his list is received by him."

"I may add that, due to the involved and complicated nature of accounting to practitioners which prevails with Insurance Committees and in final settlements between them being arrived at, it would appear to me to be extremely difficult, if not well nigh impossible to ascertain accurately whether to any and, if so, to what extent, the practitioner has been credited with remuneration in respect of such insured person for any and, if so, what portion of the period which may have elapsed between such insured person becoming out of benefit and the receipt by the practitioner of notice of such fact from the Insurance Committee."

British Medical Association.

THE SUPPLY OF PETROL TO MEDICAL PRACTITIONERS.

THE following reply has been received to the letter (SUPPLEMENT of April 28th, 1917, p. 69) sent to the Petrol Control Committee on behalf of the Association:

19, Berkeley Street, London, W.1,
April 26th, 1917.

Sir,

I have to acknowledge the receipt of your letter of the 21st April, and in reply to inform you that the Committee fully appreciate the difficulties which medical practitioners will experience owing to the recent action of the War Office.

They have decided to renew all licences held by members of the profession under the same conditions as before, and they are willing in certain cases to issue supplementary licences to medical practitioners who may have additional work thrown upon them owing to the fact that other practitioners in the same locality have been called up.

In such cases the name of the doctor who is retiring from civilian practice and the amount of additional motor spirit required must be stated.

I am, Sir, your obedient Servant,
(Signed) P. G. L. WEBB.

A. Cox, Esq.,
British Medical Association,
429, Strand, W.C.2.

Association Notices.

ELECTION OF COUNCIL, 1917-1918.

NOTICE is hereby given that nominations for candidates for election as Members of Council by Branches or Groups of Branches in the United Kingdom for the year 1917–18 must be forwarded to reach the Financial Secretary and Business Manager, at the Office of the Association, not later than Saturday, May 19th, 1917. Each nomination must be on the prescribed form, copies of which will be furnished by the Financial Secretary and Business Manager upon application.

Separate forms have been prepared:

(*a*) For a nomination by a Division, and
(*b*) For a nomination by any three Members of a Branch respectively.

Those applying are requested to state for which purpose the form is desired.

An announcement of the Nominations received will be made in the JOURNAL of May 26th.

Election will be by voting papers. These papers will contain the names of all duly nominated candidates, and will be issued from the Central Office on Saturday, June 9th, and will be returnable not later than Saturday, June 16th.

The result of the election of Members to the Council will be published in the JOURNAL of June 23rd.

By Order of the Council,
GUY ELLISTON,
Financial Secretary and Business Manager.

May 5th, 1917.

GRANTS IN AID OF SCIENTIFIC RESEARCH.

THE Council of the British Medical Association is prepared to receive applications for grants in aid of Scientific Research into the Causation, Treatment, or Prevention of Disease. Preference will be given to medical practitioners and to applicants who propose to investigate the problems directly related to practical medicine.

Applications for grants must be received not later than June 16th, 1917, and must be made on the prescribed form which, together with the regulations governing the suggested grants, can be obtained on application to the Medical Secretary of the Association, 429, Strand, London, W.C.

MEDICAL STUDENTS IN COMBATANT SERVICE.

THE statement in the JOURNAL of April 7th (p. 464) with regard to senior students serving in combatant units has been challenged. It was said that if senior students were still serving in combatant ranks it was contrary to instructions, which ought to have been, and we believed had been, brought to their notice and to that of their commanding officers. Statements to this effect have been made in the House of Commons and to the General Medical Council, and the matter appears to be governed by Army Council Instruction No. 2290, of December 8th, 1916, copies of which were sent to G.Os. C.-in-C.; Os. C. Districts in Great Britain; Os. C. Recruiting Areas (for distribution); Appeal Military Representatives; Military Representatives. The relevant parts of the order are as follows:

3. (*a*) Medical students now serving with the colours who have been duly registered as such in the books of the General Medical Council, and who were at the time of enlistment actively engaged in medical studies, if not passed fit for general service (Category A) or, in the case of fourth or fifth year students, whether passed fit for general service or not, are to be relegated to Class W Army Reserve or Class W (T) T.F. Reserve in accordance with the procedure set out in A.C.I. 1174 of 1916.

(*b*) In the event of any doubt arising as to whether a man is to be regarded as a medical student in accordance with para. 3 (*a*), he should be required to produce a certificate from the Dean of the Faculty of the College where he was studying.

(*c*) Men thus relegated to the Reserve will be required to return to their professional studies and to enrol in an Officers' Training Corps.

(*d*) Where a medical student is holding a commission but is not fit for service overseas, a statement of the case should be forwarded by the G.O.C.-in-C., Command, for the consideration and decision of the Army Council.

(*e*) Where a medical student who is not a fourth or fifth year student is holding a commission and is fit for service overseas, the fact that he is a medical student will have no bearing on his status. A fourth or fifth year student who comes under the definition in para. 5 will be allowed to resume his studies if he desires to do so.

5. For the purposes of this Instruction a man who can within twenty-four months obtain his medical degree or licence is to be regarded as a fourth year medical student.

(Copies of the Instruction were sent to G.Os.C. in-C.; Os.C. Districts in Great Britain; Os.C. Recruiting Areas (for distribution); Appeal Military Representatives; Military Representatives).

TEMPORARY COMMISSIONS, R.A.M.C.

DURATION OF FUTURE CONTRACTS.

THE Secretary of the War Office makes the following announcement:

It has been decided that in future the contracts of medical men appointed to temporary commissions in the Royal Army Medical Corps, and also renewals of contracts of officers of military age, shall be until the termination of the present emergency, or until their services are no longer required, whichever shall happen first.

It has been decided that medical men who are, at the time of their physical examination, considered to be unfit for general service or garrison duty abroad, but fit for service at home, may be granted temporary commissions in the Royal Army Medical Corps. They will be engaged on the usual contract for general service, but will be posted to and retained at home stations for so long as they are unfit for service abroad. The engagement will be until termination of the emergency or until their services are no longer required, whichever shall first happen, and they will receive the same rates of pay and gratuity as officers now serving under contract.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Staff Surgeons R. R. Fasson, M.B., to the *Inflexible;* A. D. C. Cummins to the *Cochrane.* Temporary Surgeons: D. L. Baxter, M.B., to the *Victory,* for Royal Naval Division; A. P. Spark, M.B., A. M. Scott, M.B., R. H. Tasker, and J. D. Rutherford to the *Vivid,* additional, for Plymouth Hospital; L. M. Fotheringham, M.B., R. Wilkins, M.B., F.R.C.S., L. H. Woods, R. Coyte, J. B. Brash, C. G. Terrell, M.B., and W. A. Mein to the *Victory,* additional, for Haslar Hospital; J. T. Wylie, M.B., N Braithwaite, M.B., G. F. Cobb, and T. M. Cunnington to the *Pembroke,* additional, for Chatham Hospital; A. G. Holman to the *Vivid,* additional, for disposal; H. C. Waldo to the *Pembroke,* additional; B. H. Pain to the *Victory,* additional, for R.N.R. To be temporary Surgeons: A. D. Marston, L.D.S., N. F. Smith, D. Scott, C. M. Ryley, M.B., L. B. Hartley, A. H. Pearce, M. B. R. Swann, H. R. Prentice, M B., P. H. S. Smith, M.B. Surgeon probationers (R.N.V.R.): P. G. S. Davis, H. L. Douglas, and J. Fairbrother.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon probationers C. S. Dickson, W. B. Dickson, R. C. Hall, F. A. Logan, A. L. McKay, W. G. Powell, W. P. Warner, and J. F. Docherty to the *Victory* for Haslar Hospital. To be Surgeon probationers: A. L. McAdam, and R. A. D. J. Bernhardt.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonels to be acting Colonels whilst employed as Assistant Directors of Medical Services of a Division: G. St. C. Thom, C.M.G., M.B., J. W. H. Houghton, M.B.

Lieutenant-Colonel F. F. Carroll, D.S.O., from seconded list, is placed on half-pay.

To be temporary Majors: L. Bidwell, Fleet Surgeons A. S. G. Bell and A. G. Andrews, R.N.(ret.), C. H. Miller, M.D., F.R.C.P.

Captains to be acting Lieutenant-Colonels whilst commanding a field ambulance: W. J. Dunn, (acting Major) W. J. Tobin.

To be temporary Lieutenants: G. Arnott, M.B., R. T. Worthington, M.B., J. J. Armistead, R. A. MacNeill, M.B., R. E. Whitting, M.D., E. P. Carmody, T. E. A. Stowell, F.R.C.S., L. Gray, T. Mohan, C. C. Chance, M.B., G. F. Hunter, M.B., J. P. Moran, M.B., J. W. Fox, M.B., W. J. Midelton, H. G. Bywater, M B., H. B. Corry, W. P. S. Johnson, M.B., E. McK. Reid, M.B., R. Beesley, G. P. Norman, M.D., R. H. Adams, F.R.C.S.I., G. B. Scott, M.D., A. R. Berrie, M.B., J. L. Rankine, V. C. H. Dearden, J. E. Erskine-Collins, F. W. Browne, M.B., E. W. Sheaf, M.B., T. Hamilton, D. Ross, M.D., A. G. W. Owen, M.D., H. J. Brewer, F. R. Sinton, M B., C. E. Jones-Philipson, M.D., F.R.C.S.E., H. V. Deakin, M.B., F. J. Thornton, M.B., A. G. Dunn, M.D., A. G. Gamble, H. W. Jeans, M.B., A. F. Morcom, M B., H. G. Sparrow, J. F. MacKay, M.D., E. Gardner, M.B., E. L. Councell, R. W. Johnstone, M.D., F.R.C.S.E., M. L. Farmer, M.B., A. Mackintosh, M.B., W. H. Howat, M.B., J. R Stott, M.B , G. E. Downs, M.B., J. F. Sheppard, R. S. Stevenson, M.B., A. H. Sinclair, M.B., F. I. Trimmer, V. Colmer, H. S. Johnston, G. L. N. Miles, P. E. H Patey, H. S. Vivian, M B., G. F. Woodroffe, C. S. Stolterfoth, C. E. Evans, F. W. Stewart, M.D., W. M. Brown, M.B., M. B. Reichwald, M.B., S. J. Kerfoot, M. J. Fogarty, M.B., T. J. Killard-Leavey, H. M. MacL. Mackenzie, A. G. Gilchrist, M.B., F. Penny, C. F. Beevor, M B., W. N. Eustace, G. H. G. Davie, M.B., A. H. Richardson, M.B., F.R.C.S., J. A. Lees, M.B , R. H. Crompton, C. H. Haddow, M B , G. N. Montgomery, E. Sakaschansky, E. H. Good, W. B. Douglas-Drummond, M.B , F. W. Harrowell, M.B., W. H. Newton, M.B., J. B. Mackenzie, M.B., E. H. Noney, I. J. Roche, F. W. Hayes, M.B., G. Barnes, H. E. Barrett, R. H. Dix, M.D., H. L. Wilson, M.D., J. K. Thompson, M.B., R. W. Rix, M.B , F.R.C.S., T. Forde M.B., H. A. Easton, J. B. Jordan, W. O. McKane, M.B., S. H. Kingston, M.B., G. R. Cox, G. E. Lloyd, M.D., W. Robertson, M.B., J. E. Payne, M.B., F.R.C.S., J. K. Milligan, J. Bradley-Hughes, A. J. O'Leary, J. J. Reynolds, M.B., T. E. Lister, M.B., H. L. Pearson, M.B., H. S. Mason, R. T. Martin, A. N. E. Rodgers, M.B., W. E. Jones, G. Wacher, C. W. Cunnington, M.B., F. Baillie, M B., B. K. Nutman, M.D., A. A. Bisset, M.D., R. Cope, N. B. Walker, M.B., C. J. Neilan, G. V. Fiddian, M.B., J. McKelvey, L. R. King, D. H. Croom, M.D., F.R.C.P.E., C. F. Curtis, S. Wigglesworth, C. G. Pugh, M.D., M. T. W. Steedman.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Assistant Directors of Medical Services: Lieutenant-Colonel J. G. Adami, Major F. C. Bell, Colonel L. Drum.

Deputy Assistant Directors of Medical Services: Majors F. B. Carron and C. A. Young, Captains G. F. Stephens, M. H. Allen, E. L. Warner, and W. Ross.

Lieutenant-Colonels to be temporary Colonels: K. Cameron, D. W. McPherson, F. G. Finley, W. L. Watt, R. D. Rudolf, C. F. Wylde, R. M. Simpson.

Temporary Captain H. Buck to be acting Major.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Major E. N. Cunliffe, M.D., to be acting Lieutenant-Colonel whilst acting as Administrator.

Captain (temporary Lieutenant-Colonel) H. K. Dawson, M.D., reverts to the temporary rank of Major on ceasing to command a field ambulance, with precedence as from September 10th, 1914 (substituted for notification in the *London Gazette* of February 12th).

Captain (temporary Major) J. W. Leitch, M B., to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Captain W. P. Ferguson, M.D , to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Captain T. J. Murray is restored to the establishment.

Captain H. G. Bruce, M B., is dismissed from the service by sentence of a general court-martial.

Lieutenant S. Henry, M.B., resigns his commission.

To be Lieutenants: A. R. Muirhead, A. G. Yates.

TERRITORIAL FORCE RESERVE.

ARMY MEDICAL SERVICES.

Colonel R. Jackson, M.B., from Assistant Director of Medical Services to be Colonel.

VOLUNTEER FORCE.

Lancashire Volunteer Regiment.—F. J. Baildon to be temporary Lieutenant and Medical Officer.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BLACKPOOL: VICTORIA HOSPITAL. — Lady House-Surgeon. Salary, £250 per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—House-Surgeon. Salary, £150 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £200 per annum.

BRIGHTON: ROYAL SUSSEX COUNTY HOSPITAL. — Senior House-Surgeon. Salary, £140 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician. (2) House-Surgeon. Salary, £120 per annum.

BURSLEM: HAYWOOD HOSPITAL.—Resident Medical Officer. Salary, £200 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £150 per annum.

CARLISLE: CUMBERLAND COUNTY COUNCIL.—Lady Assistant Medical Officer to assist County M.O.H. Salary, £350 per annum.

CHELTENHAM EYE, EAR, AND THROAT FREE HOSPITAL.—Assistant Surgeon. Salary, £300 per annum.

CHESTERFIELD BOROUGH.—Medical Officer of Health. Salary, £400 per annum.

DERBYSHIRE ROYAL INFIRMARY.—Two House-Surgeons. Salary, £200 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—House-Physician. Salary, £160 per annum.

IPSWICH: EAST SUFFOLK AND IPSWICH HOSPITAL.—Two Lady Residents.

JOHANNESBURG: SOUTH AFRICAN SCHOOL OF MINES AND TECHNOLOGY.—(1) Professor of Anatomy. (2) Professor of Physiology. Salary, £1,000 per annum each.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEICESTER ROYAL INFIRMARY.—Two Resident Surgical Officers. Salary, £250 per annum.

LIVERPOOL: COUNTY ASYLUM, Rainhill.—Temporary Assistant Medical Officer. Salary, 7 guineas a week.

MANCHESTER CORPORATION.—Temporary Assistant Tuberculosis Officer. Salary, £400 per annum.

MANSFIELD AND DISTRICT HOSPITAL.—House-Surgeon. Salary, £250 per annum.

NEWCASTLE-UPON-TYNE: ROYAL VICTORIA INFIRMARY.—Resident Medical Officer. Salary, £300 per annum.

NOTTINGHAM CHILDREN'S HOSPITAL.—Lady House-Surgeon. Salary, £200 per annum.

NOTTINGHAM CITY ASYLUM.—Locumtenent. Salary, £7 7s. per week.

NOTTINGHAM GENERAL HOSPITAL.—Two Assistant House-Surgeons. Salary, £250 per annum.

NOTTS COUNTY COUNCIL.—Second Assistant Tuberculosis Officer. Salary, £400 per annum.

PETERBOROUGH INFIRMARY.—House-Surgeon. Salary, £150 per annum for first six months, rising to £200.

QUEEN MARY'S HOSPITAL FOR THE EAST-END, Stratford.—Casualty Officer.

RHONDDA URBAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and School Medical Officer. Salary, £350 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (female). Salary, £150 per annum.

VICTORIA HOSPITAL FOR SICK CHILDREN, Tite Street, S.W.—Temporary House-Physician. Salary, £200 per annum.

WARWICKSHIRE AND COVENTRY JOINT COMMITTEE FOR TUBERCULOSIS. — Temporary Tuberculosis Officer. Salary, £500 per annum.

WELLS ASYLUM, Somerset.—Temporary Assistant Medical Officer. Salary, £300 per annum.

WESTERN GENERAL DISPENSARY, Marylebone Road, N.W.—Honorary Ophthalmic Surgeon.

WORCESTERSHIRE: KING EDWARD VII MEMORIAL SANATORIUM, Knightwick.—Medical Superintendent. Salary, £450 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CLARKE, J. F., M.D.Dubl., District Medical Officer of the Newtown and Llanidloes Union.

DESAI, H. M., L.M and S.Bombay, D.Ch.O.Liverpool, House-Surgeon to the Durham County and Sunderland Eye Infirmary, Sunderland.

FERGUSSON, A. C., M.D.Aberd., District and Workhouse Medical Officer of the Thirsk Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTH.

HEDLEY.—On April 30th, 1917, at 65, Harley Street, W., the wife of John Prescott Hedley, F.R.C.S., Captain R.A.M.C.(T.), of a son.

MARRIAGE.

SMEAL—ALLAN.—On February 14th, 1917, at Holy Trinity Church, Southall, Middlesex, England, by the Rev. Chaplain-Captain J. Gregg MacGregor, D.C.M., James Alexander Smeal, Major A.A.M.C., 16th Field Ambulance A.I.F., elder son of Dr. and Mrs. James Smeal of Malvern, Victoria, Australia, to Elsie May, eldest daughter of Mr. and Mrs. Andrew Allan of Armadale, Victoria, Australia.

DEATHS.

MURDOCH.—On April 28th, at a nursing home, Reading, suddenly, after an operation for appendicitis, James William Aitken Murdoch, M.B., C.M., aged 61 years. No flowers.

WESTENRA.—On January 20th, 1917, at Oxford Terrace, Christchurch, New Zealand, Fitzgerald George Westenra, M.B., C.M.Edin.

DIARY FOR THE WEEK.

ROYAL SOCIETY OF MEDICINE. — *Section of Surgery, Subsection of Proctology:* Wednesday, 5 p.m., Cases. 5.30 p.m., Annual General Meeting. Discussion on the Methods of Making and Closing Colostomy Openings, to be opened by Mr. Lockhart-Mummery. *Clinical Section:* Friday, 8 p.m., Annual General Meeting. Cases. Paper by Dr. Parkes Weber: The Pel-Ebstein Recurrent Pyrexial Type of Hodgkin's Disease (Lymphogranulomatosis Maligna).

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		MAY.
7	Mon.	London: Naval and Military Committee, 2 p.m.
		London: Non-Panel Committee, 4 p.m.
8	Tues.	London: Chairmen's Committee.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MAY 12TH, 1917.

CONTENTS.

PAGE

British Medical Association.

PROCEEDINGS OF COUNCIL 10
IRELAND: IRISH MEDICAL COMMITTEE.—POOR LAW MEDICAL COMMITTEE 108
CURRENT NOTES: CENTRAL MEDICAL WAR COMMITTEE.—NON-PANEL COMMITTEE.—WIDOWS AND ORPHANS OF SOLDIERS AND SAILORS 109
MEETINGS OF BRANCHES AND DIVISIONS 109
ASSOCIATION NOTICES 110
NAVAL AND MILITARY APPOINTMENTS 113
INSURANCE: 110
THE NEW INSURANCE ADVISORY COMMITTEE 110
YORK LOCAL MEDICAL AND PANEL COMMITTEE 111
MILEAGE SCHEME OF THE COUNTY OF LANARK 111
GLASGOW 111
LOCAL MEDICAL AND PANEL COMMITTEES 112
AN OUTSIDE VIEW OF THE PANEL SYSTEM 113
QUESTIONS AND ANSWERS 113
VACANCIES AND APPOINTMENTS 114
BIRTHS, MARRIAGES, AND DEATHS 114
DIARY 114

British Medical Association.

PROCEEDINGS OF COUNCIL.

A MEETING of the Council was held at 429, Strand, W.C., on Wednesday, April 25th, 1917, and there were present:

Dr. J. A. Macdonald, Chairman of Council, in the chair; Sir T. Clifford Allbutt, President; Mr. E. B. Turner, Chairman of Representative Meetings; Dr. G. E. Haslip, Treasurer; Dr. John Adams, Lieutenant-Colonel Sir James Barr, Surgeon-General P. H. Benson, Dr. M. G. Biggs, Dr. H. B. Brackenbury, Dr. H. J. Campbell, Dr. Francis W. Clark, Major Russell Coombe, Dr. J. Singleton Darling, Dr. Edward J. Domville, Major A. C. Farquharson, Captain E. Rowland Fothergill, Dr. T. W. H. Garstang, Dr. Joseph Giusani, Mr. N. Bishop Harman, Lieutenant-Colonel W. T. Hayward, Dr. I. W. Johnson, Major Albert Lucas, Fleet Surgeon F. D. Lumley, Dr. H. C. Mactier, Colonel C. H. Milburn, Lieutenant-Colonel J. Munro Moir, Dr. E. N. Nason, Major George Parker, Dr. F. J. Smith, Dr. W. Johnson Smyth, Dr. John Stevens, Dr. T. Jenner Verrall, Dr. O. R. M. Wood, and Dr. Claude Wilson.

MINUTES.

The minutes of the last meeting, held on October 25th, 1916, having been printed and circulated, were agreed to and signed.

APOLOGIES.

Letters of apology for non-attendance were read from Lieutenant-Colonel R. A. Bolam, Dr. Adam Fulton, Colonel James Galloway, Dr. John Gordon, Dr. James Green, Dr. Major Greenwood, Major T. Duncan Greenlees, Major J. Livingstone Loudon, Dr. Rayner, and Dr. Gardner Robb.

DEATHS.

The CHAIRMAN reported the deaths of Dr. Duncan Burgess, of Sheffield; Mr. R. H. Kinsey, of Bedford; and Dr. H. H. Phillips-Conn, of Reading, former members of Council, and resolutions of condolence were ordered to be forwarded to the respective families.

LOAN FUND.

A Special Committee was appointed in October to determine the character, and, if thought proper, to initiate such a fund. The Committee consisted of representatives from the Royal College of Physicians of London; Royal College of Surgeons, England; Royal College of Surgeons, Edinburgh; Epsom College; Royal Medical Benevolent Fund; and, from the British Medical Association: The President, Chairman of Representative Meetings, Chairman of Council, Treasurer, Chairman of Central Medical War Committee, Lieutenant-Colonel R. A. Bolam, Dr. William Collier, Mr. Bishop Harman, Dr. C. O. Hawthorne, Dr. R. McKenzie Johnston, and a representative of the Scottish and Irish Committees.

A subcommittee was appointed, and in January reported that at that time it was of opinion that it would be inadvisable to proceed with the launching of the scheme, since (1) it would clash with the issue of the War Loan; (2) its success might be affected by uncertainty concerning the possible mobilization of the medical profession.

APPOINTMENT OF SOLICITOR.

Mr. W. E. Hempson was reappointed Solicitor to the Association.

FINANCE COMMITTEE.

The TREASURER, in presenting the minutes of the Finance Committee, also submitted the financial statement for the year ending December 31st, 1916, as certified by the auditors, which was approved. (Full details appear in the Annual Report of Council, published in the SUPPLEMENT of May 5th.)

QUARTERLY ACCOUNTS.

The accounts for the December and March quarters were approved, and the Treasurer authorized to discharge those accounts still outstanding.

ORGANIZATION COMMITTEE.

The Council adopted the report on the question of putting the propaganda work of the Association on a permanent and systematic basis, and authorized certain procedure.

GRANTS TO BRANCHES FOR 1917.

Grants for 1917 were authorized to Home Branches as follows, provided that in each case a report for 1916 satisfactory to the Grants Subcommittee has been received:

Aberdeen, 2s. 6d.; Border Counties, 3s. 6d.; Cambridge and Huntingdon, 1s.; Dorset and West Hants, 2s.; Fife, 4s.; Kent, 1s. 6d.; Metropolitan Counties, 2s.; North of England, 4s.; Northern Counties of Scotland, 2s.; Oxford and Reading, 3s.; Shropshire and Mid Wales, 1s.; Southern, 4s.; South-Eastern of Ireland, 4s.; Staffordshire, 3s. 6d.; Stirling, 2s.; Wiltshire, 1s. 6d.; Worcester and Hereford, 2s., per member.

No grant for 1917 was made to the following Branches, each of which had in its possession at December 31st, 1916, including moneys in the hands of Divisions, a balance sufficient to meet its average approved expenditure and leave the Branch in hand at the end of the year a balance equivalent to at least 2s. per Branch member: East York and North Lincoln, Munster, South-Western, and West Somerset.

In the event of any of the Home Branches which have not so far reported for 1916 forwarding a report for the year satisfactory to the Chairman of the Grants Subcommittee, the Treasurer is empowered to make a preliminary grant of 1s. per member to such Branch.

The grants to Home Branches for 1917 will be paid as follows: 50 per cent. as soon as possible after publication of the 1917 annual list; 25 per cent. in mid September, 1917; 25 per cent. in mid November, 1917.

CONFERENCE OF SECRETARIES IN 1917.

It was left to the Chairmen of Representative Meetings, of Council, and of the Organization Committee, to make all necessary arrangements for the holding of a Conference of Secretaries in 1917, if in their opinion such a Conference is desirable.

SCOTTISH COMMITTEE.

The annual grant to the Scottish Committee for the current year was increased by the sum of £200.

JOINT COMMITTEE WITH BRITISH SCIENCE GUILD.

No meeting of the Joint Committee has been held since the last meeting of the Council. Communications have, however, been addressed to the Secretary of State for the Colonies and to the London County Council, asking that a deputation be received from the Joint Committee in order to discuss the proposals of the British Science Guild regarding the payment of scientific experts called in by Government departments and municipalities. A reply was received from the former to the effect that, owing to the pressure of his engagements at the present time, the Secretary of State for the Colonies could not conveniently arrange to receive the proposed deputation; and from the latter to the effect that the practice of the County Council when employing experts of any kind was to remunerate them in accordance with the scale generally accepted as adequate for the services rendered, and that in such circumstances the committee of the County Council dealing with the matter did not think the attendance of the deputation would serve any useful purpose.

NON-PANEL COMMITTEE.

A Committee was appointed to represent the interests of medical practitioners not on the panel, and to consider in what manner the British Medical Association can best promote the interests of members who have not entered into agreements with Insurance Committees.

The Committee consists of the President, Chairman of Representative Body, Chairman of Council, and Treasurer, *ex officio*, and Dr. Kennish, Dr. M. G. Biggs (Battersea), Dr. J. Stevens (Edinburgh), Dr. Howell (Putney), Dr. H. B. Densham, Dr. Nason, and Dr. H. B. Brackenbury (Stroud Green, N.).

ELECTION OF MEMBERS.

Sixty-seven candidates came up for consideration and were elected members of the British Medical Association.

ANNUAL REPORT OF COUNCIL.

The annual report of Council was published in the SUPPLEMENT of May 5th, and many of the matters included therein were the subject of debate. The Council met at 11 a.m., and, with an adjournment of forty-five minutes, completed its business at 8.35 p.m.

IRELAND.

IRISH MEDICAL COMMITTEE.

A MEETING of the Irish Medical Committee was held in the Royal College of Surgeons, Dublin, on April 20th. Mr. R. J. Johnstone was in the chair, and the following members were present: Drs. J. S. Darling, J. R. Davison, W. F. Delaney, S. Gawn, J. Giusani, Captain H. S. Laird, R.A.M.C., T. G. McGrath, W. A. Morton, B. C. Powell, R. J. Rowlette, Lieutenant-Colonel E. C. Thompson, R.A.M.C., Denis Walshe. Dr. T. Hennessy, Medical Secretary, and Mr. C. H. Gick, Secretary, were also in attendance.

Number of Insured and Exempt Persons in Insurance Areas and Dispensary Districts.

A statement from the Insurance Commission, Ireland (April 20th, 1917), was considered, showing the number of insured and exempt persons as determined by the Commissioners in each certification area numbered 1 to 19, and in each dispensary district included in certification areas numbered 20 to 52 inclusive, in the schedule to the Agreement. The Commissioners stated, in a covering letter, that if the Local Medical Committee in any of the certification areas numbered 20 to 52 inclusive was of opinion that the number of insured persons in any dispensary district was incorrect, the Commissioners would be prepared to consider any suggestion submitted by the Local Medical Committee concerned, with the consent of all the doctors certifying in the certification area, with a view to a revision as between the dispensary districts in the area of the figures referred to.

The Irish Medical Committee ordered (1) That a return showing the number of insured in each insurance area 1 to 19 inclusive, and in each dispensary district included in the certification areas numbered 20 to 52, as determined by the Commissioners, be sent to the secretaries of all Local Medical Committees for the information of the doctors certifying in such insurance areas. (2) That the Commissioners be informed that the Irish Medical Committee consider that in cases in which medical certifiers can show reasonable grounds for questioning the accuracy of the official returns of the number of insured and exempt persons in any insurance areas or dispensary district, and in cases where doctors have already made complaints of having suffered by the Commissioners changing the area of payment from the dispensary district to the county area, the Commissioners should deal with such cases on their merits, and, in the particular instance mentioned in their letter, without making the consent of any or of all the doctors in the certification area an indispensable condition.

That the Irish Medical Committee note from the Commissioners' letter that though the Commissioners are not prepared as requested, in view of the great labour which would be involved, to furnish each medical certifier with his pay order at the end of the quarter, the names of the other medical certifiers in the district and the amount paid to each, they are prepared, in any instance in which the Irish Medical Committee is satisfied that a case for inquiry is justified, to furnish the Irish Medical Committee with particulars of the amounts paid to each doctor in the district affected, and the manner in which such payments were calculated.

Ministry of Health.

The Irish Medical Committee unanimously adopted the following resolution passed by the Irish Poor Law Medical Committee:

> That we approve of the principle of a Ministry of Health, and believe its establishment in this country to be a very urgent necessity; that we urge any legislation for this purpose should embody the unification of the different medical services on the lines of a national medical service, with a compulsory superannuation and entered by competitive examination, in accordance with the report of the Vice-regal Commission, 1906.

Certification of Sickness Benefits.

The Committee had before it a case in which a medical certifier claimed to continue to issue weekly certificates for a person at one time under his treatment for irremediable affection of the eyes; the dispensary doctor, under whose care she now was, also claimed to issue a certificate. The Committee approved a letter sent by the Medical Secretary to the Insurance Commissioners stating that so long as the dispensary doctor was the sole medical attendant of the insured person in question he was the proper doctor for the time to issue the necessary certificates, and that when an insured person was suffering from an incurable disease and was not under the treatment of any doctor it was open to such an insured person to choose her doctor for certification.

Medical Representatives on County Insurance Committees.

In connexion with a complaint made by Dr. E. C. Thompson, co. Tyrone, that the Insurance Commissioners had refused to appoint Dr. Lyle, Newtownstewart, who was elected on two different occasions by the County Tyrone Local Medical Committee to represent it on the County Insurance Committee, the following resolution was passed unanimously:

> That this Committee request the Insurance Commissioners to recognize the members nominated by the Local Medical Committees as their representatives of the County Insurance Committees, and desire to direct the special attention of the Commissioners to the fact that, although Dr. Lyle of Newtownstewart, co. Tyrone, had been nominated twice by the County Tyrone Local Medical Committee as its representative on the County Insurance Committee, he has been refused recognition by the Commissioners, notwithstanding the fact that the doctor appointed by the Insurance Commissioners in opposition to the wishes of the Tyrone Local Medical Committee has not attended a meeting of the County Insurance Committee for over twelve months.

POOR LAW MEDICAL COMMITTEE.

A meeting of the Irish Poor Law Medical Committee, held on the same day, was attended by the following members: Dr. J. S. Darling (in the chair), Drs. S. Gawn, B. C. Powell, R. J. Johnstone, D. Walshe; Dr. T. Hennessy, Medical Secretary; and Mr. C. H. Gick, Secretary.

A letter was read from Dr. G. U. Macnamara, co. Clare, approving of the establishment of a Ministry of Health for

Ireland, if it were administered by the proper authorities. A resolution was proposed by Dr. B. C. Powell, Roscrea, seconded by Dr. D. Walshe, Graigue, and passed unanimously, that a Ministry of Health was much needed in Ireland. (See resolution adopted by Irish Medical Committee regarding the establishment of a Ministry of Health.)

Proposed Midwives Legislation for Ireland.

A letter was read from Dr. Power, Ardfinnan, stating that his views had been asked for by the Local Government Board regarding the proposed midwives legislation for Ireland. Dr. Power mentioned that his opinions were known to the Medical Secretary, and were published in the medical journals last July, but he did not wish to take action without consulting the Poor Law Committee, of which he was vice-chairman.

The Medical Secretary explained that, amongst other matters, Dr. Power objected to the liability, under the proposed midwives legislation for Ireland, of Poor Law medical officers being called to attend, under the Medical Charities Acts, cases of midwifery with untrained women under the conditions such women were permitted to attend women in childbirth under the Scottish and English Acts. Dr. Power urged that provision should be made in the Irish Act that in all cases where parturient women refused the services of the trained Poor Law midwife that the dispensary doctor should not be called, for the purposes of the Midwives Act, to attend confinement cases when handy women or untrained registered nurses were in charge. The Committee directed that Dr. Power be informed that representations would be made to the Local Government Board that Poor Law medical officers would be protected on the lines suggested by him.

CURRENT NOTES.

CENTRAL MEDICAL WAR COMMITTEE.

THE precipitate action of the War Office in the third week of April, by which all medical men of military age were called up, naturally caused upheaval in the work of the Central Medical War Committee, which had not been consulted before the step was taken. Lord Derby's letter to the Committee, written in consequence of the resolution passed at the joint meeting of the Central Medical War Committee and the Committee of Reference on April 25th, undid some of the harm, however, and the work of the Committee is now straightening out. As soon as the calling up notice was published the Committee issued "certificates of reservation" valid for one month to all medical men of military age who communicated with it. Most of these certificates expire about May 19th, and the Committee is engaged in making arrangements with the War Office for dealing with the situation which will then arise. In furtherance of its task of maintaining the supply of medical men for the army, the Central Medical War Committee has asked Local Medical War Committees to furnish it with statements as to the men who, in their opinion, cannot be spared under present conditions, and the Local Committees are being sounded as to the possibilities of voluntary substitution by medical men over military age. As there seems to be no immediate prospect of compulsory substitution, the task is very difficult both for the Central and the Local Committees. With the approval of the Director-General A.M.S., the Central Medical War Committee has informed the Local Committees that military work carried on by civil practitioners, such as in local auxiliary military hospitals and work on medical boards, must not stand in the way of securing doctors of military age for commissions in the R.A.M.C. The question of the distribution and staffing of voluntary war hospitals constantly arises in the course of the Committee's discussions, and it is hoped that as time goes on economies in medical personnel may be effected without detriment to the treatment of the sick and wounded.

NON-PANEL COMMITTEE.

Owing to the outbreak of war, at the close of the annual meeting at Aberdeen the Non-Panel Committee first appointed in October, 1913, was not reappointed. At that time an undertaking was given to the British Medical Association by the Insurance Commission that contentious extensions of the National Insurance Acts would not be introduced during the war. The situation has, however, been changed lately by the action of the Local Government Board, which has brought the whole question of the health services of the country into the political foreground. The possibility of extensions and modifications of the Insurance Acts has thus arisen during war time. A new Non-Panel Committee was accordingly appointed by the Council, on April 25th, 1917, to represent the interest of medical practitioners not on the panel, as noted above (p. 108). It held its first meeting on May 7th. Dr. M. G. Biggs (London) was voted to the chair, and the following were also present: Drs. H. B. Brackenbury (London), H. B. Densham (Stockton-on-Tees), J. Kennish (London), E. Nason (Nuneaton), J. Stevens (Edinburgh), and Dr. G. E. Haslip, Treasurer of the Association. Dr. Charles Buttar also attended by invitation of the Committee. The Chairman briefly explained the origin and purpose of the Committee. Throughout the proceedings it was taken for granted that the Government is considering an extension of the medical treatment of the industrial and poorer classes. A discussion on very general lines arose upon the means by which this should be carried out, and the policy which the medical profession should adopt in the best interests of the public. The history and tendencies of the Insurance Act were debated from various points of view. The merits of free choice of doctor and the advantages and disadvantages of a general permission to contract out of medical benefit were reviewed. Assuming that the Government means to extend and reorganize the medical services of the community, it appeared that one of three methods must be adopted: (1) Some kind of panel system whereby doctors volunteer their services, and patients have choice of such doctors; in other words, an optional part-time service; (2) a whole-time salaried State Medical Service; (3) a part-time salaried State Medical Service on some such lines as the Post Office Medical Service. After wide discussion, the Committee decided to narrow its investigations to the study of the existing scheme now before the Association and the profession, and embodied in the Annual Report of Council published in the SUPPLEMENT on May 5th (p. 89), and to base its criticisms and suggestions in the interests of the non-panel practitioner upon this scheme or such other proposals as come before the Association.

WIDOWS AND ORPHANS OF SOLDIERS AND SAILORS.

In paragraph 95 of the Annual Report of the Council (SUPPLEMENT, May 5th, p. 92) the concluding paragraph of the agreed report of the discussion between the deputation from the British Medical Association and the Insurance Commissioners on March 20th was accidentally omitted. The paragraph dealt with widows and orphans of soldiers and sailors, and was in the following terms:

> "The Commissioners further intimated that they might also be requested to make themselves responsible for the general practitioner treatment of widows and orphans of sailors and soldiers killed in the present war. In both cases [viz., discharged soldiers hitherto ineligible for medical benefit—see last paragraph of para. 95 of Annual Report—as well as the widows and orphans referred to in this paragraph] the deputation expressed the desire that no rival or competing system of administration should be established, and that the present arrangements for the provision of general practitioner treatment under the Insurance Acts should be applied without differentiation to all individuals for whom provision was to be made, without prejudice, of course, in the former case, to any decision which might be taken as to the adequacy of the present remuneration as regards sailors and soldiers invalided from service, and without excluding the possibility of special provision being made whereby individuals might continue to be attended by those practitioners by whom they had previously been privately attended."

Meetings of Branches and Divisions.

EDINBURGH BRANCH:

EDINBURGH AND LEITH DIVISION.

A MEETING of the Division was held on May 2nd, when Dr. W. STEWART, Chairman of the Division, presided.

Medico-Political Matters.—Dr. STEVENS moved and the CHAIRMAN seconded the following motion:

> That the attitude and policy of the British Medical Association towards medico-political affairs should be that, except

in such matters as public health, public medical provision should only apply to those who are not able adequately to provide for themselves; and that in the interests of the State as well as the profession a position of independence and freedom from State interference and control, direct or indirect, should be maintained.

The previous question was moved by Dr. ARMOUR and carried by 10 to 8.

A special committee, consisting of the Chairman, Drs. M. Dewar, J. Craig, Stevens, and Keppie Paterson, was appointed to consider the questions with regard to the future policy in relation to National Health Insurance, and to report to the next meeting of the Division.

Association Notices.

GRANTS IN AID OF SCIENTIFIC RESEARCH.

THE Council of the British Medical Association is prepared to receive applications for grants in aid of Scientific Research into the Causation, Treatment, or Prevention of Disease. Preference will be given to medical practitioners and to applicants who propose to investigate the problems directly related to practical medicine.

Applications for grants must be received not later than June 16th, 1917, and must be made on the prescribed form which, together with the regulations governing the suggested grants, can be obtained on application to the Medical Secretary of the Association, 429, Strand, London, W.C.

CHANGES OF BOUNDARIES.

Adjustment of Areas of Oxford and Reading Divisions.

THE following change has been made in accordance with the Articles and By-laws, and takes effect from the date of publication of this notice:

That Wallingford urban district and Wallingford rural district be transferred from the area of the Oxford to that of the Reading Division of the Oxford and Reading Branch.

Representation in Representative Body.—Unaffected.

SUGGESTED CHANGES OF BOUNDARIES.

Proposed Dewsbury Division.

IN connexion with the notice which appeared in the SUPPLEMENT of April 7th (page 61) of a proposal made by the Leeds Division for formation of a Dewsbury Division of the Yorkshire Branch, notice is hereby given to all concerned that the Leeds Division has amended its proposal so as to make the suggested Dewsbury Division consist of the following area:

Dewsbury county borough, Batley and Ossett municipal boroughs, and Birstall, Heckmondwike, and Mirfield urban districts.

Written notice of the amended proposal has been given to the Bradford Division and the Yorkshire Branch, and the matter will be determined in due course by or on behalf of the Council. Any member affected by the proposed change and objecting thereto is requested to notify the fact, and his or her reason therefor, to the Medical Secretary, 429, Strand, W.C.2, not later than June 12th, 1917.

INSURANCE.

THE NEW INSURANCE ADVISORY COMMITTEE.

SIR EDWIN CORNWALL received a deputation from the British Medical Association on May 3rd, 1917, on the subject of medical representation on the new Advisory Committee. The deputation consisted of Dr. H. B. Brackenbury, Mr. E. B. Turner, Dr. Parkes Peers, Dr. B. A. Richmond, Dr. Mabel Ramsay, Dr. J. Hunter, Dr. J. R. Drever, Captain E. R. Fothergill, Dr. T. Campbell, Dr. Ridley Bailey, and Dr. W. A. Hollis, with Dr. A. Cox and Dr. J. Neal. There were also present: Sir Robert Morant, Dr. Smith Whitaker, Mr. Kinnear, Mr. Brock, Mr. Vivian, and Mr. Hackforth.

Sir EDWIN CORNWALL explained that when he took office he found in existence an Advisory Committee of 168 members, which, in his opinion, had lost its usefulness owing to its size and the great cost involved in holding any meetings; it was for this reason that he decided to set up a much smaller and more workmanlike committee. He pointed out that the only statutory function of the Advisory Committee was in connexion with the making and altering of regulations, but said that he had no desire so to restrict the use of any Advisory Committee or Committees. At the same time he thought it should be clearly understood that outside the statutory functions of the Committee it was for the Minister to seek advice and assistance at such times and in such manner as circumstances required. His present intention was to set up a small separate medical Advisory Committee, and to have one doctor on the general Advisory Committee to serve as a link between that Committee and the Medical Advisory Committee or the medical profession. He had no desire whatever to lose the assistance of the doctors; on the contrary, his desire was to obtain it in the most effective manner, and his only object in the course he was proposing to pursue was to secure in the most convenient and useful way the advice and co-operation of the medical profession. He would be glad to consider any criticisms which the deputation might have to offer on his present proposals, but, at the same time, he wished it to be understood that he was determined not to set up an Advisory Committee of so many members as to make it practically useless for his purposes.

Dr. BRACKENBURY stated that the objects of the deputation and those it represented were identical with those which Sir Edwin had stated to be his own, but that they were not in agreement with him as to the methods by which those objects could best be secured. It should be borne in mind that the statutory Advisory Committee had to advise the Commissioners and the Minister on the making and altering of all regulations, and that amongst these (although the profession was interested in many other regulations also) were included the medical benefit regulations, which were incorporated as part of every panel doctor's agreement. The result of the recent reorganization of the Advisory Committee was that the Statutory Committee now represented practically the approved society side only, and that the medical side was to be relegated to a body having no statutory recognition. It was feared that this would produce the general impression that the approved society side of national insurance was regarded as of greater importance than the medical side, and this would be fatal to the harmonious co-operation of the medical profession in the working of the Acts. It was also contended that the approved society representatives on the general Advisory Committee, being officials of societies, were not as a rule in direct touch with the members of the societies, and could not be looked upon as really representative of insured persons, and that doctors, who were in constant touch with the insured persons, and whose influence with them was at least equal to that of the society officials, might claim to represent the real interests of insured persons on any Advisory Committee on many of the subjects which would come up for discussion. It was therefore the conviction of the deputation that the new statutory Advisory Committee should be constituted in such a way as to make it a suitable body for giving advice on all matters in connexion with the administration of National Insurance. This would necessarily involve an increase in the size of the Committee, but as against this it would be possible for the Commissioners to consult a section of the Committee on matters affecting that section alone before bringing the matter before the full Committee at comparatively infrequent meetings. With regard to the method of selection of representatives of the medical profession, it was urged that the British Medical Association, which represented all branches of the profession and not merely those doctors engaged in panel practice, was the proper body to put forward names from amongst which the Minister would select those for appointment. The Association was, moreover, in close touch with the Local Medical and Panel Committees, which through two successive annual conferences of delegates, at which those committees were very well represented, had decided almost unanimously that the Association should represent those committees as a whole in dealing with the Commissioners. The Association would, if so desired, obtain from all the Local Medical and Panel Committees suggestions of names to be put forward for Sir Edwin Cornwall's consideration.

Other members of the deputation emphasized the strong feeling which existed in the medical profession on the matter, and pointed out the danger that would be caused to the whole administration of National Insurance if the

sympathy of the medical profession was alienated by reason of the changes now under discussion. It was further stated that it was impossible for two or three members of the profession to combine in themselves, or voice to the Minister, all the varieties of experience which should be available for his assistance, and that a committee competent to give the advice he required could not be constituted with a membership of fewer than fifteen to eighteen.

Sir EDWIN CORNWALL said that he would weigh very carefully the views which had been expressed by the deputation, and that he hoped to come to some arrangement which would be satisfactory to them and to himself. In any case, he would not summon any meeting of the Advisory Committee for the statutory purpose of the consideration of proposed regulations until the question of medical representation had been settled in one way or another.

THE YORK LOCAL MEDICAL AND PANEL COMMITTEE.

THE York Local Medical and Panel Committee has recently adopted provisionally an interim report of a subcommittee appointed to consider the working of the Insurance Act as regards medical benefit. The report, which deals specially with urban areas, begins with a summary of the advantages of the Act to the community and the panel doctors. The gains to the doctors are: (1) An income known approximately in advance, which, but for the war, would probably have enhanced the market value of practices; (2) ease in introducing substitutes in absence from illness or other cause; (3) freedom from dispensing and sending out of accounts; and (4) fixed rules for patients. On the other hand, the subcommittee is not sure that the defects of the Act do not counterbalance the advantages. Among minor defects are named the limitation of free choice of doctor, owing both to the number of doctors who still refuse to work the Act and the difficulty which patients have in changing their doctor. Then there are the disadvantages which are inherent in any form of contract practice, and which tend to make it less efficient than private practice. There is also the irritation in the doctors' minds on account of the reduction of payment owing to the alleged inflation of lists, and the further irritation in that complaints against doctors are dealt with by a lay committee. Further irritation arises in connexion with certification and the limitation of drugs to be prescribed.

Of the major defects some arise from the multiplication and overlapping of authorities dealing with health, and a list of nine different authorities dealing with health matters is given apart from the work done in private practice. Especial stress is laid on the gain that would accrue to the community if the work of public health were related to the work of the general practitioner. As one of the greatest defects of the Act is mentioned the gap that exists between the treatment of insured persons under different circumstances—as, for instance, when a patient in order to get certain forms of treatment has to be removed from the care of his panel doctor to a hospital, though the panel doctor might be quite competent to give the treatment if provision were made for it. The report expresses the opinion that the Act breaks down in important directions through failure to provide treatment for much grave disease, facilities for consultations, nursing in serious cases, specialist treatment, anaesthetics, special methods of treatment and diagnosis, and pathological services.

As to remedies, the subcommittee is not able to make any definite suggestion that would entirely secure free choice of doctor, but it is suggested that much of the irritation felt by the doctors might be lessened if, instead of making the doctor's responsibility a daily one, as the Commissioners have, which reduces the principle of insurance to an absurdity, the unit of time for which the responsibility is placed on the doctor were a quarter of a year, and if for any responsibility undertaken during a quarter the doctor were paid for that quarter. The report does not recommend the scheme proposed by Dr. Williamson of Bristol, though it recognizes that it contains some merits.

Of the remedies for major defects, the establishment of a Ministry of Health to co-ordinate all the activities of all health authorities is regarded as of prime importance. To remedy the gaps in treatment it is recommended that hospitals should be established for the treatment of insured persons staffed by, or mainly by, panel practitioners, and as it is assumed that the Insurance Act will be extended in time to include dependants of the insured, the suggestion involves the provision of hospital accommodation for the bulk of the community. To commence with, arrangements with existing charitable hospitals might be made, and a sketch is given of the proposed connexion of panel practitioners with the hospitals. The proposals for the linking up of the panel practitioners with an extended hospital system are, perhaps, the most valuable part of the report. It is recognized that the proposals would be costly, but the subcommittee considers that the question of cost is one for the experts in finance and not for the medical profession.

THE MILEAGE SCHEME OF THE COUNTY OF LANARK.

WHEN the special mileage grant of £50,000 was provided by the Government, and it was found that the proportion allotted to the county of Lanark was only £618, it was soon realized that this sum was altogether inadequate to meet properly the needs of the county. It was evidently the intention of the Commissioners that mileage should only be paid to panel practitioners for what may be called normal miles, and little or no account was taken of difficulties of communication or of general sparsity of population. In some of the southern parts of the county the great bulk of the patients of some doctors lived fairly close together in mining villages, while the patients of other doctors in perhaps the same neighbourhood were more of the farm servant class, and the doctors might have to cover great distances in their day's work, and possibly have to walk over hills and moors where, though the distance in normal miles might not be great, the time consumed in visiting even a few patients might be very great. It was therefore decided, after consultation between the Local Medical Committee and the Insurance Committee that a special clause should be inserted in the doctors' agreement, authorizing the Insurance Committee to deduct from the capitation fee a sum of 2d. per insured person per annum to form what was called the Special Practitioners' Fund. The two committees were then to arrange what mileage fees should be paid, taking into account not only the normal miles, but any abnormal conditions under which any practitioner had to work, and so far as the special Treasury grant proved insufficient to meet such claims, they should be met out of the Special Practitioners' Fund, any balance remaining in the fund being paid *pro rata* to the practitioners on the panel. As a matter of fact, not more than about 1d. per insured person has been required for this purpose, and part of the fund has been used to meet the ordinary expenses of the Local Medical Committee, this making it unnecessary that the committee's balance sheet should be scrutinized or approved of by the Commissioners. As mileage based only on distance was regarded as inequitable, it was agreed to pay as a minimum a fixed sum per mile in respect of each patient resident more than three miles from the nearest doctor, but to supplement this by specific grants having regard to the circumstances of each individual doctor, and it was remitted to a subcommittee, including the clerk of the Insurance Committee, to consider special claims sent in.

GLASGOW.

AN interesting memorandum on the difference in numbers of insured persons on Index and Medical Registers and numbers credited by the Insurance Commissioners has been presented to the Medical Benefit Subcommittee by Mr. William Jones, the clerk and treasurer to the Insurance Committee for Glasgow. The report indicates the various causes of inflation of the Index and Medical Registers, and gives the following figures as a measure of the causes of inflation:

The amount finally credited by the Commissioners in respect of the year 1915 was £137,519 16s. 11d. excluding the amount transferred from Sanatorium Benefit Fund account in respect of the domiciliary treatment of tuberculosis.

This amount, divided by 8s. 6d., which is the capitation fee per insured person per annum to which the Committee is entitled for medical benefit purposes, gives the number 323,576, which may be regarded as the average daily number of persons

on the Committee's Registers throughout the year 1915 in respect of whom the Committee has been credited with a capitation fee. The mean number of persons on the Register during the year was 409,942, an excess of 86,366, or 26.7 per cent.

Special records kept by Mr. Jones of late notifications of suspensions show, however, that an average number of 23,536 persons who had enlisted were included in the counts for the year, as well as an average number of 10,601 persons who had ceased to be entitled to medical benefit, a total of 34,137. This reduces the mean count of the Registers to 375,805 and the degree of inflation to 52,229, or 16 per cent.

The mean number of persons on Medical Lists (including "Special Arrangements") during the year was 349,567, an excess of 25,991 over the number credited, or 8 per cent. From this must be deducted 30,383 in respect of enlistments and other suspensions, which leaves a net number of 319,184, or a surplus of 4,392 over the number actually credited for. This represents a surplus of over £1,800 as being available in respect of "unallocated" persons.

It is evident from these figures that the Medical Register, although in excess, more nearly indicates the number of insured persons within the area than the Index Register, and also that the amount credited to the Committee more than meets the liability in respect of persons on Medical Lists and entitled to benefit.

In explanation of the inflation of the Index Register to the extent of 16 per cent. after adjustment, it is suggested :

(*a*) That there is in the hands of the Insurance Commissioners a very large number of unidentified contribution cards, for which no credit has yet been given either to approved societies or Insurance Committees.

(*b*) That a number of contribution cards may be lost or destroyed with the same result to Insurance Committees.

(*c*) That the names of persons in arrears, or who have died or migrated, remain in the Committee's Register till suspension becomes operative over a year later.

(*d*) That persons in receipt of disablement benefit during the whole of the first half of the year are not given credit for.

(*e*) That many more men enlisted from the area than were notified by approved societies.

(*f*) That a greater number of females became insured in the latter half of 1915 than in the first half of that year.

Finally, it is pointed out that whatever measures are adopted there will always remain a residue of excess between Index Registers and credits, and that there is an obvious defect in any system which results in such wide variations between registers of insured persons apparently entitled to benefit and the actual number of persons for whom credits are received.

LOCAL MEDICAL AND PANEL COMMITTEES.

London.

It is announced in the April number of the London Panel Committee *Gazette* that arrangements are proposed for holding further courses of instruction during the coming summer in the diagnosis and treatment of venereal diseases at the Military Hospital, Rochester Row. It is intended to extend the next course to six weeks to give opportunity for more lectures and practical work, and Lieutenant-Colonel Harrison is prepared to give those practitioners who have already attended the hospital a further opportunity of attending practical demonstrations. Practitioners who wish to avail themselves of the course should send their names to the secretary of the Panel Committee at 51, Chancery Lane.

The Committee announces that as the conditions prevailing owing to the war are the same as last year, it has decided to continue to take advantage of the regulations of 1916 in order that the present members of the Committee shall be deemed to be re-elected until July, 1918.

The Local Medical Committee recently decided that an operation for the removal of part of a toe nail of an insured person was such as could properly be undertaken by a panel practitioner of ordinary professional competence and skill, but that it was inadvisable that the operation should be done without a general anaesthetic. Arising out of this, the Panel Committee considers it most inadvisable that any part of the already depleted practitioners' fund should be ear-marked to pay for the cost of anaesthetics, the Commissioners who have been informed of this opinion take the view that every encouragement should be given to neighbouring practitioners to arrange with each other for the administration of anaesthetics.

Referring to the scheme for the assigning of insured persons and the crediting of the additional capitation fees, the Committee states that the following arrangements took effect from January 1st, 1917: that every practitioner entitled to share in the further capitation fees "shall be credited at the beginning of each quarter with further capitation fees bearing the same proportion to the aggregate number of further capitation fees referred to in Art. 35 (1) of the Medical Benefit Regulations, 1913, as the number of persons included in his list at the beginning of the quarter bears to the aggregate number of persons included in the lists of all the practitioners on the panel entitled to participate in the distribution of further capitation fees at the beginning of such quarter." In the case of persons who apply for inclusion on doctors' lists, but are not accepted, the Insurance Committee proposes to furnish practitioners with forms or post cards which may be used for referring the patients to a second doctor and informing the Panel Committee that they have been refused acceptance.

As the amount advanced to practitioners by the Insurance Committee in the first quarter of 1916 at the rate of 1s. 3d. a person proved to be in excess of the sum actually received by the Committee, it was proposed to advance only 1s. 2d. for the first quarter of 1917. As no figures showing the need for this were furnished, the Panel Committee at first objected, but they have now received an assurance that if, when all the figures have been obtained, it is proved that the higher advance could have been safely made, the difference will be added to the amount to be advanced for the second quarter. The Panel Committee has passed a resolution that the Commissioners should do all in their power to enable the Insurance Committee to make a final settlement of practitioners' accounts for 1916 as early as possible on the lines adopted for 1915.

As the staff of the Insurance Committee is at present greatly depleted, the Panel Committee urges that practitioners should send in their acceptances more frequently, and not keep them to be sent in one batch at the end of the quarter. By sending them more frequently the Insurance Committee will be able to forward credit notes and index cards without delay.

Bedfordshire.

At a meeting of the Local Medical and Panel Committee on April 3rd, the circular M. 21, issued by the British Medical Association on the circular by York Local Medical and Panel Committee on the organization of the medical profession, was approved.

Birmingham.

At a meeting of the Panel Committee on May 1st it was decided to reply to a communication from the York Panel Committee on the subject of the future policy of the British Medical Association with regard to the working of the National Insurance Acts, that the report of the Birmingham Committee would be sent to the British Medical Association, and that when the York Committee had sent in its report to the British Medical Association the latter would no doubt embody it in an interim report. The Secretary reported that he had informed the Pharmaceutical Committee, which had offered to take over the private dispensing of those doctors remaining at home during the war, that practitioners were satisfied with the present arrangement as to private dispensing. It was decided to ask the Insurance Acts Committee for an authoritative opinion as to what entitles insured persons to medical treatment.

Renfrewshire.

The Panel Committee has approved the Ayrshire Medical Referee Scheme and the issue of a letter to practitioners on the panel dealing with questions arising between practitioners and insured persons where treatment is asked for and no medical card or other evidence of insurance is produced. When the person applies for treatment as an insured person but fails to produce a medical card or other evidence of insurance, the Committee recommends that he should be told to fill up the form Med. 50, which the doctor should mark "accepted," and sign the marking. If the insured person is able within a reasonable time to show a medical card no fee should be charged, but it would be proper for the doctor to protect himself against loss by charging a fee on the understanding (expressed at the time to the patient) that the fee will be returned provided the medical card is produced within a reasonable time. When the person presenting himself for treatment, although he is insured, fails in any way to inform the doctor that he

claims treatment as an insured person, the Committee recommends practitioners to endeavour to ascertain in each case whether the new patient is or is not an insured person. Should genuine misunderstandings occur, practitioners must deal with each case on its own merits, and use their own discretion as to insisting on fees or not. The Committee is of opinion that the onus of establishing a claim to treatment as an insured person rests upon the insured person and not upon the practitioner.

AN OUTSIDE VIEW OF THE PANEL SYSTEM.

SOME interesting comments on panel practice have been received from a practitioner over military age who has come from one of the Dominions specially to assist in carrying on the work of practitioners now with the forces. At present he is temporarily carrying on a panel practice. Without definitely suggesting an increase in the nominal capitation fee, he regards the deductions that are made as most unjust, and thinks that the doctor should receive at the end of every month a cheque at the rate of 7d. for each person on his list, or who ought to be on his list, and that such a thing as having to attend persons three months for nothing because they come on his list on the third day of the month is most unfair. In the case of persons who have never taken the trouble to be put on the doctor's list for perhaps three whole years but then send for him for some serious illness such as typhoid fever or pneumonia, he considers that the doctor then chosen should receive the whole 21s. for the past three years, as the essence of insurance is that payment is made while well against the time when illness comes. To avoid the difficulty, he suggests that every insured person should be compelled to have his name on some doctor's list from the time when he joins the insurance. He thinks there should be a limit of 2,000 for one doctor, or 3,000 where two doctors work as partners. He believes that the "panel" has been a great boon to the honest poor, and, if properly carried on, is much to be preferred to a whole-time salaried service. It is clear from the above that, apart from any misconceptions arising from insufficient acquaintance with the system, our correspondent has soon recognized that there is real ground for the complaints of so many panel practitioners.

QUESTIONS AND ANSWERS.

Insufficiency Capitation Rates for Drugs and Appliances in Rural Practices.

Dr. R. A. Welsh, of Felton, Northumberland, who apparently has agreed as a panel practitioner to supply drugs and appliances to insured persons on his list at a capitation rate, writes that he has never been paid "the full 2s. per head per year allowed under the Act for this" and indeed has never received more than 1s. 6d., while according to his last payment he is now only paid 1s. per head per year; it is, he says, quite impossible with drugs at their present prices to do justice to the insured for this sum.

In reply, though it may be correct to say that 2s. is "allowed" under the Act in the sense that it is permissible if the fund is sufficient, there is nothing in the Act or regulations that guarantees this amount. In fact, it is practically certain that 2s. will rarely, if ever, be paid for each person on a doctor's list for whom the doctor supplies drugs at a capitation rate. The provisions that regulate the amount are long and extremely complicated, but are to be found in the Medical Benefit Regulations, 1916, sections 4 to 8, which replace the earlier regulations on the subject. It is difficult to understand how the amount can be be reduced to 1s. except as a mere payment on account, but there can be little doubt that the total capitation fees actually received by rural practitioners for the supply of drugs are almost absurdly inadequate to ensure justice being done to the insured.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Staff Surgeon A. F. Fleming, D.S.O., to the *Fearless*, vice Rusack. Temporary Surgeons: W. Hassard, M.D., to the *Neptune*, vice Moser; P. H. S. Smith, M.B., J. S. MacGrath, and D. S. Stevenson, M.B., to Plymouth Hospital; S. L. Harke to hospital ship *Garth Castle*; E. S. Bowes and E. S. Orme to the *Vivid*, additional, for Plymouth Hospital; A. C. Ballance, M.B., and A. J. Muirhead, M.B., to Chatham Hospital; G. C. Scott, M.D., to the *Orion*, vice Ballance; R. W. Pritchard to the *Emperor of India*, vice Cooper; J. C. McClelland, M.B., to the *Agamemnon*. To be temporary Surgeons: A. Rose, M.B., S. S. Barton.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: F. A. Smorfitt, W. de M. Scriver, C. L. Wilson.

ARMY MEDICAL SERVICE.

Colonel H. A. Bruce, formerly of the Canadian Medical Services, has been appointed a Consulting Surgeon with the British armies in France.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel H. W. Grattan to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division.

Lieutenant-Colonel T. H. J. C. Goodwin, C.M.G., D.S.O., to retain the acting rank of Colonel whilst employed as an Assistant Director of Medical Services at the War Office.

To be acting Lieutenant-Colonels: Temporary Captain J. G. Johnston whilst commanding a field ambulance, Major N. Low, D.S.O., whilst commanding a casualty clearing station.

Captain C. W. Bowle relinquishes the acting rank of Lieutenant-Colonel on reposting.

J. J. G. Blandford to be temporary Major.

Temporary Captains to be temporary Majors: J. H. Spencer, N. H. Oliver, J. Bowes, M.D.

Temporary Captains relinquish their commissions: E. G. Wheat, W. W. Scott, M.B., L. A. Walker, W. N. Rishworth, M.C., E. J. Eedle, F. L. Gill, W. T. Smith, W. A. Kennedy, H. R. Brown, J. L. Digby, C. Farranridge, W. P. Noall, J. N. Glaister, J. J. Crawford, A. H. Corley, A. D. Howard, R. Williams, C. A. Robinson, C. Butler, W. B. Lawrence, A. R. Rendle, W. J. Hill, J. W. Heekes, J. M. Twentyman, H. H. Clarke, H. M. Meyrick-Jones, A. P. Yonge, W. A. H. Birrell, D. T. Fraser, M.C.

Temporary Lieutenant-Colonel A. H. Burgess, M.B., F.R.C.S. (Major R.A.M.C.(T.F.)), having resigned his appointment relinquishes his commission.

Temporary Lieutenant-Colonel F. D. Bird, M.B., F.R.C.S., relinquishes his commission.

Major A. W. Mayo Robson, C.V.O., C.B., R.A.M.C.(T.F.), to be temporary Lieutenant-Colonel.

The undermentioned are granted temporary rank whilst employed at the Sunderland Hospital:—As Lieutenant-Colonel: Lieutenant-Colonel J. W. Alexander, D.S.O., M.D., West Yorkshire Regiment (T.F.); as Majors: T. C. Squance, M.D., W. Robinson, M.D., F.R.C.S.; as Captain: W. H. Maling.

Temporary Captains relinquish their commissions on account of ill health: H. D. Welply, J. F. Stevens, D.S.O., R. F. Jones.

To be temporary Captains: H. L. Tidy, M.D., B. M. Collard (late temporary Captain), J. T. Smeall, M.C., M.B. (late temporary Captain), R. S. Dobbin, M.D., H. H. Prentiss, M.B., R. I. Wolfe (Captain S.A.M.C. Reserve of Officers).

The notifications regarding Captain H. J. Couchman, Lieutenant E. Dermer, and L. P. Anderson in the *London Gazette* of January 10th, 1917, March 10th, 1917, and July 15th, 1916, respectively, are cancelled.

B. H. Alton to be temporay honorary Captain whilst serving with No. 22 General Hospital.

W. Martin to be temporary honorary Captain whilst employed with the British Red Cross Hospital, Netley.

Temporary Lieutenants to be temporary Captains: G. E. Kinnersly, R. L. Bell, W. R. H. Smith, G. A. Back, W. V. Pegler, H. W. Evans, A. Hendry, H. E. Whittingham, J. Nunan, J. W. Tonks, L. R. F. P. Marshall, J. A. Fretton, G. E. Dodson, G. G. Old, H. Mohan, S. Macnaughton, S. C. W. Iredale, G. B. King, J. F. Nicholson, J. O'Keefe, D. Morrison, T. R. Hunter, W. Halliwell, J. A. H. Telfer, F. J. H. Begg, F. L. Keith, T. P. Hutchison, T. B. Brandon, V. Wallace, C. J. McCarthy, J. T. Bleasdell, J. A. C. Roy, E. J. Dyke, H. B. Maxwell, S. Littlewood, W. B. Anderson, D. Ross, S. Robson, R. T. Taylor, A. E. Pinniger, W. Ward-Smith, J. P. Lowson, J. McF. Donnan, P. Milnes, R. A. Leembruggen, J. F. C. O'Meara, C. G. Skinner, A. M. Bayne, C. E. A. Trow, G. Stewart, L. B. W. Braine, E. C. A. Reynolds, R. A. McKay, J. E. O. Donnell, H. G. Joyce, J. C. Houston, C. W. Aikman, J. G. Ackland, W. R. White-Cooper, A. T. Edwards, A. C. Pickett, J. H. Lechler, F. E. Fielden, V. J. P. Clifford, W. S. Allan, W. H. W. C. Carden, S. H. L. Archer, C. Dundee, S. Pool, M.C., A. Beeley, A. H. Smith, C. Cameron, E. Hudson, A. A. Hill, A. D. Millington, J. V. Watson, A. C. Price, D. A. Chalmers, F. F. Carr-Harris, E. A. T. Green, L. L. McKeever, J. D. Wright, H. C. Davies, A. Ball, W. G. Shaw, G. J. McGorty, M.C., E. H. Shaw, L. Walton, T. D. Miller, R. C. B. Briscoe, F. R. Wilson, P. A. Rostant, J. Dickson, C. Harris, R. J. Arundel, J. P. Pegum, J. F. Penman, D. Corry, A. Wilson, A. Sunderland, K. M. Walker, J. F. Blackett, M.D., A. E. Gravelle, J. B. Wood.

Temporary Lieutenants relinquish their commissions: J. C. Buckley, D. R. Taylor, A. Whittome, E. Slack, H. B. Thomson, D. A. Crow, H. A. Macdonald, C. M. Eadie, W. F. Cornwall, F. J. MacManus, R. A. Slater, R. S. Novis, W. H. Soady, R. C. Corbett, W. W. W. Watt, J. E. Harford, J. G. Ross, A. E. Harrison, H. L. Morrow, J. R. Hall, P. J. Murray, J. E. C. Maguire, D. J. Jackson, W. Patey, W. A. Steen, M. F. Taylor, A. F. Seacombe, A. H. Arnott, H. C. Terry.

Temporary Lieutenant J. E. Middlemiss relinquishes his commission on account of ill health.

Temporary honorary Lieutenant D. H. D. Cran to be temporary honorary Captain whilst serving with the Scottish Red Cross Society.

F. Packard to be temporary honorary Lieutenant whilst serving with No. 22 General Hospital.

OVERSEAS CONTINGENT.

CANADIAN ARMY MEDICAL CORPS.

Lieutenant-Colonels to be temporary Colonels whilst employed as indicated: F. Etherington, C.M.G., whilst O.C. Canadian General Hospital, France; J. D. Courtenay whilst O.C. Canadian Special Eye and Ear Hospital; E. C. Hart whilst O.C. Canadian General Hospital; A. E. Snell, D.S.O., whilst holding the appointment of Assistant Director of Medical Services.

Lieutenant-Colonel W. N. Nasmyth, from a Canadian Infantry Battalion, to be temporary Lieutenant-Colonel.

Majors to be temporary Lieutenant-Colonels: E. R. Brown, R. Raikes, H. C. S. Elliott, A. J. MacKenzie, D. A. Clark, C. E. Doherty, R. A. Bowie, F. Guest, E. S. Ryerson.

Temporary Major A. S. Donaldson to be temporary Lieutenant-Colonel.

Temporary Majors to be acting Lieutenant-Colonels: A. T. Bazin, J. J. Fraser, A. L. C. Gilday, P. G. Bell.

Majors to be temporary Lieutenant-Colonels whilst employed as indicated: D. P. Kapelle whilst O.C. Canadian Cavalry Field Ambulance; J. A. Amyot whilst Consultant in Sanitation; T. A. Starkey whilst Sanitation Officer; R. Wilson whilst Consultant in X-Ray and Medical Electricity; L. E. W. Irving, D.S.O., whilst O.C. Canadian Convalescent Hospital.

Temporary Major S. A. Smith, D.S.O., relinquishes his temporary commission on appointment to R.A.M.C.

Temporary Captains to be temporary Majors: W. L. Hutton, J. H. Wood, R. H. McDonald, A. H. E. Bennett, O. E. Carr, G. G. Greer, J. T. Hill, W. H. Tytler, W. Bethune, J. D. Morgan, R. H. Sutherland, G. H. R. Gibson, H. E. MacDermot, S. Ellis, G. W. O. Dowsley, J. C.

Calhoun, F. A. C. Scrimger, V.C., R. H. McGibbon, C. R. Graham, A. K. Haywood, M.C., W. A. G. Bauld, J. G. W. Johnson, F. H. Mackay, C. H. Robson, D. E. Robertson, A. W. M. Ellis, E. A. Neff, N. V. Leslie, S. MacV. Fisher, W. M. Hart, M.C., W. G. Turner, G. S. Strathey, L. B. Robertson, J. F. Burgess.

Temporary Captains to be temporary Majors whilst employed as indicated: J. J. Ower, A. C. Croll, and R. H. Smith whilst doing duty at the Canadian General Hospital; H. E. Paul whilst O.C. Canadian Hospital; H. C. Burgess whilst Chief Surgeon at Canadian Stationary Hospital; F. B. Bowman whilst doing duty at Canadian Mobile Laboratory; M. H. Allen whilst in office of the Director of Medical Services; M. M. Crawford and A. MacKay whilst doing duty at Ontario Military Hospital.

R. G. Moffat to be temporary Captain.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain R. Magill, M.B., relinquishes the acting rank of Lieutenant-Colonel on reposting.

Captains to be acting Lieutenant-Colonels whilst commanding a field ambulance: (Acting Major) E. T. Burke, M.B., W. Tyrrell, M.C., M.B.

Captain J. H. Bell, M.B., relinquishes his commission on account of ill health.

Lieutenants (on probation) relinquish their commissions: T. C. Owen, C. D. Crawford.

To be Lieutenants: T. D. Watt, M.B., J. S. B. Forbes, M.B., and G. R. McRobert, M.B., from the Aberdeen University Contingent O.T.C., A. Black, J. W. T. Thomas, T. H. Rhys, F. G. L. Dawson, from University of London Contingent O.T.C. (substituted for notice in the *London Gazette* of August 5th, 1916).

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Captain (acting Lieutenant-Colonel) A. J. Evans relinquishes his acting rank on ceasing to command a field ambulance.

Major A. H. Burgess is restored to the establishment.

Major C. A. Lees to be acting Lieutenant-Colonel, whilst holding the appointment of Administrator.

Surgeon-Major F. W. Bailey, D.S.O., from R.F.A., to be Major, with precedence as from December 12th, 1915.

Captain (acting Major) T. H. Chittenden relinquishes his commission on account of ill health, and is granted the honorary rank of Lieutenant-Colonel.

Captain A. G. T. Fisher to take rank and precedence in the R.A.M.C. (T.F.) and in the army as if his appointment as Captain bore date July 10th, 1916.

Captain T. W. Morcom-Harneis to be acting Major whilst in command of a field ambulance.

Captain (temporary Major) T. H. Peyton and Captain J. S. Manford to be acting Lieutenant-Colonels whilst commanding a field ambulance.

Lance-Sergeant H. C. Sands to be Lieutenant.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—House-Surgeon. Salary, £150 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £200 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician. (2) House-Surgeon. Salary, £120 per annum.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £160 per annum.

BURSLEM: HAYWOOD HOSPITAL.—Resident Medical Officer. Salary, £200 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £175 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House-Surgeon. Salary, £200 per annum.

DERBYSHIRE COUNTY COUNCIL.—Medical Superintendent for County Sanatorium, and Tuberculosis Officer. Salary, £500 per annum.

DERBYSHIRE ROYAL INFIRMARY.—Two House-Surgeons. Salary, £200 per annum.

EVELINA HOSPITAL FOR CHILDREN, Southwark, S.E.—House-Physician. Salary at the rate of £160 per annum.

GLASGOW VETERINARY COLLEGE.—Bacteriologist. Salary not to exceed £250 per annum.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Senior House-Surgeon. Salary, £150 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

HULL: VICTORIA HOSPITAL FOR SICK CHILDREN.—House-Surgeon.

IPSWICH: EAST SUFFOLK AND IPSWICH HOSPITAL.—Two Lady Residents.

ITALIAN HOSPITAL, Queen Square, W.C.—House-Surgeon. Salary, £80 per annum.

KENSINGTON UNION.—Locumtenent Assistant Medical Officer for the Institution. Salary, £7 7s. a week.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary, £200.

NOTTINGHAM CHILDREN'S HOSPITAL.—Lady House-Surgeon. Salary, £200 per annum.

PAISLEY PARISH COUNCIL.—Resident House-Surgeon for Parochial Hospital, etc. Salary, £260 per annum.

PLAISTOW FEVER HOSPITAL, E.—Temporary Resident Medical Officer (lady). Salary, £300 per annum.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—Casualty Officer.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Hunterian Professors and the Arris and Gale Lecturer for the ensuing year.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—(1) Senior Resident Medical Officer. (2) House-Physician. Salary, £200 and £50 per annum respectively.

ST. PETER'S HOSPITAL FOR STONE, ETC., Henrietta Street, W.C.—Senior and Junior House-Surgeons. Salary, £75 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (female). Salary, £150 per annum.

SURREY EDUCATION COMMITTEE, Kingston-on-Thames.—School Dentist. Salary, £300 per annum, rising to £350.

UNIVERSITY COLLEGE HOSPITAL, W.C.—Casualty Surgical Officer. Salary, £100 per annum.

WARWICKSHIRE AND COVENTRY JOINT COMMITTEE FOR TUBERCULOSIS.—Temporary Tuberculosis Officer. Salary, £500 per annum.

WELLS ASYLUM, Somerset.—Temporary Assistant Medical Officer. Salary, £300 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Grosmont (Yorks, North Riding), Tipton (Stafford).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

COLLIE, Sir John, M.D., Physician to the Hospital for Epilepsy and Paralysis and other Diseases of the Nervous System, Maida Vale, W.

STALEY, Mildred E., M.B.Lond., Deputy Governor and Medical Officer H.M. Prison, Aylesbury.

WYNN, W. H., M.D., M.R.C.P.Lond., Physician to the General Hospital, Birmingham.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTHS.

CAMMOCK.—On May 2nd, at 65, Werneth Hall Road, Oldham, the wife of Dr. Cammock, of a son.

WINSTANLEY.—On May 5th, at Green Bank, Nantwich, the wife of Sydney A. Winstanley, M.B., Ch.B., of a daughter.

MARRIAGE.

GRAY—COOPER.—On April 26th, at St. John's, Red Lion Square, Archibald Montague Henry Gray, M.D., Major R.A.M.C.(T.F.), of 30, New Cavendish Street, W., only son of the late Dr. F. A. Gray, of Ottery St. Mary, Devon, to Elsie, youngest daughter of the late F. B. Cooper, of Newcastle, Staffs.

DEATHS.

ADENEY.—On May 2nd, at Haward Lodge, Tunbridge Wells, Edwin Leonard Adeney, M.D., J.P., passed away peacefully, aged 58 years. Funeral at Tunbridge Wells Cemetery on Friday at 3 o'clock.

DOUDNEY.—On the 29th April, at Komba, Northern Nigeria, of malaria, Dr. Leslie Doudney, W.A.M.S., aged 38, youngest son of George Doudney, of Compton House, Alleyn Park, Dulwich, and beloved husband of Margaret Doudney, Matron, The Nightingale Home, Derby.

GIBBINS.—On March 17th, at Holmdale, Parkstone, Kenneth Mayoh Gibbins, M.B., B.S.Lond., aged 43.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—8 p.m., General Meeting. 9 p.m., Annual Oration, Sir William Osler, Bt., M.D., F.R.S.: The Anti-venereal Campaign.

TUESDAY.

LONDON DERMATOLOGICAL SOCIETY, 49, Leicester Square, W.C.—4.30 p.m., Clinical Meeting.

FRIDAY.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W.—8.30 p.m., Dr. H. R. Carter (Washington, U.S.A.): Spontaneous Disappearance of Yellow Fever from Failure of the Human Host.

ROYAL SOCIETY OF MEDICINE.—*Section of Dermatology:* Thursday, 4.30 p.m., Cases. 5 p.m., Annual General Meeting. *Section of Otology:* Friday, 4.45 p.m., Cases and Specimens. 5 p.m., Annual General Meeting. Discussion: The Relation of Diseases of the Ear to Recruiting for the Army and Navy, to be opened by Captain G. J. Jenkins. *Section of Electro-Therapeutics:* Friday, 8.30 p.m., Annual General Meeting. Dr. Mottram and Mr. Sidney Russ: A Contribution to the Study of Dosage in Radium Therapy.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	MAY.
15 Tues.	London: Poor-law Medical Officers Subcommittee, 11 a.m.
	London: Medical Officers of Health Subcommittee, 12 noon.
	London: Public Health Committee, 2 p.m.
24 Thurs.	London: Insurance Acts Executive Subcommittee.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MAY 19TH, 1917.

CONTENTS.

PAGE

British Medical Association.

PROVISION OF MEDICAL TREATMENT FOR DISCHARGED DISABLED SOLDIERS (Deputation to Minister of Pensions)... 115
GRIEVANCES OF TERRITORIAL MEDICAL OFFICERS ... 116
CURRENT NOTES 116
IRISH COMMITTEE 117
ASSOCIATION NOTICES 117

PAGE

IRISH MEDICAL WAR COMMITTEE 117
NAVAL AND MILITARY APPOINTMENTS... 117
VACANCIES AND APPOINTMENTS 118
BIRTHS, MARRIAGES, AND DEATHS 118
DIARY FOR THE WEEK... 118
DIARY OF THE ASSOCIATION 118

THE PROVISION OF MEDICAL TREATMENT FOR DISCHARGED DISABLED SOLDIERS.

Report of Deputation to the Minister of Pensions.

A deputation from the British Medical Association was received by Mr. G. N. Barnes, M.P., at the Ministry of Pensions on May 15th, to discuss the question of the provision of medical treatment for discharged disabled soldiers. Sir Robert Morant, Dr. Smith Whitaker, and other representatives of the Insurance Commission were present to deal with that part of the subject arising under Clause 4 of the Insurance Acts Amendment Bill. The representatives of the British Medical Association included Dr. J. A. Macdonald, Chairman of Council; Dr. H. B. Brackenbury, Chairman of Insurance Acts Committee; Dr. H. J. Campbell, Chairman of Hospitals Committee; Dr. J. Adams, Dr. Ridley Bailey, Dr. M. J. Biggs, Captain E. R. Fothergill, Dr. P. V. Fry, Dr. Garstang, Mr. N. Bishop Harman, Professor Bostock Hill, Dr. Mabel Ramsay, Dr. Crawford Treasure, Dr. T. Jenner Verrall, together with Dr. Alfred Cox, Medical Secretary, and Dr. J. Neal, Deputy Medical Secretary.

Dr. Macdonald said that the questions which arose as to the discharged disabled soldiers materially affected the medical profession. All desired that the very best should be done for these men; a very large number were insured persons, and when they came out of the army they came under the care of panel practitioners. Many would want special treatment in hospitals, and the profession was in doubt as to the Government's intentions with regard to these. Were they to be treated in military hospitals and remain under military discipline, or were they to be referred to the voluntary hospitals, a great many of which had not the requisite equipment for the treatment these men required?

Mr. Barnes, in answer to this specific point, said that the question of the retention of the men in military hospitals and under military control might be regarded as settled. The War Office had agreed to keep the men for as long as room could be found for them in the military hospitals; to give them certain curative and manual treatment; and, after discharge, to hand them over to the care of the Local Statutory Pensions Committees. With the disbandment of many of the military hospitals after the war, the men would fall back upon the care of the Pensions Committees. They would be treated at military hospitals while these continued to exist; at a civil hospital if there was one available; and, failing both of these, they would be treated by the ordinary practitioner or the specialist, as the case might be.

To a further question as to what arrangements had been made for domiciliary medical attendance, Mr. Barnes said that they were "just feeling their way along." They recognized their responsibility for domiciliary as for other treatment, but they had not committed themselves to anything, and they would be very glad to have representations made to them. If a man had contracted any illness as a result of war service, he came under the warrant which came into operation on April 4th last. Under Article 6 of that warrant there was a provision that the man should be entitled to medical treatment and to training. They committed themselves to the provision of specialist treatment for the man, either in hospital or outside it, and paid any necessary charges in respect to this. In his opinion that was quite apart from any domiciliary treatment to which the man would be entitled as an insured person.

Dr. Macdonald pointed out that a number of the men damaged in war did not require special treatment, but only general practitioner treatment. Mr. Barnes replied that such men would be covered by the ordinary terms of the Insurance Act. In reply to Dr. Brackenbury, he said that with regard to extra war risks a bargain had been made with the approved societies, but after further questions by Dr. Brackenbury and Dr. Verrall, the Minister said that perhaps he should not have used the word "bargain." There was just one circumstance which brought his department into this matter—namely, that it had a bearing upon pensions. It was not a bargain with the approved societies so much as an arrangement to watch events and obtain data upon which a bargain might ultimately be made.

In reply to Dr. Brackenbury, who asked whether the small number of non-insured discharged persons would be dealt with by the Insurance Commissioners, Mr. Barnes said that that was his view. Asked whether a discharged disabled man who was never insured as a civilian would have absolutely free choice of doctor outside the Insurance Act if he so desired, Mr. Barnes said that he would have the same choice as any other insured person. They had agreed with the insurance authorities so far as ordinary medical attendance and domiciliary treatment were concerned; when there was any question of special treatment the terms of the pensions warrant came in; the Pensions Ministry was prepared to find money for special treatment in the case of a man suffering from wounds or disease contracted or aggravated as the result of the war.

Captain Fothergill asked whether it was acknowledged that additional money must be provided to meet the increased amount of domiciliary treatment necessary in consequence of war injuries. Sir Robert Morant said that this point had already been the subject of a deputation from the British Medical Association to the Insurance Commission. Mr. Barnes said that the approved societies claimed that there would be additional sickness and therefore increased financial risk, but on the other hand there were those who urged that the result of open-air life and physical training would be a diminished sickness incidence. It had been decided to watch events and compare with pre-war years.

Dr. Macdonald said that at present there was a strong effort to get permanently disabled persons into voluntary hospitals. Did the Government propose to establish special institutions? Mr. Barnes said that already a special committee was charged with the setting up of institutions for different kinds of disease—for paraplegics, epileptics, neurasthenics, and so forth. It was not the policy of the Government to foist these cases on to the voluntary hospitals. Dr. Brackenbury asked whether the Government, as it assumed responsibility for the men who went into institutions, would not do the same for the men who preferred to go home and who would require a great deal of medical attention. Mr. Barnes said that theoretically the Government assumed the same responsibility for these, but he did not believe that the men would

go to their homes, unless they were well-to-do. The difficulty must be dealt with if and when it arose.

Mr. BISHOP HARMAN raised the question of civil hospitals and the proposal to send to the out-patient departments those who would require skilled treatment. This, he said, could not be done. The proper way would be to organize special clinics. Mr. BARNES objected that the medical men for special clinics could not be found; but Mr. BISHOP HARMAN pointed out that the Local Government Board had done so successfully in dealing with venereal disease. Dr. SMITH WHITAKER asked whether it was really advantageous or economical that in each town disabled soldiers should come up for treatment at some separate time. Dr. MACDONALD thought it desirable to have a definite hour for the attendance of these cases.

Asked what steps had been taken to place the representatives of the medical profession on the Central and Local Pensions Committees, Mr. BARNES said that he must admit that little had been done in this direction, though this was not due to any ill-will towards the doctors. The body primarily responsible was the House of Commons when dealing with the bill in 1915. Steps were being taken to rectify the omission. Quite recently a circular had been issued by the Central Committee advising that all the local committees should avail themselves of the services of the local practitioners, and in particular that doctors should be members of the disablement subcommittees. On Captain FOTHERGILL urging that instead of "advising," statutory provision should be made for this, Mr. BARNES said that it would be best to await the result of the circular. The Ministry, he said, had it in mind that every local committee should have a medical adviser.

A good deal of discussion ensued as to the representative character of the Local Medical Committees as nominating bodies, as suggested by Mr. Barnes.

Sir ROBERT MORANT thought it a travesty to suggest that the Local Medical Committees did not represent the profession in a given area, and although these committees had not been elected for the purpose under discussion, there was no reason why they should not be re-elected for that purpose. Captain FOTHERGILL urged that the Divisions and Branches of the British Medical Association should be consulted, and Dr. H. J. CAMPBELL also pressed this point; he thought that the best way of overcoming the difficulty would be for the British Medical Association in the different areas to call a meeting of the whole profession to elect definitely one or more men, who would not necessarily be members of the Association, to serve on the disablement subcommittees. Mr. BARNES said that medical men were wanted as members of these committees, and not in a merely advisory capacity. He asked why the profession did not exert its influence locally to secure representation on the Pensions Committees. Dr. MACDONALD said that the complaint was that the Government, in drafting its proposals, made no arrangements definitely to include the members of the profession. Captain FOTHERGILL asked whether Mr. Barnes in his advisory circular would include the names of certain local practitioners if these were given to him. Mr. BARNES said that he would not commit himself to this; he would like to have the proposal in writing. Dr. BRACKENBURY suggested that it be left to the British Medical Association to nominate three or four persons, and possibly the Royal Colleges would nominate a consulting physician and surgeon, and that these might constitute a suitable Advisory Committee. Mr. BARNES thought this a very good suggestion, and afterwards Dr. Brackenbury, Mr. Bishop Harman, and the Medical Secretary were suggested to him as willing to assist in such a capacity. Dr. MACDONALD expressed the thanks of the deputation to Mr. Barnes, and the deputation withdrew.

British Medical Association.

GRIEVANCES OF TERRITORIAL MEDICAL OFFICERS.

IN the SUPPLEMENT of March 17th, 1917, was printed a memorandum concerning the promotion of majors R.A.M.C.(T.F.), forwarded by the British Medical Association to the Committee appointed by the Secretary of State for War to inquire into anomalies of promotion in the Territorial Force and new armies, with Mr. Winston Churchill as chairman. Since the publication of this memorandum the Naval and Military Committee of the Association has given the matter further consideration, and a supplementary memorandum has now been forwarded to Mr. Churchill's committee, with a request that the Association be allowed to nominate witnesses to give evidence in support of both memorandums.

The supplementary memorandum is as follows:

Since forwarding on March 9th last its memorandum on the promotion of majors R.A.M.C.(T.F.) to the rank of lieutenant-colonel, the Association has received a number of communications on the position generally of officers in the R.A.M.C.(T.F.). There is evidently a widespread feeling that Territorial medical officers do not receive the sympathetic treatment they deserve, and the Association would urge that the following matters should receive immediate attention:

1. The position of the personnel of the T.F. general hospitals, with promotion of medical officers according to the length of their service, the extent of their command, and their medical experience.
2. The equalization of the remuneration of the junior ranks of Territorial medical officers with those of the R.A.M.C. and temporary R.A.M.C., taking into consideration the pension in the case of the former, and the gratuity and more favourable conditions of service in the case of the latter.
3. The earlier promotion to the rank of major of those who, prior to the outbreak of war, held the rank of captain in the R.A.M.C.(T.F.).
4. The interpretation placed by the War Office upon the term "after three years' service as such" in Article 358 of the Royal Pay Warrant—namely, that it means "after three years' mobilized service," whereas the natural interpretation is that it means a period of service as major quite irrespective of mobilization.
5. That in making staff appointments the claims of R.A.M.C.(T.F.) officers should be considered equally with those of the permanent R.A.M.C. officers.
6. That there should be a representative on the Army Medical Service Staff of the Director-General specially to deal with the questions affecting Territorial medical officers.

CURRENT NOTES.

PAYMENT FOR MEDICAL OFFICERS IN V.A.D. HOSPITALS.

A LETTER by Dr. Howard Marshall, of Cirencester, appeared in the *Times* of May 12th, complaining that the patriotism of civilian medical officers to voluntary aid hospitals has been exploited by the War Office. He pointed out that on the outbreak of war medical men readily placed their services gratuitously at the disposal of these hospitals. Conditions, however, changed as the war dragged on, and the War Office made no open offer to remunerate civilian medical officers whose attendance on the patients in voluntary aid hospitals entailed neglect of their private practices. Dr. Marshall brought to light the circumstance that some sort of action in this matter was taken by the War Office in June, 1915. Authority, he stated, was then given to make payment, on application only, to civilian medical officers for this form of service upon the following scale: 3d. per occupied bed per diem for hospitals receiving direct cases from overseas, and 2d. where transfers from other hospitals in England were received. The rate and conditions of remuneration, and even the fact that any payment at all had been sanctioned, were not made public.

The question of remuneration for the services given by medical practitioners working at V.A.D. hospitals was raised at the last Annual Representative Meeting. On the one hand, it was contended that treatment of the wounded was not charity, and that the Government should pay for all such work; on the other hand, it was argued that work in V.A.D. hospitals was purely voluntary on the part of every one concerned, and to deprive it of this gratuitous character was opposed to the sentiment and wishes of the medical officers of these hospitals. The latter view commended itself to the Representative Body, and a proposal to support the principle of payment for such medical service was dropped. We are assured by correspondents that the private authorization given by the War Office two years ago, now that it has been brought to light, has given dissatisfaction to many medical officers of V.A.D. hospitals. We do not feel in a position to express an opinion on the subject, but if this idea is at all general, some area which is interested in the matter should bring up a motion at the next Representative Meeting.

RIGHT OF MEDICAL PRACTITIONERS TO DISPENSE MEDICINES FOR THEIR PATIENTS.

During the consideration by the Standing Committee of the House of Commons of the Venereal Disease Bill, notice was given of an amendment to prevent qualified medical practitioners from supplying to any patient any remedy for the treatment of venereal disease except in areas in which for the time being a medical practitioner was permitted to supply medicines to insured persons, or in which the practitioner himself administered the remedy, or in which the medicines were supplied to patients attending institutions or hospitals approved by the Local Government Board under the new local schemes. The British Medical Association at once sent to the members of the Standing Committee a strong protest against the proposal, pointing out that it was inadvisable in the interests of the public health, and calculated to deprive medical practitioners of a legitimate part of their work to which they were legally entitled, and which was obligatory in many Government and other public appointments. The proposed new clause was negatived in the Standing Committee by 22 votes to 8, and Sir Henry Craik and Sir Philip Magnus, who had kindly offered to do what they could to further the legitimate interests of the medical profession, have been thanked for their action in the matter.

IRISH COMMITTEE.

A MEETING of the Irish Committee was held at the Irish Offices, 16, South Frederick Street, Dublin, on April 20th, Dr. J. Giusani in the chair. There were also present Dr. J. Craig, Dr. H. Corby, Dr. J. S. Darling, Dr. P. Grace, Mr. R. J. Johnstone, Dr. J. M. Kenny, Dr. W. L. Story, Dr. D. Walshe, Dr. T. Hennessy, Irish Medical Secretary.

Notification of Births Act, 1915.—Letters were read from members of the Association regarding the increased work, without any extra remuneration, imposed on them as medical officers of health in keeping a register of notifications and making in it the requisite entries owing to the operation of the Notification of Births Act, 1915. It was unanimously resolved:

That the Irish Medical Secretary make representations to the Local Government Board that it should see that all sanitary authorities in Ireland, when putting the Notification of Births Act into operation in their areas, would provide adequate remuneration for the extra work imposed on Irish medical officers of health who are only part-time officers in receipt of salaries from £15 to £20 per annum.

Venereal Diseases.—It was unanimously resolved with regard to the movement for combating venereal diseases:

That action be deferred until the Local Government Board is in a position to formulate a scheme suitable to the conditions prevailing in Ireland.

Poor Law Medical Matters.—The Irish Medical Secretary reported the result of his interview with the Medical Commissioner of the Local Government Board regarding (1) the ordering of special drugs for workhouse hospitals and dispensaries, (2) dietary scheme for workhouses, (3) representations made in connexion with the refusal of the Local Government Board to sanction war bonuses for Poor Law medical officers and to pay their locumtenents in excess of pre-war remuneration. It was unanimously resolved:

That the Irish Medical Secretary furnish the members concerned with the result of his representations to the Local Government Board.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EAST YORK AND NORTH LINCOLN BRANCH: EAST YORKSHIRE DIVISION.—Mr. H. L. Evans, Honorary Secretary (101, Prince's Avenue, Hull), gives notice that the annual meeting of the East Yorkshire Division will be held in the board room of the Hull Royal Infirmary on Friday, June 8th, at 8.15 p.m. Business: Minutes, financial statement, election of officers, discussion on existing agreement between absentee and deputy.

METROPOLITAN COUNTIES BRANCH.—Mr. N. Bishop Harman and Dr. Wilfred Kingdon, R.A.M.C. (Honorary Secretaries) give notice that the annual general meeting of the Branch will be held at 429, Strand, W.C., on Tuesday, June 26th, at 4 p.m. The business will be: (1) Report of scrutineers as to the election of new officers. (2) The annual reports of council and of representatives of the Branch on the Central Council. (3) President's address (Dr. C. O. Hawthorne): "The Clinical Organization of the Profession." *N.B.*—The Branch Council on April 17th, 1917, resolved that under Rule 19 there was no obligation to send copies of the annual financial statement and annual report of the council to all members of the Branch, and agreed that the custom be discontinued during the war, and that only a sufficient number of these reports, etc., should be printed for circulation at the annual general meeting of the Branch.

IRISH MEDICAL WAR COMMITTEE.

A MEETING of the Irish Medical War Committee was held at the Royal College of Physicians, Dublin, on May 1st, 1917, Dr. Joseph O'Carroll, President of the Royal College of Physicians, in the chair. There were also present: Dr. D. J. Coffey, President, University College, Dublin; Rt. Hon. M. F. Cox, M.D., Professor A. F. Dixon, F. Conway Dwyer, F.R.C.S.I., Colonel M. L. Hearn, R.A.M.C., R. J. Rowlette, F.R.C.P.I., M. R. J. Hayes, F.R.C.S.I., Honorary Secretary, and T. Hennessy, F.R.C.S.I., Deputy Secretary.

The Committee, in addition to transacting the usual routine business, considered the case of a doctor who availed himself of the absence of a colleague, who had joined the R.A.M.C., to settle down and practise in his district, thus interfering with the private arrangements made to safeguard the interests of the doctor who was serving with the R.A.M.C. The Committee passed a strong resolution disapproving of the action of the doctor in question, and directed the Secretary to write to him to to this effect, and to inform him if he persisted in his present position the Irish Medical War Committee would report his conduct to the General Medical Council.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeons R. M. Richards to the *Powerful*; R. F. Clark to the *Vivid*; C. J. E. Cock to the *Suffolk*. Staff Surgeons D. H. C. Given, M.B., to the *Donegal*; R. M. Riggall to the *Hearty*. Surgeons to be Staff Surgeons: J. Hadwen, M.B., H. F. Briggs, M.B., M. P. Fitzgerald, M.B., A. G. Malcolm, M.B., H. C. Devas. Surgeon H. Burns, M.B., granted acting rank of staff surgeon. Surgeon H. E. R Stephens, M.B., to Plymouth Hospital, vice Given; P. B. Wallis to Portland Hospital. Temporary Surgeons N. S. Nairne to the *Challenger*, vice Cannon; R. O. Townend to the *Lion*, vice Stephens; A. P. Barrett, F. G. Lloyd, and K. H. McMillan, to the *Victory*; R. N. B. McCord, M.B., to Haslar Hospital; M. McKerrow, M.B., to Chatham Hospital. To be temporary Surgeon: S. L. Higgs.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon G. R. Mill promoted to Staff Surgeon. Surgeon Probationers J. B. Taylor to the *Crusader*; F. J. Stevenson to the *Leonidas*. To be Surgeon Probationers: G. G. Newman, A. Sheard, A. F. Pratt.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel A. L. A. Webb, C.M.G., to be Assistant Director-General (temporary).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel H. J. Hargrave, Suffolk Regiment (T.F.), to be temporary Lieutenant-Colonel.

The following are granted temporary rank:—As Lieutenant-Colonel: E. H. Taylor, A. R. Parsons. As Major: W. A. Winter, R. C. B. Maunsell, K. E. L. G. Gunn. As Captain: W. Boxwell, C. E. Boyce, F. H. McC. Crawley, E. J. M. Watson.

To be acting Lieutenant-Colonels whilst in command of a general hospital: Major J. G. Foster (August 16th, 1916); Captain C. E. H. Milner (T.F.) (November 15th to December 7th, 1916); Major J. F. Whelan (December 23rd, 1916, to January 12th, 1917).

To be acting Lieutenant-Colonels whilst in command of a field ambulance: Majors E. E. Powell (May 4th to 8th, 1915), H. W. Russell (October 1st, 1915), A. W. Gibson (June 23th, 1916); Captains T. J. Mitchell (March 1st to 22nd, 1915, and July 8th, 1915, to May 26th, 1916), J. W. L. Scott (March 13th), G. P. Taylor, M.C. (April 4th).

Major (Brevet Lieutenant-Colonel) H. J. Crossley to be acting Lieutenant-Colonel whilst in command of a stationary hospital.

Temporary Majors to be temporary Lieutenant-Colonels whilst employed at the hospitals stated: H. W. Bruce (Southwark Military Hospital), J. H. Brooks (Mile End Hospital), W. D. Buncombe (City of London War Hospital), W. Scatterty (Keighley War Hospital), F. S. Toogood (Lewisham Military Hospital).

Temporary honorary Captain M. Gamble to be temporary honorary Lieutenant-Colonel whilst serving with the Withington War Hospital.

To be temporary Majors: W. A. Brend, F. L. Collie, J. Kerr, W. D. Knocker.

W. E. N. Dunn to be temporary Major whilst employed at the Horton (County of London) War Hospital.

Temporary Captain H. F. Woolfenden to be temporary Major.

Captains R.A.M.C.(T.F.) to be temporary Majors, June 5th, 1916: L. G. Parsons, G. P. Mills.

The notification in the *London Gazette* of February 15th regarding Captain C. E. H. Milner (T.F.) is cancelled.

The notification in the *London Gazette* of March 13th regarding Captain B. Biggar is cancelled, and he is seconded for service with the Egyptian army.

Temporary Lieutenants to be temporary Captains: P. C. E. d'E. Wheeler, G. de B. Turtle.

Temporary Lieutenant D. E. H. Cleveland relinquishes his commission.

C. E. Fearn to be temporary honorary Lieutenant.

A. E. Harvey to be temporary Quartermaster with the honorary rank of Lieutenant.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain D. C. Barron relinquishes the acting rank of Lieutenant-Colonel on reposting.

Captain D. B. Chiles-Evans, D.S.O., to be acting Lieutenant-Colonel whilst in command of a field ambulance.

Lieutenant G. H. Barry to be Captain, April 2nd. (Substituted for notification in the *London Gazette* of April 16th.)

Lieutenants to be Captains: C. P. L. Carrier, F. G. L. Dawson, R. R. Scott, M. C. Cooper, D. H. Anthony, J. J. Murphy, A. G. Harsant.

To be Lieutenants: D. C. Beaumont, C. V. Pink, H. W. Leatham, W. G. Woolrich, J. E. Carpenter, E. B. Andreae, A. G. E. Wilcock, J. B. Lewis, and T. H. McLeod from University of London Contingent O.T.C.; C. C. Chesterman from Bristol University Contingent O.T.C.; V. T. B. Yule and A. G. Lumsden from Aberdeen University Contingent O.T.C.; J. C. Collins, R. Lloyd-Jones, W. Christopher.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonel C. H. Howkins to be temporary Colonel whilst holding the appointment of Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: W. C. D. Maile, J. Rosencwige.

Major D. W. Patterson to be acting Lieutenant-Colonel whilst holding the appointment of Administrator.

Major D. L. Fisher to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Captain J. Owen to be Major, and is restored to the establishment.

Captain W. T. Harkness to be acting Major whilst holding the appointment of Registrar.

Captain J. D. Allen from T.F. Reserve to be Captain.

Captain T. E. Roberts relinquishes his commission on account of ill health caused by wounds and is granted the honorary rank of Captain.

Captain A. Rodger, M.B., from T.F.Res. to be Captain with precedence as from August 14th, 1915.

Lieutenant A. W. W. Baker to be temporary Captain whilst serving with the O.T.C.

Lieutenants to be Captains: A. C. Bescoby, M. Wilson.

Lieutenant J. H. Churchill, from T.F. Reserve, to be Lieutenant.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BOOTLE BOROUGH HOSPITAL.—Junior House-Surgeon. Salary, £170 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £160 per annum.

CAPE TOWN: SOUTH AFRICAN COLLEGE.—Werner Beit Professorships of Pharmacology, Pathology, and Bacteriology. Salary, £800 per annum each, increasing to £1,000.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £175 per annum.

CHARING CROSS HOSPITAL, W.C.—Honorary Anaesthetist.

DERBYSHIRE COUNTY COUNCIL.—Medical Superintendent for County Sanatorium, and Tuberculosis Officer. Salary, £500 per annum.

DURHAM COUNTY AND SUNDERLAND EYE INFIRMARY.—Junior House-Surgeon. Salary, £300 per annum.

EXETER WAR HOSPITAL.—Resident Medical Officer. Salary, £1 per diem.

GLASGOW VETERINARY COLLEGE.—Bacteriologist. Salary not to exceed £250 per annum.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Senior House-Surgeon. Salary, £150 per annum.

HOLLAND (LINCOLNSHIRE) COUNTY COUNCIL.—Temporary County Medical Officer of Health and Temporary School Medical Officer. Combined salary, £450 per annum.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH, 38, New Cavendish Street, W.—Bacteriologist.

LEEDS CITY.—Woman Medical Assistant in Public Health Department. Salary, £350 per annum.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary, £200.

MANCHESTER: ANCOATS HOSPITAL.—House-Physician. Salary, £200 per annum.

MANCHESTER CHILDREN'S HOSPITAL.—Assistant Medical Officer for the Out-patients' Department. Salary, £150 per annum.

MANCHESTER CITY.—First Assistant Medical Officer to the Baguley Sanatorium for Tuberculosis. Salary, £400 per annum.

MANCHESTER ROYAL EYE HOSPITAL.—House-Surgeon. Salary, £120 per annum.

NORTHAMPTON: V.A.D. HEAD QUARTERS.—Two Resident House-Surgeons in auxiliary military hospital. Salary, £350 per annum.

NOTTINGHAM CHILDREN'S HOSPITAL.—Lady House-Surgeon. Salary, £200 per annum.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—Casualty Officer.

SALISBURY GENERAL INFIRMARY.—House-Surgeon. Salary, £150 per annum.

ST. BARTHOLOMEW'S HOSPITAL, E.C.—Chief Assistant in special Department for Diagnosis and Treatment of Venereal Diseases. Salary, £500 per annum.

ST. PETER'S HOSPITAL FOR STONE, ETC., Henrietta Street, W.C.—Senior and Junior House-Surgeons. Salary, £75 per annum.

SHEFFIELD ROYAL HOSPITAL.—(1) Casualty Officer; (2) Assistant House-Surgeon. Salary, £130 and £120 per annum respectively.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SUFFOLK HOSPITAL, Ampton Hall.—Resident Medical Officer. Salary, £400 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (female). Salary, £150 per annum.

TAUNTON AND SOMERSET HOSPITAL.—Senior House-Surgeon. Salary, £250 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Medical Officer in Charge of Out-patient Department. Salary, £250 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Redruth (Cornwall), Enniscorthy (Wexford).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BRUNYATE, T. T., M.D.Oxon., District and Workhouse Medical Officer of the Woodstock Union.

DOW, W. A., M.D.Durh., District Medical Officer and Medical Officer to the Children's Homes of the Lewes Union.

DUNN, Edwin Lindsay, M.B., B.Ch., Trinity College, Dublin, Medical Superintendent of the Berkshire Asylum, Wallingford.

FAHMY, N., M.R.C.S., L.R.C.P., Assistant Medical Officer to the St. Marylebone Parish Infirmary.

FISHER, H. R., M.B., B.C.Cantab., District and Workhouse Medical Officer of the Atherstone Union.

GRAHAM, W. G. J., L.R.C.P.and S.Edin., L.F.P.S.Glas., District Medical Officer of the Hambledon Union.

HOSEGOOD, S. P., M.R.C.S., L.R.C.P., District Medical Officer of the Builth Union.

PROCTER, J. A., L.S.A., Certifying Factory Surgeon for the Lydd District, co. Kent.

ST. THOMAS'S HOSPITAL.—The following appointments have been made:—Casualty Officers and Resident Anaesthetists: W. G. Woolrich, B.A.Cantab., M.R.C.S., L.R.C.P., A. H. Pearce, B.A. Cantab., M.R.C.S., L.R.C.P., L. B. Hartley, B.A.Cantab., M.R.C.S., L.R.C.P., P. G. S. Davis, M.R.C.S., L.R.C.P. Resident House-Physicians: W. T. Beswick, B.A.Cantab., M.R.C.S., L.R.C.P., A. Mavrogordato, M.A.Oxon., M.R.C.S., L.R.C.P., P. Anwyl Davies, M.R.C.S., L.R.C.P., L. G. Higgins, B.A.Cantab. Resident House-Surgeons: J. L. Gilks, F.R.C.S.Edin., M.R.C.S., L.R.C.P., H. C. Jennings, M.R.C.S., L.R.C.P., H. W. Leatham, B.A.Cantab., M.R.C.S., L.R.C.P., J. Rowland, M.R.C.S., L.R.C.P. House-Surgeon to Block 8: W. Marriott, M.R.C.S., L.R.C.P. Obstetric House-Physician: C. V. Pink, M.R.C.S., L.R.C.P.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

MARRIAGES.

CAMPBELL—DAVID.—On May 9th, quietly, at Charles Street Congregational Church, Cardiff, Frederick William Campbell, Captain R.A.M.C., youngest son of the late John Campbell and Mrs. Campbell, Ballywillan, Portrush, to Olive Elizabeth, third daughter of Mr. and Mrs. T. W. David, Ely Rise, Cardiff.

LAW—WALLIS.—On April 28th, at St. Barnabas Church, Dulwich, by the Rev. George Bell Doughty, Rector of St. Peter's-upon-Cornhill, uncle of the bride, assisted by the Rev. Howard Nixon, Vicar of the Parish, George Digby, son of Mr. and Mrs. W. G. Law, of Dulwich, to Mary Elizabeth Jessie, eldest daughter of Dr. and Mrs. Sidney Seymour Wallis, of Rotherhithe, late of Dulwich.

DEATH.

UNDERHILL.—On the 8th inst., at Dunedin, Barnt Green, T. Edgar Underhill, M.D., F.R.C.S.Edin., F.R.S.Edin., aged 62 years, son of the late William Lees Underhill, F.R.C.S., of Tipton, Staffordshire.

DIARY FOR THE WEEK.

ROYAL SOCIEY OF MEDICINE.—*Section of Odontology:* Monday, Royal College of Surgeons, Lincoln's Inn Fields, 5.30 p.m., Annual General Meeting. Exhibition of Specimens, etc. Professor Arthur Keith, F.R.S., and Mr. J. F. Colyer will demonstrate specimens recently added to the museum. *Section of Medicine:* Tuesday, 5.30 p.m., Annual General Meeting. *Section of Balneology and Climatology:* Thursday, 5.30 p.m., Annual General Meeting. Dinner at Pagani's Restaurant, Great Portland Street, W., 7.30 p.m. *Section of Study of Disease in Children:* Friday, 4.30 p.m., Annual General Meeting. Cases will be shown. *Section of Epidemiology and State Medicine:* Friday, 8.30 p.m., Annual General Meeting Miss Muriel Robertson: Recent Researches into the Etiology of Typhus.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		MAY.
19	Sat.	Scottish Committee, North British Station Hotel, Edinburgh, 2 30 p.m.
24	Thurs.	London: Insurance Acts Executive Subcommittee, 2 p.m.
		JUNE.
8	Fri.	East York Division, Annual Meeting, Hull Royal Infirmary, 8 15 p.m.
26	Tues.	Metropolitan Counties Branch, Annual Meeting, 429, Strand, W.C., 4 p.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MAY 26TH, 1917.

CONTENTS.

	PAGE
BRITISH MEDICAL ASSOCIATION:	
ELECTION OF COUNCIL, SESSION 1917-18	121
BRANCH AND DIVISION MEETINGS TO BE HELD	122
CURRENT NOTES: CENTRAL MEDICAL WAR COMMITTEE.— THE WORKING OF MEDICAL BENEFIT	122
GENERAL MEDICAL COUNCIL:	PAGE
PRESIDENT'S ADDRESS...	119
VACANCIES	122
BIRTHS, MARRIAGES, AND DEATHS	122
DIARY OF THE ASSOCIATION	122

GENERAL COUNCIL
OF
MEDICAL EDUCATION AND REGISTRATION.

SUMMER SESSION, 1917.

Tuesday, May 22nd, 1917.

Sir DONALD MACALISTER, K.C.B., President, in the Chair.

THE one hundred and fifth session of the General Council of Medical Education and Registration began at the offices of the Council, 44, Hallam Street, W., on Tuesday, May 22nd, 1917, at 2 p.m.

PRESIDENT'S ADDRESS.

Gentlemen,—Since our last session in November the Council has lost two members of note: Dr. James Little, the Crown member for Ireland, and Sir Henry Morris, our Junior Treasurer. Dr. Little died in December, after serving on the Council for over nineteen years, and winning the warm regard of all his colleagues by his shrewd practical wisdom, his unfailing consideration for others, and his kindly humour in debate. Sir Henry Morris retired in March after twelve years' service, during the greater part of which he had filled the office of Junior Treasurer with advantage to the Council. His firmness, his varied learning, and his faculty of forcible expression, combined with his experience in administration, made him an influential member of our body. We owe him much for his help on various important Committees, and in particular on that which supervised the erection and equipment of our new building. He carries into his retirement our good wishes and grateful remembrances.

As new members we welcome to our fellowship Dr. Edward Coey Bigger, medical member of the Local Government Board for Ireland, appointed by the Crown; and Mr. Colburt J. Waring, a member of the Council and Court of Examiners of the Royal College of Surgeons of England, appointed by the College. Each brings to the Council special knowledge and experience, by which we hope to profit.

Members will have noted with satisfaction that a knighthood has been conferred by His Majesty on Sir Archibald Bodkin, our eminent Counsel and Judicial Assessor, and will join with the Executive Committee in offering him congratulations on the merited honour. In your name I have also sent an expression of good wishes to Sir Thomas Myles, our former colleague, on his appointment by His Majesty to the Companionship of the Order of the Bath.

The Army and the Profession.

The conditions under which we are living have led Parliament to re-enact the measure of last year, providing for the postponement of certain elections. It is probable that the Privy Council will once more apply the Act to the elections of Direct Representatives on the Council, which would otherwise fall to be held in November next. Unhappily we cannot say that circumstances are likely to be then much more favourable than before for the conduct of a general election by the registered practitioners of the three divisions of the United Kingdom.

Medical practitioners and medical students continue to be called up for military service in large and increasing numbers. Of both, the numbers remaining for medical duty at home, and for the future recruitment of the profession, are so reduced as to cause some misgiving. The Professional Committees appointed under the Military Service Act in Great Britain, and the analogous Central Committee in Ireland, have done strenuous and successful work in supplying military requirements on the one hand, and in providing for the claims of civilian practice on the other. Their powers are limited; yet their energy and resource, and the general willingness of the profession to endure all things for the common cause, have helped them to overcome many obstacles. Difficulties, however, remain, which the existing organization may be unable to meet.

Proposals for "Mobilization" of the Profession.

The question whether the time has come for a more effective system of professional "mobilization," that is, for a temporary measure of general control, extending to all practitioners, and directing their distribution according to the nation's need for service, has been brought by several medical bodies before Mr. Neville Chamberlain, the Director-General of National Service. He invited me, as your President, to take the chair at a conference of representatives of the Professional Committees and of certain Government departments held on March 14th and 15th in London. Definite proposals on the subject of the better distribution of our resources were unanimously adopted, after full discussion, by the Conference. It is understood that these proposals are under consideration by the Government; but so far I have not learnt what action has been taken upon them. A similar conference took place at the same time with representatives of the British Dental Association. Mr. Tomes and I, at the request of the Director-General, were present. The conclusions arrived at have also been communicated to the Government; but again we are unaware of the result.

The Need for Co-ordination between Competing Authorities.

In the meantime, the Secretary of State for War, under pressure of a sudden emergency, has decided to apply the compulsory provisions of the Military Service Act to all medical men of military age in Great Britain. At first the application was made in a form that practically nullified the efforts of the Professional Committees to safeguard the civil population. On being made aware of this untoward result, Lord Derby modified the form of his requisition, and so restored to the Committees the opportunity of exercising their functions under the Act. I understand that now, with the support of the profession in general and of the authorities, these Committees are again busily occupied in finding a practical solution of the national problem; though the difficulties of the problem are not growing less. The sources of supply for service abroad and at home are, in fact, becoming severely straitened; and many branches of ordinary civil work must of necessity suffer curtailment. It is in my opinion doubtful whether, without fresh legislation, the present powers of the authorities concerned will suffice to cope with all the demands of the situation. The position of affairs, as apprehended by those who have most carefully

examined it, has been clearly placed before the National Service Department and the Government. With them, not with the profession, now lies the responsibility for the next step. The loyalty to national duty hitherto shown by medical practitioners as a body gives assurance that to the limit of their power they will respond to further calls should the needs of the country make further calls imperative. But to ensure the best results from their devotion, a closer co-ordination of competing authorities, and a more effective control of the actual distribution of medical services at home and abroad, are now much to be desired.

The Numbers of Medical Students.

At the request of the Director of Recruiting I have obtained, from the deans and registrars of medical schools in the United Kingdom, a return of the number of students actually pursuing medical study in January, 1917. The results have been communicated to your Emergency Committee and to the Government. [The detailed figures were given in the SUPPLEMENT of the BRITISH MEDICAL JOURNAL for March 3rd, 1917.] It appeared from the return that, while in May, 1916, the whole number of medical students was 6,103 (including 1,379 women), in January, 1917, the whole number was 6,682 (including 1,735 women). As might be expected, the increase was mainly in the first and second years. The fourth and final years, taken together, were stationary. The third year, which will supply the practitioners of 1919, numbered in January only 572 men and 261 women. Since February, however, a fresh call, extending to one group of medical students not classified as "fit for General Service," has reduced still further the numbers I have given. It is now clear that, certainly in the years 1918 and 1919, and probably in the present year 1917, there will be a serious falling off in the number of practitioners added to the *Register*. In the years 1920 and 1921, however, we may expect an increase in the number of registered practitioners, both men and women. The Director of Recruiting, in making his calls on the student youth of the nation, has had all these facts before him, and I have to acknowledge that he has given them the consideration we should expect from an officer who is himself familiar with the requirements of medical education.

Printing and Paper.

The restrictions imposed by the war have affected the Council in other ways also. The conditions of paper supply, and the troubles of printers and publishers in respect of labour, have delayed the issue of the *Minutes* and the official *Registers*. We have to thank the Stationery Office for the assistance it has afforded us in overcoming the difficulties as to paper. A new impression of the *British Pharmacopoeia*, 1914, will presently be required, the first impressions (numbering 30,000 copies) being nearly exhausted. The cost to the Council will be considerably augmented, but, in view of the national importance of the work, it will not be expedient to propose the raising of the selling price beyond that fixed by the Treasury in 1914.

Glycerine and Syrup.

The use of glycerine for munitions of war has imposed close restrictions on its employment in pharmacy. It may indeed become necessary to notify to practitioners and the public that prescriptions including the glycerine of the *Pharmacopoeia* cannot for the present be dispensed; and that pharmacists can no longer obtain a sufficient supply of glycerine even for the making of certain official preparations. Sugar also is not to be had without difficulty, and prescribers have been advised to avoid ordering the official syrups, etc., as vehicles or adjuvants. The Pharmacopoeia Committee is awaiting definite information on these matters from the Government departments immediately concerned. The Council may think it expedient to empower the Committee to act officially on its behalf in regard to the question, should the necessity arise.

Scheduling of Lead Plaster.

In pursuance of a resolution of the Council of the Pharmaceutical Society of Great Britain, the Privy Council has issued an Order which places in Part I of the Poisons Schedule of the Pharmacy Act, 1889, emplastrum plumbi and like preparations of lead, whether sold as diachylon or otherwise. This Order will have the effect of restricting the sale of this poison for internal use, an so of diminishing a serious public danger.

Legislation.

Two Government measures now before Parliament in clude provisions which have recently formed the subje of representations by the Council. The Venereal Disea Bill, 1917, prohibits under penalties any one not a registere medical practitioner from treating such diseases, and fro prescribing or advising remedies therefor. It moreov prohibits all persons from offering by public advertis ments or announcements to treat patients or to prescrib advise, or recommend medicines or preparations of an kind, in relation to venereal disease. The first prohibitio will apply to any area within which an approved schen for free treatment is in operation. The second will app to the whole kingdom. The Criminal Law Amendme Bill, 1917, extends the Indecent Advertisements Act non-professional announcements or advertisements, whic suggest the use of drugs or appliances for specified pu poses of an objectionable kind. The Council has lo desired such reforms, and will welcome these enactment designed for the better protection of the people again insidious practices which threaten public health an safety.

Practice of Dentistry.

In response to an invitation from the Lord President the Privy Council, to which I alluded in November, t Council has submitted to the Government a memorandu on the present state of the law respecting the practi of dentistry, both in this country and in the Briti Dominions. The Council has more than once record its opinion that the need for an amendment of our ow Dentists Act is urgent. Serious delay, even in the prese crisis, will only make more difficult the question of pr viding for the military and civil requirements of t nation. The already insufficient supply of qualifi dentists is suffering further reduction by the calls up them, not for professional but for combatant service wi the forces. The outlook, both for present and for futu national requirements, is not reassuring. We are credib informed that the revision of the dental curriculu which will again occupy your attention during th session, will not by itself avail to induce candidates f qualification to come forward in sufficient numbers. T Legislature must co-operate by revising the existing statu regulating dental practice, so as to assimilate it to tho which experience in other parts of the empire has prov to be necessary. The minutes of the Executive Committ contain numerous illustrations of the rapid progress dental legislation which is being made outside the Unit Kingdom. It is time that we at home should make step in advance also. I am not without hope that t Government may see fit to move in the matter at an ear date.

Dominion Legislation.

In the Union of South Africa a measure is now befo Parliament which is intended to have the effect of pr hibiting altogether the unqualified practice of medici and of dentistry throughout the Union. The measure comprehensive, and will supersede the existing provinci enactments. As a federal University of South Africa h been established, possessing the power of conferring medic degrees, we may expect before long a request for t application to the Union of Part II of the Medical A 1886. When reciprocity is thereby arranged with Sou Africa, another step, and that practically the last th remains, will have been taken towards the medical co federation of the empire. From Alberta and from Briti Columbia we learn that Acts of Parliament have be passed which make it possible for these provinces to fa into line with the rest of the Dominion of Canada regards reciprocity. It is understood that Alberta desi to proceed at once with the negotiations. In Briti Columbia we are told that local difficulties may arise. is to be hoped that the larger imperial interests at sta may prevail to overcome them. In the present emergen our medical brethren from the Dominions overseas, w under existing reciprocal arrangements are admissible equal professional status with those of the Unit Kingdom, have come to the help of the empire in lar numbers, and have rendered inestimable service to t Imperial Forces. The efforts the Council has made, ov many years, to set up complete medical reciprocity with

the British Dominions have thus been abundantly justified. Our allies, Italy, Japan, and Belgium, already stand in similar relations with this country; and it may be that the Council's next duty will be the endeavour to bring about some form of reciprocity with other allied and friendly nations, where the standards of medical education and qualification are not inferior to our own.

Medical Certificates.

In my last address I dwelt at some length on the manifest duty of practitioners as regards the giving of medical certificates. Some of the Government departments, you will remember, had the impression that laxity in the performance of this duty was prevalent in certain places, and desired that the Council should impress on all concerned the public detriment arising from careless certification. At your request my remarks on the subject were printed and circulated. A number of provisional complaints from the departments have since been sent for our consideration, and all have been carefully examined and submitted to the Penal Cases Committee. The result is so far gratifying. In nearly every instance it appeared from the explanations offered, or from evidence subsequently obtained by the authorities themselves, that a charge of culpable laxity or bad faith could not properly be brought against the practitioner concerned, and the complaints have accordingly been withdrawn. In one or two instances, of a somewhat different kind, a case for enquiry by the Council has been submitted, and these will be brought before you in due course.

The Warning Notices on certification, etc., issued by the Council, including that referring to the "covering" of uncertified women who are illegally practising midwifery, have through the good offices of the Local Government Boards in England and Scotland, been widely published throughout the country. Local and other authorities, as well as medical practitioners and midwives, have thus been made cognizant of the Council's purpose and jurisdiction in such matters, and the knowledge is likely to have a wholesome effect. A case or two, in which such "covering" is alleged, will call for your judicial investigation.

Science in Education.

The Government has appointed a Committee to inquire into the position of natural science in the educational system of Great Britain, especially in secondary schools and universities; and to advise what measures are needed to promote its study, regard being had to the requirements of a liberal education, to the advancement of pure science, and to the interests of trades, industries, and professions which particularly depend on applied science. The inquiry has an obvious bearing on your functions as a Council of Medical Education. The President and the Chairman of the Students' Registration Committee were accordingly asked to give evidence. We attended on March 13th, and furnished the Committee with full information on the Council's functions and activities, together with statistics and estimates, based on facts within the Council's knowledge, concerning the present and prospective supply of medical and dental students and practitioners, and the provision for their instruction in pure and applied science. The relations between the professional curriculum and secondary education, both general and scientific, were naturally discussed with the Committee. I explained that the Council had recently widened its regulations, so as to admit of the recognition, for purposes of registration, of "senior" preliminary examinations accepted for matriculation in the Faculties of Arts and Science; but that the content of the "junior" examinations, accepted from candidates for registration who had not completed a full course of secondary education of the "senior" standard, was still to be settled by the Council. This question may come up for further consideration on a report from the Education Committee. It is much to be wished that the result of the Government Committee's recommendations may be the establishment in England of a system of school leaving certificates, based on well co-ordinated plans for secondary education applicable to the whole country. The Council has repeatedly expressed its sense of the need for the introduction of such a system. Apart from its obvious national advantages, it would go far to free the Council from the task of appraising a multitude of preliminary examinations in school subjects, which the existing want of system has forced us to undertake in the interest of professional efficiency.

Finance.

The Finance Committee will be in a position to report that in 1916 the income of the several Councils exceeded their expenditure by over £1,000. The surplus is, however, much less than that for 1915, and somewhat less than the average for the preceding seven years. It is not to be expected that it will recover its former level for some years to come. Meanwhile all accrued charges for our new building have been defrayed from the accumulations of past years, and all available balances have been invested in War Loan Stocks.

Duration of Session.

Owing to the incidence of Whit Monday on May 28th it will be highly inconvenient for the Council to sit beyond Saturday of this week. But I foresee no difficulty in completing by that day all that we have to do at this session.

Association Notices.

ELECTION OF COUNCIL, SESSION 1917-18.

NOTICE is hereby given that the following have been duly elected members of the Council for the 1917–18 Session:

BRANCHES IN THE UNITED KINGDOM.

England.

North of England, North Lancashire, and South Westmorland Branches:
Bolam, Lieut.-Col. R. A., M.D., Newcastle-on-Tyne.

Yorkshire Branch:
Campbell, Henry Johnstone, M.D., F.R.C.P., Bradford.

Lancashire and Cheshire Branch:
Barr, Lieut.-Col. Sir James, M.D., F.R.C.P., LL.D., Liverpool.
Garstang, T. W. H., M.R.C.S., D.P.H., Altrincham.

East York and North Lincoln and Midland Branches:
Fulton, Adam, M.B., Nottingham.

Cambridge and Huntingdon, East Anglian, and South Midland Branches:
Wood, O. R. M., M.B., Woolpit, Suffolk.

Birmingham and Staffordshire Branches:
Nason, E. Noël, M.D., Nuneaton.

Metropolitan Counties Branch:
Biggs, M. G., M.D., 101, Northcote Road, Battersea, S.W.
Brackenbury, H. B., M.R.C.S., L.R.C.P., 21, Quernmore Road, Stroud Green, N.
Galloway, Col. James, A.M.S., M.D., F.R.C.P., 54, Harley Street, W.
Smith, F. J., M.D., F.R.C.P., 138, Harley Street, W.

Bath and Bristol, Gloucestershire, West Somerset, and Worcestershire and Herefordshire Branches:
Parker, Major George, M.D., Bristol.

Dorset and West Hants, South-Western, and Wiltshire Branches:
Coombe, Major Russell, F.R.C.S., Exeter.

Oxford and Reading and Southern Branches:
Green, James, M.R.C.S., L.R.C.P., Portsmouth.

Kent, Surrey, and Sussex Branches:
Wilson, Claude, M.D., Tunbridge Wells.

Scotland.

Aberdeen, Northern Counties, Dundee and Perth Branches:
Young, Major Charles Stewart, M.R.C.S., Dundee.

Edinburgh and Fife Branches:
Stevens, John, M.D., F.R.C.P.E., Edinburgh.

Glasgow and West of Scotland Branch (Four City Divisions):
Adams, John, M.B., Glasgow.

Glasgow and West of Scotland (Five County Divisions), Border Counties and Stirling Branches:
Loudon, Major Livingstone, M.D., Hamilton.

Ireland.

Connaught and South-Eastern of Ireland Branches:
Walshe, Denis, M.D., Graigue, co. Kilkenny.

Munster Branch:
Giusani, Joseph, M.D., Cork.

By Order of the Council,

GUY ELLISTON,
Financial Secretary and Business Manager.

May 26th, 1917.

BRANCH AND DIVISION MEETINGS TO BE HELD.

METROPOLITAN COUNTIES BRANCH: CITY DIVISION.—Dr. J. J. McNaboe, Honorary Secretary (465, Kingsland Road) gives notice that the annual general meeting will be held on May 31st, at 9.30 p.m., at the Library Room, 158, Church Street, Stoke Newington, N. Agenda: Election of officers, annual report of Executive Committee, special matters to Divisions, any other business.

SOUTHERN BRANCH.—Mr. James Green, Honorary Secretary, draws the attention of members of the Branch to Rule 5, which provides that any three members of the Branch may nominate any of the officers thereof by sending such nomination to him, in *writing*, before June 1st. Failing the receipt of this, the officers nominated by the Branch Council at the meeting on May 25th will be duly elected for the ensuing year. In the event of a contest, he will issue voting papers to the members, and these must be returned to him not less than three days before the annual meeting, the date of which will be announced in due course.

British Medical Association.

CURRENT NOTES.

CENTRAL MEDICAL WAR COMMITTEE.

On May 18th the Executive Subcommittee of the Central Medical War Committee received a deputation from the British Hospitals Association. The object of the deputation was to express the fear of those engaged in voluntary hospital administration that the emergency medical and surgical attendance upon the civilian population would in course of time become increasingly difficult to provide; in particular they wished to draw attention to recent action of the War Office, which resulted in the calling up of those members of the *à la suite* staffs of Territorial general hospitals who had undertaken the obligation of imperial service. Had this action of the War Office not been cancelled, as the result of strong local representations, certain hospitals would have been completely denuded of operating surgeons and specialists. The deputation also wished to raise the question of establishing central surgeries at hospitals, or other suitable places, where the public could always be certain of finding a medical practitioner available for emergency diagnosis and treatment. The Executive Subcommittee agreed that *à la suite* staffs should certainly not be called up without careful consideration beforehand of the effect which might be produced on medical services for the civil community, and that this consideration involved co-operation between the military and the civil sides. With regard to the establishment of central surgeries, it was pointed out that questions bearing on this matter had been addressed by the Central Medical War Committee to local committees, and that until the answers were received the possibility of general action on such lines could not be considered fully. The co-operation of the British Hospitals Association in all such matters was cordially welcomed.

THE WORKING OF MEDICAL BENEFIT.

In the SUPPLEMENT of May 12th, p. 111, appeared a summary of the report of the York Local Medical and Panel Committee on the working of medical benefit under the Insurance Act. We are asked to modify one sentence, which, although quoted almost verbally from the report, does not quite as it stands represent the views of the York Committee. The summary stated that the report, while recognizing that it contained some merits, did not recommend the scheme put forward by Dr. Williamson of Bristol. We understand that the York Committee, although it did not feel justified in recommending the Bristol scheme as the basis upon which the Act could be successfully worked, believes nevertheless that it contains the germ of what might be converted into a very excellent system if certain defects could be removed.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BETHNAL GREEN BOROUGH.—Lady Assistant Medical Officer of Health. Salary, £350 per annum.

BIRMINGHAM EDUCATION COMMITTEE.—Assistant School Medical Officer (temporary). Salary, £300 per annum.

BRISTOL GENERAL HOSPITAL.—Casualty House-Surgeon, Salary, £175 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £1 per annum.

CAPE TOWN: SOUTH AFRICAN COLLEGE.—Werner Beit Professorships of Pharmacology, Pathology, and Bacteriology. Salary, £800 per annum each, increasing to £1,000.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £175 per annum.

CHARING CROSS HOSPITAL, W.C.—Honorary Anaesthetist.

CHESTER ROYAL INFIRMARY.—Assistant House-Surgeon. Salary £150 per annum.

DURHAM COUNTY AND SUNDERLAND EYE INFIRMARY.—Junior House-Surgeon. Salary, £300 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium 30 guineas for six months.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH, 38, New Cavendish Street, W.—Bacteriologist.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary, £200.

LEICESTERSHIRE EDUCATION COMMITTEE.—Two temporary Assistant School Medical Officers. Salary, £300 per annum.

LIVERPOOL STANLEY HOSPITAL.—Resident Medical Officer.

MANCHESTER: ANCOATS HOSPITAL.—House-Physician. Salary £200 per annum.

MANCHESTER CITY.—First Assistant Medical Officer to the Baguley Sanatorium for Tuberculosis. Salary, £400 per annum.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—(1) Assistant Physician; (2) Assistant Surgeon; (3) House-Physician; (4) Obstetric Assistant; (5) Two House-Surgeons; (6) Resident Medical Officer for House of Recovery, New Barnet. Salary for (2), (4) and (5), £50 per annum, and for (6) £60.

NOTTS EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £350 per annum.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—Casualty Officer.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) House-Physician; (2) Casualty House-Surgeon; (3) House-Surgeon; (4) temporary Assistant Physicians. Salary for (1), (2) and (3), £100 per annum, and for (4) honorarium £25 per annum.

ST. BARTHOLOMEW'S HOSPITAL, E.C.—Chief Assistant for the Venereal Diseases Department. Salary, £500 per annum.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon. Salary, £200 per annum.

SHEFFIELD ROYAL HOSPITAL.—(1) Casualty Officer (2) Assistant House-Surgeon. Salary, £130 and £120 per annum respectively.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £1 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—House-Surgeon (female). Salary, £100 per annum.

STOCKPORT EDUCATION COMMITTEE.—School Medical Officer. Salary, £300 per annum, rising to £350.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (female). Salary, £200 per annum.

SWANSEA EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £300 per annum.

WORCESTERSHIRE: KING EDWARD VII MEMORIAL SANATORIUM, Knightwick.—Temporary Medical Superintendent and Tuberculosis Officer. Salary, £450 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Cavan (Cavan), Totnes (Devon).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

DEATHS.

BREW.—At his residence, Chew Magna, Bristol, on May 16th, 19 Richard Hugh Brew, L.R.C.P., L.R.C.S.Edin., aged 55.

LE PAGE.—At Millmount, Guernsey, on Sunday, May 13th, 19 Dr. Wm. Le Page, L.R.C.P., L.F.P.S., L.S.A., aged 75 years.

WHITWORTH.—On May 14th, at St. Agnes, Cornwall, Willi Whitworth, M.R.C.S.Eng., L.S.A., aged 63 years.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		MAY.
26	Sat.	Scottish Committee, North British Station Hotel, E burgh, 2 30 p.m.
31	Thurs.	City Division, Annual Meeting, 158, Church Street, S Newington, N., 9.30 p.m.
		Isle of Thanet Division, St. George's Parish H Ramsgate, 8 p.m.
		JUNE.
8	Fri.	East Yorks Division, Annual Meeting, Hull Royal Infirm 8.15 p.m.
20	Wed.	London: Finance Committee.
26	Tues.	Metropolitan Counties Branch, Annual Meeting, Strand, W.C., 4 p.m.
27	Wed.	London: Council Meeting.
28	Thur.	South-Eastern Counties Division, Edinburgh Bra Annual Meeting, Newtown St. Boswells, 3 p.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 2ND, 1917.

CONTENTS.

	PAGE
British Medical Association.	
ANNUAL REPRESENTATIVE MEETING: ADDITIONAL NOTICE OF MOTION	123
CURRENT NOTES: MINISTRY OF HEALTH.—RATIONING OF DOCTORS' HORSES	123
MEETINGS OF BRANCHES AND DIVISIONS	123
ASSOCIATION NOTICES	124
NAVAL AND MILITARY APPOINTMENTS	129
GENERAL MEDICAL COUNCIL: REPORTS OF COMMITTEES.—ELECTION OF COMMITTEES.—DISCIPLINARY CASES	125
INSURANCE:	
LOCAL MEDICAL AND PANEL COMMITTEES	127
INQUIRIES BY THE INSURANCE COMMISSIONERS	128
VACANCIES AND APPOINTMENTS	130
BIRTHS, MARRIAGES, AND DEATHS	130
DIARY	130

SPECIAL NOTICE TO MEMBERS.

Every member is requested to preserve this "Supplement," which contains matters specially referred to Divisions, until the subjects have been discussed by the Division to which he belongs.

BY ORDER.

Matters Referred to Divisions.

ANNUAL REPRESENTATIVE MEETING IN LONDON.

July 26th and following day(s).

ADDITIONAL NOTICE OF MOTION.

THE following Notice of Motion, additional to those already published in the SUPPLEMENT of May 5th (pages 71–2) has been received for consideration by the Annual Representative Meeting of the Association, to be held at London on Thursday, July 26th, 1917, and following day(s):

Medical Certificates in Respect of Munitions Workers.

Rider by Sheffield to Motion contained in item 25 of Provisional Agenda (SUPPLEMENT, May 5th, p. 72), in connexion with Annual Report of Council (page 91, paragraph 81):

> That when a Ministry of Munitions certificate is required, the form should be issued by the firm requiring it, and should bear their stamp and the date; and the fee charged by the doctor should be not less than 2s. 6d.

By Order,

ALFRED COX,
Medical Secretary.

May 23rd, 1917.

British Medical Association.

CURRENT NOTES.

MINISTRY OF HEALTH.

ON May 7th the Medical Secretary addressed a letter to the Secretaries of Divisions asking that the attention of Divisions should be specially drawn to the section of the Annual Report of Council dealing with the proposal for a Ministry of Health. A further letter has now been addressed to the Secretaries of Divisions and Branches drawing attention to the extreme importance of the subject as affecting the whole medical profession, and suggesting that an early meeting should be held to discuss this particular part of the Annual Report of Council, and that to this meeting all members of the profession, whether members of the Association or not, should be invited. The Chairman of Council is of opinion that this subject should receive early and adequate discussion, in order that Divisions and Branches may be in a position to put forward carefully considered motions for the agenda paper of the Annual Representative Meeting, and that Representatives in discussing this subject at the Representative Meeting may feel sure that they know what local opinion is. This portion of the annual report has been reprinted, and the Medical Secretary will send to Secretaries of Divisions and Branches as many copies of the reprint as may be required for circulation.

RATIONING OF DOCTORS' HORSES.

The attention of the British Medical Association has been drawn to the Horses Rationing Order, under which restrictions are placed upon the feeding of horses other than those within the classes specified in the first schedule. In view of the fact that a considerable number of medical practitioners in the exercise of their profession use horse vehicles, and that any restriction of the mobility of medical practitioners would be injurious to the community, the Association addressed a letter to the Food Controller and has received a reply stating that doctors' horses come within the second schedule, which allows 11 lb. of oats a day when at hard work, and 8 lb. when not in hard and continual work.

Meetings of Branches and Divisions.

DORSET AND WEST HANTS BRANCH:

BOURNEMOUTH DIVISION.

THE following officers were elected at the annual meeting of the Division held on May 9th:

Chairman: Dr. C. R. Willans.
Vice-Chairman: Dr. F. Forster.
Representative at Representative Meetings: Dr. W. Johnson Smyth.
Honorary Secretary and Treasurer: Dr. Eleanor C. Bond.
Representatives on the Branch Council: Drs. F. C. Bottomley, F. Forster, C. Edwards, E. K. Le Fleming, A. Mahomed, J. Milner, S. Montgomery, E. W. Ormerod, and F. Winson Ramsay, with the Representative and the Honorary Secretary *ex officio*.
Executive Committee: The Chairman, Vice-Chairman, Past-Chairman, the Representatives on the Branch Council, and Drs. W. Asten, W. Davidson, and A. D. Edwards.
Ethical Committee: Drs. Batterbury, Davidson, Fowler, Hyla Greves, Milner, Muspratt, and Ramsay, with the Chairman and Honorary Secretary of the Division *ex officio*.

LANCASHIRE AND CHESHIRE BRANCH:

ROCHDALE DIVISION.

THE annual meeting of the Division was held on April 26th, when Dr. GEDDES was in the chair.

Annual Report and Financial Statement.—The annual report was adopted. The report showed that the membership on December 31st, 1916, remained the same as at the

end of 1915. Two meetings of the Division had been held with an average attendance 5.50, and one meeting of the Executive Committee, when the average attendance was 5. The financial statement showed a small balance in hand.

Election of Officers.—On the motion of Dr. HITCHON, seconded by Dr. CARSE, the officers and Executive Committee were re-elected.

National Insurance.—It was agreed, on the motion of Dr. HITCHON, seconded by Dr. CARSE, that the future policy of the British Medical Association as regards National Health Insurance should be considered at a meeting of the Division on May 29th.

METROPOLITAN COUNTIES BRANCH:

NORTH MIDDLESEX DIVISION.

A MEETING of the above Division was held on May 16th.

Ministry of Health.—The following resolutions were adopted:

1. That this Divisional meeting express approval of the Resolutions 1 to 23 in Recommendation G in the annual report with regard to the organization of the Ministry of Health both centrally and locally.
2. That this meeting is of opinion that, should there be difficulty in securing the organization of the Ministry of Health in the form of a board, this need not be insisted upon by the Association as of vital importance, but that, in that event, it is desirable that the Minister of Health should have a statutory consultative council consisting of representatives of such other Government departments as are dealing with matters associated with the work of the new Ministry (for example, Local Government Board, Board of Education, Home Office, etc.), of the universities, the General Medical Council, the British Medical Association, the Society of Medical Officers of Health, the Society of Civil Engineers, the Institute of Chemistry, and similar bodies in numbers proportional to the importance of their work in connexion with public health; and that this consultative council should have the right, whenever it thought desirable, to present its views, not only to the Minister of Health, but also to Parliament.

Representative on Central Council.—Dr. H. B. Brackenbury was unanimously nominated as Representative of the Branch on the Central Council of the Association.

SOUTH-EASTERN OF IRELAND BRANCH.

THE annual meeting of the South-Eastern of Ireland Branch was held at Kilkenny on May 2nd, when Dr. T. LAFFAN was in the chair. There were also present: Drs. D. Walshe, P. Murphy, C. James, M. Mitchell, J. Mitchell, and P. Grace. Letters of apology for non-attendance were received from Dr. Jellett and Dr. Mackesy. Dr. M. Mitchell was installed in the chair for the year 1917–18, and a vote of thanks was passed to Dr. A. B. Stephenson, the out-going chairman. The usual committees and officers were elected.

The Legal Right of Poor Law Medical Officers to Act as County Councillors.—It was proposed by Dr. LAFFAN, seconded by Dr. WALSHE, and passed unanimously:

> That all possible steps be taken to vindicate the rights of the Poor Law medical profession to act as county councillors, and that the matter be referred to the Council of the Association with a request that they will do all they possibly can to reinstate the hundreds of medical men, who in Ireland have been deprived of their statutory rights by the action of the Local Government Board, while the like Board in England, administering an identical statute, have never raised any objection to the Poor Law medical men in England occupying the position of county councillors there.

Milk Supply.—It was proposed by Dr. LAFFAN, seconded by Dr. MITCHELL, and passed unanimously:

> That in our opinion the grave injury to the public health occasioned by the present defective milk supply in Ireland demands a more active intervention on the part of the Irish medical profession than has as yet been given to it.

Tuberculosis Prevention Act.—It was unanimously resolved:

> That the county councils and district councils be earnestly requested to put in operation the clauses of the Tuberculosis Prevention Act relating to the examination of milk at milk shops and creameries, and to the examination and destruction of cattle suffering from tuberculosis.

Vote of Sympathy.—The Secretary was directed to forward a vote of sympathy to the relatives of the late Dr. O'Connell, Fethard, co. Tipperary.

YORKSHIRE BRANCH:

SHEFFIELD DIVISION.

THE following officers have been elected:

Chairman: Dr. O. H. Hudson.
Vice-Chairman: Dr. Mylan.
Honorary Secretary: Dr. Sophia Witts.
Representatives for Sheffield and Rotherham on Representative Body: Drs. Forrest and Lodge.
Representatives on Branch Council: Drs. Forbes, Sinclair, White, Garrick, Wilson, Dawes.
Executive Committee: Drs. Furey, Caiger, Hogan, H. Brown, Johnston, Harrison, France, S. Barber, McKenna, P. Bennett, Innes Smith, G. Mathieson, Hardy, Longbottom, A. E. Barnes, King, Herbert, Hallam, Gordon, Paterson, Helm, Wiseman, Nutt, Kilham, Sime, Kemp, Thompson.

Association Notices.

INCREASED LENDING LIBRARY FACILITIES FOR MEMBERS.

THE Council has made arrangements whereby books relating to all branches of medical literature and general science can now be obtained on loan by members of the Association free of charge (other than any postage) from the Lending Department of the Library of the Association, 429, Strand, London, W.C. 2. The new facilities include, besides works on medicine, surgery, anatomy, physiology, bacteriology, dentistry, hygiene, obstetrics, and the other branches of medical and surgical science, the subjects of astronomy, biology, botany, chemistry, electricity, engineering, geology, microscopy, mining, physics, philosophy, sociology, technology, voyages and travels, zoology, etc. All such books issued will be latest editions, new books and new editions becoming available immediately upon publication.

The new facilities are additional to those which were already available for loan to members, of medical journals and periodicals, scientific reports of hospitals and laboratories, transactions of societies and congresses, and reports issued by States and municipalities, including those of commissions and committees appointed by States, municipalities, and legislative bodies.

The rules in respect of the new facilities will be similar to the previous rules. Copies of the rules, and all other information, may be obtained on application to the Librarian, British Medical Association, 429, Strand, London, W.C.2.

GRANTS IN AID OF SCIENTIFIC RESEARCH.

THE Council of the British Medical Association is prepared to receive applications for grants in aid of Scientific Research into the Causation, Treatment, or Prevention of Disease. Preference will be given to medical practitioners and to applicants who propose to investigate problems directly related to practical medicine.

Applications for grants must be received not later than June 16th, 1917, and must be made on the prescribed form, which, together with the regulations governing the suggested grants, can be obtained on application to the Medical Secretary of the Association, 429, Strand, London, W.C. 2.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EAST YORKS AND NORTH LINCOLN BRANCH: EAST YORKSHIRE DIVISION.—Mr. H. L. Evans, Honorary Secretary (101, Prince's Avenue, Hull), gives notice that the annual meeting of the East Yorkshire Division will be held in the board room of the Hull Royal Infirmary on Friday, June 8th, at 8.15 p.m. Business: Minutes, financial statement, election of officers, discussion on existing agreement between absentee and deputy.

EDINBURGH BRANCH: SOUTH-EASTERN COUNTIES DIVISION.—Dr. M. J. Oliver, Honorary Secretary (St. Boswells), gives notice that the annual meeting of the Division will be held on Thursday, June 28th, in the Railway Hotel, Newtown St. Boswells, at 3 p.m. Business: Election of officers, instructions to Representative at Annual Representative Meeting, report of War Committee and reappointment of Committee if considered desirable, any other competent business.

LEINSTER BRANCH AND DUBLIN AND LEINSTER DIVISIONS.—The annual meetings of the Leinster Branch and of the Dublin and Leinster Divisions will be held at the Irish Offices, British Medical Association, 16, South Frederick Street, Dublin, on Tuesday, June 19th, at 4.30 p.m., 5.30 p.m., and 6 p.m. respectively. The business in each instance will consist of the reception of the financial statement and the election of officers. The question of the physical welfare of mothers and children will also be discussed at the meeting of the Branch.

METROPOLITAN COUNTIES BRANCH.—Mr. N. Bishop Harman and Dr. Wilfred Kingdon, R.A.M.C. (Honorary Secretaries), give notice that the annual general meeting of the Branch will be held at 429, Strand, W.C., on Tuesday, June 26th, at 4 p.m. The business will be: (1) Report of scrutineers as to the election of new officers. (2) The annual reports of council and of representatives of the Branch on the Central Council. (3) President's address (Dr. C. O. Hawthorne): "The Clinical Organization of the Profession." *N.B.*—The Branch Council on April 17th, 1917, resolved that under Rule 19 there was no obligation to send copies of the annual financial statement and annual report of the council to all members of the Branch, and agreed that the custom be discontinued during the war, and that only a sufficient number of these reports, etc., should be printed for circulation at the annual general meeting of the Branch. Copies of the reports referred to can be obtained from the Branch Secretaries or seen in the Library.

METROPOLITAN COUNTIES BRANCH: MARYLEBONE DIVISION.—Mr. C. Edward Wallis, Honorary Secretary (13, Queen Anne Street, W. 1), gives notice that the annual general meeting of the Division will be held at 108, Harley Street, W., on June 4th at 8.45 p.m. to receive annual report of the Executive Committee, to elect officers, to instruct Representatives, and also to receive report of Executive Committee's action with reference to nominations to the Central and Branch Councils.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.—Dr. L. Freeman Marks, Honorary Secretary (Brynheulog, Mumbles, Glamorgan), gives notice that the annual meeting of the Branch will be held at the Cardiff Infirmary on Thursday, June 14th, at 3 p.m.

GENERAL COUNCIL
OF
MEDICAL EDUCATION AND REGISTRATION.

SUMMER SESSION, 1917.

Sir DONALD MACALISTER, K.C.B., President, in the Chair.

COMMITTEES.

Public Health Committee.

SIR JOHN MOORE moved, and it was resolved, that the report of the Public Health Committee, on a new statistical table for the ten years 1905–14, giving the figures for the first and second examinations for the qualifications in public health, be received, entered on the minutes, and approved.

Students' Registration Committee.

Dr. NORMAN MOORE moved, Dr. NORMAN WALKER seconded, and it was resolved:

That the report on exceptional cases and the approval of teaching institutions of the Students' Registration Committee be received, entered on the minutes, and approved.

Pharmacopoeia Committee.

Dr. NORMAN MOORE moved, Dr. NORMAN WALKER seconded, and it was resolved:

That the report of the Pharmacopoeia Committee be received, entered on the minutes, and adopted.

The number of copies of the *British Pharmacopoeia* 1914 sold between November 26th, 1916, and May 19th, 1917, was 1,099. The total number sold since May 20th, 1916, is thus about 28,134 copies. The Committee recommend that a third issue of 5,000 copies be ordered from the printers.

The Committee have had before them communications from a Committee appointed by the Home Secretary to consider questions relating to economies in the use of drugs which, owing to the war, have become limited in supply, in particular to official preparations containing glycerine and refined sugar.

Examination Committee.

The Council received the draft report of the Examination Committee on various matters relating to the Apothecaries' Hall of Ireland, and adopted the following recommendations on this subject:

1. That the Apothecaries' Hall be requested to continue to furnish the tables of exemptions from, and results of, examinations as heretofore, giving particulars of marks, and when the candidate had been previously examined by the Hall, and had passed some portion of the examination, the date of such examination.
2. That the report of Dr. William Taylor on the examinations held in December, 1916, be forwarded to the Apothecaries' Hall of Ireland for their information, with the request that they will favour the General Medical Council with any remarks they may desire to make, in time for the meeting of the Council in November, 1917; and that the attention of the Hall be called to the desirability of not holding examinations in different subjects simultaneously.

Dr. MAGENNIS expressed the hope that the exceptional inspections, which he looked upon as persecutions, would not be continued for long.

Finance Committee.

On the motion of the Senior Treasurer (Mr. TOMES), seconded by Mr. HODSDON, the report of the Finance Committee on income and expenditure for the year 1916 was received and entered on the minutes.

The report showed that the income of the General and Branch Councils for the year 1916 was £7,992 6s. The expenditure during the year was £6,977 11s. 11d., leaving a surplus of £1,014 14s. 1d. The assets of the three Branch Councils showed a total decrease of just over £10,000 due to the contributions to the cost of the new premises. The new site and premises stand as an asset of £18,553 to the General Council.

Education Committee.

Dr. MACKAY wished to explain the absence of a report. The Council agreed at the session of November, 1916, to certain changes in the preliminary examinations, especially with regard to Latin as affecting the senior examinations qualifying for the universities. Suggestions with regard to the junior examinations were remitted to the Education Committee for further consideration. The particular question remitted referred to the value of science in a junior school as a substitute for the training provided by Latin. The Education Committee was fully prepared to report to the Council on the subject, but the Government having appointed a Committee to deal with the whole question of science teaching in secondary schools, it was thought better to await the report of the Government Committee.

Manitoba.

It was announced that Part II of the Medical Act, 1886, had been extended on May 23rd, 1916, to the province of Manitoba. From that date any person who holds the licence (or membership) of the College of Physicians and Surgeons of Manitoba, together with the licence to practise in the province, will be eligible to be registered in the Colonial List of the British *Medical Register*.

Dental Education and Examination Committee.

The Council having sat *in camera*, the PRESIDENT moved and it was resolved:

That the report of the Dental Education and Examination Committee be received and entered on the minutes.

The consideration of the report of the Dental Education and Examination Committee was deferred to the next session of Council.

ELECTION OF COMMITTEES.

The following committees were elected:

Executive Committee: Dr. Norman Moore, Dr. Taylor, Mr. Tomes, Dr. Langley Browne, Mr. Hodsdon, Dr. Norman Walker, Sir John Moore, and Sir Arthur Chance.

Penal Cases Committee: Mr. Tomes, Sir Francis Champneys, Dr. Norman Walker, and Sir Bertram Windle.

Examination Committee: Dr. Taylor, Dr. Elliot Smith, Dr. Caton (English Branch Council), Dr. Russell, Dr. Cash, Dr. Norman Walker (Scottish Branch Council), Sir John Moore, Sir Arthur Chance, Dr. Kidd (Irish Branch Council).

Education Committee: Sir John Moore, Sir George Philipson, Sir Francis Champneys (English Branch Council), Dr. Mackay, Mr. Hodsdon, Dr. Knox (Scottish Branch Council), Sir Arthur Chance, Sir Bertram Windle, Dr. Dixon (Irish Branch Council).

Public Health Committee: Sir Arthur Newsholme, Dr. Latimer, Mr. Verrall (English Branch Council), Dr. Littlejohn, Dr. Cash, Dr. McVail (Scottish Branch Council), Sir John Moore, Dr. Magennis, Dr. Coey Bigger (Irish Branch Council).

Dr. F. Taylor was appointed Junior Treasurer in the place of Sir Henry Morris. Lieutenant-Colonel Norman C. King, C.B., was reappointed Registrar for the ensuing year.

DISCIPLINARY CASES.

Sir A. Bodkin was present as Legal Assessor and Mr. Harper as Solicitor to the Council.

Charges of Covering Uncertified Midwives.

The Council considered on May 23rd the case of Thomas Dixon Cook, of Glendon, Torquay, M.B., C.M.Glas., on the

charge of assisting a midwife whose name had been removed from the roll of midwives, and two other uncertified women, to attend women in childbirth, in contravention of the Midwives Act. The case was before the Council in November last, when judgement was postponed to the present session (SUPPLEMENT, December 9th, 1916, p. 160).

Dr. Cook appeared in person, and Mr. Bertram, solicitor, appeared for the Central Midwives Board.

Dr. COOK submitted testimonials as to his conduct and character from fellow practitioners. Strangers and parties by direction of the Chair withdrew. On readmission, the PRESIDENT announced the judgement of the Council as follows:

Mr. Thomas Dixon Cook, the Council having carefully considered your assurances as to your future conduct, and the evidence of your professional brethren as to your conduct in the interval, has not seen fit to direct the Acting Registrar to erase your name from the *Medical Register*.

The Council on May 23rd considered the case of Edward White, registered as of 2, Green Park, Bath, L.S.A.Lond. 1893, M.R.C.S.Eng. 1900, L.R.C.P.Lond. 1900, who had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner you by your assistance knowingly enabled Mrs. Elizabeth Webb, whose name had been removed by the Central Midwives Board from the roll of midwives, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction, thereby enabling the said Mrs. Elizabeth Webb, in contravention of the Midwives Act, 1902, to practise as if she were certified thereunder.

And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Dr. White appeared in person.

Mr. Bertram appeared on behalf of the Central Midwives Board, who were the complainants.

The Central Midwives Board submitted, through Mr. BERTRAM, that, unless the Council decided Dr. White's conduct was of an undesirable kind, the door would be opened to a form of practice by medical practitioners and uncertified women which would render the administration of the Midwives Act exceedingly difficult in future. In cases of confinement there should be a direct engagement by the woman, or on her behalf, of the doctor's services; the services rendered should be medical services of a definite kind, importing the use of professional skill; and the doctor should look to the patient for payment of the fee and not to an uncertified woman. Mr. Bertram then stated the facts of the charge and called evidence in support.

Dr. WHITE, in the course of his explanation, said he had no intention or desire in what he did to contravene in any way the regulations of the General Medical Council, and if he had unwittingly done so he apologized and would be glad to receive advice for his guidance in the future. He fully recognized the importance of the provisions of the Midwives Act and was anxious to assist in achieving the object with which it was passed.

The public and parties were directed to withdraw. On readmission, the PRESIDENT announced the Council's decision as follows:

Mr. White, the Council has come to the conclusion that the facts alleged against you in the notice have been proved.

These facts are that you by your assistance knowingly enabled Mrs. Elizabeth Webb, whose name had been removed by the Central Midwives Board from the roll of midwives, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction, thereby enabling the said Mrs. Elizabeth Webb, in contravention of the Midwives Act, 1902, to practise as if she were certified thereunder. You so enabled her by notifying births, on her behalf, in cases attended by her, and by signing maternity benefit certificates which she was not qualified to sign.

The Council, in the public interest, takes a very grave view of the danger which arises from a medical practitioner who lends his name for such a purpose and "covers" the practice of unqualified persons, under whatever pretext they practise midwifery, and whatever may be his personal opinion as to their skill and capacity to attend women in labour. In order, however, to give you an opportunity of reconsidering your whole position in relation to this matter, the Council has postponed judgement in your case till the next session in November. Before that date you will be required to send to the Registrar of the Council the names of some of your professional brethren who may be willing upon written application from the Registrar to testify by letter, addressed to him for the use of the Council, as to your character and conduct in the interval. You will receive in due course a formal written intimation of what I have just announced to you, and the intimation will specify the dates to which I have referred.

Vaccination Certificates.

The Council considered, on May 23rd, the case of Henri Saturnin Hartley, registered as of 8, Sackville Street, Port of Spain, Trinidad, M.D. U.Laval, 1906, who had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner:

(1) You did on Monday, the 26th day of October, 1914, at Prince Street, in the town of Port of Spain, Trinidad, issue two separate certificates of having successfully vaccinated Pedro Lares and Felipe Alcantara on the same day, meaning thereby either that you had yourself successfully vaccinated the said Pedro Lares and Felipe Alcantara, or that you had examined them and found them to have been successfully vaccinated, whereas in truth and in fact you never saw, examined, or vaccinated such persons on the said day or at any other time, the said names being those of fictitious persons given to you by Pedro Lopez upon whose request you issued the above-mentioned certificates without having seen, examined, or vaccinated the said Pedro Lares or Felipe Alcantara or any other person whatsoever, and in payment for which certificates you received from the said Pedro Lopez the sum of four shillings; and

(2) You at the same time and place did return to the said Pedro Lopez from the amount of four shillings paid to you by him the sum of one shilling by way of commission for having procured you to give such certificates,

And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Mr. HARPER, in the absence of a complainant, stated that the charge was preferred as the result of a communication to the Council by the Medical Board of Trinidad. In Venezuela no immigrant could land without first producing a certificate of vaccination. It came to the knowledge of the authorities at Trinidad that a traffic existed in false vaccination certificates. With the view of discovering their source in October, 1914, one Pedro Lopez was given a slip of paper bearing fictitious names and 4s., and told to procure two certificates of vaccination in those names. Lopez went as directed, and returned with the two certificates signed by Dr. Hartley, who gave him a shilling by way of commission. The facts were laid before the Medical Board of Trinidad, which held an inquiry, and directed Dr. Hartley's name to be erased from the *Medical Register* of Trinidad. Notification of this decision was sent to the General Medical Council, together with the documents and statutory declarations on which the present charge was based.

The Council resumed the consideration of the case on May 24th.

Dr. H. S. HARTLEY denied the allegations made against him in the charge. Mr. J. H. WATTS, who represented him, contended that the charge was the result of a trap laid by the Secretary of the Medical Board of Trinidad. The charge laid before the Board was supported by the evidence of the men employed, who were in the position of informers. Therefore their testimony, he submitted, was such that the Council would hesitate to find Dr. Hartley guilty of infamous conduct in a professional respect.

Strangers and parties were directed to withdraw. On readmission, the PRESIDENT announced the judgement of the Council as follows:

Dr. Hartley, I have to announce to you that the facts alleged against you in the notice of inquiry have not been proved to the satisfaction of the Council, and that the case against you has been accordingly dismissed.

Certificates for Military Purposes.

On May 24th the Council considered the case of Andrew Robertson Dow, registered as of Silverhowe, College Park, N.W., M.B., Ch.B.Glasg. 1902, who had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner you were at the General Session of the Central Criminal Court beginning on the 6th day of February, 1917, convicted of conspiring with other persons to defeat the provisions of the Military Service Acts, 1916, and were sentenced to nine months' imprisonment in the second division.

Mr. Ernest Wilde, K.C., and Mr. Cyril Cooper appeared on behalf of Dr. Dow.

Mr. HARPER put in the certificate of conviction. The part Dr. Dow took in the proceedings was that of giving certificates to three men who were seeking either total or partial exemption. In each case the certificate stated untruly that he had been treating the man for a long time.

Mr. WILDE said that the case arose out of what was known as the "White City Scandal." Of the persons convicted Dr. Dow, it was admitted, took a minor part, and was the only one recommended to mercy by the jury who tried the case, which recommendation was endorsed by the learned judge. Mr. Wilde asked the Council to adopt a similar course. Dr. Dow's statements on the certificates that he had attended the men for some time were admittedly untrue, but the diagnosis in each case was correct. In the light of the trifling remuneration received, Mr. Wilde submitted that Dr. Dow had been sufficiently punished for his wrongdoing.

Strangers and the parties were directed to withdraw. On readmission, the PRESIDENT announced the judgement of the Council as follows:

Mr. Andrew Robertson Dow, I have to inform you that the Council have found it proved that you have been convicted of the misdemeanour alleged against you in the notice of inquiry and have directed the Registrar to erase your name from the *Medical Register*.

Other Disciplinary Cases.

The Council then considered, on May 25th, the case of Gerard Andreas Herklots, registered as of 86, York Road, Southend-on-Sea, M.R.C.S.Eng. 1899, L.R.C.P.Lond. 1899, who had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner, while acting as locumtenent for Alexander Story St. John (M.R.C.S.Eng., L.R.C.P.Lond.) on December 14th and 15th, 1916, and attending his patients, you were drunk and thus incapacitated from properly carrying out your professional duties towards them.

And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Dr. HUGH WOODS, who appeared for the complainants (the London and Counties Medical Protection Society), said the question was purely one of fact, and if the evidence he adduced was accepted he would submit the allegation contained in the charge was established.

Dr. HERKLOTS was called and gave a categorical denial to all the charges.

Dr. HERBERT SMITH addressed the Council on his behalf, and contended that most of the witnesses were admittedly prejudiced; and in the conflict of testimony he had no hesitation in asking the Council to accept that of Dr. Herklots.

Dr. HUGH WOODS having replied,

Strangers and the parties were directed to withdraw. On readmission, the PRESIDENT announced the judgement of the Council as follows:

Mr. Herklots, I have to announce to you that the Council have found that the facts alleged against you in the notice of inquiry have not been proved to their satisfaction, and the complaint is accordingly dismissed.

The Council on May 25th considered the case of Alfred Banks, registered as of 3, St. Luke's Road, Clapham, S.W., M. 1891, F. 1893, R.C.S.Eng., L.R.C.P.Lond. 1891, who had been summoned to appear before the Council on the charge:

That, being a registered medical practitioner, you abused your position by committing adultery with a patient—namely, Mrs. Annie Mary Claudine Langton, a married woman, whom you had been and were attending professionally.

And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Mr. Holman Gregory, K.C., and Mr. Stuart Bevan appeared for the complainant, Mr. Walter John Langton; Mr. Hemmerde, K.C., and Mr. Le Bas appeared for Dr. Banks.

The Council resumed the consideration of the case on May 26th. After evidence had been called, and counsel had addressed the Council, strangers and parties withdrew. On readmission, the PRESIDENT said:

I have to announce that the facts alleged against Mr. Alfred Banks in the notice of inquiry have been proved to the satisfaction of the Council, and the Council have adjudged Mr. Alfred Banks to have been guilty of infamous conduct in a professional respect, and have directed the Registrar to erase the name from the *Medical Register* of Mr. Alfred Banks.

Dental Cases.

The Council considered, on May 25th, a charge against George Horatio Jones, registered in the *Dentists' Register* as "in practice on July 22nd, 1878," with the address Great Russell Mansions, Bloomsbury, London, W.C., in regard to whom the Dental Committee had furnished a report on the facts ascertained at an inquiry held on May 21st, 1917. The complainants were the British Dental Association, represented by Mr. R. W. Turner, counsel.

Mr. G. A. SCOTT, with the permission of the Council, addressed some observations in explanation of the facts found by the report, and expressed Mr. Jones's unqualified regret if anything he had done contravened the Council's regulations and gave an undertaking to at once cease all advertisements over which he had control.

Strangers and the parties were directed to withdraw. On readmission, the PRESIDENT announced the judgement of the Council as follows:

Mr. George Horatio Jones, I have to announce to you and to the public that in the facts found in the report of the Dental Committee it has been proved that you have been guilty of infamous and disgraceful conduct in a professional respect, and that the Registrar has been directed to erase your name from the *Dentists' Register*.

The Council considered, on May 26th, a charge against James John Gordon Webster Clarke, registered on December 24th, 1878, as "in practice on July 22nd, 1878," in regard to whom the Dental Committee found that on April 13th, 1917, he was convicted at the Lambeth Police Court, being the occupier of 18, Waterloo Road, of knowingly permitting the said premises to be used as a brothel; and was fined £20 or in default of payment sentenced to two months' imprisonment. The accused practitioner, who was defended at the Police Court by a solicitor, denied the charge, and alleged that the premises were a boarding-house merely.

Mr. Clarke did not appear.

The REGISTRAR having read the report of the Dental Committee, strangers were directed to withdraw. On readmission, the PRESIDENT said:

I have to announce that James John Gordon Webster Clarke, having been proved to have been guilty of the misdemeanour alleged against him in the notice of inquiry, the Council has directed the Registrar to erase from the *Dentists' Register* the name of James John Gordon Webster Clarke.

Vote of Thanks.

On the motion of Dr. NORMAN MOORE, the best thanks of the Council were given to the President for his able services in the chair during the present session.

Mr. THOMSON gave notice that at the next session of the Council he would move that steps be taken to secure direct representation on the Council of registered dentists, which Mr. Tomes would second.

The proceedings then terminated.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

MIDDLESEX.

AT a meeting of the Panel Committee on May 10th it was decided to approve of the action of the Joint Committee of representatives of the Insurance and Panel Committees in opposing the calling up of fourteen doctors in Middlesex for military duty.

A tribute was paid to the memory of Drs. G. L. Atkinson (Hampton), Harris (Chiswick), and G. R. Plaister (Tottenham), who had died on active service. Notices of the deaths of these officers appeared in the BRITISH MEDICAL JOURNAL of April 7th, May 12th, and May 5th respectively.

COUNTY OF SURREY.

AT a meeting of the Panel Committee on March 16th it was decided to protest to the County Committee against the onus of making inquiries as to a patient's insured state being placed upon the practitioner, and to ask that all new index slips bear the date on which the insured person is placed on the practitioner's list. It was decided to inform the practitioners in the county that if they have a doubt as to persons being insured they may treat them as private patients pending the production of proof, but will have to refund any money paid for advice to the insured person on

his being placed on the practitioner's list from the beginning of the period of treatment. In that case the insured person will have to recover from the County Committee the portion of the fee paid for medicines or appliances.

The circular issued by the York Local Medical and Panel Committee, dated January, 1917, was considered, together with the reply thereto from the British Medical Association, dated February 16th, and it was resolved to take no action along the lines suggested by the York Committee, as the Surrey Committee is in sympathy with the reply issued by the British Medical Association.

It was decided to inform the London Panel Committee that the Surrey Panel Committee agreed on the weakness of the Advisory Committee, and the desirability of having a new Committee recognized which is more representative of the panel service, but to point out that it would be better to strengthen the hands of the Insurance Acts Committee of the British Medical Association, and have it recognized as the Statutory Advisory Committee than to set up any other bodies.

It was agreed that residents in convalescent homes should be treated on the same basis as those in cottage hospitals, and that the Committee should have the right not only to scrutinize the accounts for attendance on temporary residents, but to call upon practitioners to justify them; and that the Insurance Commissioners should publish a full account of the temporary residents fund every year.

County of Forfar.

At a meeting of the Local Medical Committee on April 4th a draft scheme, submitted by the M.O.H. for Forfar, for the diagnosis and treatment of venereal diseases was considered and approved with certain amendments. The memorandum (M.21) by the British Medical Association in reference to the circular of the York Local Medical and Panel Committees on the organization of the medical profession was considered, and agreement was expressed with the recommendations of the British Medical Association. It was decided to inform the British Medical Association that the existing mileage scheme is not satisfactory to the profession of the area. The Committee expressed the opinion

(*a*) that in rural practices mileage should count from the practitioner's house or from the practitioner nearest to the patient's residence; (*b*) that in urban practices mileage should count from the burgh boundary, and that the mileage rate for walking one mile or part of a mile on roads unsuitable for vehicles should be 2s. 6d.

It was resolved to reaffirm the previous decision of the Committee that no practitioner should act as a medical referee for a fee of less than 10s. 6d. per report and a charge of 1s. 6d. per mile for travelling.

Hamilton.

A meeting of the Local Medical and Panel Committees for the Burgh of Hamilton was held on May 10th, when Dr. R. T. C. Robertson was in the chair. The Clerk explained that the meeting had been called in respect of four doctors of military age who had been called up for service with H.M. Forces. After full discussion of the whole question of the needs of the district as regards medical service the meeting unanimously agreed to the following resolution:

> That this meeting of the medical profession of the Burgh of Hamilton and responsible for the treatment of the population of the Parish of Hamilton in the County of Lanark regard, with the gravest anxiety and concern, the calling up for military service of four doctors from this area, and regret that no opportunity has been afforded to the Local Medical and Panel Committees best acquainted with the district and its requirements, of laying the position before the Emergency Committee, and maintains that, had such an opportunity been given, the Emergency Committee, with the whole facts before them, would not have desired, in the national interests, that such a general call upon doctors should have been made from this area at the present time.
>
> That it will be quite impossible to afford even a reasonable service if the four doctors called up are taken for military service. The district has already given 41 per cent. of its medical service to the forces, and this fact has added considerably to the duties of those doctors who remain.
>
> That if the four doctors are taken the remaining doctors state most emphatically, on most practical and reasonable grounds, that they will find it utterly impossible to carry on an adequate service within the area for which they are responsible, and they regard the outlook as fraught with great danger and distress to the community if the present call of the Emergency Committee requires to be met.
>
> The meeting unanimously affirms that, whilst the needs of the army are urgent and imperative, the Emergency Committee should, in the meantime, recall the notices presently issued, and reconsider the needs of this area, which has given so generously of its members of the medical profession. In this connexion it is submitted that the Emergency Committee should avail itself, and found its judgements upon, the intimate local knowledge possessed by the Local Medical and Panel Committees.
>
> That a copy of this resolution be signed by the Chairman and Secretary and sent to the Medical Service Emergency Committee, the Scottish Insurance Commission and the Burgh Insurance Committee.

INQUIRIES BY THE INSURANCE COMMISSIONERS.

London.

We have received from the Insurance Commission (England) a communication, dated April 13th, with regard to an inquiry held at the head office, Buckingham Gate, on January 19th last, into the case of Dr. W. Spencer Lewis, of 96, Redcliffe Gardens, South Kensington. The Commissioners state that they are satisfied that the continuance of this practitioner on the panel would be prejudicial to the efficiency of the medical service of the insured, and they have therefore removed his name from the list. The letter containing this decision, addressed to the London Insurance Committee, gives at some length the reasons which prompted the Commissioners to take this action, and is accompanied by the report of the Inquiry Committee which investigated the case at the instance of the Insurance Commissioners. The complaint briefly was that, in breach of his agreement, Dr. Lewis failed to keep the prescribed records of diseases and attendances during 1914 and 1915, and supplied in their place fictitious reports, which were filled in by his dispenser and clerk. The Inquiry Committee, on the evidence before them, found that Dr. Lewis had caused to be prepared and furnished information purporting to be in compliance with the terms of his agreement, but which was false and misleading, but that it was not established that this action was taken in order to avoid a decrease in his remuneration.

South Shields.

We have received a communication from the Insurance Commission (England) with reference to an inquiry held at South Shields, on January 26th last, into the case of Mr. William Samuel Daroux, L.R.C.S., of 73, Laygate, South Shields, which is accompanied by the report of the inquiry committee. The Commissioners state that they are satisfied that the continuance of this practitioner upon the medical list would be prejudicial to the efficiency of the medical service of the insured; they have accordingly removed his name from the list. The inquiry committee was constituted to investigate a complaint made by the South Shields Insurance Committee. The substance of the complaint was (1) that Mr. Daroux failed to give proper attention to an insured person whom he had accepted for treatment; (2) that he required and received payment of fees from the wife of another insured person whom he was attending as deputy for a doctor who had joined the R.A.M.C. The two complaints are dealt with separately in the report received. In reference to the first complaint the inquiry committee concluded that the respondent was careless in his treatment, that he did not appreciate the serious condition of his patient, and showed lack of appreciation of his responsibility to approved societies in the matter of certification, having stated untruly on three successive certificates that he had examined the patient on the dates of those certificates. In regard to the second complaint the committee concluded that the respondent, whether or not he knew the precise terms of the local scheme for the treatment of insured persons on the lists of doctors who had joined the R.A.M.C., did, in fact, know that the particular patient was an insured person on an absent doctor's list, and undertook to treat him as an insured person free of charge, and, further, that he improperly demanded and received money from the patient's wife for attendance and medicine upon a false pretence, that the materials for the medicine had been specially obtained from India.

INQUIRY AS TO A PANEL PHARMACIST.

A communication from the Insurance Commission (England), dated April 13th, states that as the result of an inquiry held on March 5th last into the case of Mr. T. S. Beckett, of Canning Town and West Ham, the Commissioners are satisfied that his continuance on the lists of persons entitled to supply drugs, medicines, and appliances in the area of the West Ham Insurance Committee would be prejudicial to the efficiency of the service; they have accordingly removed his name from the list. The accompanying report of the Inquiry Committee draws the following inference from the facts under consideration: that the respondent knowingly permitted the dispensing of medicines, including poisons, at his pharmacy at 67, Victoria Dock Road, to be performed by an unqualified person in breach of his agreement with the Insurance Committee, and in violation of the regulations under the National Insurance Act.

ANSWER.

Dr. R. Kay (Hartland, N. Devon).—When an insured person enlists his name is, or ought to be, removed from the index register of the area in which he resides, and from the list of the panel doctor who has been responsible for his medical treatment; the name should remain off so long as the person is serving with the forces. His panel doctor is no longer at any risk for him, even when he is on furlough, and accordingly there is no payment on his account, as all medical treatment is provided by the army authorities.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Staff Surgeons W. R. Harrison to the *Attentive*, Q. H. Richardson to R. M. Division, Deal, vice Loughlin. Temporary Surgeons: C. P. G. Wakeley to the hospital ship *Garth Castle;* G. M. Heiron, M.B., to the *Crescent* for Queensferry Hospital; F. J. Breakall to the *Africa;* D. A. Henderson, M.B, to the *Cormorant* for Gibraltar Hospital; F. J. F. Barrington, M.B., to the hospital ship *China;* W. F. W. Betenson, M.B., to the *Devonshire;* F. B. Fykyn, M.B., to the *Pembroke*, additional, for transport duties; H. N. Bethune, F. A. Knott, and O. Parkes, M.B., to the *Pembroke*, additional, for Chatham Hospital; K. M. Ross to the *Inflexible;* H. O. Blanford to the *Pembroke*, additional; E. Bayley, M.D., and L. P. L. Firmin-Edwards to the *Victory*, additional, for Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon W. N. Pickles to the *Victory*, additional. Surgeon Probationers C. E. Manning to the *Jackal*, B. Moore to the *Teviot* (on relief). To be Surgeon Probationers: K. J. H. Davies, C. A. Nicholls, J. A. L. London, G. McK. Gibbon.

ARMY MEDICAL SERVICE.

Colonel C. H. Hale, C.M.G., D.S.O., retires on retired pay.

ROYAL ARMY MEDICAL CORPS.

The following relinquish the acting rank of Lieutenant-Colonel on reposting: Major R. L. V. Foster, temporary Captain J. G. Johnston.

To be acting Lieutenant-Colonels whilst in command of a casualty clearing station: Major A. M. MacLaughlin, M.B., Brevet Lieutenant-Colonel A. H. Safford.

Major W. C. Croly to be acting Lieutenant-Colonel whilst in command of a field ambulance.

Temporary Major R. E. Crosse, having resigned his appointment, relinquishes his commission.

Captain (temporary Major) J. A. Manifold to be acting Lieutenant-Colonel whilst in command of a stationary hospital.

Captain (temporary Major) J. Owen relinquishes his temporary rank.

To be temporary Majors: J. C. Briscoe, M.D., F.R.C.P.; temporary Captains S. W. Woollett, E. A. Chartres, F.R.C.S.I., and C. S. Read, M.D.

Captain F. W. M. Cunningham to be acting Lieutenant-Colonel whilst in command of a field ambulance.

Temporary Captains relinquish their commissions: A. D. Forbes, M.B., R. V. Dolby, F.R.C.S., J. I. M. Jamieson, M.B., L. J. J. Nye, M.B.

Temporary Captains relinquish their commissions on account of ill health: T. Mulcahy, W. V. T. Styles, J. H. P. B. Barrett.

To be temporary Captains: E. C. Black (late temporary Captain), W. C. Mayo, G. D. Laing, Lieutenant D. H. Coats, F. W. H. Hutchinson, L. A. Walker, M.D., F. Fraser, F.R C.S., R. B. Taylor, M.B., temporary Lieutenant W. F. Gibb.

To be temporary Captains whilst employed at the Belfast Orthopaedic Hospital: S. T. Irwin, M.B., F.R.C.S., C. G. Lowry, M.D.

Temporary Lieutenants relinquish their commissions: T. A. MacKenzie, E. C. Smith, K. H. Hurlburt, M.B., G. T. Griffith, A. J. Shilstra.

To be temporary Lieutenants: E. G. Stanley, C. G. McAdam, K. G. Colquhoun, J. S. E. Selby, G. C. McL. Barber, P. J. D. O'Malley, A. C. Reid, C. H. Wilson, J. T. Daly, J. E. MacFarlane, M.B., R. W. H. Hillis, H. N. Marrett, W. H. Pallett, M B., P. A. Wedgwood, P. M. Reid, M.B., W. Fleming, D. Higgins, M.B., W. D. Ross, M.B., P. de S. Smith, A. J. M. Paget, M.D., W. A. Watson, M.B., S. C. Jellicoe, S. B. Depree, W. H. Roache, P. A. Mitchell, M.B., O. Marshall, H. MacKenzie, M.B., C. Alison, M.B., G. Maxted, M.D., F.R.C.S., P. R. Chevreau, T. Craig, M.B., K. D. Marriner, M.B., E. Lewis, R. W. Eddie, M.B., R. G. Williams, F. I. Dawson, M.D., F.R.C.S.E., R. H. G. Oulton, A. H. Southam, M.B., F.R.C.S., A. H. Holmes, M.D., J. W. Johnstone, M.B., E. E. Willis, B. J. O'Donnell, J. B. O'Reilly, M.D., G. Birch, R. H. S. Torney, M.B., F. G. Smyth, M.B., R. W. Reid, M.B., A. S. Rose, W. Martin, F. Brickwell, M.B., A. C. Campbell, A. G. Wilson, M.B., H. Leach, F. C. Trapnell, M.D., W. Waugh, C. Elliott, W. J. Lord, C. C. Innes, M.B., W. L. Stuart, M.D., N. Beattie, M.B., D. Mackinnon, M.B., J. Buchanan, M.B., F.R.C.S.E., W. T. Lydall, M.D., J. S. W. Tuttall, M.B., W. Chapman, A. P. Nicolle, E. A. Bullmore, F.R.C.S.E., I. R. Crisp, M.B., E. G. von B. Bergh, M.B., R. Buchanan, M.B., W. H. Woodyer, H. J. Henderson, M.B., A. C. Wilson, M.B., H. R. Carter, M.D., H. G. Barrie, F.R.C.S.E., R. S. Topham, M.B., T. W. Lonsdale, M.B., L. C. W. Cane, F. M. Bishop, A. J. Turner, M.B., R. C. Muir, M.B., J. W. Power, M.B., F. MacK. Matheson, H. D. Ledward, M.B., W. St.C. McClure, W. A. Sharpin, F.R.C.S.E., O. W. Jones, H. R. Elliott, G. P. Humphry, W. M. MacKenzie, M.B., A. N. Hodges, M.B., R. A. McCrea, M.B., E. L. Jones, R. F. Ballantyne, M.B., F. R. Carroll, M.B., G. McQ. Brunton, M.B., D. M. Cox, M. Horan, F.R.C.S.E., J. Owen, A. B. Scott, W. Smith, S. S. Brook, E. A. Edington, C. E. A. Goddard, M.B., E. J. Peill, M.B., F.R.C.S.E., P. C. Leslie, M.D., G. H. U. Corbett, M.B., W. R. Reeds, M.B., H. A. Richards, A. Fraser, J. H. Ashworth, M.B., B. V. Ward, M.B., D. M. Humby, J. Blakely, M.B., J. H. Clatworthy, M.D., J. H. Porter, A. Roemmele, M.B., R. W. Brown, M.B., J. J. S. Scrase, W. St. J. Cogan, H. C. Malleson, H. M. Thompson, M.B., J. Wells, H. Cox, J. B. Anderson, M.B., R. F. Lunn, W. R. Read, W. Kingdon, M.B., F. G. Power, M.B., C. Gordon, M.B., S. H. S. Taylor, M.B., H. F. Lumsden, M.B., J. W. Miller, M.D, F. E. Larkins, M.D., M. Stewart, M.B., H. A. Edwards, M.B., F. H. Kitson, M.B., J. S. Crichton, M B., F. Anderson, M.B., D. McDougall, M.B., F. R. L. Atkins, J. I. Greig, M.B., E. H. Smith, M. Macleod, M.B., G. Burnet, M.B., S. H. Robinson, R. Larkin, M.D., J. Campbell, M.B., A. H. G. MacKintosh, M.B., H. A. Evans, M.B., H. G. Arnott, M.D., L. L. Winterbotham, W. B. Griffin, F.R.C.S., W. Messer, M.B., J. Jenkins, M.B., E. Thorp, W. S. Alderson, T. S. Sharpley, F. M. Longson, M.B., J. S. Soulter, M.B., A. Chance, M.D., F.R.C.S.

Temporary honorary Lieutenants to be temporary honorary Captains while serving with the Welsh Hospital, Netley: E. V. Jones, J. Boyd.

Quartermaster and temporary honorary Major G. A. Benson to be temporary Major whilst employed with base records.

To be temporary Quartermasters with the honorary rank of Lieutenant: S. Mason, H. S. Goodchild, W. Jones, H. Yeoman, E. Dover.

INDIAN MEDICAL SERVICE.

The services of the undermentioned officers have been replaced at the disposal of the Governments of the Provinces mentioned respectively against their names, with effect from the dates they assumed charge of their duties: Major G. E. Stewart, M.B., F.R.C.S.E. (Bombay Presidency); Lieutenant-Colonel J. G. Hulbert (retired), and Major J. N. Walker (United Provinces); Lieutenant-Colonel A. Coleman (Punjab); Lieutenant Colonel T. W. Stewart (Burma).

Brevet-Colonel H. F. Cleveland, V.H.S., Deputy Director-General, Indian Medical Service, sub *pro tem.*, and Major R. A. Needham, D.S.O., M.B., Assistant Director-General, Indian Medical Service (Stores), sub *pro tem*, have been confirmed in their appointments.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenant (on probation) F. M. Rorie, M.B., is confirmed in his rank.

The following from the University Contingents O.T.C., as indicated, to be Lieutenants:—*London:* H. J. C. Churchill, E. D. Spackman, A. O. Bolton, W. I. F. Powell, C. K. Mowll, D. Cameron, H. N. Pritchett, R. S. Corbett, H. W. H. Holmes, H. W. Lewis, A. Rose-Innes, J. P. Williams, E. V. Beale. *Manchester:* A. J. B. Griffin, M.B., C. V. Pearson, M.B., P. V. Pinkeron, M.B. *Durham:* J. D. Johnson, M.B. *Edinburgh:* J. Allison, M.B., J. B. Hanna, M.B., W. McElroy, R. B. Smith, M.B., J. Aitkin, M.B., J. L. Hill, M.B., J. M. Martin, M.B., J. H. Neill, M.B., F. J. Jack, H. Patlansky, M.B., J. M. Norman, M.B. *Glasgow:* F. W. Hebblethwaite, M.B., H. F. Hollis, M.B., C. L. Somerville, M.B., J. W. W. Baillie, M.B., A. McA. Blackwood, M.B., J. MacD. Clark, M.B., A. Dick, M.B., J. R. R. Holms, M.B., W. H. Kerr, M.B., J. Liddell, M.B., F. C. Logan, M.B., K. McAlpine, M.B., A. D. C. McGowan, M.B., D. W. M. MacKenzie, M.B., W. D. Miller, M.B., W. H. Palmer, M.B., J. W. Patterson, M.B., H. B. Sergeant, M.B., A. W. Smith, M.B., R. Wiggins, M.B. *Aberdeen:* R. R. Garden, M.B., A. C. Irvine, M.B., W. W. Nicoll, M.B., R. Thom, M.B. *Queen's University, Belfast:* J. H. Davison, M.D.

To be Lieutenants: W. C. Mackinnon, M.B., from Unattached List (T.F.); T. G. Roche, M.B., H. W. Featherstone, W. J. Walters, R. Nixon, M.B., E. Bramley, M B., J. M. Morrison, M.B., L. C. Rudd, M.B., D. Lennox, M.B., E. S. Stubbs, M.B., C. Shearer, M.B., A. L. Packham, G. R. Hubbard, Second Lieutenant A. Robertson, M.B., from Unattached List, T F.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Temporary Major C. H. Reason to be temporary Lieutenant-Colonel while specially employed.

Temporary Major J. N. Roy resigns his temporary commission.

Captain C. Woollard to be temporary Major (substituted for *London Gazette* notification of April 2nd incorrectly describing name as C. Wollard).

Temporary Captains to be temporary Majors: W. F. Nicholson, M.C., N. J. Barton.

Captain T. H. McKillip, D.S.O., to be temporary Major (substituted for *London Gazette* notifications, November 8th, 1916, incorrectly describing rank as acting Major, and January 1st, 1917, incorrectly appearing under "Artillery").

Te be temporary Captains: Sergeant-Major C. A. Yates, J. W. Begg, M.D.; temporary Captain F. H. H. Mewburn from Canadian Artillery.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieutenant-Colonels (temporary Colonels) W. K. Clayton and R. Pickard, C.M.G., M.D., relinquish their temporary rank on vacating the appointment of Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel J. F. Dobson, M.B., F.R.C.S., from temporary retired pay list to be Lieutenant-Colonel with precedence as from October 7th, 1914.

Lieutenant-Colonels Sir J. K. Fowler, K.C.V.O., M.D., W. K. Clayton, and R. Pickard, C.M.G., M.D., are restored to the establishment.

Major J. R. Williams and Captain F. Smith relinquish their commissions on account of ill health.

Majors (temporary Lieutenant-Colonels) relinquish their temporary rank on alteration in posting: J. C. S. Burkitt, M D., W. M. Sturrock, M.B.

Major (temporary Lieutenant-Colonel) W. S. Kerr, M B., F.R.C.S., relinquishes his temporary rank on ceasing to command a field ambulance.

Captain (temporary Lieutenant-Colonel) E. Alderson, M.B., reverts to the temporary rank of Major on ceasing to command a field ambulance, with precedence as from October 29th, 1914.

Captains (acting Lieutenant-Colonels) relinquish their acting rank on ceasing to command field ambulance: H. N. Barnett, F.R.C.S., F. D. Blandy.

Captain (temporary Major) L. M. V. Mitchell, M.B., relinquishes his temporary rank on alteration in posting due to reorganization.

Captain S. Hughes, M.B., relinquishes his commission on account of ill health and is granted the honorary rank of Captain.

Majors to be temporary Lieutenant-Colonels: H. B. Roderick, M.D., A. Cooke, M.B., F.R.C.S., F. W. Burton-Fanning, M.D., G. N. Biggs, M.B., F. J. Steward, F.R.C.S.

Captain J. G. Martin, M.B., to be acting Lieutenant-Colonel whilst commanding a casualty clearing station.

To be acting Lieutenant-Colonel whilst commanding a field ambulance: Captain R. A. Broderick, M.B., Captain R. E. Bickerton, D.S.O., M.B., Captain (temporary Major) W. Blackwood, M.B.

The following relinquish their acting rank on alteration in posting due to reorganization: Major (acting Lieutenant-Colonel) F. B. Treves, M.B., Captains (acting Lieutenant-Colonels) J. W. Mackenzie, M.D., R. Waterhouse, M.D

Captain (temporary Major) J. Innes, M.B., relinquishes his commission on account of ill health, and is granted the honorary rank of Major, June 10th, 1916 (substituted for notification in the *London Gazette* of June 9th, 1916).

Captains restored to the establishment: A. Ramsbottom, M.D., W. F. Munro, M.B., A. W. B. Loudon, M.D., K. W. Jones, M.D.

Captain W. H. P. Hey, M.B., F.R.C.S., is now seconded for services overseas.

Officers relinquishing their commissions: Lieutenant-Colonel A. A. Watson, Captain H. G. Smeeth, M.D.

Lieutenants to be Captains: S. F. H. Everill, G. Thomson, A. G. Banks, A. E. Raine, M.B., D. Lyon, M.B., R. E. Pitts, W. J. Wilson.

Captain P. G. Williamson, M.B., to be Major.

Captains to be temporary Majors: W. Tyson, M.D., H. A. Cookson, M.B., F.R.C.S., M. G. Foster, M.D., J. H. Thursfield, M.D., H. W. Wilson, M.B., F.R.C.S., F. D. Jackson, W. S. Colman, M.D., E. R. Carling, M.B., F.R.C.S., G. A. Ewart, J. Everidge, F.R.C.S., D. H. de Souza, A. J. Jex-Blake, M.B.

Captain C. Mearns, M.B., to be Captain.

To be Lieutenants: J. Waterston, Staff-Sergeant H. L. Robinson, Acting Lance-Sergeant A. D. Peacock, Corporal A. C. Swanton-Thomas.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BETHNAL GREEN BOROUGH.—Lady Assistant Medical Officer of Health. Salary, £350 per annum.

BIRMINGHAM EDUCATION COMMITTEE. — Assistant School Medical Officer (temporary). Salary, £300 per annum.

BRISTOL GENERAL HOSPITAL. — Casualty House-Surgeon. Salary, £175 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

CAPE TOWN: SOUTH AFRICAN COLLEGE.—Werner Beit Professorships of Pharmacology, Pathology, and Bacteriology. Salary, £800 per annum each, increasing to £1,000.

CARDIFF: KING EDWARD VII HOSPITAL. — House-Surgeon. Salary, £175 per annum.

CHELTENHAM GENERAL HOSPITAL.—House-Surgeon.

CHESTER ROYAL INFIRMARY.—(1) House-Physician; (2) Assistant House-Surgeon. Salary, £150 per annum.

DARLINGTON GENERAL HOSPITAL. — House-Surgeon. Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—Resident Medical Officer. Salary, £200 per annum.

ITALIAN HOSPITAL, Queen Square, W.C.—House-Surgeon. Salary, £80 per annum.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LIVERPOOL EYE AND EAR INFIRMARY. — House-Surgeon. Salary, £150 per annum.

LONDON COUNTY ASYLUMS.—Assistant Medical Officers at the Institutions at Bexley and Long Grove (temporary). Salary, £6 6s. per week.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury. — Two Resident Medical Officers (female). Salary, £100 per annum, and war bonus £5 a month.

MANCHESTER CORPORATION. — Temporary Assistant Tuberculosis Officer. Salary, £450 per annum,

NEWCASTLE-UPON-TYNE: ROYAL VICTORIA INFIRMARY.—Resident Medical Officer.

NOTTS EDUCATION COMMITTEE. — Assistant School Medical Officer. Salary, £350 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—(1) District Resident Medical Officer; (2) Pathologist and Registrar. Salary, £80 and £60 per annum respectively.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—Casualty Officer.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) House-Physician; (2) Casualty House-Surgeon; (3) House-Surgeon. Salary for (1), (2) and (3), £100 per annum.

ROYAL FREE MILITARY HOSPITAL, W.C.1.—Assistant Resident Medical Officer.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—House-Surgeon (female). Salary, £100 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (female). Salary, £200 per annum.

SWANSEA EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £300 per annum.

WORCESTERSHIRE: KING EDWARD VII MEMORIAL SANATORIUM, Knightwick.—Temporary Medical Superintendent and Tuberculosis Officer. Salary, £450 per annum.

CERTIFYING FACTORY SURGEON.—The Chief Inspector of Factories announces the following vacant appointment: Chew Magna (Somerset).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ARNOTT, J., M.D.Durh., Certifying Factory Surgeon for the Brampton District, co. Cumberland.

BRADBURNE, A. A., F.R.C.S.E., Honorary Ophthalmic Surgeon to the Victoria Memorial Hospital, Manchester.

BURFIELD, T., M.A., M.B., B.C., Medical Officer and Public Vaccinator to the 5th (Brightling) District of the Battle Union.

DAVIDSON, R. B., M.B., District Medical Officer of the Macclesfield Union.

FORTY, D. H., L.R.C.P., M.R.C.S., Medical Officer for the Charfield District of the Thornbury Union, vice Dr. Clowes, resigned.

FOSTER, J. R, M.B., C.M.Edin., temporary honorary Surgeon to the Durham County and Sunderland Eye Infirmary.

HANCOCK, J. E., M.R.C.S., L.R.C.P.Lond., Certifying Factory Surgeon for the Robertsbridge District, co. Sussex.

JEFFERSON, R. P., M.R.C.S.Eng., L.R.C.P.Edin., District Medical Officer of the Amesbury Union.

LEE, W. H., M.R.C.S., L.R.C.P., District Medical Officer of the Chesterfield Union.

MACKEOWN, W. J., M.B., B.Ch., Certifying Factory Surgeon for the Bishop's Waltham District, co. Hants.

MCCLURE, T., L.R.C.P. and S.Edin., L.R.F.P.S.Glasg., Certifying Factory Surgeon for the Glyn-Neath District, co. Glamorgan.

MORTADA, I., M.A.Cantab., M.R.C.S.Eng., L.R.C.P.Lond., Deputy M.O.H. and Medical Supervisor of Schools to Coseley Urban District Council.

NEWLAND, F. C., M.D., District and Workhouse Medical Officer of the Cleobury Mortimer Union.

NICHOLSON, T. D., M.B., C.M.Edin., Medical Officer of the Shap Institution of the Carlisle Union.

OLLERHEAD, T. H., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Minehead District, co. Somerset.

REID, Miss M. I. T., M.B., Ch.B.Glasg., Assistant Bacteriologist to the Glasgow Corporation.

ROWTHORN, W. H., L.R.C.P. and S.Edin., L.R.F.P.S.Glasg., District Medical Officer of the Huddersfield Union.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—The following appointments have been made: Acting Assistant Physician, Miss Cuthbert, M.D., M.R.C.S.; Senior Resident Medical Officer, Miss Dearnley, M.D.; Junior Obstetric Assistant, Miss Dixon.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

BIRTH.

BROWN.—On May 28th, at Adelaide, South Australia, to Dr. and Mrs. Gilbert Brown, of Snowtown, South Australia, a son. (By cable.)

DIARY FOR THE WEEK.

TUESDAY.

RÖNTGEN SOCIETY, Cancer Hospital, Fulham Road, S.W., 8.15 p.m.—Adjourned Discussion: "The Future of the British *X*-Ray Industry."

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JUNE.
4	Mon.	Marylebone Division, Annual Meeting, 108, Harley Street, W., 8.45 p.m.
6	Wed.	London: Medico-Political Committee, 2.0 p.m.
7	Thurs.	London: Insurance Acts Committee.
8	Fri.	London: Central Ethical Committee, 2 p.m.
		East Yorks Division, Annual Meeting, Hull Royal Infirmary, 8.15 p.m.
12	Tues.	London: Organization Committee, 2.15 p.m.
14	Thurs.	South Wales and Monmouthshire Branch, Annual Meeting, Cardiff Infirmary, 3 p.m.
19	Tues.	Leinster Branch, and Dublin and Leinster Divisions, Annual Meetings, Irish Offices, British Medical Association, 16, South Frederick Street, Dublin, at 4.30 p.m., 5.30 p.m., and 6 p.m., respectively.
20	Wed.	London: Finance Committee.
26	Tues.	Metropolitan Counties Branch, Annual Meeting, 429, Strand, W.C., 4 p.m.
27	Wed.	London: Council Meeting.
28	Thur.	South-Eastern Counties Division, Edinburgh Branch, Annual Meeting, Newtown St. Boswells, 3 p.m.
		JULY.
13	Fri.	East Yorks and North Lincoln Branch, Annual Meeting, Hull Royal Infirmary, 4 p.m.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 9TH, 1917.

CONTENTS.

	PAGE
British Medical Association.	
CURRENT NOTES:	
PAYMENT FOR MEDICAL OFFICERS IN V.A.D. HOSPITALS	131
NOTIFICATION OF BIRTHS ACT, 1915, IN IRELAND	131
MEDICAL PRACTITIONERS AND HIRED MOTOR CARS	131
PENSIONS MEDICAL ADVISORY COMMITTEE	132
MEDICAL MOBILIZATION IN AUSTRALIA	132
SCOTTISH COMMITTEE	132
MEETINGS OF BRANCHES AND DIVISIONS	132
ASSOCIATION NOTICES	133
NAVAL AND MILITARY APPOINTMENTS	137
PRACTICES IN WAR TIME:	
THE DUNDEE CENTRAL BUREAU	134
MUTUAL INSURANCE OF PRACTICES	135
INSURANCE:	
NATIONAL INSURANCE COMMISSION (ENGLAND)	135
INQUIRIES BY THE INSURANCE COMMISSIONERS	136
LONDON PANEL COMMITTEE WAR EMERGENCY SCHEME	136
LOCAL MEDICAL AND PANEL COMMITTEES	136
NON-PANEL DOCTORS AND INSURANCE CERTIFICATES	137
VACANCIES AND APPOINTMENTS	138
BIRTHS, MARRIAGES, AND DEATHS	138
DIARY	138

British Medical Association.

CURRENT NOTES.

PAYMENT FOR MEDICAL OFFICERS IN V.A.D. HOSPITALS.

We have received a number of communications upon the subject which was referred to under this heading in the SUPPLEMENT of May 19th, 1917. Owing to limitations of space we can only summarize the views of certain correspondents. Dr. Howard Marshall, whose letter to the *Times* first drew public attention to the matter, writes to suggest that neither we nor the Representative Body realize how acutely, not only those concerned, but the profession in general, feel the way in which this matter has been dealt with by the War Office. He makes the point that "voluntary" is not a synonym for "gratuitous." He would let those civilian medical officers, whose means enable them to do so, continue to give their gratuitous services to V.A.D. hospitals if they so desire; but if a scale of fees is to be framed, he says, let it bear some relation to the work performed, and let it be honestly and openly offered to every civilian medical officer engaged in voluntary aid hospital work, instead of being made available only to those who chance to hear of it, and withheld by official instructions from those who can be kept in ignorance of it. Dr. Marshall finally points out for the information of our readers that in January last he brought the matter fully before the Central Medical War Committee, and asked them to take it up. On March 15th, 1917, he wrote to the Director-General A.M.S., who replied that the basis of 3d. and 2d. spoken of as that upon which medical men should be paid for their professional services had no foundation except in the imagination of idle gossipers; no such basis had ever been thought of. Dr. Marshall asks how this is to be reconciled with the fact that in October, 1916, those very fees were offered by the D.D.M.S. Southern Command to such Gloucestershire medical officers as applied for them.

Another V.A.D. medical officer, who wishes to be anonymous, writes to express his gratitude to Dr. Marshall for airing this subject. In his opinion, whatever doubt there may have been as to the desirability of paying these medical officers, there is certainly none now, since the mean and petty manner in which the War Office has taken advantage of the generosity of the willing medical men has been brought to light; the payment, he holds, should be retrospective.

On the other hand, Dr. S. Hamilton, medical officer to Llanwern Park Auxiliary Military Hospital (Newport, Mon.), believes that the majority of medical officers to V.A.D. or auxiliary hospitals, who undertook this work without the desire for or the hope of payment, still prefer to continue it gratuitously; but they would probably be gratified by some mark of the Government's appreciation, such as an honorary commission without pay in the R.A.M.C., or the issue of a badge to be worn "for services to King and country."

THE BRITISH MEDICAL JOURNAL.

At a meeting held on May 30th a special Subcommittee of the Journal Committee recorded its opinion that the present form of the JOURNAL on the whole is suitable and meets the present needs of the Association. The opinion was also expressed that members of the Association would welcome in the JOURNAL an increase in the number of the contributions on clinical subjects. The Subcommittee considered that in order to increase the general interest of members in the work of the Association the column of "Current Notes" in the SUPPLEMENT should be further developed, to include reports at frequent intervals of the work of Committees and Subcommittees.

OPERATION OF THE NOTIFICATION OF BIRTHS ACT, 1915, IN IRELAND.

At the meeting of the Irish Committee of the British Medical Association held on April 20th the Irish Medical Secretary was directed to make representations to the Local Government Board that sanitary authorities in Ireland, when putting the Notification of Births Act into operation in their areas, should provide adequate remuneration for the extra work imposed on Irish medical officers of health who are only part-time officers in receipt of salaries from £15 to £20 per annum. With reference thereto the Local Government Board has replied that there is no provision in the Notification of Births Act, 1907 and 1915, for granting additional remuneration to medical officers of health, but added that where schemes for maternity and child welfare, with which medical officers of health have been associated, have been submitted to the Board by sanitary authorities in connexion with the maternity and child welfare grant, the Board has consistently encouraged the fixing of reasonable remuneration for such officers in respect of extra duties under the schemes.

MEDICAL PRACTITIONERS AND HIRED MOTOR CARS.

The Association understanding that the Petrol Control Committee was prepared to issue special permits for the hire of motor cars for specified purposes in districts where there are no taxi cabs or other hackney vehicles plying for hire in a public place, or at a railway station, provided that the motor car is used only by certain specified classes and for certain specified purposes, communicated with the Secretary of that Committee, pointing out that the

arrangement made no provision with respect to the hire of motor cars by medical practitioners. While expressing the Association's appreciation of the facilities which the Petrol Control Committee has placed at the disposal of medical practitioners in obtaining an adequate supply of petrol for use for their motor cars for professional purposes, it was pointed out that a certain number of medical practitioners who do not themselves own motor cars make use of hiring facilities in various districts, and that to prevent such practitioners from hiring motor cars when urgent need arises would seriously imperil the safety of the civil population. It was therefore urged upon the Petrol Control Committee that the special permits referred to should be extended so as to include medical practitioners in the course of their professional work. On June 6th the Petrol Control Committee published a communication stating that, on further consideration, it has been decided to issue special permits for the hire of motor cars on condition that these cars are used only for business purposes and public duties, or for the conveyance of passengers to and from a railway station or port. The phrase "business purposes and public duties" appears to cover all the professional purposes of medical men; and, although no formal notice to that effect has been given to the British Medical Association by the Petrol Control Committee, we have received an explicit assurance that this is the interpretation intended by the Committee.

Pensions Medical Advisory Committee.

The Medical Advisory Committee to the Board of Pensions met, on June 4th, to consider draft instructions to local pensions committees for the provision of special medical treatment for disabled soldiers and sailors. The members of the Medical Advisory Committee are Sir Frederick Taylor, Sir Watson Cheyne, Sir Rickman Godlee, and Dr. Sidney Martin, representing the Royal Colleges of Physicians and Surgeons; and Dr. H. Brackenbury, Mr. Bishop Harman, and Dr. Alfred Cox, representing the British Medical Association.

Medical Mobilization in Australia.

At the annual meeting of the New South Wales Branch of the British Medical Association, held on March 30th, it was unanimously resolved that, in order to establish equality of obligation among medical practitioners in Australia who undertake military service for the purpose of the war, and to maintain the A.A.M.C. in such a state of efficiency as will enable it to meet the requirements of the army—due regard being paid at the same time to the medical needs of the civil population—steps should be taken to introduce compulsory enrolment of all qualified practitioners as persons liable for enlistment and service as officers in the A.A.M.C., and that a medical war committee should be constituted for each military district to make selections and recommendations for exemption of the persons so enrolled, and to have other functions and powers enabling it to undertake the local organization of the medical profession in relation to the needs of the A.A.M.C. and of the civil population.

SCOTTISH COMMITTEE.

A meeting of the Scottish Committee was held in Edinburgh on May 26th, when there were present: Dr. John Adams (Glasgow) in the chair; Dr. G. C. Anderson (Methil), Dr. R. C. Buist (Dundee), Dr. J. R. Drever (Glasgow), Dr. J. Wishart Kerr (Glasgow), Major G. R. Livingston (Dumfries), Dr. C. E. Robertson (Glasgow), Dr. John Stevens (Edinburgh), Dr. A. D. R. Thomson (Musselburgh), Dr. H. F. Watson (Perth), Major C. S. Young (Dundee).

Insurance Acts Subcommittee.

The Committee considered a report from the Insurance Acts Committee as to the setting up of an Insurance Acts Subcommittee for Scotland, and passed the draft circular to Panel Committees; it ordered the issue of the nomination papers to these committees, and resolved to delay the election of the five members to be elected by the Scottish Committee until after the commencement of the next Association year, when the names of those elected by the Panel Committee would be known. It was also decided that in the event of a conference of Local Medical and Panel Committees being called by the Association the Insurance Acts Subcommittee for Scotland should be called together previously to consider the agenda of the conference if the Subcommittee were constituted by that time.

Colliery and Public Works Surgeons Committee.

Consideration was given to the desire expressed at the last Conference of Representatives of Local Medical and Panel Committees for a reconstruction of the Scottish Committee, and it was resolved that in view of the setting up of the Insurance Acts Subcommittee (Scotland) it was not necessary to take further steps in this matter. It was resolved to send a memorandum explaining the situation and powers of the Scottish Committee to all Divisions and Branches, and to the Local Medical and Panel Committees of the country.

A grant of an additional sum of £200 for the year 1917 by the Council of the Association was reported to the Committee, and it was resolved to pay the sum of £50 formerly granted to the Colliery and Public Works Surgeons Committee of Scotland.

Drugs in Rural Districts.

A communication from the County of Ayr Panel Committee with regard to the remuneration of rural practitioners in connexion with the dispensing of drugs was referred to the Insurance Acts Committee, with the request that it should be remitted to the Rural Practitioners Subcommittee as a matter of general interest.

Central Midwives Board.

Dr. Michael Dewar (Edinburgh) and Dr. J. Wishart Kerr (Glasgow), members of the Central Midwives Board appointed by the Scottish Committee, reported on the work of the Board for the past year. The report showed great activity on the part of the Board in this the first year of its existence, and the thanks of the Committee was given to Drs. Dewar and Kerr for their services.

Meetings of Branches and Divisions.

BOMBAY BRANCH.

An ordinary meeting of the Bombay Branch was held on March 29th in the Bombay Bacteriological Laboratory, Parel, when Dr. R. Row, presided.

Demonstrations.—The following demonstrations were given:

(1) Methods for the detection of typhoid carriers, by Captain Cruickshank and Assistant Surgeons Lafrenais and Moody. (2) Life-history of *Filaria bancrofti* and of its intermediary host the mosquito, by Sub-Assistant Surgeon Akula. (3) Life-history of certain trematodes, with special reference to the possibility of the introduction of schistosomiasis into India, by Dr. Soparkar. (4) Some new methods for the isolation of cholera vibrios from stools, by Dr. Dalal. (5) Certain methods for the differentiation of cholera vibrios from certain cholera-like vibrios found in water, by Dr. D. N. Gore. (6) Different media for the isolation of typhoid bacilli, by Dr. S. N. Gore. (7) New clinical method for estimating sugar in the blood, with an explanation of its use in the treatment of diabetes, by Mr. Mackenzie Wallis. (8) Life-history of *Filaria medinensis*, by Dr. D. A. Turkhud. (9) Some new disinfectants, by Assistant Surgeon Avari. (10) Cinema films illustrating the life-history of the mosquito, flea, fly, other insects and micro-organisms, by Major Liston.

On the motion of Dr. R. Row, seconded by Dr. Sorab K. Nariman, a hearty vote of thanks was passed to Major W. Glen Liston, I.M.S., C.I.E., for organizing such an interesting meeting, and Mrs. Liston for her hospitality.

Annual Meeting.

The annual meeting of the Branch was held in the University Library on April 12th, when Dr. Sorab K. Engineer presided.

Annual Report and Financial Statement.—The report of the Branch Council, showing that three meetings had been held during the year, and giving particulars of the cases at the meetings, together with the statement of accounts for 1916, were passed.

Election of Officers.—The following new Branch Council was elected:

President: The Honourable Surgeon-General R. W. Lyons, I.M.S.

Vice-Presidents: Lieutenant-Colonel Ashton Street, I.M.S., Dr. R. Row.

Honorary Secretary and Treasurer: D. R. Bardi, Esq., F.R.C.S.I.

Members: Dr. Sorab K. Nariman, Lieutenant-Colonel S. C. Evans, I.M.S., Major E. F. Gordon Tucker, I.M.S., Dr. Sorab K. Engineer, Miss A. M. Benson, M.D., Assistant Surgeon E. S. Bharucha.

Cases.—Lieutenant-Colonel Ashton Street, I.M.S.,

showed two interesting cases—one of specific ulcer on the penis simulating epithelioma, and the other a patient who came in for strangulated hernia, which was reduced easily, when it showed that the testis on that side was absent from the scrotum and formed part of the contents of the hernial sac.

CAPE OF GOOD HOPE—EASTERN PROVINCE BRANCH.

A MEETING of the Branch was held on March 30th, when Dr. J. A. LEA was in the chair.

Policy against Malpraxis.—The SECRETARY reported on the canvass for Lloyd's policy against malpraxis.

War Experiences.—Dr. E. A. SEALE read a paper on "Some experiences during twelve months with the R.A.M.C." He dealt briefly with his personal experiences at Dublin, Tipperary, Limerick, Malta, and in Paris, London, and Bristol on his return journey. Details were given of the command dépôt system at Tipperary introduced by the Director after a year's experience of the war; 700 to 1,000 men were lodged for periods of treatment up to six months, and only 12.2 per cent. were invalided. The treatment was directed to cure of shell shock, neurasthenia, shrapnel wounds with contracture and paralysis, and pyorrhoea and other mouth complaints. Radiant heat, ionization, electrical and physical treatment, massage, hot baths for one hour at 94° F., were, he said, the principal methods of treatment. Handicrafts—carpentry, motor repair, cooking, cobbling, typewriting, and French polishing—were taught in schools. (A summary of results was given by Dr. Ryan in the BRITISH MEDICAL JOURNAL for August 12th, 1916, p. 234.) In the St. Paul's Hospital at Malta, with 850 beds in huts, cases from Salonica of malaria and dysentery (amoebic or mixed infection) formed the bulk of the patients. Phlebotomus, or sandfly fever, was common, and was best treated by opium given early. Much interest was roused by the account of Professor Laurent's bone grafting and limb-to-limb apposition to secure free granulation, as practised at the Grand Palais Hospital in Paris. All the members present joined in the discussion, and a vote of thanks to Dr. Seale was carried. Dr. SEALE replied to the discussion, and the meeting closed.

DORSET AND WEST HANTS BRANCH.

THE annual meeting of the Branch was held at Blandford on May 16th, when Mr. W. H. L. MARRINER, President, was in the chair. Before the meeting members lunched together.

Financial Statement.—The report of the Branch Council was submitted, the balance sheet for 1916 showing a balance in hand of £33 6s. 6d. The reports of the Bournemouth and West Dorset Divisions were submitted and adopted.

Summer Meeting.—It was decided to hold the summer meeting at Portland early in July.

Vote of Condolence.—The attention of the meeting was drawn to the great loss the Branch has sustained by the deaths of Drs. J. Moorhead, W. Alexander, G. J. W. Flower, K. M. Gibbins, and G. W. Daniell, and a vote of condolence was passed with the relatives of the deceased.

Scientific Proceedings.—The President-elect, Dr. T. HOWARD, then took the chair and delivered his presidential address on "The diagnosis of scarlatina," and Dr. MAHOMED made some remarks on the value of sea water plasma.

METROPOLITAN COUNTIES BRANCH:

MARYLEBONE DIVISION.

THE annual general meeting of the Division took place at 108, Harley Street, W., on June 4th, when the Chairman, Mr. BISHOP HARMAN, presided.

Annual Report.—The annual report of the Division was received and adopted.

Election of Officers.—The following officers for the ensuing year were elected:

Chairman: Mr. N. Bishop Harman.
Vice-Chairman: Major W. McAdam Eccles.
Honorary Treasurer: Dr. Comyns Berkeley.
Honorary Secretary: Mr. C. Edward Wallis.
Representatives to the Representative Meeting: Dr. C. O. Hawthorne, Captain F. W. Goodbody, Mr. N. Bishop Harman, Mr. C. Edward Wallis, Dr. Gordon J. Lane.
Representatives to the Branch Council: Major W. McAdam Eccles, Dr. Joseph Pollard, Miss Mary Bell, Dr. Jobson Horne.

Ministry of Health.—On the motion of Dr. HAWTHORNE and seconded by Dr. JOBSON HORNE, it was unanimously resolved:

> That the Division approves generally the scheme submitted for the establishment of a Ministry of Health and leaves to the Central Council the duty of representing the scheme to the Government and of securing its acceptance so far as this is found to be possible.

On the motion of Dr. ROXBURGH, seconded by Major MCADAM ECCLES, it was decided that after Section 21 of the draft scheme the following should be moved as a rider:

> That students and practitioners should have reasonable access for educational purposes to the treatment of diseases at any institution forming part of a local authority's scheme, whether they be clinics, wards, or laboratories subsidized by State funds.

It was considered inadvisable and unnecessary to call a special meeting of the whole profession in the borough to discuss the draft scheme for the proposed Ministry of Health.

It was unanimously resolved on the motion of Dr. HAWTHORNE, seconded by Dr. ROXBURGH:

> That in the opinion of the Division the voluntary hospitals should so soon as possible revert to the purposes for which they were founded and endowed, namely, the medical and surgical treatment of the sick poor, and that it is the duty of the State to provide the accommodation and medical and surgical treatment needed for the care of the sick, wounded, and disabled soldiers.

Association Notices.

MEETING OF COUNCIL.

THE next Meeting of Council will be held on Wednesday, June 27th, in the Council Room, 429, Strand, London, W.C.

By order,
GUY ELLISTON,
Financial Secretary and Business Manager.

June 7th, 1917.

GRANTS IN AID OF SCIENTIFIC RESEARCH.

THE Council of the British Medical Association is prepared to receive applications for grants in aid of Scientific Research into the Causation, Treatment, or Prevention of Disease. Preference will be given to medical practitioners and to applicants who propose to investigate problems directly related to practical medicine.

Applications for grants must be received not later than June 16th, 1917, and must be made on the prescribed form, which, together with the regulations governing the suggested grants, can be obtained on application to the Medical Secretary of the Association, 429, Strand, London, W.C. 2.

INCREASED LENDING LIBRARY FACILITIES FOR MEMBERS.

THE Council has made arrangements whereby books relating to all branches of medical literature and general science can now be obtained on loan by members of the Association free of charge (other than any postage) from the Lending Department of the Library of the Association, 429, Strand, London, W.C. 2. The new facilities include, besides works on medicine, surgery, anatomy, physiology, bacteriology, dentistry, hygiene, obstetrics, and the other branches of medical and surgical science, the subjects of astronomy, biology, botany, chemistry, electricity, engineering, geology, microscopy, mining, physics, philosophy, sociology, technology, voyages and travels, zoology, etc. All such books issued will be latest editions, new books and new editions becoming available immediately upon publication.

The new facilities are additional to those which were already available for loan to members, of medical journals and periodicals, scientific reports of hospitals and laboratories, transactions of societies and congresses, and reports issued by States and municipalities, including those of commissions and committees appointed by States, municipalities, and legislative bodies.

The rules in respect of the new facilities will be similar to the previous rules. Copies of the rules, and all other information, may be obtained on application to the Librarian, British Medical Association, 429, Strand, London, W.C.2.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EAST YORKS AND NORTH LINCOLN BRANCH.—Mr. H. L. Evans, Honorary Secretary (101, Princes Avenue, Hull), gives notice that the annual meeting of the Branch will be held in the Board Room of the Hull Royal Infirmary, at 4 p.m., on Friday, July 13th. Business: Annual report, financial statement, election of officers. Address by Robert Grieve, M.D., F.R.C.S.

EDINBURGH BRANCH.—Dr. John Stevens, Honorary Secretary (78, Polwarth Terrace, Edinburgh) gives notice that the annual meeting of the Branch will be held in the Hall of the Royal College of Physicians, Edinburgh, on Wednesday, June 20th, at 4 p.m. The business will be: (1) Election of office-bearers for 1917–18. (2) The annual report of the Branch. (3) Treasurer's report. (4) Annual report of Council. (5) Proceedings of the Scottish Committee, etc.

EDINBURGH BRANCH: SOUTH-EASTERN COUNTIES DIVISION.—Dr. M. J. Oliver, Honorary Secretary (St. Boswells), gives notice that the annual meeting of the Division will be held on Thursday, June 28th, in the Railway Hotel, Newtown St. Boswells, at 3 p.m. Business: Election of officers, instructions to Representative at Annual Representative Meeting, report of War Committee and reappointment of Committee if considered desirable, any other competent business.

KENT BRANCH.—Dr. E. A. Starling, Honorary Secretary and Treasurer (Chillingworth House, Tunbridge Wells) gives notice that the fourth annual meeting of the Kent Branch will be held at the Tonbridge Urban District Council Chamber, Tonbridge Castle, Tonbridge (by kind permission of the Council), on Thursday, June 28th, at 4 p.m. Agenda: (1) Election of officers for 1917–18. (2) Consideration of the Annual Report of the Branch and the Financial Statement. (3) Any alteration of Rules. (4) Any other business decided on by the Council.

KENT BRANCH: ISLE OF THANET DIVISION.—Dr. Hugh M. Raven, Honorary Secretary (Barfield House, Broadstairs) gives notice that the annual meeting of the Division (to which all medical practitioners are cordially invited) will be held on Tuesday, June 12th, at 8.15 p.m., at St. George's Parish Hall, Ramsgate, when Dr. F. E. Nichol will preside. Agenda: Election of officers for the year. To elect a Local Medical War Committee in relation to the Central Medical War Committee. To receive the annual report of the Executive Committee, and the accounts for the year. To consider the annual report of the Council of the British Medical Association, and the provisional agenda of the Representative Meeting as printed in recent numbers of the BRITISH MEDICAL JOURNAL. To receive the report of the committee appointed to consider the recent report issued by the British Medical Association on National Health Insurance. Any other business.

LEINSTER BRANCH AND DUBLIN AND LEINSTER DIVISIONS.—The annual meetings of the Leinster Branch and of the Dublin and Leinster Divisions will be held at the Irish Offices, British Medical Association, 16, South Frederick Street, Dublin, on Tuesday, June 19th, at 4.30 p.m., 5.30 p.m., and 6 p.m. respectively. The business in each instance will consist of the reception of the financial statement and the election of officers. The question of the physical welfare of mothers and children will also be discussed at the meeting of the Branch.

METROPOLITAN COUNTIES BRANCH.—Mr. N. Bishop Harman and Dr. Wilfred Kingdon, R.A.M.C. (Honorary Secretaries), give notice that the annual general meeting of the Branch will be held at 429, Strand, W.C., on Tuesday, June 26th, at 4 p.m. The business will be: (1) Report of scrutineers as to the election of new officers. (2) The annual reports of council and of representatives of the Branch on the Central Council. (3) President's address (Dr. C. O. Hawthorne): "The Clinical Organization of the Profession." *N.B.*—The Branch Council on April 17th, 1917, resolved that under Rule 19 there was no obligation to send copies of the annual financial statement and annual report of the council to all members of the Branch, and agreed that the custom be discontinued during the war, and that only a sufficient number of these reports, etc., should be printed for circulation at the annual general meeting of the Branch. Copies of the reports referred to can be obtained from the Branch Secretaries or seen in the Library.

MIDLAND BRANCH.—Dr. A. Fulton, Honorary Secretary *pro tem.*, gives notice that the annual meeting of the Branch will be held at the Royal Infirmary, Leicester, on Thursday June 28th, at 3 p.m. A discussion will take place on "The Future of Medical Practice," to be opened by the President-elect, Dr. J. E. Waite, Leicester.

SOUTHERN BRANCH: PORTSMOUTH DIVISION.—Dr. J. H. Frederick Way, Honorary Secretary and Treasurer, 151, Victoria Road North, Southsea, gives notice that the annual meeting of the Division will be held in the Medical Library, 26, Western Parade, Southsea, on Thursday, June 14th, at 3.30 p.m. Agenda: To receive the Annual Report and Statement of Accounts. To elect Officers, Representatives of the Division, and Members of the Executive Committee. "Hackman" Memorial Fund: Statement by Dr. James Green. To consider the business of the Annual Representative Meeting. (Bring SUPPLEMENT, BRITISH MEDICAL JOURNAL, May 5th, 1917.) And generally.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.—Dr. L. Freeman Marks, Honorary Secretary (Brynheulog, Mumbles, Glamorgan), gives notice that the annual meeting of the Branch will be held at the Cardiff Infirmary on Thursday, June 14th, at 3 p.m.

SOUTH-WESTERN BRANCH.—Mr. Russell Coombe, Honorary Secretary, gives notice that the seventy-eighth annual meeting will be held on Friday, June 15th, at the Royal Devon and Exeter Hospital, Exeter, at 4 p.m. In view of the continuance of the war the annual meeting will be restricted to the purely formal and necessary business to be transacted thereat. The report of the Branch Council for the year 1916–17 and the annual financial statement for the year 1916 will be presented to the meeting, and the officers of the Branch will be elected for the year 1917–18.

PRACTICES IN WAR TIME.

THE DUNDEE CENTRAL BUREAU.

So many inquiries come with regard to the system which has for nearly three years worked successfully in Dundee that it may be convenient to publish the following general account of the arrangements and of the results, for which we are indebted to Dr. R. C. Buist.

Organization of the Service.

The problem to be solved was to assume the load of medical work for 24,000 insured persons, and the corresponding proportion of private patients, and to distribute it among those carrying on the work so as to avoid overloading any individual. Inequalities so gross as to have led to the breakdown of the working capacity of some would have occurred had the matter been left to the choice either of the patients or of the agents of the absent doctors. The distribution of visits was easy—it only needed an office with a clerk who would send out the calls received by rota and according to area to the members of the service. To distribute the consultations to the consulting rooms of individual doctors was impossible. Hence came the central consulting rooms, for which the directors of the Royal Infirmary provided first-class accommodation by putting their out-patient department at our service rent free. The third problem was to relieve the doctors of the burden of clerical work, and this the existence of the office at once solved.

The working arrangements are thus (1) the central medical office with three clerks (one on night duty), two telephones, the record card files for all patients, insured and private (card, white and red); (2) the central consulting rooms, open from 5 to 8 p.m., with two doctors in attendance each night, according to a rota, the average attendance of patients being daily about 100; (3) the record cards, the clerk issuing a card to the doctor for each patient assigned to him, to be returned with the visits and diagnosis entered when the attendance is ended. At the consulting room the card is taken from the file by the clerk, and the attendance entered. The doctor enters only the diagnosis. The card is refiled by the clerk when the patient leaves.

Finance.

Finance raised two problems—(1) the charge to be made against the doctors who were on service, (2) the division of the funds amongst those doing the work. For the first the Gordian knot was cut by recognizing that the question was not one of justice but of convenience, and the adoption of the simple formula of charging each man on service 50 per cent. of his panel credits. This has been called generous, but it has worked, and has been repeatedly reaffirmed by the members doing the work, and, after all, generosity to those who have risked life and practice for those who could not is perhaps not unmeet.

The service has the advantage of being able to regulate its funds each quarter without an indefinite contingency of fees that might be received for private accounts. The opinion has been expressed that the amount of private fees collectable is smaller than at other times, and now when a further call of men equal to an additional load of 12,000 insured patients is being made the Service Com-

mittee has been asked to make arrangements for collecting monthly on behalf of the absent men the private fees due. It is proposed that the doctor who attends should mark the fee rate in the corner of the record card and the bills be issued from and collected by a central office, the expense being deducted from the amounts received and the *pro rata* balances transmitted to the representatives of the absent doctors.

The second financial problem was solved by reckoning the number of hours' work given by each member of the service, the hours at the consulting rooms being entered by the clerk and the visits taken at six per hour, special visits double, and night visits treble. Of night calls there are very few. The experience has been that the proportion of work per patient has been less than in normal times. Owing to the generous accommodation given by the infirmary the working expenses have been relatively very low.

Results.

Incidental advantages have arisen in the working of the service. It was found an easy matter to give each member of the service a free holiday of two weeks, his work being done by the service. If any one needed more than two weeks or was ill, his work was carried on by the service on a moderate tariff based on the number on his panel, and in one case the work of a doctor not on the panel was carried on for an equivalent arrangement.

During the past year the existence of the service has enabled the members to carry on for nine months without charge the practice of a doctor who was killed on service, thus allowing a purchaser to be found for what remained, and in the case of another colleague who died at home the work was carried on for six months on easy terms. This permitted gradual transfer of the patients on the panel list. The service has not dealt with midwifery cases as part of its responsibilities. The whole fee in such cases has gone to the practitioner who undertook the attendance.

The doctors in Dundee have no doubt as to the economy in the working power of the doctors which has resulted from the establishment of the service.

MUTUAL INSURANCE OF PRACTICES.

NORTH STAFFORDSHIRE SCHEME.

The North Staffordshire Division of the British Medical Association has prepared a scheme for the mutual insurance of practices of medical men. The object is to provide as near as may be the equivalent of one year's purchase price of his practice to any practitioner participating in the scheme on his permanent disablement, or to his dependants in the event of his death, such sum to be paid by those benefiting by the casualty. The scheme is open to general practitioners in the Division, who sign an agreement to co-operate loyally with the Executive Committee in the disposal of any practice under the scheme, which will remain in operation during the war, and for twelve months after complete demobilization. Those in civil practice as well as those holding temporary commissions are eligible to participate, and the scheme applies both to single-handed practices and to partnerships. The method of working the scheme is divided into two parts:

I. *Procedure to be adopted where the representatives or executors of the beneficiary elect to dispose of the practice through the Committee.*

(*a*) *Panel Practice.*—Patients of the beneficiary will select their new doctor according to the regulations of the Insurance Committee concerned. The doctors so selected shall empower the administrative body to arrange for the payment of all fees for attendance on such patients for the period of one year to the representatives or executors of the beneficiary.

(*b*) *Appointments.*—The emoluments from appointments for the period of one year shall be paid to the representatives or executors of the beneficiary by his successor.

(*c*) *Private Practice.*—The representatives of the beneficiary are required to furnish the administrative body with a list of the bona fide patients of the beneficiary. A copy of this list will be issued to all medical men practising in the area of the beneficiary's practice. In case of doubt as to the proper inclusion of any name on this list the practitioners concerned shall have the right of appeal to the administrative body.

On a new patient presenting himself he should be asked the name of the doctor who last attended him, and in the event of such doctor being a beneficiary under the scheme, it should be explained to the patient that attendance will willingly be given on behalf of the beneficiary, and on no other terms, for the period of one year from the date of the beneficiary's death or permanent disablement. Any attendance on behalf of such patients must be carefully and separately recorded and a list of such attendances sent at regular intervals to the representatives of the beneficiary. An attempt should be made to ascertain the fees charged by the beneficiary and the same fees should be charged for work done by the practitioner acting as his deputy. Accounts rendered on behalf of the beneficiary must mention the names of the beneficiary and his deputy. New patients introduced by the patients of a beneficiary must be regarded as belonging to the beneficiary's practice. Any new practitioner coming to the Division shall be interviewed on behalf of the administrative body and the scheme laid before him.

II. *Procedure to be adopted where the representatives of the beneficiary elect to make their own arrangements for the disposal of the practice.*

In the event of a locumtenent being in charge of the practice an attempt should be made to induce all patients of the beneficiary to go to the locumtenent. Every assistance should be given in enabling the successor to the practice to have such a fair start as will enable the dependants of the beneficiary to receive a fair price for the practice.

The North Staffordshire scheme is an attempt to tackle one of the most difficult medical problems of the war, and the chairman, Dr. John Russell, and the secretary, Mr. Reginald Alcock, who are largely responsible for it, welcome criticisms and suggestions for its improvement.

INSURANCE.

NATIONAL INSURANCE COMMISSION (ENGLAND).

THE English Insurance Commissioners have just issued as a blue book a large number of reports of inquiries and appeals under the National Health Insurance (Medical Benefit) Regulations, 1913, which ought to be of great value to Panel Committees as showing the procedure to be followed when complaints arise against panel practitioners.

In Part I of the volume are included all the inquiries with regard to medical practitioners up to the end of 1916, except one which was too late to be inserted. The cases reported number twenty-one, and the name of the doctor was removed from the panel list in thirteen instances, no action being taken in some cases, while in others the Commissioners expressed their disapproval of the practitioner's conduct and in two cases what were practically fines of £20 and £50 were imposed. All the inquiries were held in public and were carried out strictly in accordance with the regulations, the committee of inquiry consisting of a barrister or solicitor with two medical practitioners. Subject to the omission of the names of the persons concerned and the formal parts of the inquiry the reports are given verbatim, and in every case show that great care was taken to arrive at a proper decision. One case in which a question of medical ethics was raised turned on the fact that a panel practitioner refused to give directions as to the treatment of a person on his list because the person had without the practitioner's knowledge placed himself for some time under the care of a hospital surgeon. Here the Commissioners admit that it is the right and duty of a doctor when improper interference with his treatment has occurred to take suitable steps, consistent with his duty to his patient, to free himself from the false position of continuing to accept a nominal responsibility for treatment of which he has not a corresponding control, and if the case occurred in private practice, where the relation of doctor and patient is terminable at a moment's notice, the doctor could withdraw immediately from the case. But a panel practitioner has entered into an agreement to give treatment to persons on his list so long as the relation between them has not been terminated in any of the ways defined in his agreement. In the case in question this relationship was not thus terminated, and the Commissioners had no choice but to declare that the practitioner had committed a breach of his agreement in refusing on the ground stated to give treatment.

Part II contains reports of seven inquiries held upon chemists which resulted in the names of four chemists being removed from the list and a fine of £5 being imposed on another, while no action was taken in the remaining cases. Part III gives reports of twelve cases or groups of cases where panel practitioners appealed against surcharges for excessive prescribing prior to January 1st, 1916, when Article 40 of the regulations was superseded. Appeals of

this nature were dealt with by the Commissioners under Regulation 51, which empowers the Commissioners either to decide the case without a hearing or to authorize any two of their number to hear and determine the appeal. Some account of most of these cases has been given in the Journal, and it is sufficient here to note that in a very considerable proportion the Commissioners either allowed the appeal entirely or reduced the surcharge imposed by the Insurance Committees on the recommendation of the Panel Committees. In fact, in most of the cases the Commissioners showed themselves more lenient than the Panel Committees, and on every occasion rightly insisted that the Panel Committees should rigidly carry out all the proper legal procedure and furnish to the Insurance Committees such a report as would enable them to arrive at a reasoned decision, and should explain the grounds for any recommendations.

Part IV contains reports of a number of cases in which panel practitioners appealed against decisions arrived at by Insurance Committees in cases dealt with by Medical Service Subcommittees. Many of these were instances of complaints made by insured persons against panel practitioners or charges that the doctor had in some way broken his agreement with the Insurance Committees. Here again the Commissioners often showed themselves more lenient than either Insurance Committees or Medical Service Subcommittees, and from a consideration of these cases and the other group dealt with in Part III it appears impossible to refuse to admit that panel practitioners who reasonably feel themselves aggrieved by decisions of local committees, whether they be Insurance Committees, Panel Committees, or Medical Service Subcommittees, may count upon receiving considerate treatment and full justice on appealing to the Commissioners.

Part V deals with what are called "questions of competence and skill"—that is, questions as to whether certain forms of treatment can properly be regarded as falling within the range of duties that may properly be required from panel practitioners. Such questions are in the first instance referred to the Local Medical Committee, and if this committee and the Insurance Committee fail to agree, the matter is decided by three referees appointed by the Commissioners, two of whom are medical practitioners and the third a barrister or a solicitor. The regulations also empower the Commissioners if they think fit to refer to referees cases where the Local Medical Committee and Insurance Committee are in agreement. It is to be noted that practically all the reports under this head apply to special cases and special circumstances and cannot be taken as binding precedents. This fact—namely, that it is rather special cases than general rules of universal application that are dealt with—may perhaps detract from the value of the volume as a book of reference; but it would be difficult, often perhaps impossible, to lay down rules binding under all circumstances. The value of the volume lies rather in the numerous hints as to procedure contained in it, and an impartial reader can hardly fail to be convinced that in the difficult cases here dealt with the Commissioners and the referees have throughout exhibited a spirit of fairness and equity.

INQUIRIES BY THE INSURANCE COMMISSIONERS.

South Shields.

A communication received from the Insurance Commission (England) refers to an inquiry held on January 26th, 1917, at South Shields, into the case of Mr. Robert Miller Danks, L.R.C.P., L.R.C.S., of 3, Cleveland Street, and Hadrian House, South Shields. The Commissioners state that, upon consideration of the report of the inquiry committee, they are not satisfied that the continuance of Dr. Danks on the panel would be prejudicial to the efficiency of the medical service of the insured, and accordingly they have decided not to take further action in the matter.

A copy of the report of the inquiry committee which investigated the complaint has been forwarded to us by Mr. W. E. Hempson, solicitor, who represented Dr. Danks. From this it appears that the complaint was to the effect that Dr. Danks on certain specified dates issued to insured persons prescriptions on the official form ordering in each case "Sacc. ust; q.s., Aq. font." The facts alleged were fully admitted by Dr. Danks, who, however, stated that he had given careful consideration to, and had prescribed the usual remedies in each of the cases referred to, and that it was only after he found that no benefit resulted from the use of the drugs so prescribed that he prescribed "Sacc. ust" as a placebo. The inquiry committee states that no evidence was offered to show that Dr. Danks had not in fact treated the cases with proper attention and prescribed the usual remedies before resorting to the use of a placebo, and therefore accepted his evidence in the matter. The committee concluded its report with the following statement:

"According to the evidence given before us the prescribing of a 'placebo' is a recognized practice of the medical profession, and it hardly appears to be within our province to consider whether other treatment might have been more beneficial, or to express any opinion on the practice in cases where a duly qualified medical practitioner after careful consideration has honestly formed the opinion that other treatment is not likely to be justified by results."

THE LONDON PANEL COMMITTEE WAR EMERGENCY SCHEME.

The London Panel Committee, in its *Gazette* for May, again draws attention to its war emergency scheme, the main provisions of which are as follows:

(1) The secretary of the Committee is authorized to make such arrangements as he deems necessary for the treatment of the insured persons on the list of practitioners taking advantage of the scheme. (2) Fifty per cent. of the moneys payable to the absent practitioner by the Insurance Committee are paid into the War Emergency Fund, which is divided each quarter amongst the practitioners assisting in the scheme. (3) The fund is divided according to the number of insured persons for whom treatment is actually provided under the scheme during each quarter.

As a number of practitioners who at first were unable to assist now find that it is possible to do so, arrangements are being made for payment to be made to any practitioner, whether panel or non-panel, who may provide treatment for any of the insured persons concerned under the scheme. A list is given of practitioners who have taken advantage of the scheme and are at present on service, and it will be quite in order for any practitioner, whether he has formally expressed his willingness to assist in the scheme or not, to provide treatment for any insured persons on the list of these practitioners. Prescriptions should be signed in the name of the absent practitioner and initialled by the practitioner giving the prescription, and claims for payment should be sent in to the secretary of the Committee within a week of the end of the quarter.

Assignment of Insured Persons.

The Committee has also made some modification in the scheme for the assignment of insured persons and the crediting of the additional capitation fees. Clauses 2, 3, and 4 of the existing scheme are to be deleted, and clauses to the following effect are substituted:

1. While safeguarding the right of a practitioner to refuse to accept an insured person on to his list, the practitioner who refuses shall inform the person that it is open to him to apply to another practitioner, and shall hand to him a form to be supplied by the Insurance Committee in order that he may apply to the Panel Committee to be assigned to another practitioner.
2. Pending such assignment or acceptance by another practitioner, the practitioner who refuses to accept a person shall give such treatment as is necessary.
3. The Panel Committee, on receipt of the form referred to, shall assign the person to some panel practitioner, and shall notify all concerned of its action.
4. In cases not covered as above, the Panel Committee, on learning that an insured person has difficulty in securing acceptance, shall forthwith arrange for him to be accepted or assigned to some panel practitioner, and shall notify such arrangement to the Insurance Committee.

LOCAL MEDICAL AND PANEL COMMITTEES.

Herefordshire.

At a meeting of the Local Medical and Panel Committee on April 16th it was decided not to agree to the following resolution from the County of London Panel Committee:

> That the Insurance Commissioners be requested to take steps to secure that in all cases where it is necessary to obtain the views of the panel profession, a body directly representative of the Panel and Local Medical Committees throughout the country should be consulted.

Although desirable in itself, it was felt that no good purpose would be served in pressing the resolution at the

present time, as it would be likely to diminish the usefulness of the British Medical Association by dividing the counsels of the profession.

The report of the Joint Subcommittee on the future policy of the British Medical Association as regards national health insurance was received and adopted.

The Honorary Secretary was instructed to inquire as to the delay in the payment of the 1916 special mileage grant and the 1914–15 balance.

NON-PANEL DOCTORS AND NATIONAL INSURANCE CERTIFICATES.

IN order to minimize as much as possible the inconveniences caused to doctors who attend insured persons in their private capacity, the Association has published books of certificates which, it is believed, will meet the requirements of approved societies, so far as is practicable in the case of certificates not given under the obligations of the official medical certification rules. The form of certificate is sufficiently like the official form to remove many of the difficulties which insured persons who have been attended by private doctors have had in satisfying the requirements of their approved societies, but is sufficiently distinct from the official form to show at once that it is being used by a doctor who is attending the patient in a private capacity—that is to say, either by a doctor who is not on a panel, or by a panel doctor other than the one on whose list the insured person is.

The books are being issued at cost price. They contain 50 certificate forms, and may be obtained from the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C., price 6d. each, post free.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following notifications are announced by the Admiralty: Surgeon-General Sir Arthur W. May, K.C.B., F.R.C.S., K.H.P., has been placed on the retired list at his own request. Fleet Surgeons: F. H. Nimmo to the *Pembroke*, vice Mornement; R. W. B. Hall to the *Dolphin*. Surgeon W. F. Beattie, M.B., to Haulbowline Hospital and Dockyard. Temporary Surgeon P. E. E. Frossard to Plymouth Hospital; E. Hefferman, M.B, to Haulbowline Hospital and Dockyard; A. A. Cockayne to the *Queen Elizabeth;* R. Buddle, M.B., to the *Southampton;* J. F. Haynes to the *Victory;* J. E. McCausland, M.B., to the *Vivid*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeons: R. Wilbond to the *Vivid;* A. E. W. Hird to the *Pembroke*. Surgeon Probationers: G. G. Newnham to the *Midge*, vice Williams; C. L. Wilson to the *Contest;* R. F. Pratt to the *Tartar*. To be Surgeon Probationers: D. C. Scotland and N. G. Thomson.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel A. R. Aldridge, C.S.I., C.M.G., Reserve of Officers, to be acting Colonel whilst specially employed.

Lieutenant-Colonel H. E. M. Douglas, V.C., C.M.G., D.S.O., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division.

Temporary Major W. R. Dawson, F.R.C.P., to be temporary honorary Lieutenant-Colonel.

Granted temporary rank whilst serving with Belfast War Hospital: As Lieutenant-Colonel, W. Graham, M.D.; as Captain, S. J. Graham.

Temporary honorary Lieutenant-Colonel C. H. Fagge, R.A.M.C.(T.F.), having resigned his appointment, relinquishes his temporary commission.

Temporary Major S. W. Woollett relinquishes his commission, and is granted the honorary rank of Major.

Temporary Captains to be temporary Majors: H. H. Serpell, E. W. Witham, G. P. Humphrey, V. J. Blake, M.B., F. B. G. Stableford.

Temporary Major W. Hind, M.D., F.R.C.S. (Major and Brevet Lieutenant-Colonel T.F. Reserve), to be temporary Lieutenant-Colonel.

Temporary honorary Major W. I. de C. Wheeler to be temporary Major and honorary Lieutenant-Colonel.

W. S. Haughton to be temporary Major.

Captain O. R. McEwen to be acting Major whilst in charge of a Base Dépôt Medical Store.

Temporary Captain R. P. Nash (Captain R.A.M.C.T.F.) to be acting Lieutenant-Colonel whilst in command of a field ambulance.

Temporary Captain B. G. Elliott (Major E. Lan. R.T.F.) to be temporary Major.

Arthur C. D. Firth, M.D., late temporary Captain, is granted the honorary rank of Captain.

Granted temporary rank for duty with South African Labour Corps:—As Major: T. N. Frood, F. H. Welsh. As Captain: C. A. Kitching, E. B. Israel, W. F. McGlashan, H. Tren, W. S. Calder, W. L. A. Leslie, C. D. Goodenough, G. B. Moffat, L. E. Hertslet, L. P. Booth, T. A. Beddy, M. Ricono, C. J. H. Aitken, J. McLaw, C. G. Todd. As Quartermaster with the honorary rank of Lieutenant: G. E. Baker.

Temporary Captains relinquish their commissions: M. E. Robinson, M.B., A. T. Roberts, M.B., C. J. Butler, J. A. Gibb, M.D., C. S. Crichton, M.D., T. L. Wormald, M.B., A. H. Butcher, G. W. Stone, H. C. Thorp, M.B., J. R. McVail, M.B.

Temporary Lieutenants to be temporary Captains: J. R. Payne, D. MacC. Brown, M.D., A. N. Drury, M.B., A. A. B. Scott, M.B., J. C. Anderson, M.B., E. I. Davies, F. W. Davidson, M.B., C. Stanley-Clarke, M.B., J. A. Vlasto, M.B., C. G. Kemp, M.C., M.D., F. C. Jobson, C. C. Austin, J. Gray, M.B., R. L. Ferguson, M.D., O. R. Allison, M.B., T. M. Bride, M.D., A. E. Finney, M.D., P. S. Green, M.B., W. A. Cardwell, M.B., W. W. Wood, M.B., F. Shannon, M.B., L. Gameson, M.B., S. H. Calnek, M.B., E. H. Montgomery, M.D., H. M. Drake, G. Arthur, M.B., D. I. Dakeyne, M.B., C. A. R. McCay, E. J. B. Moynihan, H. H. Crickitt, R. H. Balfour-Barrow, M.B., G. W. Doran, M.B., W. T. Evans, M.B., D. M. Smith, J. Manuel, M.B., H. Joslen, M.D., W. Spiteri, M.D., J. H. Vanderwert, A. P. MacMahon, M.B., W. M. Stewart, M.B., R. Lindsay, M.B., J. W. Macfarlane, M.B., F. R. Martin, M.B., J. N. Cruickshank, M.B., A. Davidson, M.B., J. B. Fisher, M.B., T. R. Fulton, M.B., G. Kirkhope, M.B., T. H. V. King, P. G. Foulkes, M.B., S. G. Harrison, V. C. James, J. A. Tobin, M.B., R. G. Gillies, M.B., A. A. Greenwood, M.B., W. B. Knobel, M.D., W. D. Newcombe, L. G. Jacob, A. N. Haworth, D. Kennedy, W. C. Gore, M.B., P. A. Dargan, D. W. Smith, M.B., E. H. Eastwood, M.B., N. B. Capon, M.B.

Temporary Lieutenants relinquish their commissions: M. D. Baker, M.B., W. Anderson, M.B., F. H. Simpson, M.D., W. H. C. Romanis, M.B., F.R.C.S., G. A. Francis, C. D. Hatrick, M.D., R. H. Titcombe M.D., T. F. Collins, H. Lewis, D. J. Roantree, M.B., A. E. A. Carver., M.B., A. Smirthwaite, M.B., R. E. J. St.J. Griffin, L. F. McDowell, M.D., W. T. Little, H. A. Hodgkinson, M.D., F.R.C.S.

E. K. Le Fleming, M.B., to be temporary honorary Lieutenant whilst employed with the British Red Cross Hospital, Netley.

A. Stephen, M.B., late temporary Lieutenant, to be honorary Lieutenant.

J. Harper to be temporary Quartermaster, with the honorary rank of Lieutenant whilst employed at the Belfast War Hospital.

Quartermaster and honorary Major R. R. Cowan is retained on the active list and to be supernumerary.

To be temporary Quartermasters, with the honorary rank of Lieutenant: W. C. Audus, J. Stroud.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain R. Magill, M.B. to be acting Lieutenant-Colonel whilst in command of a field ambulance.

The following from the University Contingents O.T.C. indicated to be Lieutenants:—London: J. Rowland, R. L. Robinson, F. O. Taylor, M.B., J. H. Wiseman, O. St. L. Campion. Manchester: P. A. Ashcroft. Glasgow: A. B. Black, W. Brown, N. S. Bruce, R. G. Battersby, L. W. Hughes, J. J. Mulvey, S. N. Dykes, A. D. Gorman. Birmingham: W. W. Newton, J. J. Scott, H. G. V. Mence, F. J. Harvey.

To be Lieutenants: H. Chadwick, T. C. Murphy, H. Gainsborough, L. Gill, A. H. Boon, R. McGregor.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL SERVICE.

To be Assistant Directors of Medical Services: Temporary Lieutenant-Colonel W. H. Delaney, temporary Lieutenant-Colonel J. McCombe, vice Lieutenant-Colonel W. L. Watt.

To be Deputy Assistant Directors of Medical Services: Temporary Captain K. H. Van Norman, Canadian A.M.C., from November 20th, 1916, to April 2nd, 1917; Temporary Captain M. H. Allen, Canadian A.M.C., April 1st, 1917. (Substituted for notification in the *London Gazette* of April 27th, 1917.)

CANADIAN ARMY MEDICAL CORPS.

Temporary Major D. P. Kappele to be temporary Lieutenant-Colonel whilst holding an appointment as O.C. Canadian Cavalry Field Ambulance (substituted for *London Gazette* notification, April 28th, incorrectly describing name as K. P. Kapelle).

The initials of Captain T. R. C. Hays-Hicks are as shown and not T. R. E. as in the *London Gazette* of October 17th, 1916.

Temporary Captains to be acting Majors while specially employed: J. W. Hutchinson, R. H. M. Hardisty.

Temporary Lieutenant-Colonel T. C. D. Bedell, from a Canadian Infantry Battalion, to be temporary Lieutenant-Colonel.

H. H. Perry, M.D., to be temporary Captain.

Temporary Quartermaster and honorary Lieutenant W. Taylor to be temporary honorary Captain.

Staff Sergeant J. E. Carruthers to be temporary Quartermaster and honorary Lieutenant.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel C. E. Douglas, M.D., F.R.C.S., from T.F. Reserve to be Lieutenant-Colonel.

Major (acting Lieutenant-Colonel) W. D. Watson relinquishes his acting rank on ceasing to command a field ambulance.

Major W. McCall, M.B., to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Captain (temporary Major) A. C. H. McCullagh to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Captain A. G. R. Foulerton, F.R.C.S., to be temporary Major.

Captain E. P. I. Coke relinquishes his commission on account of ill health, and is granted the honorary rank of Captain, June 14th, 1916. (Substituted for notification in the *London Gazette* of June 13th.)

Captain R. P. Nash is seconded whilst holding a temporary commission in the R.A.M.C.

Captain R. J. Irving, M.B., F.R.C.S., relinquishes his commission on account of ill health.

Captain S. Acheson, from T.F. Reserve, to be Captain with precedence as from April 26th, 1915.

Captain J. W. Heslop, T.F. Reserve, to be Captain.

Lieutenants to be Captains: A. E. I. Brownlee, M.B., J. McG. H. Reid, M.B.

To be Lieutenants: L. H. Callendar, F. J. E. China, R. C. Davie.

Quartermaster and honorary Lieutenant W. F. E. Seymour relinquishes his commission on account of ill health.

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

Captain J. R. Holmes, M.B., to be Captain.

COLONIAL MEDICAL SERVICE.

WEST AFRICAN MEDICAL STAFF.

The following changes are notified by the Colonial Office:

Transfers and Promotions.—C. E. S. Watson, M.R.C.S.Eng., L.R.C.P.Lond., Senior Medical Officer, to be Provincial Medical Officer, Nigeria (Northern Provinces). J. C. M. Bailey, M.D.Lond., M.R.C.S.Eng., L.R.C.P.Lond., temporary Lieutenant R.A.M.C., Medical Officer, to be Senior Medical Officer, Nigeria (Southern Provinces). A. E. Horn, M.D.Lond., M.R.C.S.Eng., L.R.C.P.Lond., B.Sc Lond., Senior Medical Officer, from the Gambia to Nigeria (Northern Province). E. C. Adams, M.R.C.S.Eng., L.R.C.P.Lond., Senior Medical Officer, from the Gold Coast to the Gambia.

Retirement.—R. W. Gray, M.B., C.M.Edin., D.P.H.Cantab., Senior Medical Officer, Nigeria (Southern Provinces), retires on pension.

Resignation.—G. G. P. Beckett, M.D., B.Ch., B.A.O.Dubl., temporary Lieutenant R.A.M.C., Medical Officer, Gold Coast, resigns his appointment. G. F. Darker, M.D., D.P.H.Durh., M.R.C.S.Eng., L.R.C.P.Lond., ceases to be temporarily re-employed as Medical Officer, Nigeria (Northern Provinces). H. G. F. Spurrell, M.B., B.Ch.Oxon., F.Z.S., ceases to be temporarily employed.

Deaths.—L. Doudney, M.R.C.S.Eng., L.R.C.P.Lond., Medical Officer, Nigeria (Northern Provinces). T. Ryan, M.B., B.Ch., B.A.O.Dubl., Medical Officer, Gambia, drowned at sea by enemy action.

The following officers, whose services have been placed at the disposal of the Army Council, have been given temporary commissions in the R.A.M.C.: Messrs. A. C. Parsons, C. L. Ievers (Gold Coast), E. A. Chartres, W. G. Cobb (Nigeria).

The following officers have been temporarily lent to other administrations: Messrs. A. E. Horn, T. H. Suffern (Nigeria), G. J. Keigwin (Gold Coast) to the Provisional Civil Administration, German East Africa; H. F. Hamilton (Gold Coast), P. A. Clearkin, J. McK. Clark, J. M. O'Connell (Sierra Leone) to the East Africa Protectorate; J. Currie (Nigeria) to the Uganda Protectorate; H. E. Arbuckle (Sierra Leone), E. J. Quirk (Nigeria) to the Nyasaland Protectorate.

The following officers are on military duty in East Africa: Messrs. T. M. R. Leonard, G. H. Gallagher, T. R. Sandeman, E. Gibson, C. Mackey (Nigeria).

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BIRMINGHAM EDUCATION COMMITTEE. — Assistant School Medical Officer (temporary). Salary, £300 per annum.

BOOTLE BOROUGH HOSPITAL.—Junior House-Surgeon. Salary, £170 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

CAPE TOWN: SOUTH AFRICAN COLLEGE.—Werner Beit Professorships of Pharmacology, Pathology, and Bacteriology. Salary, £800 per annum each, increasing to £1,000.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer. Salary, £200 per annum.

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry. — (1) House-Surgeon. (2) House-Physician. Salary, £300 and £250 per annum respectively.

DARLINGTON GENERAL HOSPITAL.—House-Surgeon. Salary, £200 per annum.

GUY'S HOSPITAL, S.E.—Assistant in the Bacteriological Department. Salary, £250 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—(1) Resident Medical Officer. Salary, £200 per annum. (2) House-Physician. Honorarium, 30 guineas for six months.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LIVERPOOL EYE AND EAR INFIRMARY. — House-Surgeon. Salary, £150 per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury. — Two Resident Medical Officers (female). Salary, £100 per annum, and war bonus £5 a month.

MANCHESTER CORPORATION.—Temporary Assistant Tuberculosis Officer. Salary, £450 per annum.

MANCHESTER ROYAL EYE HOSPITAL.—House-Surgeon. Salary, £120 per annum.

MANCHESTER ROYAL INFIRMARY AND DISPENSARY. — Honorary Assistant Physician.

NEWCASTLE EYE INFIRMARY,—Non-resident House-Surgeon. Salary, £140 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL. —House-Physician. Salary, £200 per annum.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.— Honorary Assistant Surgeon to the Ear, Nose, and Throat Department.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.— (1) Assistant Physician; (2) Two House-Physicians; (3) Casualty House-Surgeon; (4) House-Surgeon. Salary for (2), (3), and (4), £100 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon (male). Salary, £150 per annum.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Lady House-Surgeon for the Gynaecological and Maternity Departments. Salary, £200 per annum,

SHEFFIELD ROYAL INFIRMARY. — House-Physician. Salary, £120 per annum.

SHREWSBURY: ROYAL SALOP INFIRMARY. — House-Physician. Salary, £200 per annum.

STOCKPORT EDUCATION COMMITTEE.—School Medical Officer. Salary, £300 per annum, rising to £350.

WESTMORLAND CONSUMPTION SANATORIUM AND HOME, Meathop.—Assistant Medical Officer. Salary, £300 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: East Wemyss (Fife).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

DYSON, P. A. S., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Grosmont District, co. Yorks.

HEATH, Charles, F.R.C.S., Consulting Aurist to the Metropolitan Asylums Board Infirmary for Children, London, W.1.

JAMES, S., M.R.C.S., L.E.C.P., Certifying Factory Surgeon for the Brynamman District, co. Carmarthen.

JONES, R. F., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Tamworth District, co. Stafford.

LEIGHTON, William J., M.D., B.Ch.R.U.I., Assistant Surgeon (temporary) to St. John's Hospital of Manchester and Salford for the Ear, Nose, and Throat.

MASON, P. J., M.B. Ch.B.Birm., Certifying Factory Surgeon for the Tipton District, co. Stafford.

O'CLERY, L., M.D., M.Ch.R U.I., Certifying Factory Surgeon for the Clonakilty District, co. Cork.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

MARRIAGES.

ALDERSON—PASTEUR.—On June 4th, at St. Andrew's, Wells Street, by the Rev. W. Harry Roberts, M.A., Captain Gerald Graham Alderson, F.R.C.S., R.A.M.C., son of Mr. and Mrs. John Alderson, of Newcastle-on-Tyne, to Marguerite Norah, elder daughter of Colonel W. Pasteur, A.M.S., and Mrs. Pasteur, Chandos Street, Cavendish Square.

DICKSON—CUNNINGHAM.—At St. George's U.F. Church, Edinburgh, on June 5th, by Professor H. R. Mackintosh, Captain Robert Milne Dickson, R.A.M.C., Bath, fourth son of William Dickson, Newport, Fife, and Kate Wilson, daughter of the late William Cunningham, Dundee, and Mrs. Cunningham, 6, Murchiston Bank Gardens, Edinburgh.

WARBURTON—O'HAGAN.—At St. John's Church, Pendlebury, on June 2nd, by the Rev. T. Dale Jones, M.A., Gilbert Bertram Warburton, M.B., Ch.M., F.R.C.S.Eng., second son of the late Samuel Warburton of Bolton, to Edith Eveline Maureen, younger daughter of Charles O'Hagan, of co. Meath, Ireland.

DEATHS.

ATKINSON.—At 107, Comeragh Road, West Kensington, on May 23rd, 1917, John Mitford Atkinson, M.B.Lond., aged 60 years. Late P.C.M.O. Hong Kong.

BLAKE, Percy Ryall, M.R.C.S., L.R.C.P., aged 40, of "Ecclesbourne," Whipps Cross, Walthamstow, on May 28th, at Westcliff-on-Sea.

DIARY FOR THE WEEK.

FRIDAY.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W., 5.30 p.m.—Father G. Greggio (Belgian Congo): Treatment of Yaws and Other Diseases in the Belgian Congo. Dr. R. T. Leiper: Note on the Integument of the Bilharzia Miracidium.

ROYAL SOCIETY OF MEDICINE.—*Section of Medicine:* Tuesday, at 5.30 p.m., Lecture with Lantern Demonstration. Major Aldo Castellani: Tropical Diseases to which the Allied Troops are exposed in the Balkanic Zone. *Section of Ophthalmology:* Wednesday, 8.30 p.m., Annual General Meeting. Discussion on "The Etiology and Treatment of Iritis" to be opened by the President, Mr. Lang.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JUNE.
12	Tues.	London: Organization Committee, 2.15 p.m.
		London: Non-Panel Committee, 4 p.m.
		Isle of Thanet Division, Annual Meeting, Ramsgate, 8.15 p.m.
14	Thurs.	Portsmouth Division, Annual Meeting, Southsea, 3.30 p.m.
		South Wales and Monmouthshire Branch, Annual Meeting, Cardiff Infirmary, 3 p.m.
15	Fri.	South-Western Branch, Annual Meeting, Exeter, 4 p.m.
19	Tues.	Leinster Branch, and Dublin and Leinster Divisions, Annual Meetings, Irish Offices, British Medical Association, 16, South Frederick Street, Dublin, at 4.30 p.m., 5.30 p.m., and 6 p.m., respectively.
20	Wed.	London: Finance Committee, 2.30 p.m.
		Edinburgh Branch, Annual Meeting, Royal College of Physicians, Edinburgh, 4 p.m.
26	Tues.	Metropolitan Counties Branch, Annual Meeting, 429, Strand, W.C., 4 p.m.
27	Wed.	London: **Council Meeting.**
28	Thur.	Kent Branch, Annual Meeting, Tonbridge, 4 p.m.
		Midland Branch, Annual Meeting, Leicester, 3 p.m.
		South-Eastern Counties Division, Edinburgh Branch, Annual Meeting, Newtown St. Boswells, 3 p.m.
		JULY.
13	Fri.	East Yorks and North Lincoln Branch, Annual Meeting, Hull Royal Infirmary, 4 p.m.
26	Thurs.	ANNUAL REPRESENTATIVE MEETING, and succeeding days, if necessary.
27	Fri.	ANNUAL GENERAL MEETING.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 16TH, 1917.

CONTENTS.

	PAGE
British Medical Association.	
CURRENT NOTES: INSURANCE ACTS ADVISORY COMMITTEE.—PAYMENT OF MEDICAL OFFICERS IN V.A.D. HOSPITALS.—CENTRAL MEDICAL WAR COMMITTEE.—ATTACKS ON THE ASSOCIATION	139
REMUNERATION FOR MEDICAL ATTENDANCE ON DISCHARGED DISABLED SOLDIERS AND SAILORS ...	139
British Medical Association *(continued).*	
MEETINGS OF BRANCHES AND DIVISIONS	140
ASSOCIATION NOTICES	141
NAVAL AND MILITARY APPOINTMENTS	142
VACANCIES AND APPOINTMENTS	142
DIARY	142

British Medical Association.

CURRENT NOTES.

Insurance Acts Advisory Committee.

As has been reported at various times in the SUPPLEMENT, the Insurance Acts Committee entered a strong protest against the proposed composition of the new statutory Advisory Committee, and has been in negotiation with Sir Edwin Cornwall on the subject. These negotiations, in so far as the medical representation on the Advisory Committee is concerned, have been successful. The intention now is to divide the Advisory Committee into two sections, (*a*) general, and (*b*) medical, which in the ordinary way will meet separately to consider matters affecting primarily their respective interests. The general section will consist of the present thirty members, with two or three medical representatives from the medical section. The composition of the medical section will be twelve medical practitioners, one representative of approved institutions, one or two pharmacists, and one or two representatives from the general section. The full committee of both sections will meet at least twice a year. Of the twelve practitioners, not fewer than eight, including one woman, must be engaged in practice under the Insurance Acts, and there will be representation of panel practice in the metropolitan area, in rural areas, in industrial areas, in Scotland, in Ireland, and in Wales. The remaining four are intended to represent consultant, pathological, and public health services, with one general practitioner not engaged in practice under the Acts. The Medical Secretary of the British Medical Association has addressed a letter to Local Medical Committees with regard to the nomination of suitable practitioners to represent the views of the profession on the new Advisory Committee, and copies have been forwarded to honorary secretaries of Panel Committees, Divisions, and Branches for information. The Insurance Acts Committee on receipt of these nominations will proceed to select names for forwarding to the chairman of the Advisory Committee, who will make the appointments.

Payment of Medical Officers in V.A.D. Hospitals.

With reference to the paragraphs which have appeared recently regarding the remuneration of medical officers in V.A.D. hospitals, we are now able to state that applications for payment may in future be made in all commands if desired. The application must be made on Form P 62, through the commandant of the hospital, through whom, also, we presume copies of the form can be obtained. We have received several further letters on the subject. One correspondent, who is consulting surgeon to a Red Cross hospital and to an auxiliary hospital, in addition to the much increased duties of surgeon to a large provincial hospital, whose surgical staff has been reduced from five to two since the war, writes: "In my civil hospital we have 70 soldiers' beds. In my Red Cross hospital I have performed over 300 operations, and several in the auxiliary hospital. I do not wish for pay, neither do I desire rank, but I should like some badge or recognition to hand down to my children to show that I have done my duty as far as lies in my power; at present I have nothing. I am well over military age. No doubt there are others in my position who feel as I do."

Central Medical War Committee.

The following have been appointed additional members of the Central Medical War Committee: Dr. H. J. Campbell (Bradford), Dr. H. J. Cardale (Cubitt Town, E.), Lieut.-Colonel J. Michell Clarke (Bristol), Dr. T. W. H. Garstang (Altrincham), Dr. Arnold Lyndon (Hindhead), Dr. H. J. Starling (Norwich).

Attacks on the Association.

At the last meeting of the Insurance Acts Committee Dr. Parkes Peers explained that in consequence of the repeated attacks on the British Medical Association in the organ of the Panel Medico-Political Union, he had come to the conclusion that to hold office in that Union was not compatible with his membership of the Insurance Acts Committee; he had therefore written to the Secretary of the Union, condemning the methods adopted in the "Panel Notes" of its periodical, and resigning the treasurership of the Union.

REMUNERATION FOR MEDICAL ATTENDANCE ON DISCHARGED DISABLED SOLDIERS AND SAILORS.

MEMORANDUM BY THE INSURANCE ACTS COMMITTEE.

THE Insurance Acts Committee has forwarded the following memorandum to the Insurance Commission:

1. The Insurance Acts Committee of the British Medical Association, acting on behalf of the Local Medical and Panel Committees of the country, desires to press on the National Health Insurance Commission the necessity of some early decision being arrived at as to the claim which has repeatedly been made for a special payment for medical attendance on discharged disabled soldiers and sailors.

2. This claim was first put forward by a deputation from the Insurance Acts Committee which met the late Chairman of the National Health Insurance Joint Committee and the Commissioners on July 9th, 1915, and placed before Mr. Charles Roberts, M.P., the following resolution of the Conference of representatives of Local Medical and Panel Committees which had met on June 16th, 1915:

> *Minute 60.*—Resolved: That inasmuch as the men who are removed from the panel lists are amongst the best lives and were unlikely to be any serious charge on the medical services for many years, and that many of them are now returning permanently damaged in health, the Conference is of opinion that the actuarial calculations of the Insurance Act, so far as medical benefit is concerned, have been vitiated, and that some provision should be made by Parliament to meet the situation.

Mr. Roberts indicated that if any proposals were put forward which involved an increased payment being made to insurance practitioners there were various set-offs which the Government would wish to advance, as, for example, the prospective return of many soldiers and sailors to civil life in an improved state of health owing to the physical

training they had undergone. The deputation at that time contented itself with placing on record the claim of insurance practitioners for consideration.

3. The Conference held on October 19th, 1916, passed the following resolutions:

(*a*) The question of wounded and disabled discharged sailors and soldiers, whether insured or not, is one to be dealt with by the State as a special national problem; and cannot be considered to be covered by the terms and conditions of service of panel practitioners.

(*b*) The rate of payment at present accepted by panel practitioners for insured persons is totally inadequate to meet the needs of these discharged persons.

(*c*) Payment for medical attendance should be made for each person, to the doctor accepting him, on a scale agreed upon between the British Medical Association and the Government.

These were published and were referred to by the deputation which met the Commissioners on December 18th, 1916.

4. The question has now become urgent in view of the facts (1) that the war has lasted for nearly three years and the numbers of discharged disabled soldiers now falling to be attended by insurance practitioners is already so considerable that the medical profession cannot longer afford to ignore their return, and (2) that it is now proposed to arrange for medical attendance on discharged disabled soldiers and sailors who are not insured persons, and as it is necessary that some terms should be arranged for these, it is desirable that the problem should be dealt with as a whole.

5. The claim for increased remuneration is based on the following grounds:

(*a*) The removal of a large number of healthy insured men (said to be over 3,000,000) from the lists of the doctors has disturbed the balance on which the rate of remuneration for medical attendance under the Insurance Acts was fixed. If it had been foreseen that the best lives were to be taken away during the operation of the present bargain, while a large number of newly insured persons (mainly women) were to be introduced into the system, the medical profession would undoubtedly have demanded greater remuneration than that which it is now receiving.

It may be said that this is a reason for the revision of the present bargain and not a reason for increased payment for the class now under consideration, but it is understood that it would be inconvenient, to say the least, for such a contentious subject to be raised at a time like this, and that in any such revision it might be contended that there are possible temporary advantages caused by the war which may be set off against the disturbances of liability caused by the withdrawal of the best lives. The Association does not accept this contention, and if it be desired now to review the whole question of remuneration the medical profession would be quite willing, being assured that the greatly increased cost of living and of carrying on medical practice, and the concessions that are being made to nearly all classes of workers on similar grounds, could not fail to operate in favour of an increase of remuneration for medical attendance on insured persons. Already in several areas the profession has been compelled to raise its charges to private patients. The profession is, however, willing to waive this question for the moment if the present claim be considered forthwith.

(*b*) If not entirely separate from the general question of the disturbance of insurance risk by the withdrawal of the best lives and the addition of others (women and elderly workers more liable to sickness), the matter with which we are immediately concerned is at least separable, for the return of a proportion of these withdrawn lives—not as they were before but actually disabled or damaged by circumstances quite apart from ordinary risks—is an immediate maturing of heavy liabilities over and above the before-mentioned disturbance of insurance risk. There can be no doubt that most discharged disabled soldiers will require more attendance than they required before they went into the army. The Minister for Pensions is arranging for the provision of the specialist treatment that many of these men will require, and practically all of them will also require the attendance of the general practitioner—some more, some less. Of those who will not require specialist treatment at all, or very little, many will require for a long time—some of them for the rest of their lives—much more general practitioner attendance than they would have required had they never entered the army. As examples the following classes may be quoted: Those who have suffered from rheumatism, from dysentery, from malaria, from wounds of and the effects of gas poisoning on the chest and lungs, from nephritis, from excessive bleeding, leading to general lowering of vitality, from shell shock, from injuries to the head, and from neurasthenia.

(*c*) It is true that a number of cases (the exact number or proportion cannot possibly be known) will be cared for in institutions, but it will be the object of such institutions to discharge these men as soon as they are fit to face the world again, and it is almost certain that many of them will continue for a long time to require a good deal of medical treatment.

(*d*) In conversations on this subject with the Insurance Commissioners much has been said as to the alleged "set-offs" which are supposed to compensate insurance practitioners for any increased liability caused by the return of disabled soldiers. It is suggested, for example, that increased wages allowing of better food and clothing have conduced to the better health of those insured persons remaining at home, including those who have come into insurance during the war, and that there are data which show that the amount of attendances given to insured persons has decreased during the war. The Insurance Acts Committee has no knowledge of these data. If they are based on the amount of sickness benefit given the data are quite unreliable as evidence of the amount of medical attendance given, as has often been pointed out—sickness benefit, being only for domiciliary medical attendance, is consequently no criterion of the considerable amount of attendance given by doctors to insured persons at their surgeries, the reason for which does not as a rule necessitate application being made by the insured person to his society for sickness benefit. In any case, if such "set-offs" could be proved to exist, it is submitted that they would form part of the case of the State when a revision of the whole bargain is undertaken, and that they have nothing to do with the special claim that is now put forward—namely, a claim for a special and additional payment for those insured persons who have been returned from the army as unfit for military service on account of impaired health.

As there are no reliable data on which it is possible to base the rate of remuneration which should be paid for this class, it is suggested that, at any rate for an experimental period, the attendance on discharged disabled soldiers and sailors should be paid for on an attendance basis. The result of such an experiment would show (1) whether the claim for an increased payment for attendance on this class is justified, and (2) what would be the proper capitation rate of remuneration for such attendance.

Meetings of Branches and Divisions.

BORDER COUNTIES BRANCH:
DUMFRIES AND GALLOWAY DIVISION.

THE annual general meeting of the Division was held in the Dumfries and Galloway Royal Infirmary on May 11th. In the absence of the chairman, Captain A. Chalmers, on active service, and of the vice-chairman, Dr. Maclachlan, Dr. REID was appointed to preside.

Election of Officers.—It was agreed to reappoint the office-bearers, with the exception of the Representative. Dr. Martin undertook to act at the July meeting.

Annual Representative Meeting.—The recommendations and instructions of the Council were considered, and were generally approved. Regarding the mobilization of the profession, a divergence of opinion was expressed, and a motion for mobilization was carried by six votes to four.

LANCASHIRE AND CHESHIRE BRANCH:
SOUTHPORT DIVISION.

THE annual meeting of the Division was held on May 31st.

Election of Officers.—The officers and Executive Committee were re-elected.

Ministry of Health.—The Report of the Council was considered, especially the reference to a proposed Ministry of Health, which was considered clause by clause, and the following resolution was carried unanimously:

That this meeting, having considered the Report of the Council, expressed its general approval of it as a whole, and especially of the reference regarding a proposed Ministry

of Health, to which special attention has been called by the Council, and respecting which the Division hopes to have a further reference to be submitted to all the members of the profession in Southport before the Representative Meeting of the Association to be held in July.

NORTH WALES BRANCH:

NORTH CARNARVON AND ANGLESEY DIVISION.

A MEETING of the Division was held at Bangor on May 29th, when, in the absence of the chairman and vice-chairman, Dr. PRICE was voted to the chair.

Election of Officers.—The officers, Executive Committee, and representative were re-elected. Dr. R. M. Williams (Menai) was appointed to act as deputy representative in case Dr. Price was unable to attend, and Dr. Rowland Jones was appointed on the Local War Committee to succeed Dr. Prytherch, as he was about to accept a commission in the R.A.M.C.

Annual Representative Meeting.—The matters contained in the agenda was generally left to the discretion of the representative. He was, however, instructed to oppose Recommendation G regarding a Ministry of Health, and the following resolution was adopted:

> That this Division views with some apprehension the proposals contained in paragraphs 13, 15, 16, 17, Recommendation G, as being the first step in the direction of establishing a state medical service contrary to the views of the Local Medical and Panel Committee as expressed in this conference held in October last and to the views of the Association itself.

Examination of Discharged Soldiers.—While agreeing to the proposed fee of 5s. suggested by the Central Council, for the examination and report of discharged soldiers and sailors for the use of pensions committee, the Division did not consider such a fee in all cases as a permanent arrangement adequate remuneration for the information required.

STAFFORDSHIRE BRANCH:

SOUTH STAFFORDSHIRE DIVISION.

THE annual meeting of the Division was held at Wolverhampton on May 24th, when Dr. E. H. COLEMAN was in the chair.

Election of Officers.—The following officers were elected for 1917–18:

Chairman: Dr. A. H. W. Hunt.
Vice-Chairman: Dr. E. H. Coleman.
Honorary Secretary and Representative in Representative Meetings: Dr. H. C. Mactier.
Members of Branch Council: Dr. Ridley Bailey, Mr. W. F. Cholmeley, and Dr. J. A. Codd.
Executive Committee: Drs. F. A. Cooke, T. C. Craig, E. Deanesly, T. H. Galbraith, W. L. E. Mathews, and J. A. Wolverson and Dr. Malet (President of the Branch) *ex officio*.

Dispensing for Private Practitioners.—Drs. Carter, Coleman, and Galbraith were appointed a committee to confer with the chemists of Wolverhampton on their offer to dispense for the duration of the war for private practitioners.

Annual Representative Meeting.—The representative was instructed on the Provisional Agenda, and with regard to Recommendation G of the Medico-Political Committee, referring to the Ministry of Health, was instructed to move:

> That the time is not opportune for the introduction of such a radical change in the work of the medical profession, when so many practitioners are absent on active service.

Medical Certificates.—The meeting unanimously approved of the recommendation from the Branch Council:

> That where certificates are required by any Government department necessitating a detail report of medical examination a minimum fee of 5s. be charged.

Induction of Chairman.—Dr. COLEMAN introduced his successor Dr. Hunt to the chair, and the meeting closed with the usual votes of thanks.

STIRLING BRANCH.

THE annual meeting of the Branch was held on May 31st, when the following office-bearers were elected:

President: Dr. J. A. C. Park, Kilsyth.
Vice-President: Dr. John Morrison, Bannockburn.
Secretary: Dr. Dyer, Alloa (active service).
Interim Secretary: Dr. David Yellowlees, 5, Park Avenue, Stirling.
Members of Council: Drs. Low (Alloa), Spencer (Grangemouth), Vost (Stirling), and Girvan (Cowie).
Representative to Annual Representative Meeting: Dr. Yellowlees (or deputy).

Association Notices.

MEETING OF COUNCIL.

THE next Meeting of Council will be held on Wednesday, June 27th, in the Council Room, 429, Strand, London, W.C.

By order,
GUY ELLISTON,
Financial Secretary and Business Manager.

June 7th, 1917.

GRANTS IN AID OF SCIENTIFIC RESEARCH.

THE Council of the British Medical Association is prepared to receive applications for grants in aid of Scientific Research into the Causation, Treatment, or Prevention of Disease. Preference will be given to medical practitioners and to applicants who propose to investigate problems directly related to practical medicine.

Applications for grants must be received not later than June 16th, 1917, and must be made on the prescribed form, which, together with the regulations governing the suggested grants, can be obtained on application to the Medical Secretary of the Association, 429, Strand, London, W.C. 2.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EDINBURGH BRANCH.—Dr. John Stevens, Honorary Secretary (78, Polwarth Terrace, Edinburgh), gives notice that the annual meeting of the Branch will be held in the Hall of the Royal College of Physicians, Edinburgh, on Wednesday, June 20th, at 4 p.m. The business will be: (1) Election of office-bearers for 1917–18. (2) The annual report of the Branch. (3) Treasurer's report. (4) Annual Report of Council. (5) Proceedings of the Scottish Committee, etc.

EDINBURGH BRANCH: SOUTH-EASTERN COUNTIES DIVISION.—Dr. M. J. Oliver, Honorary Secretary (St. Boswells), gives notice that the annual meeting of the Division will be held on Thursday, June 28th, in the Railway Hotel, Newtown St. Boswells, at 3 p.m. Business: Election of officers, instructions to Representative at Annual Representative Meeting, report of War Committee and reappointment of Committee if considered desirable, any other competent business.

KENT BRANCH.—Dr. E. A. Starling, Honorary Secretary and Treasurer (Chillingworth House, Tunbridge Wells) gives notice that the fourth annual meeting of the Kent Branch will be held at the Tonbridge Urban District Council Chamber, Tonbridge Castle, Tonbridge (by kind permission of the Council), on Thursday, June 28th, at 4 p.m. Agenda: (1) Election of officers for 1917–18. (2) Consideration of the Annual Report of the Branch and the Financial Statement. (3) Any alteration of Rules. (4) Any other business decided on by the Council.

LEINSTER BRANCH AND DUBLIN AND LEINSTER DIVISIONS.—The annual meetings of the Leinster Branch and of the Dublin and Leinster Divisions will be held at the Irish Offices, British Medical Association, 16, South Frederick Street, Dublin, on Tuesday, June 19th, at 4.30 p.m., 5.30 p.m., and 6 p.m. respectively. The business in each instance will consist of the reception of the financial statement and the election of officers. The question of the physical welfare of mothers and children will also be discussed at the meeting of the Branch.

MIDLAND BRANCH.—Dr. A. Fulton, Honorary Secretary *pro tem.*, gives notice that the annual meeting of the Branch will be held at the Royal Infirmary, Leicester, on Thursday, June 28th, at 3 p.m. A discussion will take place on "The Future of Medical Practice," to be opened by the President-elect, Dr. J. E. Waite, Leicester.

SURREY BRANCH.—Mr. Cecil P. Lankester, Honorary Secretary (1, Rectory Place, Guildford), gives notice that the annual meeting of the Branch will be held at the Holborn Restaurant, Kingsway, London, on Wednesday, June 27th, at 3.15 p.m. There will be no social function, but tea will be provided after the meeting at a charge of 1s. each.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH.—Dr. S. C. Legge, Honorary Secretary, gives notice that the annual meeting of the Branch will be held at the Worcester General Infirmary on Friday, June 29th, at 3.15 p.m. Business: Annual report; election of officers.

The annual meeting of the Worcester Division will be held on the same date and at the same place at 3.30 p.m. Business: Election of officers; report of Executive Committee.

At 4 p.m. a meeting will be held to which all medical practitioners in the Division are invited, to discuss the section of the Annual Report of the Council of the British Medical Association with regard to the proposed Ministry of Health. It is hoped that every practitioner will endeavour to be present.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Deputy Surgeon-General P. B. Handyside, M.B., to be Surgeon-General. Fleet Surgeon W. Bett, M.V.O., to be Deputy Surgeon-General. Surgeon G. J. Carr to the *Vivid*. Temporary Surgeons J. E. Jackson to the *Victory*, additional, for Haslar Hospital; J. E. M. Causland, M.B., to the *Victory* for R.N. Division, Blandford, vice Dykes; W. E. Boyd to the *Blake*, vice Bleaden; C. G. Terrell, M.B., to the *Edgar*, vice Walker; R. E. Rampling to the *Antrim*, vice Bangay; R. McN. Bowman, M.A., to the *Hibernia*, vice Grimoldby; T. M. Cunnington to the *Isis;* C. J. L. Blair to the *Carnarvon;* E. M. Atkinson to the *Blenheim;* W. A. Mein to the *Blanche*. To be temporary Surgeon: J. E. G. McGibbon, M.B.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon W. H. Bleaden to *King George V*, vice Newton. Surgeon probationers: C. W. Harris, G. C. Cameron, W. P. Hogarth, W. A. Dafoe, and W. J. Cryderman to the *Victory*, additional, for R.N. Hospital, Haslar. To be Surgeon probationers: G. E. Strahan, J. W. Tighe, J. G. Eimslie, P. C. Rankin, D. G. Robertson, D. W. Winnicott, J. I. Milne, D. Mackenzie, A. Jephcott.

ARMY MEDICAL SERVICE.

To be temporary Directors Medical Services in India: Surgeon-Generals J. G. MacNeece, C.B., and T. J. O'Donnell, C.B., D.S.O.

Major (temporary Lieut.-Colonel) H. A. Ballance, M.D., F.R.C.S., R.A.M.C. (T.F.), to be temporary Colonel.

Lieut.-Colonel C. A. Lane, M.B., R.A.M.C., from supernumerary list to be Colonel.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel (temporary Colonel) O. L. Robinson, C.M.G., R.A.M.C., to be Honorary Physician to the King vice Surgeon-General Sir Wm. Taylor, K.C.B., M.D., deceased.

Temporary Major T. R. Morse from General List to be temporary Major.

J. Macpherson to be temporary honorary Lieut.-Colonel.

Temporary Captains to be temporary Majors: C. J. Marsh, W. H. Whitehouse, M.D.

Captains relinquish their commissions on account of ill health: G. D. Freer, L. M. Breton, J. F. MacKenzie, M.B.

Temporary honorary Captain C. McNeil to be temporary honorary Major whilst serving with the Scottish Red Cross Society.

Temporary Captains relinquish their commissions: J. B. Baird, B. E. Wright, H. F. Willington, J. J. O'Neill, M.B.

Temporary Captain J. Brereton-Barry relinquishes his commission on account of ill health.

Captain R. A. Preston, M.C., R.A.M.C.(S.R.), to be Lieutenant and to be granted rank of temporary Captain with seniority next below L. G. Bourdillon, January 1st (substituted for notification of February 6th).

Temporary Lieutenant J. W. Evans relinquishes his commission.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Major (temporary Lieut.-Colonel) R. Corfe relinquishes his temporary rank on ceasing to command a field ambulance.

Majors to be temporary Lieut.-Colonels: R. A. Veale, M.D., D. J. Graham, M.D., F.R.C.P., F. D. Boyd, C.M.G., M.D., J. G. Andrew, M.B.

Major J. R. Williams relinquishes his commission on account of ill health, and is granted permission to retain his rank and wear the prescribed uniform, May 22nd (substituted for notification which appeared in the *London Gazette* of May 21st).

Captain H. Meggitt to be Major.

Restored to the establishment: Captains P. R. Wrigley, F.R.C.S., and D. E. Core, M.D., Lieutenant W. Brander.

Captain (temporary Major) W. M. Parham relinquishes his temporary rank on an alteration in posting.

Captains to be temporary Majors: D. Douglas-Crawford, M.B., F.R.C.S., J. Hay, M.D., T. B. Mouat, M.D., F.R.C.S., A. A. S. Skirving, C.M.G., M.B., F.R.C.S., J. H. Cobb, M.B., J. Eason, M.D., A. Young, M.B., J. McC. Johnston, M.B., J. Henderson, M.D., L. G. J. Mackay, M.D., A. R. Bearn, M.D., F.R.C.S., H. B. Whitehouse, W. B. Secretan, M.B., F.R.C.S.

Lieutenants to be Captains: L. A. Williams, M.B., G. Sinnette, H. Vallow.

To be Lieutenant: L. Hawkes.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer. Salary, £200 per annum.

ESSEX COUNTY COUNCIL.—Assistant Tuberculosis Officer. Salary, £30 a month.

GLASGOW: HAWKHEAD ASYLUM, Cardonald.—(1) Senior Assistant Medical Officer. Salary, £350, rising to £400. (2) Junior or Temporary Assistant.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £250 per annum.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 40, Grove End Road, N.W.—Resident Medical Officer (male).

KIRKWALL: PARISH OF EDAY.—Medical Officer.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Two Resident Medical Officers (female). Salary, £100 per annum, and war bonus £5 a month.

MIDDLESBROUGH: NORTH ORMESBY HOSPITAL.—Assistant to House-Surgeon, Salary, £100 per annum.

OLDHAM ROYAL INFIRMARY.—Third House-Surgeon. Salary, £225 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician. Salary, £200 per annum.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Honorary Assistant Surgeon to the Ear, Nose, and Throat Department.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) Temporary Assistant Physician. (2) House-Physician; salary, £100 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon (male). Salary, £150 per annum.

SALFORD ROYAL HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

SALFORD UNION INFIRMARY.—Assistant Resident Medical Officer (female). Salary, £250 per annum.

SCOTTISH WOMEN'S HOSPITALS.—Chief Medical Officer for Corsica. Salary, £400 per annum.

SHEFFIELD: ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SHEFFIELD UNION HOSPITAL.—Resident Assistant Medical Officer (female). Salary, £250 per annum, rising to £300.

SHREWSBURY: ROYAL SALOP INFIRMARY.—House-Physician. Salary, £200 per annum.

TOWNLEYS MILITARY HOSPITAL, Farnworth, near Bolton,—Assistant Medical Officer. Salary, £383 5s.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Bromley (Kent), Lisnaskea (Fermanagh), St. Agnes (Cornwall).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

COLLINS, P., M.B., B.Ch., N.U.I., Certifying Factory Surgeon for the Rathmore District, co. Kerry.

DALGETTY, Arthur B., C.M., M.D.Aberd., D.P.H.Camb., Visiting Physician to the Dundee Royal Asylum.

LOW, V. Warren, C.B., M.D., F.R.C.S., External Examiner in Surgery to the University of London.

MCKAIL, J., M.B., Ch.B.Edin., Medical Officer of the Children's Receiving Home of the Paddington Parish.

TWIGG, S. W. J., M.B., B.S., District Medical Officer of the Loughborough Union.

DIARY FOR THE WEEK.

THURSDAY.

ROYAL SOCIETY OF MEDICINE.—*Section of Dermatology:* 4.30 p.m., Cases.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.—Tuesday and Thursday, 5 p.m., Croonian Lectures by Dr. J. G. Adami, F.R.S.: Adaptation and Disease.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JUNE.
19	Tues.	Leinster Branch, and Dublin and Leinster Divisions, Annual Meetings, Irish Offices, British Medical Association, 16, South Frederick Street, Dublin, at 4.30 p.m., 5.30 p.m., and 6 p.m., respectively.
20	Wed.	London: Finance Committee, 2.30 p.m.
		Edinburgh Branch, Annual Meeting, Royal College of Physicians, Edinburgh, 4 p.m.
26	Tues.	Metropolitan Counties Branch, Annual Meeting, 429, Strand, W.C., 4 p.m.
27	Wed.	London: **Council Meeting.**
		Surrey Branch, Annual Meeting, Holborn Restaurant, Kingsway, W.C., 3.15 p.m
28	Thur.	Kent Branch, Annual Meeting, Tonbridge, 4 p.m.
		Midland Branch, Annual Meeting, Leicester, 3 p.m.
		South-Eastern Counties Division, Edinburgh Branch, Annual Meeting, Newtown St. Boswells, 3 p.m.
29	Fri.	Worcestershire and Herefordshire Branch, Annual Meeting, Worcester General Infirmary, 3.15 p.m.; Worcester Division, Annual Meeting, same place, 3.30 p.m.; Meeting of all Practitioners in the Division, 4 p.m.
		JULY.
13	Fri.	East Yorks and North Lincoln Branch, Annual Meeting, Hull Royal Infirmary, 4 p.m.
26	Thurs.	OPENING OF ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m.
		Future of Insurance Practice.
		Treatment of Discharged Disabled Sailors and Soldiers.
		Ministry of Health.
		Military Demands on the Medical Profession.
		Treatment of Venereal Diseases.
		Etc., etc.
27	Fri.	ANNUAL GENERAL MEETING.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 23RD, 1917.

CONTENTS.

PAGE

British Medical Association.

INSURANCE ACTS COMMITTEE:
REPORT ON THE FUTURE OF THE INSURANCE ACTS ... 143

ASSOCIATION NOTICES: MEETING OF COUNCIL.—ANNUAL REPRESENTATIVE MEETING.—CHANGES OF BOUNDARIES.—BRANCH AND DIVISION MEETINGS TO BE HELD 148

PAGE

INSURANCE:
THE CERTIFICATION OF SICKNESS BENEFITS UNDER THE INSURANCE ACT IN IRELAND 149

NAVAL AND MILITARY APPOINTMENTS... 149

VACANCIES AND APPOINTMENTS 150

DIARY 150

IMPORTANT NOTICE.

Owing to paper difficulties the following report, which has been issued to Branches and Divisions of the Association and Local Medical and Panel Committees, must be printed in two parts. The second part will appear next week, and members of the profession are urged to preserve these numbers for the local discussion to which they will shortly be invited.

British Medical Association.

INSURANCE ACTS COMMITTEE.

[THE following report on the policy of the British Medical Association as regards national health insurance is issued by the Insurance Acts Committee of the Association in accordance with the promise made in a circular letter (D. 8) of January 23rd, 1917. It was addressed, in the first instance, to Presidents and Secretaries of Branches, to the Chairmen and Secretaries of Divisions, and to Chairmen and Secretaries of Local Medical and Panel Committees. It is most important that wherever possible these bodies should co-operate in considering the report, not only to economize the time of the local profession in each area, but because the first general discussion of the report will take place at the Annual Representative Meeting of the Association on July 26th and 27th next. Effective local discussion would enable the Representatives to come to the meeting fully prepared to voice the opinions of their colleagues in any debate that might take place.

At the end of the second part of the report, which will be printed in next week's SUPPLEMENT, will appear a series of questions. It is requested that the answers to these shall be forwarded to the Medical Secretary by August 1st at the latest, or earlier if convenient. After receipt of these answers the Insurance Acts Committee will draw up a final report, which, if approved by the Council and Representative Body of the Association, will become the policy of the Association, and will then form the basis of the demands of the medical profession in any future changes that may be proposed in the system of national health insurance.]

INTERIM REPORT ON THE FUTURE OF THE INSURANCE ACTS.*

I. ORIGIN AND NATURE OF THE REPORT.

1. On January 17th, 1917, the Insurance Acts Committee of the British Medical Association decided to ask each Branch and Division of the Association and each Local Medical and Panel Committee, or such bodies acting in co-operation, to appoint a thoroughly representative Sub-Committee to consider the present system of National Health Insurance, so far as it affects the relation of the medical profession to the public health and the treatment of disease, and to make suggestions for its improvement. The hope was expressed that all possible steps would be taken to ascertain the opinions of as many men as possible on military service and certain questions were asked in order that attention might be directed to certain specific points. These questions are set out in the Appendix.

2. In view of war conditions the response has been surprisingly good. A large number of Divisions, Branches and Local Medical and Panel Committees adopted the suggested procedure and after having given a great deal of careful attention to the matter, both through their Sub-Committees and directly, they have sent their reports to the Insurance Acts Committee as requested in order that they might be collated, and that the opinions expressed therein might be formulated and embodied in an Interim Report to be circulated for further consideration and discussion. In some cases reports of a most valuable and detailed character have been forwarded, and for these the Committee desires to express its thanks. An analysis and short summary of the answers of the reporting bodies is given in Appendix A and the promised Interim Report is now presented. In drawing up this Report the Insurance Acts Committee has not felt it necessary or desirable to pay exclusive regard to these answers and observations. It has also considered in connection therewith resolutions which have from time to time been passed by the Representative Body of the Association and by the Conferences of Local Medical and Panel Committees, the recommendations of the Council with regard to the organisation of a Ministry of Health (SUPPLEMENT, May 5th, pp 89-90), and other recent reports or statements of Government Departments affecting the position. The present Report is circulated to Divisions, Branches, and Local Medical and Panel Committees, with a view (1) to its being carefully considered by them in detail, (2) to the results of this consideration being reported to the Insurance Acts Committee, and (3) to the final Report being produced which will embody the opinions of the profession as a whole so far as any Report can represent the opinions of such a large and composite body.

II. GENERAL OPINION OF THE PROFESSION AND THE INSURED PERSONS.

3. The degree of unanimity so far disclosed is somewhat remarkable. On a subject which five years ago was the most highly controversial that had ever been before the profession, and which still in some places, and everywhere in some of its aspects, excites argument, it is found (i.) that many matters which at the beginning of the controversy gave rise to most apprehension have assumed a position of quite minor importance; (ii.) that the general system by which the State

* D 19/1916-17.

provides medical advice and treatment under the insurance scheme is in the main approved, and that criticisms have a tendency to concentrate on a comparatively few points which, though of great importance and indeed vital to smooth working, are, after all, matters of detail which ought to be capable of adjustment; (iii.) that there is a large body of opinion in favour of the extension of the health insurance system both to kinds of treatment not at present provided for and to classes of persons at present excluded therefrom.

4. The opinion of insured persons with regard to medical benefit, cannot, of course, be gauged solely from the observations which they make to practitioners on the subject. These observations, as reported, appear to be mainly concerned with complaints about the delay in obtaining medical cards or sickness pay, or about certification arrangements. But other statements are not infrequently made at meetings of Insurance Committees and Conferences of Representatives of Approved Societies, which, exaggerated as many of them are, need and deserve the careful attention of the profession, and do not seem to have been sufficiently noted and commented upon.

(4A) The State has provided a medical service for a very large number of the population—the industrial workers, on whose health, happiness and working capacity the prosperity of the State largely depends. Many hold that the service is inadequate both in extent and in quality, and that it carries with it a taint of cheapness and semi-charity which should have no place in a system which was not provided for paupers, and for which the State is responsible.

(4B) The replies show that the profession entirely agrees that medical benefit is inadequate in extent; they also show that there is still prevalent in some quarters the idea that the State system is a kind of "club practice" in which the medical profession is being asked to give more than the State is paying for. The question of adequacy or otherwise of the payment is dealt with later, but the Committee has no hesitation in saying that the system will never be satisfactory either to the public or to the medical profession until both are convinced that the conditions of service and of payment are such that the practitioner has no reason for making any difference between the patient who pays private fees for attendance and the patient for whose attendance the State is responsible. The public and the profession have for so long been accustomed to associate contract practice with sweated work that this will seem to some an unattainable ideal, but it is the business of the profession and of Parliament to see that no excuse is given for the perpetuation of the old bad traditions in a State system. The medical profession must, therefore, determine what conditions of service and of remuneration will enable it to give a satisfactory service, and not rest content until these have been secured. This is a duty it owes to the public as well as to itself.

(4C) A minor but important and oft-repeated complaint is as to the inadequacy of the surgery and waiting-room accommodation which some insurance practitioners possess. There is no doubt that one result of the Insurance Acts has been, especially in industrial areas, to increase largely and suddenly the demand for this accommodation. The necessity of crowding large numbers of patients, in all stages of illness, into rooms never intended for such numbers, has had the result of casting discredit on the whole system in some areas, and giving grounds for the comparisons that are often made between the conditions of decent private practice and the conditions under which many State insured patients are seen. Nevertheless, the opinions of the insured persons as reported through the profession lead to the belief that they are generally satisfied with the system and service. Whole classes of them are receiving medical care to an extent which they had never previously thought of, and in many thousands of cases relations of confidence are being established between practitioner and insured patient of a kind which cannot but lead to increased usefulness, and which could scarcely be expected to result from any system in which the patient had not an extended liberty of choice of practitioners, and in which the practitioner did not feel that his relationship with his patient was a personal one which was to their mutual advantage.

III. Improved Panel System *v.* Whole-time Salaried State Clinical Service.

5. There is practically no dissent from the opinion that though there must be an extension of the number of salaried Medical Officers in connection with preventive medicine, and of purely administrative officers on both the preventive and clinical sides, the giving of medical advice and treatment to individual persons (at any rate outside of institutions) shall in the interest of the public as well as of the profession not be through salaried officers but by practitioners paid by some method dependent either upon the actual items of work done or upon the number of persons for whom they accept responsibility. The arguments in favour of this view cannot be fully set out here, but they may be summarised inadequately but conveniently as follows: (a) healthy competition as far as possible on the lines of private practice keeps practitioners up to a good level of efficiency and encourages initiative and individuality; (b) a wide possibility of choice of doctor by patient tends to promote that influence of personality and that mutual confidence which are very important factors in the treatment of disease; if it be said that the patient is often unable to exercise a wise choice of his doctor it can be said with the weight of experience that he is more likely to know the doctor who most appeals to him than any other person or body can, and personal choice, even if it seems capricious counts for so much in this matter; (c) the systematic partitioning off of particular classes of disease, or particular classes of patients from the general practitioners' usual work is at once uneconomical, unscientific, detrimental to the true interests of the patient whose body and whose life history should both be regarded as units, and productive of a deterioration in the general standard of professional ability; (d) the prime relationship should be between the practitioner and the individual patient, and not between the practitioner and a Committee or Government Department; (e) whole-time appointments in a State service where the State pays the salaries would of necessity be made by bodies in which the lay element was paramount and advancement by influence or for political or other improper reasons would be not unlikely to occur.

6. All are agreed that the present panel system is imperfect; and in any improvement reconstruction or extension of this system it is desirable that such modifications should be made as to attract to the work as many practitioners as possible. It is probable that there will always be a considerable number in the profession, both consultants and general practitioners, who will prefer not to enter into any agreement with any Public Authority. The Committee does not believe that any minor modifications of the present system would attract to the work any considerable additional body of practitioners, but an extension of the treatment provided to spheres beyond that at present included would, under proper conditions, bring to the work a number of medical men not engaged in general practice, and the cumulative effect of the changes recommended in this Report would almost certainly be to increase the number of general practitioners willing to accept service. There are some who would accept at once if they now saw any reasonable prospect of securing a number of insured patients large enough to make it worth while, or if there were a modification in the composition of Insurance Committees of such a character as to reduce the preponderance of approved society representatives and to secure a more democratic representation of the medical profession.

7. The order in which imperfections in the present system and suggested improvements thereof are dealt with in this Report must not be taken to indicate their relative importance. It is merely such as seems to the Committee to conduce to convenience and clearness of exposition.

IV.—Persons to be included within the Scheme.

8. The present insurance scheme is based upon the compulsory insurance of most employed persons, but (i.) it draws a distinction as to qualifying remuneration between one method of employment and others; (ii.) it allows persons not employed to enter into insurance; (iii.) in a small number of exceptional cases it permits exemption from insurance of those who would normally be insured compulsorily. These circumstances result in the inclusion of a large number of persons who do not need this provision to be made for them and who might be required, or allowed, to arrange for medical attention as ordinary private patients. On the other hand it leaves the Poor Law to make medical provision for those with no means of support, and it does not include certain classes of poor persons, such as hawkers, who certainly need help to secure adequate medical attention. Neither does it provide for the dependants of insured persons who naturally require help as much as those on whom they are dependant. It is not to be supposed that any scheme for national health insurance can at once be made such as to include all those who need it and to exclude all those who do not need it; but some attempt should be made in both of these directions, and there should be in addition, a simplifying of the classification of persons subject to the scheme.

Need for Re-classification.

9. Taking these points in the reverse order, the need for a re-classification is obvious and admitted. There are at present no less than twenty-three classes of insured persons with differing contributions and differing benefits This is not a matter which primarily concerns the medical profession, but

indirectly everything which complicates the machinery of the scheme tends also to make the administration of the medical part of it less satisfactory. It is therefore permissible to express the opinions that, as far as medical benefit is concerned, the only class that it seems necessary to distinguish from the ordinary contributor is that of the ocean-going seaman; that the experience of the profession does not seem to justify the contribution of women being less than that of men; that the voluntary contributor, though sometimes a person whom the State may very well help towards medical treatment, should be abolished as such; and that the "Deposit Contributor" with his special waiting period of six months before he is entitled to medical benefit should no longer be permitted to complicate administration.

Income Limit.

10. The question of an income limit for the purpose of excluding from the State Scheme such persons as do not financially require it, was at the time of the inception of the scheme one of the most discussed matters. The point is now less vital largely because both in the Act of 1911 and in that of 1913 limit of remuneration or of income was actually introduced for all insured persons except manual labourers earning a weekly wage. The income limit of £160 a year thus imposed was regarded by the profession as unnecessarily high, and this is still the view of many practitioners. The rise in prices, however, has made the position of those in receipt of such an income far less easy financially than it was before the war; and, in any case, it would now be very difficult to advocate successfully the universal or normal reduction of an income limit in accordance with which considerable interests have already grown up. There are two important directions, nevertheless, in which an alteration should be made, (i.) the present income limit should be imposed on all insured persons and not only on certain classes of them; and (ii.) certain additional classes of persons with incomes below the limit should be permitted to obtain their medical advice and treatment by other means if they are in a position to do so and prefer to do so.

11. There is no reason why the artizan earning a weekly wage should be placed in a more favoured position than the clerk, the commercial traveller, or the teacher. If it is not necessary to make provision for members of the latter classes who receive a remuneration of more than £160 a year it follows that it is unnecessary (on the ground of financial need at any rate) to make provision for members of the former class with a like income. The difficulties of the matter are two—the economic one that the income of the weekly wage earner is liable to vary more seriously than that of a salaried person; the legal one that a definition of a weekly wage earner has not been adopted in industrial Acts of Parliament, a contract of service being the determining test. The latter difficulty should not be beyond the power of the lawyers to surmount; the former might be obviated by accepting the declaration of any insured person whose right to benefit was questioned on this ground, that his total income during the last completed year had been below £160, or by his showing to the satisfaction of some suitable authority that although his income during the last completed year had been above £160 it would during the next succeeding year be below that amount. This matter of the exclusion from insurance of the comparatively well-to-do artizan is in many places of great importance to-day, and would, of course, assume a much greater importance if arrangements were to be made for the extension of medical benefit to the dependants of insured persons. (*See* Question 3 (i.).)

Exempted Persons.

12. Under existing arrangements classes of persons among those who would otherwise compulsorily be insured but who are allowed, if they wish, to secure exemption are (a) persons in receipt of any pension or income of the annual value of £26 or upwards not dependant on their personal exertions, and (b) persons ordinarily or mainly dependant upon some other person, or on earnings derived from an occupation which is not technically employment in the meaning of the Insurance Acts. It has been suggested and it is desirable that the profession should consider whether two other classes should be added to these (i.) persons with an income of over £130 a year (50s. a week), (ii.) persons whose employers make themselves responsible for providing medical attendance and for the payment of full remuneration during any period of incapacity due to illness lasting less than six weeks, and for the first six weeks of any such incapacity lasting more than six weeks. Among the former class are a considerable number who by reason of their domestic circumstances are at least as well able as those who are now allowed to apply for exemption, to provide for themselves in case of sickness, and who might wish to do so. The latter class would include some domestic servants in good homes, and those assistants employed in some large business establishments who live in and whose employers provide medical attendance in case of illness and would be willing to give the undertaking as regards salary. The question of the attendance on such persons is of considerable importance to the profession in some localities; and it is to be noted that the suggested exemption should be purely voluntary and that the option in every case would be exercised by the insured person and not by the employer. (*See* Question 3 (ii.))

13. Persons whose employment is of a very intermittent character and those whose rate of wages is very low, give rise to considerable administrative trouble. Though this is not preponderantly of a character which concerns the medical profession, it is among these persons that the right to medical benefit most commonly seems to lapse owing to arrears, the practitioner not infrequently finding that he has been giving medical attention when there has been no right to it. The former class should be allowed to claim exemption from insurance if the intermittency of their employment is beyond a recognised standard; and all employed persons of the age of 21 years or upwards whose remuneration does not include the provision of board and lodging by their employer, and the rate of whose remuneration does not exceed 20s. a week might have their contributions paid wholly or mainly either by the employer or by the State, or by both jointly, the extent of this relief being proportioned to the lowness of the wage. The relief afforded to low wage earners at present appears to be inadequate. All persons exempted from normal arrangements on account of intermittency of employment, unemployability, or low wages, should be dealt with on one basis and brought into insurance by payments made by some authority or authorities on their behalf.

Inclusion of Poor Law Patients.

14. There remains a class of persons who normally might be expected to have been employed contributors, but who, usually owing to some physical mental or moral imperfection, are not in receipt of an income and are provided with medical treatment through the Poor Law. It would be a great advantage from the point of view of unification of system and in other ways if these persons could share in the medical benefit of an insurance scheme, the "parish doctor," as such, being abolished, and the Guardians of the Poor being placed, as regards these persons, in the same position as the employer of the poorest class of low wage earners. (*See* Question 3 (iii.).)

Inclusion of Dependants.

15. The question of the inclusion of the dependants of insured persons as participants in medical benefit needs to be approached with considerable caution. It may be regarded as certain that the simple inclusion of the dependants of insured persons as at present defined, and under the conditions of the insurance scheme now working, would not be acceptable to the medical profession. These dependants are, of course, mainly women and young children, and the greatly increased amount of attendance which would be necessitated by their inclusion would, in the conditions probable for some time after the War, undoubtedly overburden the profession in many localities. Nevertheless, these women and children are at least as much in need of improved medical attention as are those on whom they are dependant; and there is no doubt that it is of immediate national importance to safeguard infant life to the utmost. It is very greatly in the interest of the public and of the profession alike, that both these things be done as far as possible on the lines of ordinary family practice; and it would be advantageous, therefore, to include these dependants of insured persons as participants in medical benefit under an insurance scheme, provided that the classes of insured persons were restricted, in some such manner as is suggested in previous paragraphs, to those who really need public aid for this purpose, and provided that the present scheme were so modified as to secure a more simple and satisfactory working. In this event children below sixteen years of age who are under the care of the Guardians of the Poor, would be regarded as the dependants of insured persons for this purpose. (*See* Question 3 (iv.).)

V. EXTENT OF THE MEDICAL SERVICES TO BE AVAILABLE.

Extension of Benefits.

16. The services rendered to insured persons under the existing arrangements are necessarily limited. Additional services are available to a varying extent in different parts of the country, some provided by the State, others by charity, others having to be paid for. It is an almost unanimous opinion in the profession that the benefits of the insurance scheme should be so extended beyond domiciliary attendance

as to provide, under proper safeguards, as a right, all medical, surgical, or special facilities and treatment, which the condition of the insured person may demand. Extended benefits of this character would include (i.) a consultant and specialist service; (ii.) institutional treatment; (iii.) pathological and clinical laboratory facilities; (iv.) X-ray provision both for diagnosis and treatment; (v.) special forms of treatment such as massage and electricity; (vi.) dental treatment; (vii.) a nursing service; (viii.) advice with regard to pregnancy and attendance at confinement by a midwife with emergency attendance by a practitioner.

17. It is not necessary in this report to discuss the detailed methods by which these extra services should be provided, but there are certain points of a general character which should be insisted upon: (1) all these services would be outside the contract for ordinary domiciliary attendance and would necessitate special arrangements for the remuneration of practitioners rendering them; (2) general practitioners should be at liberty to give these services when qualified to do so; (3) at hospitals or special clinics the treatment should be given usually or exclusively on the recommendation of the practitioner in attendance on the patient, the work at these institutions being linked up with the domiciliary attendance in this way, and also by facilities being offered for qualified practitioners themselves to give institutional attendance, and by opportunities being afforded to all practitioners to maintain and extend their professional skill and experience by access to these institutions; (4) maternity hospitals should be available for all patients whose home conditions make confinement unusually dangerous, or who require at confinement operative interference of a major character.

Administration of Anæsthetics.

18. There is one variety of extra service which is at present in frequent request and is on an unsatisfactory footing—the administration of general anæsthetics. As this is a service within the competence of a practitioner of ordinary skill (for such operations as come within the present scope of attendance), it is held that the practitioner must, as part of his contract, provide it where necessary for his own patients. But in ordinary circumstances no practitioner should himself be anæsthetist and operator at the same time, and the insured person is entitled to the services of only the one practitioner whom he has chosen and by whom he has been accepted. The Committee has always contended and is still of opinion that the administration of a general anæsthetic should not be considered to be included in the practitioner's contract, but should be added to the above list of services which should be provided as extra services.

Co-operative Clinics.

19. Co-operative clinics of a general character—that is, centres where groups of practitioners would see all or most of their insured patients—have been advocated. The objection to such an arrangement is that it necessarily, to some extent at least, detracts from the more intimate personal relationship between practitioner and patient which is fostered when consultations take place only at the house of one or the other, and that thus insurance practice might tend to become more differentiated from ordinary family private practice than need be the case. It is probable, therefore, that it would be undesirable to establish such clinics as a universal or ordinary arrangement and as though they were necessarily good things in themselves; but there are undoubtedly neighbourhoods of a poor or industrial character, where the number of patients is large, where the supply of practitioners or of consulting room space is meagre, and where this method of seeing patients would not differ materially from that already in vogue, in which the establishment of such clinics would be helpful to practitioners and patients alike until conditions alter. The inclusion of the dependants of insured persons for purposes of medical benefit would of course increase the desirability of these facilities in such localities. (*See* Question 3 (v.).)

VI. Method by which Medical Services are to be obtained.

Title to Medical Benefit.

20. It should be a condition precedent to obtaining any service under the scheme that the person claiming it should show that he is entitled to it. For ordinary medical attendance the present medical card system would be satisfactory if (a) a medical card could be promptly supplied to every person entitled to hold one, (b) the holder could be induced to secure acceptance by a practitioner within a limited period, (c) the card could be withdrawn from the holder's possession as soon as he was no longer entitled to it. It is probably impossible to comply with these requirements entirely, but considerable improvement would be effected if the following suggestions were carried out: (i.) it should be definitely understood that no medical treatment could be demanded without the production of a medical card, and that any expense necessitated by its non-production would fall upon the body with whom the practitioners' contract was made; (ii.) with the issue of the medical card to each person should be given the intimation that if he did not present it to a practitioner for acceptance within one Calendar month he would be assigned to a practitioner in the neighbourhood; (iii.) cards should require to be re-stamped by or on behalf of the Insurance Committee each year; (iv.) instructions should be given to the holder of the card that he must surrender it when he is no longer entitled to medical benefit; and in certain classes of cases when this is possible the actual giving up of the card should be secured. The Committee realizes that the system of medical tickets during the first year of insurance was very faulty and that a large amount of confusion resulted therefrom, but it is of opinion that the present system has now been in use long enough for those concerned to be familiar with it, and that unless some method of penalizing those who do not comply with its requirements is adopted the confusion which still remains will be continued indefinitely. (*See* Question 3 (vi.).)

System of Registration.

21. An essential accompaniment of the medical card system, both for the purpose of checking its abuse and for other purposes, is an efficient system of registration of insured persons. The present system is far from efficient. The chaotic state of the registers, which existed everywhere till quite recently and which exists still in a large number of areas, resulted from the hopeless, but to some extent inevitable, muddle of the first year or two years of insurance, and has been increased by the passing of large numbers of insured persons into the Army and Navy and by other abnormal labour conditions due to the war. But the Insurance Committees in some areas have already effected considerable improvement in the confusion of the registers so far as this is due to causes under their control, and steps should be taken before long to penalize in some way committees whose suspense register is unduly large and who are not taking efficient steps to correct it, and who have not reduced the duplication of names on their register to reasonably low limits. The duplication of names as between one committee's register and another can only be dealt with by means of a central clearing house for registers which it is understood that the Insurance Commissioners have undertaken to establish as soon after the war as labour conditions allow. This should be done at the earliest possible moment, for this class of duplication is of very great importance, and results in much annoyance and dissatisfaction to insurance committees, approved societies, insured persons, and practitioners alike. The aim should be to have in each area a register of insured persons sufficiently accurate to let each practitioner know for which of them he is responsible at any time, or at least on certain specified dates, and though this ideal can scarcely be completely realised, it should be attained within a much smaller margin of error than obtains at present. That this should be done is essential to the success of the whole system.

Limitation of Panel Lists.

22. The question arises as to whether any limitation should be placed upon the number of insured persons whom any practitioner may accept for treatment. It is undesirable that a practitioner should be responsible for a number of patients which it is beyond his capacity to deal with. But no one can gauge that capacity so well as the practitioner himself and the persons to whom his services are rendered. Any limitation would, on the one hand restrict still further that choice of doctor by patient which is essential, and might on the other hand result in an artificial curtailment of a practitioner's ability and energy. The personal equation is an important one; under apparently similar conditions one practitioner can do more work than another, and so far as can be judged do it quite as well. Apart from this, his powers are necessarily limited by the amount of work he has in other directions, such as private practice and appointments. Facilities for travelling too vary very greatly from district to district. It is probable therefore that the patient's power of choice and complaint do or can automatically result in sufficient limitation. It may be desirable, however, that, as suggested by many areas, insured persons should have the right of changing their doctor twice a year or even quarterly without consent, instead of only once a year as at present. (*See* Question 3 (vii.).)

VII. Duties of the Practitioner.

23. The duties which a practitioner undertakes under his existing agreement with an Insurance Committee are (a) to give the insured persons on his list such treatment, except in respect

of a confinement, as can consistently with their best interests be properly undertaken by a general practitioner of ordinary professional competence and skill; (b) to advise the patient, if his condition is such as to require services beyond this, as to how he can obtain the necessary treatment, and if such extra services are publicly provided to do what is reasonably necessary to enable the patient to derive full advantage from them; (c) to give such certificates to his patients as shall enable them to obtain sickness benefit or sanatorium benefit if entitled thereto; (d) to keep certain required records of his work. That part of the duty which may arise when public provision is made for certain special services is understood to be confined at present to services for the treatment of venereal diseases and for special treatment for disabled soldiers and sailors. It is an addition to the duties which were undertaken under the original agreement and the question of its bearing upon the amount of the practitioner's remuneration has been specifically reserved and safeguarded.

Treatment of Tuberculosis.

24. One disease—tuberculosis—is at present dealt with separately as regards the remuneration of the practitioner and in some other respects. Under the National Insurance Act, 1911, the Local Government Board is empowered to deal with any other disease in a similar fashion. This separation of tuberculosis as regards general practitioner treatment is not logical nor is it practically desirable in the interest either of the patient or of the profession. It should be abolished. Experience shows that there is no such difference between the services rendered by practitioners to their tuberculosis patients and to those suffering from other complaints as to warrant it; and, indeed, a great part of the services rendered to these tuberculosis patients is in the matter of early treatment before they are technically in receipt of "domiciliary" attendance under "Sanatorium benefit." The practitioner is prepared to take, and does actually take, in a way that some critics seem unable to realize, his proper position, as that of the person chiefly responsible for his tuberculosis patient's welfare. If certain classes of such patients require some special form of treatment or need institutional provision either for their own sakes or for the sake of preventing the infection of others, this can be provided for them on similar lines to that suggested for other extra services of a like character for all insured persons; and the practitioner should be required, and is prepared, to co-operate with these. If, as is so often the case, the chief need is for better housing conditions or for extra nourishment, enquiry should be made by the proper authority immediately upon notification of the case, and the needs supplied, or the faulty conditions as far as possible remedied, or the patient removed if necessary from them. But in no case should action be taken to provide specialist or institutional treatment or extra nourishment without the practitioner being made aware of it (as is quite commonly the case at present); and if the practitioner is properly required to send a suitable report of his patient's history and condition to other medical officers into whose care the patient may temporarily pass, it should be made equally incumbent upon these officers to continue co-operation with the practitioner and to keep him informed as to the patient's history and progress and especially as to the condition in which he leaves the institution or ceases to require the special treatment.

25. There are aspects of the public provision for combating tuberculosis, and of the administration of "Sanatorium Benefit" for insured persons for which the medical profession are in no way responsible and in which they are not directly concerned as practitioners, and many of the arrangements seem to work very unsatisfactorily. It is generally held that the public funds provided are not sufficient to enable proper provision to be made for all tuberculous persons needing help to obtain suitable treatment. It is probable that such funds as are available are not always used wisely. It is certain that the notion commonly held even among administrators that the main thing required is treatment in a sanatorium and that domiciliary treatment is quite subordinate or nearly useless is entirely false. The administration of some Insurance Committees and of some Public Health Authorities in this matter is far less efficient than that of others, and the fact that these two bodies have dual and overlapping powers is inconvenient and undesirable. The whole system requires revision in the light of experience, and in any such revision it is essential that regard shall be had to the suggestions made in the preceding paragraph, and that the paramount importance and responsibility of the general practitioner in all cases, as well as of other medical officers in many cases, should be recognised.

Separation of Prescribing and Dispensing.

26. The separation of dispensing from prescribing under ordinary circumstances is probably to the general advantage, and commends itself to the great majority of urban practitioners. In any area, however, urban or rural, in which the supply of pharmacies is insufficient or unsatisfactory, practitioners might be allowed, at least as a temporary measure, to dispense for their own patients if they wish to do so. The question as to whether such an insufficiency exists should be determined by the Insurance Committee for the area after hearing the Panel Committee and the Pharmaceutical Committee on the matter, and distance of the insured person's house from a pharmacy should not be the sole criterion by which this is determined. Where dispensing and prescribing are separated it is necessary to guard against (i.) parsimony in prescribing, to the detriment of the patient; (ii.) extravagance in prescribing by practitioners generally to the detriment of the community, or by certain practitioners to the detriment also of their fellows; (iii.) careless or wilfully inaccurate dispensing or the supply of drugs of an inferior quality. The first is safeguarded by the facts that it is to the financial as well as the professional interest of the practitioner to get his patient well as soon as possible, and that the patient has an opportunity of changing to another practitioner if dissatisfied; if this opportunity were afforded more than once a year this consideration would be of greater value. The second matter is probably adequately provided for by the arrangements now made or being perfected under the present system. Indeed, in most areas extravagant prescribing has been reduced to such small dimensions that the time and labour and money spent upon the scrutiny of prescriptions and the compiling of statistics about them are probably in excess of the value of the results. It is desirable in this connection that the profession should consider once more the question of making the cost of drugs and authorised appliances a first charge on the Medical Benefit Fund (the practitioners taking the whole of the residue), provided that the Panel Committee were the adjudicating authority with regard to extravagance, an appeal being allowed to the Commissioners only. (*See* Question 3 (viii.)) To guard against the third of the above-mentioned risks, it is desirable that analyses of medicines supplied to insured persons by pharmacists should be made periodically by the proper authority.

Appliances.

27. The list of appliances which it is the duty of the practitioner to prescribe in cases which in his opinion need them is certainly meagre, but under present conditions it is probably undesirable to add to this list. The supply without cost to the patient of appliances more or less permanently needed is wasteful, such an appliance being more carefully used and generally more appreciated by a patient if he has paid for it. But if the existing arrangements were materially altered, and certainly in connection with the establishment of extra services for insured persons, the matter would need reconsideration. In connection with the establishment of a nursing service, or even under present conditions, it might be possible to provide at a central depot what may be called broadly "nursing appliances," which might be lent out on payment of a deposit to be refunded if the article were returned in good condition. (*See* Question 3 (ix.))

Records.

28. It is evident that, repugnant as clerical work is to the majority of the profession, the value of records of illness is generally appreciated though many practitioners are grateful for the opportunity of dropping them in the present time of strain. It seems certain also that the present form of record card is recognised as being probably as simple as any such system could be. In every well organised practice it is essential both for the convenience of the practitioner and the welfare of the patient that some record should be kept of previous attendances paid to the patient and of the nature of his illness. It has been suggested that the end of the year is an awkward time for the requirement of the return of the cards to the Commissioners and that the utility of the system from the practitioner's point of view is impaired by this return. The proposal has been made that the record should be combined with the medical card and remain in the possession of the patient, but in the opinion of the Committee it is not desirable that such information should be given to patients and if it were it would often not be forthcoming when most needed. It is doubtful if it would be possible to delay the return of the record cards and at the same time secure the prompt payment of the balance due for the year.

Certificates.

29. Much unnecessary irritation has been caused by the present form of certification, the wording "incapable of work" being too rigid and not logically applicable to many cases. The term "unfit for work" or "incapable of

following usual occupation" would meet all the real needs of the situation though not technically correct in view of the words of the 1911 Act. Much time in the aggregate would be saved by (i) leaving out the name of the disease in intermediate certificates, unless developments have led to any change of diagnosis, and (ii) arrangements being made whereby these certificates need not be given in connection with cases coming under the Workmen's Compensation Act. The suggestion made by the Commissioners that it is not necessary to sign on any special day of the week ought to to be enforced. At present the persistency of many agents of approved societies on this point gives rise to much unnecessary trouble on the part of both doctor and patient and often leads to the illegal penalising of the latter. The question of certification in chronic cases needs prompt attention on the part of approved societies and Commissioners. Some of the former exhibit a reasonable attitude in the matter but many still insist on the entirely unnecessary visit every week to patients who are permanent invalids, merely for the purpose of signing the certificate. It is necessary by regulation or otherwise, to fix a longer interval in chronic or disablement cases and there should be an appeal to the Commissioners if the approved society is unreasonable. When proper referees are appointed, this difficulty should be easily adjusted but at present it gives rise to an amount of irritation and unnecessary work which is nothing less than a scandal at a time when the medical profession is being worked to its utmost limit. The arrangements which are made in certain rural areas with regard to the signing of final certificates might be universally applied. By this arrangement if the practitioner is of opinion that the insured person will become fit to resume work on a date not more than 3 days after the date of examination, though not fit to resume at once, he may give him a Special Final Certificate; the present normal plan leading undoubtedly to much unnecessary trouble to both doctor and patient. (*See* Question 3 (x.).)

(To be continued.)

Association Notices.

MEETING OF COUNCIL.

THE next Meeting of Council will be held on Wednesday, June 27th, in the Council Room, 429, Strand, London, W.C., at 11.30 a.m.

By order,
GUY ELLISTON,
Financial Secretary and Business Manager.

June 7th, 1917.

ANNUAL REPRESENTATIVE MEETING, 1917.

Date of Meeting.

THE Annual Representative Meeting of the Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Thursday, July 26th, at 10 a.m. and following day(s) as may be required.

Constituencies, 1917–18: Returns of Representatives.

Subject to necessary formal adjustments in respect of changes of Division areas effected since the 1916–17 Constituencies were determined, it has been decided by the Organization Committee, on behalf of the Council, that the Constituencies for 1917–18 will be the same as for 1916–17. Honorary Secretaries of Divisions who have not yet forwarded to the Head Office the names and addresses and dates of election of the Representatives appointed by their Constituencies for 1917–18 are requested to forward these particulars to the Medical Secretary by the earliest possible date. Under the By-laws, Representatives must have been elected not less than four weeks before the Annual Representative Meeting and their names must be notified by at latest July 5th. The Representative can if necessary be elected and instructed by one and the same Meeting of the Constituency.

Agenda of A.R.M.: Further Notices of Motion by Divisions and Branches.

The provisional Agenda of the Annual Representative Meeting, including the Annual Report of the Council, was published in the SUPPLEMENT of May 5th, and a supplementary Notice of Motion in the SUPPLEMENT of June 2nd. The Supplementary Report of the Council will appear in the SUPPLEMENT of July 7th. There will be included in the final Agenda of the Meeting, as to be issued to the members of the Representative Body on or about July 19th, not only the Notices of Motion published in the SUPPLEMENTS of May 5th, June 2nd, and (Supplementary Report of Council) July 7th, but also Notices of Motion received up to Thursday, July 12th, found by the Agenda Committee to be in order.

By order,
ALFRED COX,
Medical Secretary.

June 20th, 1917.

CHANGES OF BOUNDARIES.

Formation of a Dewsbury Division.

THE following change has been made in accordance with the Articles and By-laws and takes effect as from the date of publication of this notice:

That a new Division of the Yorkshire Branch of the Association be formed, to be known as the Dewsbury Division, of area as follows:

Dewsbury county borough, Batley and Ossett municipal boroughs, and Birstall, Heckmondwike, and Mirfield urban districts.

Representation in Representative Body.—For 1917–18 the above area will under the By-laws be represented in the Representative Body as part of the Bradford and Leeds Divisions. The question of the representation of the Dewsbury Division for 1918–19 will be determined by the Council in due course.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EAST YORKS AND NORTH LINCOLN BRANCH.—Mr. H. L. Evans, Honorary Secretary (101, Princes Avenue, Hull), gives notice that the annual meeting of the Branch will be held in the Board Room of the Hull Royal Infirmary, at 4 p.m., on Friday, July 13th. Business: Annual report, financial statement, election of officers. Address by Robert Grieve, M.D., F.R.C.S.

EDINBURGH BRANCH: SOUTH-EASTERN COUNTIES DIVISION.—Dr. M. J. Oliver, Honorary Secretary (St. Boswells), gives notice that the annual meeting of the Division will be held on Thursday, June 28th, in the Railway Hotel, Newtown St. Boswells, at 3 p.m. Business: Election of officers, instructions to Representative at Annual Representative Meeting, report of War Committee and reappointment of Committee if considered desirable, any other competent business.

KENT BRANCH.—Dr. E. A. Starling, Honorary Secretary and Treasurer (Chillingworth House, Tunbridge Wells) gives notice that the fourth annual meeting of the Kent Branch will be held at the Tonbridge Urban District Council Chamber, Tonbridge Castle, Tonbridge (by kind permission of the Council), on Thursday, June 28th, at 4 p.m. Agenda: (1) Election of officers for 1917–18. (2) Consideration of the annual report of the Branch and the financial statement. (3) Any alteration of Rules. (4) Any other business decided on by the Council.

METROPOLITAN COUNTIES BRANCH.—Mr. N. Bishop Harman and Dr. Wilfred Kingdon, R.A.M.C. (Honorary Secretaries), give notice that the annual general meeting of the Branch will be held at 429, Strand, W.C., on Tuesday, June 26th, at 4 p.m. The business will be: (1) Report of scrutineers as to the election of new officers. (2) The annual reports of council and of representatives of the Branch on the Central Council. (3) President's address (Dr. C. O. Hawthorne): "The Clinical Organization of the Profession." *N.B.*—The Branch Council on April 17th, 1917, resolved that under Rule 19 there was no obligation to send copies of the annual financial statement and annual report of the council to all members of the Branch, and agreed that the custom be discontinued during the war, and that only a sufficient number of these reports, etc., should be printed for circulation at the annual general meeting of the Branch. Copies of the reports referred to can be obtained from the Branch Secretaries or seen in the Library.

MIDLAND BRANCH.—Dr. A. Fulton, Honorary Secretary *pro tem.*, gives notice that the annual meeting of the Branch will be held at the Royal Infirmary, Leicester, on Thursday, June 28th, at 3 p.m. A discussion will take place on "The Future of Medical Practice," to be opened by the President-elect, Dr. J. E. Waite, Leicester.

SOUTH MIDLAND BRANCH: BUCKINGHAMSHIRE DIVISION.—Dr. A. E. Larking, Honorary Secretary (Buckingham), gives notice that the annual meeting will be held on Thursday, June 28th, at the Crown Hotel, Aylesbury, at 2.45 p.m. Important proposals in reference to the Ministry of Health will be submitted and other business. Election of officers, etc.

SURREY BRANCH.—Mr. Cecil P. Lankester, Honorary Secretary (1, Rectory Place, Guildford), gives notice that the annual meeting of the Branch will be held at the Holborn Restaurant, Kingsway, London, on Wednesday, June 27th, at 3.15 p.m. There will be no social function, but tea will be provided after the meeting at a charge of 1s. each

SUSSEX BRANCH.—Dr. A. M. Daldy, Honorary Secretary (14, Palmeira Avenue, Hove), gives notice that the fourth annual general meeting of the Branch will be held in the Council Chamber at the Town Hall, Hastings, on Wednesday, July 4th, 1917, at 2.15 p.m. Agenda: Minutes of the last annual meeting. Election of officers. Annual report with financial statement. The President will give an address on the future of the medical profession and the proposed Ministry of Public Health, to be followed by a resolution and discussion, in which Dr. Claude Wilson, representative of Sussex, Kent, and Surrey on the Council, British Medical Association, will take part. The Council hope that as many Sussex members of the Association as possible will attend. The President-elect (Dr. George Locke, J.P.), requests the pleasure of the company of those members who intend to be present at the meeting to luncheon at the Albany Hotel, Hastings, at 1.15 p.m. Hastings members of the British Medical Association invite those attending the meeting to tea at 4.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH.—Dr. S. C. Legge, Honorary Secretary, gives notice that the annual meeting of the Branch will be held at the Worcester General Infirmary on Friday, June 29th, at 3.15 p.m. Business: Annual report; election of officers.

The annual meeting of the Worcester Division will be held on the same date and at the same place at 3.30 p.m. Business: Election of officers; report of Executive Committee.

At 4 p.m. a meeting will be held to which all medical practitioners in the Division are invited, to discuss the section of the Annual Report of the Council of the British Medical Association with regard to the proposed Ministry of Health. It is hoped that every practitioner will endeavour to be present.

INSURANCE.

THE CERTIFICATION OF SICKNESS BENEFITS UNDER THE INSURANCE ACT IN IRELAND.

THE Irish Insurance Commission has addressed to the secretary of each approved society operating in Ireland the following letter:

Sir,

1. I am directed by the National Health Insurance Commission (Ireland) to inform you that numerous complaints have been received in this department from medical certifiers under the National Insurance Acts to the effect that approved societies frequently address to them inquiries asking for information, supplementary to that contained in the certificates of incapacity (Form M.C./1), issued in respect of insured persons, of such a nature as, it is alleged, societies are not entitled to demand from them. The Commission, therefore, think it well to set forth how far societies are justified in seeking further information from certifiers, as it would appear from some of the communications which have been forwarded to this department that certain approved societies are under a misapprehension on the subject.

2. Under his agreement with the Commission it is the duty of a medical certifier to furnish a society on Form M.C./1 with such information as will convey to it the precise nature of the illness from which the insured person is suffering; and, in any case in which it is impossible to diagnose with certitude the nature of the disease or injury, to state on the certificate, in the space for "Other Remarks," such explanatory information of the case as is possible after a most careful examination. Once, therefore, a medical certifier has, in issuing a certificate of incapacity for work, complied with these requirements, strictly speaking he is not bound under the terms of his agreement to furnish any further information which an approved society may demand.

3. Where, however, the nature of the illness from which an insured person is suffering is not precisely given on the certificate, and the reasons for not doing so are not stated, the society would be justified in requesting further information on this point from the certifier. For instance, where a certificate is received to the effect that the insured person mentioned therein is rendered incapable of work by reason of "rheumatism," the society would naturally require to know whether the insured person is suffering from acute, subacute, or chronic rheumatism. The Commission would, however, suggest that in such a case, instead of sending a special query to the certifier—sometimes after several certificates in respect of the illness have been received—the society would immediately on receipt of the first certificate of this kind write to the certifier, pointing out to him its requirements, and asking him to furnish the requisite information on the next certificate which he issued to the insured person. Such a procedure would, it is suggested, tend to remove from the mind of the certifier any suspicion that the bona fides of his certificate was being challenged, and thus make for harmonious co-operation between the certifiers and approved societies.

4. As already stated, a medical certifier has given all the information as to the condition of the insured person, which he is obliged to give under the terms of his agreement, when he has stated specifically on his certificate the cause of incapacity. At the same time, the Commission recognize that in many cases it would be of considerable assistance to an approved society and possibly obviate the necessity for the employment of a medical referee, if it would obtain from the medical certifier certain information which he may not be legally bound to furnish. The Commission are confident that if, in such a case, a courteous request is sent to the medical certifier to give the required particulars on the next certificate issued the information sought for will be furnished.

5. The Commission desire to take this opportunity of again impressing upon approved societies the necessity, as suggested in paragraph 30 of Circular M.C./2, of furnishing promptly to the appropriate medical certifier whatever information may come into its possession, by means of sick visitors' reports or otherwise, which may bear upon the condition of an insured person. As pointed out in paragraph 55 of Memo. M.C./1, a medical certifier may often be forced to base his opinion as to incapacity on the information conveyed to him by the insured person himself, and further information, such as may be obtained from sick visitors' reports, will be of material assistance to him in forming a correct judgement.

I am, Sir, your obedient servant,

JOHN HOULIHAN.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeons P. H. Boyden, M.D., to the *Excellent*, vice Bett; J. A. Moon to Portsmouth Dockyard, vice Bradley; E. Cooper to the *Hercules*, vice Moon; E. D. J. O'Malley to the *Victory*. Staff Surgeon C. D. Bell to the *Pembroke*. Surgeon E. C. Holton to R.N. Division, Chatham, vice Clark. Temporary Surgeons W. V. Gabe to the *Leviathan*, vice Fitzmaurice; R. Aitken to the *Patuca*, vice Staff Surgeon Barford; H. G. Brown to the *Changuinola*, vice Staff Surgeon Devas; J. W. K. Bruce to R.N. Dépôt, Crystal Palace, vice Brown; C. S. Ogilvy to the *Victorian*, vice Staff Surgeon Thornhill; W. A. Bailey to the *Egmont*; E. R. A. Merewether, M.D., to the *Erin*, vice Saunderson; C. H. Browne to the *Pembroke*; D. G. Churcher to the *Roxburgh*; E. L. Elliott, M.B., to the *Vivid*, for Plymouth Hospital; A. E. Morson, to the *Centurion*; S. P. Mort to the Hospital Ship *Karapara*; G. N. Stathers, M.B., to the *President*, additional, for general duties at establishments under Captain Superintendent, White City; O. H. Gotch, M.B., to the Hospital Ship *Plassy*, vice Irvine; J. Rothwell to the *Arrogant*; H. L. D'O. Duckworth, M.B., to the *Orion*; H. B. Padwick, D.S.O., to Haslar Hospital; G. N. Martin to the *Collingwood*, vice Granger. To be temporary Surgeons: J. Hoilings, D. B. S. Jones.

ROYAL NAVAL VOLUNTEER RESERVE.

D. P. G. Fildes granted temporary commission as Staff Surgeon (unpaid). Surgeon R. H. H. Jolly, M.D., to the *Pembroke*. Surgeon Probationer A. Macpherson granted temporary commission as Dental Surgeon; W. G. Powell to the *Doon*. To be Surgeon probationers: H. W. Quinn, W. E. Johnston, R. F. Joyce, G. L. Bell, W. H. Miller, H. I. Palmer, T. B. Feik, H. S. Little, M. Rosenowige.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel O. W. A. Elsner, D.S.O., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division.

Lieut.-Colonel E. M. Morphew, D.S.O., to be temporary Colonel whilst Assistant Director of Medical Services.

Temporary Lieut.-Colonel A. S. Woodwark, M.D., relinquishes his commission and is granted the honorary rank of Lieut.-Colonel.

Temporary Lieut.-Colonel G. S. Buchanan, M.D., having resigned his appointment, reverts to the rank of temporary honorary Lieut.-Colonel.

To be acting Lieut.-Colonels: Captain W. E. C. Lunn, M.C., M.B., whilst in command of a field ambulance; Major T. B. Unwin, M.B., whilst in command of a stationary hospital.

Major A. E. B. Wood, M.B., relinquishes the acting rank of Lieut.-Colonel on reposting.

Temporary Major A. M. Leake, V.C., F.R.C.S., to be acting Lieut.-Colonel while in command of a field ambulance.

Granted temporary honorary rank whilst serving with the Irish Counties War Hospital:—As Lieut.-Colonel: S. S. Pringle, M.B., F.R.C.S.I. As Major: W. G. Harvey, M.D., F.R.C.S.I. As Captain: H. de L. Crawford, M.B., F.R.C.S.I.

To be temporary Majors: W. L. Braddon, temporary Captain H. S. Raper, M.B.

Temporary Captains relinquish their commissions: R. H. Drennan, M.B., on account of ill health; A. Renshaw, M.B., E. V. Frederick, M.B.

To be temporary Captains: E. T. C. Milligan, M.D., Captain A. Fletcher (from Devon Regiment), H. D. Duke, R. Freil, M.D., F.R.C.S.I., G. R. Lawless, F.R.C.S.I., R. F. Yencken, A. Burton, M.D., F.R.C.S., C. R. Smith, J. Pugh, L. Bromley, F.R.C.S., C. W. B. Littlejohn, M.B. Temporary Lieutenant P. J. O'Sullivan.

Temporary Lieutenants relinquish their commissions: L. W. Kergwin, M.B., C. E. L. Burman, M.B., H. L. Craig, M.B., J. S. Strachan (on account of ill health), G. H. Clement, M.B.

T. H. Brown, M.B., late temporary Lieutenant, to be Honorary Lieutenant.

J. C. McGown to be temporary Quartermaster, with the honorary rank of Lieutenant.

To be temporary Lieutenants: J. Glaister, M.B., E. J. Stuckey, M.B., R. G. Struthers, J. Cullen, M.D., William M. McDonald, R. E. V. Hale.

M.B., G. Adam, M.B., J. A. Valentine, M.D., H. Daw, T. D. Webster, M.B., J. W. Trevan, M.B., J. C. Marshall, M.D., F.R.C.S., J. J. Keyms, P. J. Verrall, M.B., F.R.C.S., B. Hart, M.D., F. E. Higgins, J. B. Cooke, C. E. Lowe, S. C. Wilkinson, M.B., B. C. W. Pasco, F. Wilkinson, M.B., G. I. Cumberlege, M.D., J. H. Trench, M.B., J. L. Green, M.D., F. B. Penfold, A. M. A. James, D. S. Macbean, M.B., H. E. Jones, G. Hardwicke, H. A. De Morgan, E. L. M. Lobb, M.B., F.R.C.S., W. R. O'Keefe, H. W. Fisher, C. E. Waldron, D. M. Ross, M.B., A. T. W. Forrester, M.D., N. R. Ussher, S. P. Rowlands, M.B., C. C. W. Mays, A. Macdonald, M.D., G. S. Ewen, G. A. J. M Loughnan, J. A. Wood, M.B., G. E. P. Davis, M.B., W. B. Blandy, F. W. W. Smith, M.D., P. O. Moffat, M.B., J. S. Higgs, S. Carter, H. W. Elwell, M.B., G. P. Young, M.B., A. H. McCandlish, G. W. Sudlow, M.B., C. H. Waddell, R. H. Robbins, M.D., S. McMurray, M.B., F.R.C.S.E., G. S. Robertson, M.D., R. K. Robertson, M.B., H. F. Warner, M.B., S. C. Shanks, M.B., C. Murray, M.D., W. S. George, M.B., G. Chalmers, M.B., R. Jamison, M.B., F.R.C.S., T. S. D. Enderby, F. L. Brewer, M.B., L. W. Roberts, W. B. H. Dundee, M.B., W. MacKenzie, M.D., F.R.C.S.E., L. Pern, H. G. Rashleigh, R. W. D. Hewson, J. G. Cooper, M.B., D. M. Boohan, M.B,, W. Sanderson, M.B., F. Atthill, H. G. Drake-Brockman, T. J. George, J. F. Weston, M.B., F. Whincup, F.R.C.S E., A. Emerson, M.D., H. A. Whitcombe, M.B., P. Hall-Smith, M.D., E. L. Galletly, M.B., W. A. Elwood, M.B., E. A. A. Saunders, A. I. Cooke, M.D., H. E. Heapy, M.D., J. C. Mann, M.D., F. W. Ritson, M.B., R. O. Smyth, M.D., L. B. Perry, M.B., F. Thompson, E. E. M. Price, J. A. MacKenzie, M B., J. F. Douse, E. Wight, R. Gauld, G. M. Davies, M.B., J. A. Ross, M.B., R. C. Cummings, M.D., F. Talbot, J. E. Scott, M.B., S. Slade, A. J. Rae, A. Mason, J. H. Nichol, J. D. Bridger, J. P. McGowan, M.D., F. H. R. Heath, D. C. Dobell, M.B., T. E. Banister, M.B., C. I. Milne, M.B., A. H. John, M.B., J. Renwick, M.B., F. E. Wilson, H. A. Lyth, M.B., F.R.C.S., C. E. Pepper, M.B., A. G. H. Lovell, M.B., F.R.C.S., A. R. F. Hay, M.B., W. A. D. King, S. C. Ellison, M.D., A. F. R. Conder, M.D., A. Gilchrist, M.B., G. H. Shaw, M.B , J. Donaldson, M.B., A. L. Robinson, M.D., F.R.C.S., G. A. Johnstone, M.B., A. W. F. Edmonds, L. W. Shadwell, J. G. MacQueen, M.B., J. Brydon, F.R.C.S., A. J. McConnell, M.B., R. S. Frew, M.D., J. L. Hawkes, M.D., J. B. Macallan, M.B., C. H. Wilson, M.B., J. A. Durante, H. Brayshaw, M.B., R. G. Barlow, M.D., H. A. Williams, J. Jeffrey, M.B., F.R C.S.E., M. W. Cantor, M.B., H. V. Swindale, H. N. Matthews, N. Morris, M.B., J. A. M. Clark, M.D., J. Dick, M.B., J. A. Currell, M.B., T. C. MacKenzie, M.B., J. A. Struthers, M.B., F. C. Morgan, W. P. Over, G. A. F. Heyworth, G. V. Anderson, M.B., A. Leeming, M.B., J. Menton, F. J. Child, M.D., C. A. A. Dighton, M.B., F.R.C.S.E., C. G. MacMahon, M.B., E. J. Fisher, R. H. Robinson, M.B., J. H. Moore, M.B., W. H. Bush, J. A. Jamieson, M.D., K. C. Edwards, A. C. Brown, R. H. Dixon, M.B., W. N. May, M.D., L. M. Markham, M.B., H. Christal, M.B., A. Gregory W. M. T. Wilson, M.B., M. R. Dobson, M.B., L. S. Hooper, R. M. Erskine, R. Robertson, M.B., J. D. Clay, L. H. Burner, R. B. Radcliffe, M.B., J. Tait, M.D., J. C. L. Day, A. C. Sturrock, M.D., D. Gray, M.B., A. B. Rooke, F.R.C.S., H. L. Martyn, M.B., F.R.C.S., J. E. Sandilands, M.D., A. B. Robertson, M.B.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Major H. G. Smeeth, M.D., relinquishes the acting rank of Lieut.-Colonel on reposting.

Lieutenants to be Captains: P. N. Cook, H. M. C. Macaulay, W. E. Wilson, J. B. Hume.

To be Lieutenants: A. D. Gorman, from Glasgow University Contingent O.T.C.; I. Braun, W. H. White, and D. J. H. Jones, from University of London Contingent O.T.C.: L. Jefferson, M.B., from Queen's University Contingent O.T.C.; W. R. Mathewson from Edinburgh University Contingent O.T.C.; A. H. Boon, R. McGregor, R. N. Burton.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Major J. H. Ray, M.B., F.R.C.S., to be temporary Lieut.-Colonel.

Major J. Ward to be acting Lieut.-Colonel whilst commanding a field ambulance.

Captain and temporary Major (acting Lieut.-Colonel) T. H. Peyton, D.S.O., M.D., reverts to the temporary rank of Major on ceasing to command a field ambulance, with precedence from January 5th, 1915.

Captain (temporary Major) A. H. Horsfall, D.S.O., M.B., relinquishes his temporary rank on alteration in posting.

Captain J. G. Andrew to be temporary Lieut.-Colonel.

Captains to be temporary Majors: R. Ollerenshaw, M.D., F.R.C.S., F. E. Tylecote, M.D., W. E. Alderson, M.D., to be temporary Major.

Captain G. R. Ellis, M.B., relinquishes his commission on account of ill health contracted on active service, and is granted the honorary rank of Captain.

To be Lieutenants: W. V. Barritt, Sergeants B. MacD. Brander, and T. MacL. Ormiston, R.A.M.C.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BATH: EASTERN DISPENSARY.—Resident Medical Officer. Salary, £140 per annum.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham Road, S.W.—Resident Medical Officer. Salary, £75 per annum.

BOURNEMOUTH: CRAIG HEAD HOSPITAL, Manor Road.—Resident Medical Officer. Salary, £300.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician. (2) House-Surgeon. Salary, £120 per annum.

CARDIFF: KING EDWARD VII HOSPITAL. — House-Surgeon. Salary, £200 per annum.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer. Salary, £200 per annum.

DUBLIN: ROYAL HOSPITAL FOR INCURABLES, Donnybrook.—Resident Medical Officer. Salary, £200 per annum.

EASTBOURNE EYE INFIRMARY.—Ophthalmic Surgeon.

EAST LONDON HOSPITAL FOR CHILDREN, Shadwell, E.—Assistant Resident Medical Officer. Salary, £125 per annum.

GENERAL LYING-IN HOSPITAL, York Road, S.E. — Resident Medical Officer. Salary, £100 per annum.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House-Surgeon. Salary, £150 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £250 per annum.

HEMEL HEMPSTEAD: WEST HERTS HOSPITAL.—Lady Resident Medical Officer. Salary, £200.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEEDS: GENERAL INFIRMARY.—Resident Aural Officer. Salary, £100 per annum.

LEICESTER EDUCATION COMMITTEE.—Assistant School Medical Officers (temporary). Salary, £350 per annum.

MANCHESTER AND SALFORD LOCK HOSPITAL.—Temporary part-time Medical Officer. Salary, £300 per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Two Resident Medical Officers (ladies). Salary, £200 per annum.

NOTTINGHAM GENERAL HOSPITAL. — Holiday Locumtenent (female). Salary at the rate of £250 per annum.

OLDHAM ROYAL INFIRMARY.—Third House-Surgeon. Salary, £225 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician. Salary, £200 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—(1) District Resident Medical Officer. (2) Assistant Resident Medical Officer. Salary for (1), £60 per annum, and for (2), £60 per annum, rising to £80 on appointment as Senior.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—House-Physician. Salary, £100 per annum.

ROTHERHAM HOSPITAL.—Junior House-Surgeon (male). Salary, £150 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Third House-Surgeon. Salary, £50 per annum.

ST. GEORGE-IN-THE-EAST TUBERCULOSIS DISPENSARY, E.—Temporary Medical Officer. Salary, £500 per annum.

SALFORD ROYAL HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SHEFFIELD UNION HOSPITAL.—Resident (woman) Assistant Medical Officer. Salary, £250 per annum, rising to £300.

SHREWSBURY: ROYAL SALOP INFIRMARY.—House-Physician. Salary, £200 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Raunds (Northampton), Rosscarbery (Cork), Tattenhall (Chester).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BARBER, A., M.B., B.S.Lond., District Medical Officer of the Isle of Wight Union.

DOW, W. A., M.D.Durh., District Medical Officer of the Lewes Union.

HEARD, Mrs. Sophie, M.B., Ch.B.Edin., Civilian Medical Practitioner to the 2nd Scottish General Hospital, R.A.M.C.(T.), Craigleith, Edinburgh.

TREVOR-ROPER, B. W. E., M.B., Ch.B.Vict., District Medical Officer of the Rothbury Union and of the Glendale Union.

WOOD-SMITH, Algernon, M.D., F.R.F.P.S.G., School Medical Inspector to the county of Stirling.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—5 p.m., Croonian Lecture (fourth) by Dr. J. G. Adami, F.R.S: Adaptation and Disease.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JUNE.
26	Tues.	Metropolitan Counties Branch, Annual Meeting, 429, Strand, W.C., 4 p.m.
27	Wed.	London: **Council Meeting, 11.30 a.m.** Surrey Branch, Annual Meeting, Holborn Restaurant, Kingsway, W.C., 3.15 p.m
28	Thur.	Buckinghamshire Division, Annual Meeting, Aylesbury 2.45 p.m. Kent Branch, Annual Meeting, Tonbridge, 4 p.m. Midland Branch, Annual Meeting, Leicester, 3 p.m. South-Eastern Counties Division, Edinburgh Branch, Annual Meeting, Newtown St. Boswells, 3 p.m.
29	Fri.	Worcestershire and Herefordshire Branch, Annual Meeting, Worcester General Infirmary, 3 15 p.m.; Worcester Division, Annual Meeting, same place, 3.30 p.m.; Meeting of all Practitioners in the Division, 4 p.m.
		JULY.
4	Wed.	Sussex Branch, Annual Meeting, Hastings, 2.15; Luncheon, 1.15 p.m.; Tea, 4 p.m.
13	Fri.	East Yorks and North Lincoln Branch, Annual Meeting, Hull Royal Infirmary, 4 p.m.
26	Thurs.	OPENING OF ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m. Future of Insurance Practice. Treatment of Discharged Disabled Sailors and Soldiers, Ministry of Health. Military Demands on the Medical Profession. Treatment of Venereal Diseases. Etc., etc.
27	Fri.	ANNUAL GENERAL MEETING.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 30TH, 1917.

CONTENTS.

PAGE

British Medical Association.
CURRENT NOTES: QUARTERLY MEETING OF COUNCIL.—INDIAN PRACTITIONERS AND COMBATANT SERVICE.—RURAL PRACTITIONERS AND THE INSURANCE ADVISORY COMMITTEE 151
INSURANCE ACTS COMMITTEE:
REPORT ON THE FUTURE OF THE INSURANCE ACTS ... 152
QUESTIONS, WITH SYNOPSIS OF ANSWERS 154

British Medical Association *(continued)*. PAGE
MEETINGS OF BRANCHES AND DIVISIONS 155
ASSOCIATION NOTICES 156
NAVAL AND MILITARY APPOINTMENTS 157
VACANCIES AND APPOINTMENTS 158
BIRTHS, MARRIAGES, AND DEATHS 158
DIARY 158

British Medical Association.

CURRENT NOTES.

Quarterly Meeting of Council.

A MEETING of the Central Council of the Association was held at 429, Strand, on Wednesday, June 27th, with Dr. J. A. Macdonald in the chair. The quarterly reports of Standing Committees and of the Central Medical War Committee were presented and discussed.

Central Medical War Committee.

The quarterly report of the Central Medical War Committee was presented to the Council by its chairman, Dr. T. Jenner Verrall. The addition of five new members to the Committee has expedited the business of dealing with the large number of appeals now pending. It is now possible to divide the Committee into three sections for this purpose. The Committee has been obliged to warn Lord Derby that it is doubtful whether under existing powers and conditions it will be possible at any time to supply all the medical men asked for by the army, due regard being paid to the minimum requirements of the civil population. Although the War Office does not officially admit it, the advent of American doctors in considerable numbers for service in France should appreciably relieve the situation, at all events for the time being. Meanwhile a special subcommittee is engaged in a close scrutiny of the names of all medical men of military age in each area of England and Wales, in order to ascertain those who obviously cannot be spared, and those about whom there is doubt, but who seem *prima facie* spareable. With regard to the position of Territorial medical officers who are *à la suite* of Territorial general hospitals, and have accepted the imperial service obligation, a letter has been addressed to the Director-General A.M.S. asking that the Committee should be informed whenever any action in the way of calling up these officers for foreign service is contemplated, and that he should suggest means whereby local committees can be assured that a sufficient supply of specialist assistance will be retained in their areas. With regard to the payment of medical officers of V.A.D. hospitals, the Committee considers that the action of the authorities in this matter has been far from happy, as the air of mystery with which the War Office instructions were surrounded has given rise to avoidable misunderstanding and irritation. It is hoped that the rearrangements indicated in last week's JOURNAL (p. 849) will be sufficiently elastic to enable the payments to be made with due regard to the time and trouble expended.

Medical Recruiting Boards.

The Chairman drew the Council's attention to strictures lately passed in the House of Commons and elsewhere upon medical examiners of recruits. In the course of a brief discussion it was pointed out that Parliament had passed an Act which went much further than was expected, and in the resulting confusion and injustice medical men were being made the scapegoats. Several members stated that in various recruiting areas of which they had knowledge the civilian medical men who examined the recruits had no share in classification, which was carried out by the President of the Board alone. The Council decided to appoint a small committee to watch matters in the interest of the medical profession.

Middlemore Prize.

On the recommendation of the Science Committee and the adjudicators the Council has awarded the Middlemore Prize for 1917 to William Clark Souter, M.D., Ch.B.Aberd., Captain R.A.M.C.(T.F.), for his essay on "Disorders of the eye and of its functions induced by war injuries not directly affecting the eye."

Indian Practitioners and Combatant Service.

The British Medical Association has drawn the attention of the Secretary of State for India to the hardship inflicted on the non-official medical practitioners in India by the working of the Indian Defence Act, 1917. It appears that medical practitioners coming within the provisions of this Act are being compelled to drill in the combatant ranks with a further liability to three months' garrison service, and that, although the exemption tribunals are confident that medical men, in case of emergency, would be asked to do medical work, they have no power to exempt them from combatant training or service. The Association urges that qualified medical practitioners in India deemed to be enrolled under the Defence Force Act, who are willing to accept, if offered, a commission in the R.A.M.C. or I.M.S., shall be exempted from combatant training or service.

Rural Practitioners and the Insurance Advisory Committee.

As was stated a fortnight ago, the Chairman of the Joint Committee of Insurance Commissioners has, in response to representations made by the British Medical Association, decided to divide his Advisory Committee into two sections, general and medical. It was stated also that of the twelve medical practitioners to be nominated to the medical section, eight must be engaged in practice under the Insurance Act, and that at least one of these should be representative of rural practitioners. Dr. Alfred Linnell, of Paulerspury, Northamptonshire, in welcoming this arrangement, writes:

> It is important that the representative of rural practitioners should be fully conversant with the varied conditions of rural practice. These conditions vary to such an extent that, although a man may be an expert in the work of his immediate district, he may not understand the exigencies of rural practice in other parts of the country. I would suggest therefore that a member of the Rural Practitioners' Subcommittee of the British Medical Association should be nominated for appointment. The Subcommittee was appointed specially to consider the conditions of panel practice as they affect rural practitioners and can claim to have acquired a great deal of information on the subject. Dr. T. Wood Locket, of Melksham, Wilts, is a member of the Subcommittee, and is willing to act. He would receive the hearty support of his fellow members, and it is hoped that Local Medical Committees will nominate him for appointment. Rural practitioners as a class are not organized, and hardly know whom to look to as leaders, and this must be my excuse for drawing attention to this important matter.

IMPORTANT NOTICE.

The first part of the following report, issued to Branches and Divisions of the Association and Local Medical and Panel Committees, was published in the SUPPLEMENT *last week. Members of the profession are urged to preserve these numbers for the local discussion to which they will be invited.*

British Medical Association.

INSURANCE ACTS COMMITTEE.

INTERIM REPORT ON THE FUTURE OF THE INSURANCE ACTS.*

VIII. REFEREES.

30. In the course of the performance of these duties by the practitioner, differences of opinion between practitioner and patient may easily arise as to the patient's fitness for work or otherwise. If the opinion is an honest one on both sides, the difference is difficult to adjust, and in many cases at present leads to complaints being made, or grievances being felt which produce unpleasantness and sometimes loss of patients who transfer to practitioners supposed to be less strict in their judgment. To exercise this judgment with complete fairness both to approved society and to patient is often by no means easy, and in every case it involves a responsibility the importance of which should be recognised not only by every practitioner, but in any estimation of the value of the practitioner's work.

31. A similar difference of opinion between practitioner and patient, or in some cases between one practitioner and another, might arise in connection with the insured person's taking advantage of the public provision of special forms of treatment, or with his receiving the benefit of any of the extra services which may be established in extension of the present treatment. Difference of opinion between practitioners would probably rarely give rise to serious trouble, but the propriety of an insured person's action in demanding or in refusing to accept treatment of a special character might often be questioned.

32. There is at present no machinery established for settling matters of this kind, and it is essential that provision should be made for this at an early date. In some local areas arrangements have been made by approved societies or by Insurance Committees which are often most unsatisfactory in character and effect; and the appointment, under proper and uniform conditions, of referees for these purposes should as soon as possible be universally arranged for. Such referees (i.) should be whole-time officers; (ii.) should be appointed either by the Insurance Commissioners or possibly by new Local Administrative Health Committees of sufficiently large areas, if such be established,† with security of tenure; (iii.) should have had a considerable number of years' experience of private or insurance practice; (iv.) should have their duties associated with other administrative work in connection with clinical services; (v.) should be well paid by a salary entirely independent of the Medical Benefit Fund.

IX. REMUNERATION OF PRACTITIONERS.

General Method of Payment.

33. The question of the remuneration of practitioners for these responsibilities, liabilities and duties is at least threefold; (a) the general method of payment; (b) the general amount of payment; (c) the method of calculating what is due to each practitioner. A common opinion in the profession is that the present system of calculations and payment produces almost the maximum of confusion and uncertainty with the minimum of satisfaction. Many practitioners are not convinced that it is fair either as producing proper payment for work done, or as between practitioner and practitioner. Much of this feeling is due to actual misunderstandings of the system—misunderstandings not merely in the minds of individual practitioners, but in those of important bodies of practitioners, and due in no small part to the statements of politicians or of the Commissioners themselves in the early days of the insurance scheme. More still of the feeling of dissatisfaction is due not to any imperfection in the system of payment itself, but to the imperfection of the registers upon which the actual amount received by an individual practitioner so largely depends. But there are undoubtedly actual as well as fancied inequalities, and this would almost certainly be the case under any system dealing with a large migratory population. There are probably a good number of cases in which a practitioner with a small list, or even a practitioner with a considerable list, in a place where almost all the insured persons are individually known, could prove that he has not been paid the amounts that he would have received under a perfect system of distribution. Possibly, also, there are areas in which practitioners suffer owing to the administration of insurance committees being less efficient than in others. But it is evident that many firmly held conclusions with regard to the present system of remuneration are based on false premises. The system is extremely complicated, and in this report no attempt is made to discuss it in detail. The explanatory memorandum of the Commissioners, 229 I.C., should be carefully read by every practitioner, and criticisms should be based upon this memorandum rather than upon looser and less considered statements at some time made even by responsible persons.

34. The opinion of practitioners is almost unanimously in favour of a capitation system. It is significant that the only area which expresses a preference for a salaried State clinical service rather than an improved panel system is one in which the capitation method of payment has not been tried. But even if the capitation system be the best arrangement, and if the present system of calculation and payment be proved to be essentially fair, it is necessary that it should result in adequate payment of the practitioner, and that there should be such simplification and improvement as to allow of remuneration being more easily calculable and more promptly paid.

Present Rate of Payment.

35. The intention at the present time is that each practitioner shall be paid (neglecting drugs, but including the capitation payment for tuberculosis domiciliary treatment) 7s. for every person for whom he is at risk for a full calendar year, and proportionate amounts for shorter periods. There may be a small addition to this where the cost of drugs is below a certain amount, and a small deduction therefrom owing to payments made for temporary residents and other special classes of insured persons, and for the administrative expenses of panel committees. This capitation fee of 7s., or somewhat more in favourable circumstances, was an advance on an admittedly inadequate amount at first suggested, but was itself more or less a guess at an appropriate figure. It was agreed that after an experimental period, the experience gained therein should be reviewed, and the amount reconsidered. The result of this experience, on the professional side, seems to be that practitioners in a considerable number of areas think that the total remuneration actually received does not fall seriously below what would be satisfactory in pre-war conditions. This expression of opinion, however, is frequently qualified; the criteria upon which it is founded are evidently not identical in every area; it is a common impression that the remuneration is more unfair in rural than in urban conditions, and in certain industrial than in certain residential places; the practitioners in a considerable number of important areas are of opinion that the remuneration is not fair; and almost all hold that owing to changed conditions, there should be an increase in the amount of remuneration.

36. Undoubtedly the remuneration received as compared with the work done varies considerably from area to area; but this is, of course, true also of private practice. Compared with the remuneration of services to the poorer classes paid for by themselves, that received under the insurance scheme is probably greater, except in certain industrial areas (mainly in Lancashire) where an unusual method of computing private fees is in vogue. Compared with the remuneration which ought to be received for these services, and which is actually received for similar services rendered to persons of good economic position, that provided under the insurance scheme must be regarded as inadequate. The recognition of this inadequacy is, however, obscured by the fact that in nearly all cases practitioners are also engaged in other professional work of a more remunerative character. The great cost of medical education, the late period of life at which it is possible to commence practice, the desirability of a medical man being in a position to keep himself abreast of modern scientific thought, as well as the nature and responsibility of his work, all necessitate a sufficient economic return; and it is to the public as well as the professional interest that his remuneration should be adequate. General practitioners as a body must always remain the first line of defence against disease and physical disability, and the public are closely concerned in

* D 19/1916-17.

† See paragraph 9 of Scheme for a Ministry of Health, Annual Report of Council (SUPPLEMENT, May 5th, p. 90).

maintaining the highest possible standard of intellectual attainment, of personal character, and of professional ability among them. The remuneration of general practitioners whether derived from work under a national insurance scheme or otherwise, should, therefore, be based on a scale which will continue to attract into the profession men and women of first class general education and high ideals.

Future Rate of Payment.

37. Since the rate of remuneration for insurance work was originally agreed upon, experience has shown that sickness among certain classes of women is higher than it was calculated to be; prices have risen so that the cost of living and of travelling and of other professional necessities has greatly increased; the insurance risk has been seriously altered by the withdrawal of large numbers of the soundest lives and the addition of many others of a less satisfactory character; considerable numbers of disabled sailors and soldiers are returning and will need permanent or prolonged medical care, and on demobilization these classes will be greatly increased by the return to civil life of impaired lives at present retained in the Army for light work; and some additional duties have been placed upon practitioners in connection with special services. Every one of these considerations points to the necessity and propriety of an increase in the capitation fee and the Committee is of opinion that this should be raised to 10s. per annum for medical attendance exclusive of drugs and appliances, the duties of the practitioners being those set out in paragraph 23 of this report; including attendance for tuberculosis. Such increased capitation fee should be held to cover the giving of such advice, certificates and reports as may be necessary to enable an insured person to take full advantage of any of the extra services suggested as an extension of the insurance scheme, and to include any temporary additional remuneration which may be arranged for in connection with attendance on disabled sailors and soldiers. But it should not be understood to include the administration of a general anæsthetic, or the giving of advice concerning pregnancy and of emergency attendance at confinement; and personal attendance for purposes of consultation with another practitioner outside the radius or area for which the practitioner has accepted responsibility for visits should be the subject of extra payment. It is not suggested that under existing circumstances this increased remuneration should be immediately demanded, or that it can be demonstrated with mathematical precision that the suggested fee is exactly the right one. If, however, the Commissioners intend bringing about any of the beforementioned contingencies, then before the profession can be expected to undertake any duties arising therefrom, the question of payment must be raised, and it must be placed on record that the capitation fee should be increased; that the increase should, as far as can at present be judged, be to the amount suggested; and that this should be regarded as a reasonable requirement before any additional duties are imposed on the practitioner, or at the time of the promised revision, or of any extension or alteration of the services or arrangements under the insurance scheme. In the meantime, some additional payment for discharged, disabled sailors and soldiers is essential. (*See* Question 3 (xi.).)

Method of Calculation.

38. It must be recognised by practitioners that any such arrangement does not mean that each practitioner would receive 10s. for each insured person on his list during the year, or even necessarily for the average number of such persons on his list throughout the year. Experience shows, as might be expected, that the persons whose names are on the list, do not on any given day, correspond exactly to those for whom the practitioner is actually at risk on that day. This is almost inevitably the case quite apart from any fault, owing to the movements of the insured population, but carelessness or neglect on the part of a committee or a Society or an individual may increase the discrepancy. The ideal to be aimed at is that once each quarter the practitioner shall be put in possession of a list of insured persons which he shall be entitled to regard as an exact measure of the responsibilities he has undertaken, and that the amount of remuneration that is due to him shall be directly calculable from this list. This ideal is impossible of attainment at once. Great inflation of practitioners' lists and of committees' registers with names not properly upon them has inevitably resulted from the confusion due to the inexperience and overwork of almost everybody concerned at the initial stage; from the enormous number of enlistments; from other war employments and migrations; and from the lack of expert labour in the offices of societies and committees. But means should be taken—action has in fact been promised—to reduce this to a minimum under more normal conditions, it is to be hoped at a not very distant date. It is suggested that it would be acceptable to the profession (i.) that the calculation of the sum to be paid into the central pool should continue to be made from the statistics of the first half of the year; that the guarantee of the Commissioners that the full annual amount shall be included should be absolutely accepted: but that they should revise from time to time the formula according to which the calculation is made; (ii.) that the Commissioners should be relied upon to see that no leakage takes place between the central pool and the practitioner, all statistics supplied by the Commissioners to Insurance Committees being sent also to Panel Committees; (iii.) that all means suggested in paragraph 21 of this Report as likely to lead to a clearance of registers and correction of lists should be adopted; (iv.) that lapse from the right to medical benefit from any cause should not take effect until the end of the medical year in which it occurs, so that the only removals of names from a practitioner's list in the course of a year would be those of persons who had actually been transferred to another practitioner; (v.) that when opportunity has been given for registers and lists thus to be corrected and simplified, credit should be given to the practitioner for a fourth part of the full annual capitation fee for each person notified by the Insurance Committee as being on his list on the first day of each quarter; (vi.) that as large a proportion of this credit as possible should be paid to the practitioner each quarter, and that before April 30th of the following year the balance of the full credit should be paid, less any amount corresponding to deductions for the cost of attendance on temporary residents or other special classes of insured persons and to the administrative expenses of the Panel Committee of the area. (*See* Question 3 (xii.).)

Temporary Residents.

39. The plan for dealing with temporary residents has given rise to considerable dissatisfaction in some areas partly because it is complicated and little understood, mainly because it necessitates an amount of clerical work which is totally disproportionate to the amount derived from it by the average practitioner. To such an extent does this latter factor operate that many practitioners, rather than take the trouble necessary for making out the forms and sending them in prefer simply to attend the patient and take no further steps.

Remuneration of Rural Practitioners.

40. The opinion is widely held by rural practitioners that they are unfairly remunerated as compared with urban practitioners. It has always been assumed that the greater distances travelled by the former, in proportion to the number of patients seen, were set off by the greater incidence of sickness of the urban population and their greater proximity to their doctors which encouraged them to consult the latter oftener. But examination of figures at the disposal of the Association seems to show that there is little difference in the number of attendances given to the two classes though the bulk of the attendances are visits in rural areas whereas they are surgery attendances in the towns. If this be so the claim of the rural practitioner to greater remuneration is clear, and as his expenses of locomotion are great and his opportunities for securing a large panel are small it seems only fair that this claim should be met by an increase in the present total mileage grant, and possibly also by alterations in its distribution as between county and county and one part of the country and another. After consideration of the replies received and consultation with its Rural Practitioners' Sub-Committee the Insurance Acts Committee would suggest for the consideration of the profession, the following outline scheme for dealing with mileage:—

(1) Increase in total mileage grant.

(2) The local pool to be divided among practitioners upon the basis of the number of insured persons upon each practitioner's list who are resident *over three miles* from the practitioner's residence; the payment being made in respect of each mile or part of a mile *over two miles*.

(3) Provision to be made in each local scheme for special difficulties of access, whether above or below the three miles radius.

(4) Provision to be made for the possibility of an agreement between the Panel and Insurance Committee for division of local pool (a) on basis of mileage actually travelled and not on liability therefor, and (b) on a *per capita* payment to individuals according to some method of classification and not on the unit principle.

Provision for Special Services.

41. In any extension of the medical services provided for insured persons, medical treatment of a specialist character at

a clinic or treatment centre and during residence in a hospital should be the subject of a separate scheme of remuneration, whether such treatment is given by the ordinary medical attendant if specially qualified, or by another practitioner. The salaries of referees or other whole-time officers should be in accordance with a scale agreed upon with the profession generally and should include provision for pension.

Payment for Dependants when Included.

42. The question of the capitation fee for the dependants of insured persons should they be included in the scheme is a difficult one, and is not at the moment ripe for determination. It has been suggested that the proposal that the capitation fee for each dependant should be the same as for the insured person can scarcely be maintained in view of the fact that the work involved in attendance on the members of one family for a year is not, as a rule, as great as though those members were living independently. This must be borne in mind and also the fees which are now commonly regarded as acceptable in similar arrangements in contract practice, as well as the fact that there may well be in a household several insured persons for whom the full fee would be payable. The profession, therefore, should consider the suggestion that a sum corresponding to the full capitation fee should be paid for one or two dependants, and a further similar sum for any additional dependants, provided that such persons are all living in the same house and that the conditions as to the transfer and lapse from right to medical benefit applicable to the insured person shall be regarded as applying to his dependants also.

X. ADMINISTRATION.

Local Medical Committee.

43. As far as the administration of the Insurance Acts is concerned there is no need to maintain the separate existence of the Local Medical Committee either as a reality or as a fiction. There are, it is believed, only two functions of the Local Medical Committee prescribed by Act or Regulations which are not also functions of the Panel Committee—(a) to determine whether a particular service is within the contract or no; and (b) to consider any complaint by one practitioner on the panel against another with regard to the efficiency of the service—and there seems no reason why these should not be efficiently performed by the Panel Committee. Should there, however, be any rearrangement of local administrative health areas either for preventive or for clinical purposes or for both, it is desirable that there should be for each such area a Committee representative of the whole of the medical profession of the area for purposes of consultation and for making appointments on behalf of the profession on any local administrative committees or bodies where such are required. For this purpose, a new Local Medical Committee for each such area might be established elected by the whole profession therein, or a number of members representing all classes of practice might be added to the Panel Committee.

Administration under Ministry of Health.

44. It is desirable that under a Ministry of Health, there should be in areas of suitable size, a local Health Committee unifying in a similar way all local health administration, and that on this committee the medical profession and other interests concerned with the health of the community should be adequately represented. But if it should be decided to separate all clinical services from the preventive service, and to entrust the former to the local administration of Insurance Committees, it is essential that these committees should be considerably altered so that (i.) they shall be smaller in size, (ii.) the representation of insured persons thereon shall be more personal and direct, (iii.) the proportion of medical representatives shall be larger than at present these representatives being nominated or elected by the local profession, (iv.) there shall be representatives of other classes or bodies directly interested in health administration, such as dentists, pharmacists, nurses, and the committees of public hospitals. Even apart from wider administrative reforms in connection with public health, some such reform of Insurance Committees is necessary to inspire confidence in their administration among the medical profession.

Approved Societies.

45. The existence of a large number of small approved societies with officials having a very imperfect knowledge of their work, and of a considerable number of agents of large societies who are similarly lacking is inconvenient, and gives rise to frequent trouble and misunderstanding. The necessity for some reform may make it a matter of practical politics that the approved societies should be formed into one large State Society. In the meantime it is desirable that there should be friendly co-operation with approved societies whenever possible, provided always that no interference by such societies in the administration of medical benefit be encouraged or allowed.

QUESTIONS.

1. Can you approve in general, and without regard to any particular detail, the suggestions of the report?

2. What criticisms do you wish to offer on each paragraph? (These must be given on a separate document.)

3. Specifically:

(i) Do you approve of an income limit of £160 per annum from all sources being applied to all insured persons?

(ii) Do you approve of some classes of persons below this income limit being allowed, if they wish, to exempt themselves from medical benefit as in par. 12?

(iii) Do you approve of the Poor Law Medical Service being unified with the Panel Service (par. 14)?

(iv) Bearing in mind the expressed intention of the State to look after the health of mothers and young children and the methods by which treatment has so far been given by public assistance to such persons and to school children, do you approve of an extension of the medical benefit to the dependants of insured persons under the conditions named in pars. 15 and 38?

(v) Do you favour the establishment of central clinics at which practitioners could see *all* their insured patients, as distinct from those requiring treatment of a special character (par. 19)?

(vi) Do you approve of insured persons being told when the medical card is sent that they must present it to a practitioner within a month, or that they will then be assigned to a neighbouring practitioner (par. 20)?

(vii) Do you approve of insured persons being allowed to change their doctor without consent more than once a year? If so, do you prefer to allow this half-yearly or quarterly (par. 22)?

(viii) After further experience, do you object to the cost of drugs, etc., being made a first charge on the Medical Benefit Fund under the conditions named in par. 26? Would you so object if the capitation fee for practitioners and drugs were increased to 12s. as suggested?

(ix) Do you approve under present conditions of arrangements for lending "nursing appliances" from a central dépôt on payment of a deposit (par. 27)?

(x) Do you approve the suggestion that the same discretion should be given to all insurance practitioners as regards signing the final certificate as is at present given to practitioners in certain rural areas (par. 29)?

(xi) Do you approve of the raising of the capitation fee as described in par. 37?

(xii) Do you approve generally of the scheme for calculating payments set out in paragraph 38? Do you think any modifications *of it* are necessary? If so, what are they?

4. Are there any other additional matters which you think it important to mention in the Final Report? If so, state the points as briefly and clearly as possible.

APPENDIX.

QUESTIONS TO BRANCHES, DIVISIONS, LOCAL MEDICAL COMMITTEES AND PANEL COMMITTEES, WITH SYNOPSIS OF ANSWERS RECEIVED UP TO JUNE 7TH, 1917.

Q. 1. What is the general feeling of *insured persons* in your area as to the present system? Is there much dissatisfaction? What are the points on which dissatisfaction is expressed?

A. General satisfaction in 88 areas. General dissatisfaction in 23 areas. Indifference—16 areas.

Reasons given for dissatisfaction in order of frequency: (1) Delay in payment of benefits; (2) Certification; (3) Dissatisfaction with arrangements for drug supply; (4) Dissatisfaction with treatment given by doctors.

Q. 2. (*a*) What is the general feeling of the *medical profession* in your area as to the present system? (*b*) What proportion of the general practitioners are on the panel? (*c*) Are those general practitioners who are not on likely to join it? If not, why not? (*d*) What changes in the system would induce them to take service?

A. (*a*) 41 satisfied, without reservations. 44 satisfied with reservations. 30 dissatisfied. 10 sharply divided in opinion.

Reasons for dissatisfaction in order of frequency: (1) Method of payment and methods of registration, etc.; (2) Clerical work and certification; (3) Loss of independence.

(*b*) In 63 areas all or over 90 per cent. of the general practitioners are on the panel. In 22 areas between 90 per cent. and 75 per cent. of the general practitioners are on the panel. In 13 areas between 75 per cent. and 66 per cent. of the general practitioners are on the panel. In 8 areas between 66 per cent. and 50 per cent. of the general practitioners are on the panel. Statements show that it is very rare for a rural practitioner not to be on the panel.

(*c*) Practically all areas report that those general practitioners not on panel are not likely to join, for following reasons: (1) Majority engaged in good class work, and it would not pay them to join; (2) General objection on

principle to contract work; (3) Objection to lay control and loss of independence.

(*d*) Few answers. In order of frequency, suggestions made are (1) Increase of payment; (2) Payment for work done.

Q. 3. (*a*) Do you prefer the panel system, subject to practicable improvements, to a salaried State service? (*b*) If in favour of former, state improvements suggested. (*c*) If latter, give briefly the lines on which such a salaried State service should be run.*

A. (*a*) 118 areas definitely in favour of improved panel system; 4 areas decline to give opinion until they know what a State service means; 1 area, Manchester, prefers a salaried State service with an income limit for beneficiaries, and forwards scheme.

(*b*) Improvements in panel system suggested, in order of frequency, are: (1) Improved method of payment (easily first) with the necessary consequent changes, such as improved registration; (2) Extension of benefits (*see* answer to next question); (3) State medical referees; (4) Inclusion of dependants; (5) Diminution of clerical work, especially in connexion with certificates; (6) Better co-operation with approved societies; (7) Alteration in composition of Insurance Committees with larger and more direct representation of profession; (8) Exclusion of certain classes from medical benefit.

Q. 4. What extensions of the present provision in respect of medical benefit do you consider are required to make the service an adequate one? State these extensions in the order of importance.

A. Nearly all areas ask for consultant and specialist service in the following order of frequency: Physician and surgeon, institutional treatment, laboratory assistance, ophthalmologist, *x*-ray diagnosis and treatment, nursing, vaccine therapy, dentistry, convalescent homes. 7 areas suggest increase of maternity benefit; 5 areas definitely state that there should be no extension of medical benefit.

Q. 5. Should there be any limitation of the number of persons on any given doctor's list, and if so, what limitation?

A. 70 areas vote for no limitation; 33 areas in favour of limitations, the numbers suggested varying from 5,000 (wholly panel) to 1,000 in the country and 1,500 in the towns (when accompanied by other practice).

Q. 6. (*a*) What method do you approve for the supply of drugs and appliances? (*b*) What additional appliances, if any, do you think should be added to the list? (*c*) Are the members of the local profession agreed that the separation of prescribing and dispensing is advantageous?

A. (*a*) 89 areas approve of present method. 10 areas suggest that it should be left to individual practitioner to decide whether he will dispense or not. 5 areas think the doctor should do his own dispensing. 3 areas suggest central dispensaries.

(*b*) 26 areas think present list of appliances is sufficient. 17 areas want trusses, 7 suggest pessaries, and other articles are mentioned with less frequency. Several areas suggest loan of nursing appliances from central stock.

(*c*) 74 areas in favour of definite separation wherever possible. 9 areas want no separation. 2 areas are divided in opinion.

Q. 7. Do you consider that the payment for domiciliary treatment of tuberculous insured persons should be separated from the other capitation payment—that is, in respect of medical benefit? Bearing in mind the criticisms that have been expressed as to the domiciliary treatment of tuberculosis under the Act, have you any suggestions to make?

A. 90 areas are in favour of no separation. 18 areas are in favour of separation. (For suggestions see pars. 24 and 25 of Report.)

Q. 8. Does the total remuneration actually received in respect of a whole year, when compared with the amount of work done for it, seem fair remuneration? If not, state what you would consider to be fair remuneration for the work *now* required under present agreements, and why?

A. 52 areas consider it fair, most of them qualifying the statement by the words "in peace time." 62 do not consider it fair remuneration, though many suggest that their opinion would be modified had the money due been paid promptly and in full. Rate suggested varies from 15s. to 10s., the latter being the one most usually suggested. Several suggest increase of rate for women only. Several suggest higher remuneration in rural areas only.

Q. 9. Having read Mem. 229 I.C., what suggestions have you to make as to improvement of present method of remuneration?

Note.—Answers on this point are particularly requested, but to be of any use they must be given after making allowances for the difficulties that are shown to be inherent in any capitation system of remuneration which applies to a constantly moving population of 13 to 14 millions or more.

The answers to this question do not lend themselves to tabular treatment. (*See* pars. 33–42 of the Report.)

Q. 10. Could the information obtained by the present system of card records be obtained by any simplified method? If so, how?

A. 88 areas consider present method simplest; 12 suggest new methods; 6 think card records of little use.

Q. 11. What alterations do you suggest in the present certification system?

A. (*See* pars. 29–32 of Report.)

Q. 12. In view of the constant complaint made by rural practitioners of their disadvantage from a monetary point of view as compared with the town practitioner whose patients lie within easy distance, have you any suggestions to make as regards payment of rural practitioners?

A. (*See* par. 40 of Report.)

Q. 13. Are there any other special points to which you desire to draw attention?

* In this connexion two articles on the Future of Medical Service, in the BRITISH MEDICAL JOURNAL of January 20th, 1917, pp. 86 to 90, may be read with advantage, as they set forth the case for and against a whole-time salaried State Medical Service.

Meetings of Branches and Divisions.

DORSET AND WEST HANTS BRANCH:
WEST DORSET DIVISION.

THE annual meeting of the Division was held on April 26th.

Election of Officers.—The following were elected:

Chairman: P. W. Macdonald, M.D. (Weymouth).
Vice-Chairman: J. F. L. Whittingdale, M.B. (Sherborne).
Honorary Secretary: James Miller, M.B. (Weymouth).
Representative for Representative Meeting: Surgeon-Lieut.-Colonel Decimus Curme (Child Okeford).
Representatives on Branch Council: W. B. Cosens, Surgeon-Lieut.-Colonel Curme, C. Edwards, T. MacCarthy, P. W. Macdonald, C. J. Marsh, J. Miller.
Executive Committee: B. P. Bartlett, G. Dru Drury, F. P. Kitson, E. L. Luther, T. H. E. Watts-Silvester.

EAST ANGLIAN BRANCH:
NORTH-EAST ESSEX DIVISION.

THE annual meeting of the Division was held at Colchester on May 26th.

Financial Statement.—The Executive Committee reported a small balance in the bank.

Election of Officers.—The following office-bearers were elected:

Chairman: Dr. Penry Rowland, Colchester.
Vice-Chairman: Dr. Milner Burgess, Frinton-on-Sea.
Secretary: Dr. A. N. Fell, "St. Mary's," Colchester.
Representative for Representative Meetings: Dr. Agnes Estcourt-Oswald.
Representatives for Branch Council: Dr. Salter and Captain Curl, R.A.M.C.(T.)
Executive Committee: Drs. Sidney Bree, S. M. D. Campbell, F. B. H. Caudwell, W. F. A. Clowes, P. Coleman, E. P. Dickin, B. Hall, C. G. Roberts, R. Turnbull, S. E. Worts, and, *ex-officio*, Drs. W. M.Burgess, Agnes Estcourt-Oswald, A. N. Fell, P. W. Rowland.

Expenditure of War Committees.—The following motion was carried unanimously:

The North-East Essex Division recommend that the expenditure of the Central and Local Medical Committees be published, and that a definite opportunity be provided for non-members, who have so largely benefited by this expenditure, to take their share of the burden.

LANCASHIRE AND CHESHIRE BRANCH:
BURNLEY DIVISION.

THE annual meeting of the Division was held on May 25th.

Election of Officers.—The following office-bearers were elected for 1917–18:

Chairman: Dr. Normington (Nelson).
Vice-Chairman: Dr. J. W. Clegg.
Honorary Secretary: Dr. James Gardner.
Representative for Representative Meeting: Dr. H. J. Robinson.
Representative on Branch Council: Dr. J. M. Ferguson.
Executive Committee.—Burnley: Dr. C. A. Anderson, Dr. A. Edward Bird, Dr. F. E. Crossley, Dr. H. S. Dixon, Dr. George S. Pullon, Dr. T. M. Scott. Nelson: Dr. A. W. Findlay, Dr. J. Pozzi. Padiham: No nomination. Colne: Dr. A. M. Eadie. Barnoldswick: Dr. Alderton. Brierfield: Dr. J. S. Wilson.

Annual Report.—The annual report, which was adopted, stated with regard to the long-standing dispute between the district medical officers and the Burnley Board of Guardians that as the result of fresh negotiations one vacancy had been filled in November, 1916, and another early in the present year. With reference to the scheme for the treatment of venereal diseases, it was announced that one general practitioner in Burnley had been appointed special medical officer for the purpose and two others had been nominated to serve on the Corporation Committee to carry

on the scheme. The Executive Committee expressed its gratification at the loyalty of those members upon whom the greatest share of the practices of the practitioners on war service had been thrown, and its conviction that the same loyalty and friendship would animate all the members in the future and that thus the difficulties and increased work of the coming autumn and winter would be met. It was, however, considered that in view of the greatly increased cost of drugs, petrol, and hiring, some modification of the terms of remuneration had been rendered necessary.

HAMPSTEAD DIVISION.

A MEETING of the Division was held on June 1st.

Election of Officers.—The officers were re-elected, and the following were appointed members of the Executive Committee: Drs. Dickinson, Marshall, Goodall, Battams, and Collier.

Maternity and Infant Welfare.—The following resolutions were adopted:

(1) That, in the opinion of this meeting, it is desirable that any medical man engaged by any body concerned in such social work should not be in active practice in the district.
(2) That, in the opinion of this meeting, it is very desirable that in all cases where public funds are being placed at the discretion of any body engaged in social welfare work, the majority of that administrative body should consist of representatives of the borough councils concerned.
(3) That the Secretary send a copy of the resolutions to the Hampstead Borough Council.

LAMBETH DIVISION.

THE annual general meeting of the Lambeth Division was held at the Bethlem Royal Hospital.

Election of Officers.—The following officers and Executive Committee were elected for the ensuing year:

Chairman: Dr. Elwin.
Vice-Chairman: Dr. St. Codd.
Representative at Representative Meetings: Dr. J. C. V. Denning.
Representative on Branch Council: Dr. Harvey Norton.
Secretary and Treasurer: Dr. T. H. Parkes Peers.
Committee: Drs. E. L. M. Rusby, A. R. French, M. Moran, Luffman, F. J. Farman, A. R. Moore, J. Stoker, McCarthy, G. Paton, E. Herrington.

Annual Representative Meeting.—The Representative was instructed as to the voting at the forthcoming Representative Meeting.

Vote of Thanks.—A unanimous vote of thanks was accorded to the superintendent (Dr. Porter Phillips) and the governors of the hospital for providing accommodation for the meeting.

SOUTHERN BRANCH:

PORTSMOUTH DIVISION.

THE annual meeting of the Portsmouth Division was held in the Medical Library, Southsea, on June 14th, 1917, when Dr. JAMES GREEN presided.

The late Dr. L. K. H. Hackman.—The CHAIRMAN expressed the deep regret of the Division at the loss sustained by the death of Dr. Leonard K. H. Hackman, late Secretary, and the sympathy felt with the widow and family. He informed the meeting that the Hackman Memorial Fund had been well supported, and would remain open until June 30th.

Annual Report.—The annual report and financial statement for 1916 was received and adopted.

Election of Officers.—The following officers were elected for 1917–18:

Chairman: Dr. T. A. Mulcahy.
Vice-Chairman: Lieutenant H. S. Thomas.
Honorary Secretary and Treasurer: Dr. J. H. Frederick Way.
Clinical Secretary: Dr. E. F. S. Green.
Honorary Librarian: Captain W. Carling.
Representative at Annual Representative Meetings: Dr. D. A. Sheehan.
Representatives at Southern Branch Council: Dr. L. Cole-Baker, Mr. A. Bosworth Wright, Dr. T. A. Mulcahy.
Executive Committee: Dr. G. McGregor, Dr. W. A. Salmond, Captain C. Lamplough, Dr. H. E. Crawley, Dr. F. C. H. Muggleton, Lieut.-Colonel C. P. Childe, Captain J. E. F. Palser, Captain B. A. W. Stone, Dr. T. A. Colt, Dr. A. E. Marwood, and Dr. James Green, Member of Council and Secretary, Southern Branch.

Annual Representative Meeting, 1917.—The Provisional Agenda was submitted, and the paragraphs discussed *seriatim*; the following resolutions were carried on the reports of the various committees:

(C) *Central Medical War Committee.*

That the members of the Portsmouth Division express their satisfaction at the action of the Central Medical War Committee in the matter of the letter sent by the Secretary of State for War, calling up every medical man of military age, in April, 1917.

(D) *Organization.*

That in the Portsmouth Division, if a Deputy Representative be required to act at any Representative Meeting, the Chairman of the Division shall nominate one of the members so to act.

(H) *Medico-Political: re Remuneration for Clinical Posts.*

That any attempt to fix different rates of pay in differen parts of the country for similar work is unjust.

Re Proposed Ministry of Health.

That consideration of the question of the proposed Ministry of Health be referred to a general meeting of the local profession, to be held after the Supplementary Report of the Council is received.

SOUTH-WESTERN BRANCH:

TORQUAY DIVISION.

THE annual meeting of the Torquay Division was held on May 29th.

Election of Officers.—The following members were elected for the ensuing year:

Chairman: Dr. Goodwyn (Bovey).
Vice-Chairman: Dr. H. V. McKenzie (Torquay).
Representative on the Representative Meeting: Dr. Goodwyn.
Honorary Secretary: Dr. G. Young Eales (Torquay).

Dr. G. Young Eales was appointed secretary of the Local Medical War Committee vice Dr. King who has joined the R.A.M.C.

ULSTER BRANCH:

BELFAST DIVISION.

THE annual meeting of the Division was held in the Medical Institute, Belfast, on June 14th.

Election of Officers.—The following officers were elected for 1917–18:

Chairman: Dr. John R. Davison.
Treasurer and Honorary Secretary: Dr. W. L. Story.
Representative to Annual Representative Meeting: Dr. W. L. Story.
Deputy Representative: Dr. A. G. Robb.
Executive Committee: Drs. W. M. Burnside, M. F. Cahill, T. C. D. Cathcart, Foster Coates, T. A. Davidson, R. M. Frazer, D. Gray, S. T. Irwin, R. W. Leslie, J. B. Moore, A. G. Robb, J. Rusk, W. A. Wadsworth, R. Watt, H. J. Boyd, J. A. Clarke, W. R. Davison, A. McN. D'Evelyn, D. P. Gaussen, J. C. Loughridge, R. Reid, G. St. George, T. M. Tate.
Members of Branch Council: Drs. M. F. Cahill, T. A. Davidson, D. Gray, S. T. Irwin, A. G. Robb, H. J. Boyd, D. P. Gaussen, R. Reid.

Metric System in Prescribing and Dispensing.—The following resolution was unanimously passed:

That, in the opinion of the Belfast Division, the general use of the metric system in dispensing, prescribing, and treatment would be beneficial to the scientific interests of the medical profession, and, by the lead thus given to other callings, aid the general trade of the country; and that our Representative be instructed to urge the Annual Representative Meeting to use its influence in the introduction of this system.

Association Notices.

ELECTION OF MEMBERS OF COUNCIL BY GROUPED REPRESENTATIVES.

NOTICE is hereby given that Nominations for Candidates for election of Members of Council by grouped Representatives for the year 1917–18 will be received by the Medical Secretary up to the end of the first hour of the proceedings of the Annual Representative Meeting on Thursday, July 26th, 1917. Each nomination must be on the prescribed form, copies of which will be forwarded by the Medical Secretary on application.

Separate forms have been prepared: I. For Nomination by a Division (through its Representative); and II. for Nomination by a Representative of a Constituency included in the Group, and those applying are requested to state for which purpose the form is desired.

The voting papers will be issued at the Representative Meeting to each Representative or Deputy Representative of a Constituency in the United Kingdom in attendance at the Meeting.

By order of the Council,
ALFRED COX,
Medical Secretary.

ANNUAL REPRESENTATIVE MEETING, 1917.

Date of Meeting.

THE Annual Representative Meeting of the Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Thursday, July 26th, at 10 a.m. and following day(s) as may be required.

Constituencies, 1917–18: Returns of Representatives.

Subject to necessary formal adjustments in respect of changes of Division areas effected since the 1916–17 Constituencies were determined, it has been decided by the Organization Committee, on behalf of the Council, that the Constituencies for 1917–18 will be the same as for 1916–17. Honorary Secretaries of Divisions who have not yet forwarded to the Head Office the names and addresses and dates of election of the Representatives appointed by their Constituencies for 1917–18 are requested to forward these particulars to the Medical Secretary by the earliest possible date. Under the By-laws, Representatives must have been elected not less than four weeks before the Annual Representative Meeting and their names must be notified by at latest July 5th. The Representative can if necessary be elected and instructed by one and the same Meeting of the Constituency.

Agenda of A.R.M.: Further Notices of Motion by Divisions and Branches.

The provisional Agenda of the Annual Representative Meeting, including the Annual Report of the Council, was published in the SUPPLEMENT of May 5th, and a supplementary Notice of Motion in the SUPPLEMENT of June 2nd. The Supplementary Report of the Council will appear in the SUPPLEMENT of July 7th. There will be included in the final Agenda of the Meeting, as to be issued to the members of the Representative Body on or about July 19th, not only the Notices of Motion published in the SUPPLEMENTS of May 5th, June 2nd, and (Supplementary Report of Council) July 7th, but also Notices of Motion received up to Thursday, July 12th, found by the Agenda Committee to be in order.

By order,
ALFRED COX,
Medical Secretary.

June 20th, 1917.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EAST ANGLIAN BRANCH.—Dr. B. H. Nicholson, Honorary Secretary (East Lodge, Colchester), gives notice that the annual meeting of the East Anglian Branch will be held at the Crown and Anchor Hotel, Ipswich, on Tuesday, July 10th, at 3 o'clock.

EAST YORKS AND NORTH LINCOLN BRANCH.—Mr. H. L. Evans, Honorary Secretary (101, Princes Avenue, Hull), gives notice that the annual meeting of the Branch will be held in the Board Room of the Hull Royal Infirmary, at 4 p.m., on Friday, July 13th. Business: Annual report, financial statement, election of officers. Address by Robert Grieve, M.D., F.R.C.S.

SOUTHERN BRANCH.—Mr. James Green, Honorary Secretary, gives notice that the annual meeting of the Branch will be held at the South-Western Hotel, Southampton, on Thursday, July 12th, at 3 p.m., Dr. A. E. Bodington in the chair. Business: Minutes. Correspondence. Election of officers for 1917–18. Annual report. Balance sheet. To consider resolution of Branch Council: "That it be a recommendation from this Council to the next general meeting that the future quorum of the Council consist of five members." General business. At the conclusion of the business Dr. Bodington will vacate the chair in favour of the incoming president, Dr. H. J. May of Southampton. On account of the war there will be no luncheon or other social function, except that tea will be served at the end of the meeting by the kindness of Dr. May. The usual collection for Epsom College will be made during tea time. There will be no golf competition this year. Members who intend to accept the President's invitation to tea will oblige by sending word to that effect not later than July 9th to Mr. C. P. le Quesne, 1, Lawn Road, Southampton.

SUSSEX BRANCH.—Dr. A. M. Daldy, Honorary Secretary (14, Palmeira Avenue, Hove), gives notice that the fourth annual general meeting of the Branch will be held in the Council Chamber at the Town Hall, Hastings, on Wednesday, July 4th, 1917, at 2.15 p.m. Agenda: Minutes of the last annual meeting. Election of officers. Annual report with financial statement. The President will give an address on the future of the medical profession and the proposed Ministry of Public Health, to be followed by a resolution and discussion, in which Dr. Claude Wilson, representative of Sussex, Kent, and Surrey on the Council, British Medical Association, will take part. The Council hope that as many Sussex members of the Association as possible will attend. The President-elect (Dr. George Locke, J.P.), requests the pleasure of the company of those members who intend to be present at the meeting to luncheon at the Albany Hotel, Hastings, at 1.15 p.m. Hastings members of the British Medical Association invite those attending the meeting to tea at 4.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Deputy Surgeon-General O. W. Andrews, M.B., to the *New Zealand*. Fleet Surgeon P. M. May to the *Pembroke*, additional, for East London Recruiting District. Staff Surgeon G. O. M. Dickinson, M.B., to the *Victory*. Temporary Surgeons R. S. Carey to the *Vivid*, additional, for Plymouth Hospital; M. O. Raven, M.B., to the *Vivid*; A. H. Wear, M.B., and P. N. Button, to the *Victory*; H. W. Hales to the *Ajax*; G. W. Woodhouse to the *Yarmouth*; D. B. S. Jones to the *Victory*, additional, for Haslar Hospital; W. L. Cripps, M.B., to the *Pembroke*. To be temporary Surgeon: L. C. McL. Wedderburn, M.B.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon probationer: J. G. Coltart.

ARMY MEDICAL SERVICE.

Temporary Colonel H. G. Barling, F.R.C.S. (Lieut.-Colonel T.F.), relinquishes his temporary commission on reposting.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel O. L. Robinson, C.M.G., to be Brevet Colonel on appointment as an Honorary Physician to the King.

Major R. B. Hole, M.B., relinquishes the acting rank of Lieut.-Colonel on reposting.

Temporary Major R. C. Tweedy, M.D., relinquishes his commission on account of ill health.

D. B. King, M.D., to be temporary Major whilst serving with the Horton (Co. of London) War Hospital.

Captain L. R. Meech, M.C., to take rank and precedence as Captain as if his appointment to that rank bore date April 21st, 1917.

Temporary Captains relinquish their commissions: H. H. K. Sparrow, J. R. Robertson, J. E. Phillips, A. R. Roche, M.C., D. F. Kennard, E. E. Frazer, M.D., C. Coventry, M.B., C. H. Armitage, M.B., T. H. Phillips, H. Crichton, M.D.

J. A. Gibb, M.D., late temporary Captain, to be honorary Captain.

Temporary Lieutenant C. W. Gittens relinquishes his commission on account of ill health.

Temporary Lieutenants to be temporary Captains: M. S. Fraser, M.D., F.R.C.S.E., L. J. O'Donovan, W. H. Marshall, T. G. Featherstonhaugh, M.B., J. Harvey, M.B., E. G. Saunders, M.B., J. Neligan, M.B., J. E. Ashby, A. Buchanan, M.B., W. L. O'Neill, M.B., J. L. Falconer, M.B., F.R.C.S., H. M. Jackson, M.B., J. P. Crawford, M.B., A. R. C. Doorley, M.B., R. M. de Mowbray, F.R.C.S., E. L. K. Sargent, M.B., W. Macadam, M.D., T. G. Evans, M.D., D. J. Harries, M.D., F.R.C.S., S. A. Burn, J. Keyms, M.D., E. H. Price, T. L. Jones, M.B., J. Cairns, M.B., W. G. Marsden, M.B., G. N. Brandon, A. M. A. James, A. E. Goldie, M.B., H. H. Fairfax, S. G. J. Dowling, M.B., F. Simpson, T. F. Wilson, M.B.

To be temporary Quartermasters with the honorary rank of Lieutenants: H. Shaw, J. Stroud, J. H. Thomas.

INDIAN MEDICAL SERVICE.

Colonel A. O. Evans has been permitted to retire from the service with effect from January 22nd.

Captain M. F. Reaney has been mentioned in dispatches by General Sir Ian Hamilton, G.C.B., for distinguished and gallant service during the operations in Gallipoli.

Lieut.-Colonel C. R. M. Green, M.D., F.R.C.S., has been promoted to the rank of Colonel with effect from November 11th, 1916.

Major H. B. Steen, M.D., has been appointed temporarily to be Professor of Midwifery, Medical College, and Obstetric Physician and Surgeon of the Medical College Hospitals, Calcutta, with effect from December 24th, 1916.

Lieut.-Colonel F. Wall, C.M.G., has been appointed an Asssistant Director of Medical Services with effect from January 15th.

Captain W. E. R. Williams has been appointed a Deputy Assistant Director Medical Services, with effect from January 9th.

Major G. King has been permitted to retire from the service with effect from January 28th.

Major N. E. H. Scott was employed as Civil Surgeon, Mohammerah, from February 26th to April 1st, 1917, and has been placed on special duty under the orders of the Political Resident in the Persian Gulf with effect from April 2nd.

The services of Captain E. S. Phipson, D.S.O., M.B., have been placed temporarily at the disposal of the Government of Bombay.

Captain D. C. V. FitzGerald appointed to be temporary Deputy Medical Storekeeper to Government with effect from January 23rd.

Colonel P. C. H. Strickland has been confirmed in the appointment of Inspector-General of Civil Hospitals, Burma, with effect from January 22nd.

Lieut.-Colonel R. C. Macwatt, Chief Medical Officer in Rajputana and Civil Surgeon, Ajmer, appointed temporarily to hold visiting charge of the offices of Residency Surgeon, Jaipur, Agency Surgeon, Kotah and Jhalawar, and Agency Surgeon, Eastern Rajputana States, in addition to his own duties, with effect from November 17th, 1916.

Colonel D. St. J. D. Grant, M.B., has been permitted to retire from the service, with effect from March 14th.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL SERVICE.

Deputy Director of Medical Services: Colonel A. E. Ross, C.M.G., vice Colonel G. L. Foster, C.B.

Assistant Directors of Medical Services: Temporary Lieut.-Colonel H. M. Robertson, temporary Colonel K. Cameron; Lieut.-Colonel F. S. L. Ford, C.M.G., and to be temporary Colonel whilst so employed, vice Colonel A. E. Ross, C.M.G. Temporary Colonel J. W. Bridges, C.A.M.C., vice Colonel G. S. Rennie (substituted for notification in the *London Gazette* of May 29th). Temporary Colonel H. A. Chisholm, D.S.O., C.A.M.C., vice Lieut.-Colonel C. A. Peters.

Deputy Assistant Directors of Medical Services: Lieut.-Colonel C. P. Templeton; temporary Majors A. C. Jost, E. A. Neff; Captain G. H. R. Gibson; temporary Captains J. R. Goodall, H. C. Mersereau, W. J. MacKenzie. Temporary Major F. B. Carron, C.A.M.C.

CANADIAN ARMY MEDICAL CORPS.

Major K. P. Kappele to be temporary Lieut.-Colonel whilst holding appointment as O.C. Canadian Cavalry Field Ambulance, December 5th, 1916 (substituted for notification in the *London Gazette* of April 28th, incorrectly describing name as K. P. Kapelle).

Temporary Captain A. E. H. Bennett to be temporary Major (substituted for *London Gazette* notification, April 28th, incorrectly describing name as A. H. E. Bennett).

Temporary Captain R. H. MacDonald to be temporary Major, November 6th, 1916 (substituted for *London Gazette* notification, April 28th, incorrectly describing name as R. H. McDonald).

Temporary Captain G. G. Greer, M.C., to be temporary Major.

Temporary Captain A. R. Taylor resigns his temporary commission.

Temporary Major W. Bapty, from Canadian Mounted Rifles, to be temporary Major.

J. W. Good to be temporary honorary Major without pay and allowances.

Temporary Captains H. G. Gillissie and O. E. Farley to take rank and precedence in the corps and in the army as though their appointments as temporary Captains bore date May 11th and April 30th respectively.

Honorary Lieutenant and Paymaster A. J. B. Milborne to be temporary honorary Captain, April 13th (substituted for notifications in the *London Gazette* of March 2nd and May 1st).

Sergeant-Major A. J. Doran to be temporary Quartermaster with the honorary rank of Lieutenant.

Captains E. Gardiner and R. S. MacArthur are dismissed the service by sentence of a general court-martial, May 25th.

To be temporary Captains: M. H. Paterson, J. H. White.

SOUTH AFRICAN MEDICAL CORPS.

Temporary Captain G. S. Coghlan, from R.A.M.C., to be temporary Captain.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel A. A. Watson, D.S.O., and Major (temporary Lieut.-Colonel) H. G. Smeeth, M.D., from No. 18 Field Ambulance, transferred to the supplementary list and retain their present seniority.

Major J. C. Furness to be acting Lieut.-Colonel whilst commanding troops on a hospital ship.

Lieutenants to be Captains: A. G. P. Wills, R. W. H. Miller, M.B., L. A. B. Moore.

Lieutenant (on probation) J. K. R. Landells is confirmed in his rank.

To be Lieutenants: D. Henegan, M.B., from Durham University Contingent O.T.C.: J. I. Keene, from University of London Contingent O.T.C.; C. G. G. Winter, S. T. Alexander, M.B., W. J. Harvey.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICES.

Lieut.-Colonel F. Marsh, F.R.C.S., to be Assistant Director of Medical Services.

Lieut.-Colonel H. Collinson, D.S.O., M.B., F.R.C.S., to be temporary Colonel whilst holding the appointment of Assistant Director of Medical Services.

Captain A. Ramsbottom, M.D., to be Deputy Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Major J. E. H. Sawyer to be acting Lieut.-Colonel whilst holding the appointment of Administrator.

Captain J. M. A. Costello, M.C., M.B., to be acting Lieut.-Colonel whilst commanding a field ambulance.

Honorary Captain F. C. Bentz, M.B. (late Captain), to be Captain with precedence as from April 1st, 1915.

Lieutenant A. C. Smith to be Captain and to remain seconded.

Seconded for duty with a general hospital: Lieut.-Colonels E. M. Callender, M.D., T. H. Westmacott, F.R.C.S.; Majors F. J. Steward, F.R.C.S., G. N. Biggs, M.B., J. H. Ray, M.B., F.R.C.S.; Captains H. W. Wilson, M.B., F.R.C.S., J. H. Thursfield, M.D., N. S. Finzi, W. S. Colman, M.D., F. D. S. Jackson, M. Horne, M.B., E. R. Carling, M.B., F.R.C.S., A. J. Jex-Blake, M.D., D. H. de Souza, G. A. Ewart, J. Everidge, F.R.C.S., D. Douglas Crawford, M.B., F.R.C.S., J. Hay, M.D., H. Armstrong, M.D., C. T. Holland, V. C. de Boinville, M.D., W. C. Oram, M.D., G. M. Benton, M.B., G. E. Loveday, M.B., J. Wharton, M.D., F. E. Tylecote, M.D., R. Ollerenshaw, M.D., F.R.C.S. Quartermasters and honorary Lieutenants: G. Hurrell, F. J. E. Carter, E. J. Weston, J. E. Matson, and G. D. Purnell.

Attached to Units other than Medical Units.—Lieutenant B. T. J. Glover, M.B., to be Captain.

Vacancies and Appointments.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

ABERDEEN ROYAL ASYLUM.—Temporary Assistant Physician. Salary from £250 to £350.

BOURNEMOUTH: CRAG HEAD HOSPITAL, Manor Road.—Resident Medical Officer. Salary, £300.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician. (2) House-Surgeon. Salary, £120 per annum.

BURTON-ON-TRENT INFIRMARY.—Resident House-Surgeon. Salary, £250 per annum.

COVENTRY AND WARWICKSHIRE HOSPITAL.—House-Physician. Salary, £250 per annum.

FOLKESTONE: ROYAL VICTORIA HOSPITAL.—Resident Medical Officer. Salary, £200 per annum.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House-Surgeon. Salary, £150 per annum.

HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill, N.W.—Resident House-Physician. Salary, £200 per annum.

HEMEL HEMPSTEAD: WEST HERTS HOSPITAL.—Lady Resident Medical Officer. Salary, £200.

KIRKWALL: PARISH OF EDAY.—Medical Officer.

LEICESTER EDUCATION COMMITTEE.—Assistant School Medical Officers (temporary). Salary, £350 per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Two Resident Medical Officers (ladies). Salary, £200 per annum.

MANCHESTER UNION.—Locum Assistant Resident Medical Officer at Nell Lane Military Hospital, West Didsbury. Salary, £7 7s. per week.

NATIONAL HOSPITAL AND UNIVERSITY SCHOOL OF MASSAGE AND ELECTRICAL TREATMENT, Queen Square, W.C.—Head of the School. Salary, £200 per annum.

NEWCASTLE EYE INFIRMARY.—House-Surgeon (non-resident). Salary, £140 per annum.

NOTTINGHAM GENERAL HOSPITAL.—Holiday Locumtenent (female). Salary at the rate of £250 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician. Salary, £200 per annum.

PORTSMOUTH PARISH.—First Assistant Medical Officer for the Workhouse Infirmary, Workhouse, and Children's Home. Salary, £250 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Assistant Resident Medical Officer. Salary, £60 per annum, rising to £80 on appointment as Senior.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—(1) Member of Court of Examiners; (2) Examiner in Dental Surgery.

SALFORD UNION INFIRMARY.—Assistant Resident Medical Officer (female). Salary, £250 per annum.

SCOTTISH WOMEN'S HOSPITALS.—Senior and Junior Medical Officers (women) for Corsica. Salary, £400 and £300 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—(1) House-Physician; (2) House-Surgeon (females). Salary, £100 per annum.

STOKE-ON-TRENT COUNTY BOROUGH.—Assistant Lady Medical Officer in connexion with Maternity and Child Welfare Work, etc. Salary, £350 per annum.

SUNDERLAND COUNTY BOROUGH.—Temporary Tuberculosis Medical Officer. Salary, £500 per annum.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House-Surgeon. Salary, £150 per annum.

YORK COUNTY COUNCIL.—Temporary Tuberculosis Officer. Salary, £500 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BOYCE, C. R., F.R.C.S.I., Certifying Factory Surgeon for the Enniscorthy District, co. Wexford.

CUNDELL, W. H., M.R.C.S., L.S.A., District Medical Officer of the Axbridge Union.

DOBBIN, J. R., M.B., Ch.B.Edin., District Medical Officer of the Thetford Union.

LUCAS, C. B., L.R.C.P. and S.Edin., Certifying Factory Surgeon for the Foyers District, co. Inverness.

MAHAMADI, S. S., M.B., Resident Assistant Medical Officer of the Burnley Union Workhouse.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is **5s.**, *which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.*

MARRIAGES.

KENWORTHY—MARTIN.—On the 20th inst., at St. John's Church, Carrington, by the Rev. E. J. Bardsley, Tom Ramsden Kenworthy, M.R.C.S.Lond., Captain R.A.M.C., son of Robert Kenworthy, of Halifax, to Edith Nora, daughter of J. G. Martin, of Magdala Road, Nottingham.

KIRK—BLACKMORE.—On June 13th, at St. Helen's, Treeton, Yorkshire, by the Rev. F. B. Menneer, cousin of the bride, assisted by the Rev. T. B. Dowdeswell, Captain George William Lister Kirk, M.B., R.A.M.C., son of J. W. Kirk, Headingley, Leeds, to Edith Frances Talbot, younger daughter of the late Rev. John Chanter Blackmore, Rector of Treeton.

DEATH.

CONNELL.—On June 26th, at 18, Taptonville Crescent, Sheffield Emily Mary, the beloved wife of Arthur Connell.

DIARY OF THE ASSOCIATION.

Date.		Meetings to be Held.
		JULY.
4	Wed.	Sussex Branch, Annual Meeting, Hastings, 2.15; Luncheon, 1.15 p.m.; Tea, 4 p.m.
10	Tues.	East Anglian Branch, Annual Meeting, Ipswich, 3 p.m.
12	Thur.	Southern Branch, Annual Meeting, Southampton, 3 p.m.
13	Fri.	East Yorks and North Lincoln Branch, Annual Meeting, Hull Royal Infirmary, 4 p.m.
26	Thurs.	OPENING OF ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m. Future of Insurance Practice. Treatment of Discharged Disabled Sailors and Soldiers. Ministry of Health. Military Demands on the Medical Profession. Treatment of Venereal Diseases. Etc., etc.
27	Fri.	ANNUAL GENERAL MEETING.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

EPITOME

OF

Current Medical Literature.

JANUARY TO JUNE, 1917.

London:

PRINTED AND PUBLISHED AT THE OFFICE OF THE BRITISH MEDICAL ASSOCIATION,
429, STRAND, W.C.

INDEX TO THE EPITOME FOR VOLUME I, 1917.

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma, Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria and Sugar; Eye, Ophthalmia, and Vision, etc.

The Figures in this Index refer to the Number of the Paragraph, NOT the Page.

A.

Abdomen, gunshot wounds of (E. Liek), 27
Abscess, gas, of the brain (Emmanuel Rychlik), 17
Aërial torpedoes, wounds from (G. Kelemen), 40
Air passages, effects of asphyxiating gases on (G. Bilancioni), 12
ALBEE, Fred. H.: Bone surgery, 7
Anaesthesia, infiltration (H. H. Schmidt), 19
ANGLADE: Histology of the brain after gunshot, 57
Antiseptic, selection of (Philipowicz), 37
Aphonia, war (G. Liébault), 2
Arteries, late opening of. in projectile wounds (Raymond Grégoire), 21
ASCOLI, V.: Migrations of projectiles in the circulation, 38
Asphyxiating gas. *See* Gas

B.

Bacillus pyocyaneus infection (Kenneth Taylor), 8
BAEHR, G.: Immunization against typhus fever, 11
BERGALONNE: Soap as a dressing for wounds, 18
BERRY, Martin: *X*-ray appearances in gas gangrene, 33
BILANCIONI, G.: Effects of asphyxiating gases on the air passages, 12
BINET: Cardiac rhythm in the fighting soldier, 5
BLUM, Edgard: Simulation of disease, 47
Bone surgery (Fred. H. Albee), 7
Bone transplantation in injuries of skull (Albert E. Morison), 49
Brain, gas abscess of (Emmanuel Rychlik), 17
Brain, histology of, after gunshot (Anglade and de Teyssieu), 57
Brain and spinal cord, projectile lesions of (G. Mingazzini), 1
Brain wounds, meningitis after (Hart), 55
Bullet, shrapnel, wanderings of in the circulation (A. Grandgérard), 20

C.

Cardiac overstrain in soldiers (C. Lian), 4
Cardiac rhythm in the fighting soldier (Binet), 5
CARRACCIO, Mariano: Simulation of skin disease by soldiers, 26
CHASSEVANT: Treatment of "gassing," 42
Cholera vibrios, fermentation reaction as an aid in rapid diagnosis of (Gaehtgens), 45
Circulation, wanderings of a shrapnel bullet in (A. Grandgérard), 20—Migrations of projectiles in (V. Ascoli), 38—(H. H. M. Lyle), 39—Wanderings of projectiles in the veins (Achille Monti), 44
Conjunctivitis, simulated (G. Sbordone), 48
Cranial surgery at dressing stations (Leroy), 16

D.

Delivery through shell wound (Saint, Goelinger, and Poiré), 22
DE NAPOLI, F.: Simulation of skin disease by soldiers, 25
DESJARDINS, A. U.: Wounds in the present war, 29
DE TEYSSIEU: Histology of the brain after gunshot, 57
Diplococcus lanceolatus as a cause of suppuration in compound fractures (Trambusti), 58
Disease, simulation of. *See* Simulation
Dressing stations, cranial surgery at (Leroy), 16

E.

Ear, middle, lesions from aërial commotion (A. Saupiquet), 31
EASTMAN, Joseph Rilus: Treatment of infected gunshot wounds, 50
Electrargol in epididymitis (Mario Giordiano), 23
Electrolysis in open suppurating wounds (Charles Russ), 54
Epididymitis, electrargol in (Mario Giordiano), 23

F.

Femoral artery and vein divided by projectile without bleeding (Jumon), 9
Fermentation reactions as an aid in the rapid diagnosis of *V. cholerae* (Gaehtgens), 45
Fever, typhus, immunization against (H. Plotz, P. K. Olitsky, and G. Baehr), 11
FIBRICH, Richard: Gunshot wounds of the stomach, 28—Gunshot wounds of head, 41
Foreign bodies in the pleura, localization of (S. Gangi), 35
Fracture, compound, *Diplococcus lanceolatus* as a cause of suppuration in (Trambusti), 58

G.

GAEHTGENS: Fermentation reactions as an aid in the rapid diagnosis of *V. cholerae*, 45
GANGI, S.: Localization of foreign bodies in the pleura, 35
Gas abscess of the brain (Emmanuel Rychlik), 17
Gas, asphyxiating, effects of on the air passages (G. Bilancioni), 12
Gas gangrene, *x*-ray appearances in (Agnes Savill), 32—(Martin Berry), 33
Gas in the tissues, diagnosis of (Vilvandré), 10
Gases, asphyxiating, extemporized protectives against (Lomonaco), 43
"Gassing," treatment of (Chassevant), 42
GILBERTI, Pietro: Projectiles in the heart, 52
GIORDIANO, Mario: Electrargol in epididymitis, 23
GOELINGER: Delivery through shell wound, 22
GRANDGÉRARD, A.: Wanderings of a shrapnel bullet in the circulation, 20
GRÉGOIRE, Raymond: Late opening of arteries in projectile wounds, 21
Gunshot injury of the third cervical nerve, operation for neuralgia of (v. Hofmeister), 15
Gunshot wounds of abdomen (E. Liek), 27
Gunshot wounds of head (Richard Fibrich), 41
Gunshot wounds, infected, treatment of (Joseph Rilus Eastman), 50
Gunshot wounds of peripheral nerves (Captain Byron Stookey), 6
Gunshot wounds of stomach (R. Fibrich), 28

H.

HART: Meningitis after brain wounds, 55
Head, gunshot wounds of (Richard Fibrich), 41
Heart, nervous, symptoms of (Kurt Singer), 24
Heart, projectiles in (Pietro Gilberti), 52—(Silvan), 53
Heliotherapy of wounds (Magrassi), 56
HOFMEISTER, V.: Operation for neuralgia of the third cervical nerve from gunshot injury, 15

I.

Infiltration anaesthesia. *See* Anaesthesia

J.

JUMON: Division of femoral artery and vein by a projectile without bleeding, 9

K.

KELEMEN, G.: Wounds from aërial torpedoes, 40

L.

LEROY: Cranial surgery at dressing stations, 16
LIAN, C.: Cardiac overstrain in soldiers, 4
LIÉBAULT, G.: War aphonia, 2
LIEK, E.: Gunshot wounds of abdomen, 27
LOMONACO: Extemporized protectives against asphyxiating gases, 43
LYLE, H. H. M.: Migrations of a projectile in the circulation, 39

M.

MAGRASSI: Heliotherapy of wounds, 56
Malingering. *See* Simulation
Meningitis after brain wounds (Hart), 55
Middle ear. *See* Ear
MINGAZZINI, G.: Projectile lesions of brain and spinal cord, 1
MONTI, Achille: Wanderings of projectiles in the veins, 44
MORISON, Albert E.: Transplantation of bone in injuries of skull, 49

N.

Nerves, peripheral, gunshot wounds of (Captain Byron Stookey), 6
Nervous heart. *See* Heart

Neuralgia of the third cervical nerve from gunshot injury, operation for (v. Hofmeister), 15

O.

OLITSKY, P. K.: Immunization against typhus fever, 11
Orbital region, radiography of (Stenvers), 34

P.

PANSERA, Giuseppe: Shell shock, 14
PARISOT, Jacques: Causation of trench foot, 46
Peripheral nerves. *See* Nerves
PHILIPOWICZ: Selection of an antiseptic, 37
Pleura, localization of foreign bodies in (S. Gangi), 35
PLOTZ, H.: Immunization against typhus fever, 11
POIRÉ: Delivery through shell wound, 22
POTHERAT: Wounds of vessels, 30
Projectile divides femoral artery and vein without bleeding (Jumon), 9
Projectile lesions of brain and spinal cord (G. Mingazzini), 1
Projectile wounds, late opening of arteries in (Raymond Grégoire), 21
Projectiles in the heart (Pietro Gilberti), 52—(Silvan), 53
Projectiles, migrations of in the circulation. *See* Circulation
Projectiles, wanderings of in the veins. *See* Veins
Psoriasis, emotional (Carlo Vignolo-Lutati), 3

R.

Radiography of the orbital region (Stenvers), 34
RATYNSKI: Soap as a dressing for wounds, 18
RAYMOND, Victor: Causation of trench foot, 46
RIVALTA, R.: Simulation of skin diseases by soldiers, 36
RUSS, Charles: Electrolysis in open suppurating wounds, 54
RYAN, Major Edward: Shell shock, 13
RYCHLIK, Emmanuel: Gas abscess of the brain, 17

S.

SAINT: Delivery through shell wound, 22
SAUPIQUET, A.: Middle-ear lesions from aërial commotion, 31
SAVILL, Agnes: *X*-ray appearances of gas gangrene, 32
SBORDONE, G.: Simulated conjunctivitis, 48
SCHMIDT, H. H.: Infiltration anaesthesia, 19
Shell shock (Major Edward Ryan), 13—(Giuseppe Pansera), 14
Shell wound, delivery through (Saint, Goelinger, and Poiré), 22
Shrapnel bullet wandering in the circulation (A. Grandgérard), 20
SILVAN: Projectiles in the heart, 53
Simulated conjunctivitis (G. Sbordone), 48
Simulation of disease (Edgard Blum), 47
Simulation of skin disease by soldiers (De Napoli), 25—(Carraccio), 26—(R. Rivalta), 36
SINGER, Kurt: Symptoms of nervous heart, 24
Skin disease, simulation of by soldiers: (F. De Napoli), 25—(Mariano Carraccio), 26—(R. Rivalta), 36
Skull injuries, transplantation of bone in (Albert E. Morison), 49
Soap as a dressing for wounds (Ratynski), 18
Spinal cord and brain, projectile lesions of (G. Mingazzini), 1
STENVERS: Radiography of the orbital region, 34
Stomach, gunshot wounds of (R. Fibrich), 28
STOOKEY, Captain Byron: Gunshot wounds of peripheral nerves, 6

T.

TAYLOR, Kenneth: *Bacillus pyocaneus* infection, 8
TRAMBUSTI: *Diplococcus lanceolatus* as a cause of suppuration in compound fracture, 58
Trench foot, causation of (Victor Raymond and Jacques Parisot), 46
Typhus fever. *See* Fever

V.

Veins, wanderings of projectiles in (Achille Monti), 44. *See also* Circulation
VIGNOLO-LUTATI, Carlo: Emotional psoriasis, 3
VILVANDRÉ: Diagnosis of gas in the tissues, 10

W.

War aphonia (G. Liébault), 2
WATSON, Colonel C. Gordon: Primary wound suture, 51
Wound suture, primary (Colonel C. Gordon Watson), 51
Wounds from aërial torpedoes (G. Kelemen), 40
Wounds, brain, meningitis after (Hart), 55
Wounds in the present war (A. U. Desjardins), 29
Wounds, gunshot, of abdomen (E. Liek), 27
Wounds, gunshot, of head (Richard Fibrich), 41
Wounds, gunshot, of peripheral nerves (Captain Byron Stookey), 6
Wounds, gunshot, of stomach (R. Fibrich), 28
Wounds, gunshot, treatment of infected (Joseph Rilus Eastman), 50
Wounds, heliotherapy of (Magrassi), 56
Wounds, open suppurating, electrolysis in (Charles Russ), 54
Wounds, projectile, late opening of arteries in (Raymond Grègoire), 21
Wounds, soap as a dressing for (Ratynski), 18
Wounds of vessels (Potherat), 30

X.

X-ray appearances of gas gangrene (Agnes Savill), 32—(Martin Berry), 33

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

1. Projectile Lesions of Brain and Spinal Cord.

AT a meeting of the Royal Academy of Medicine of Rome held on November 26th, 1916 (*Policlinico*, January 1st, 1917), Professor G. MINGAZZINI reported the results of projectile wounds in various zones of the cerebral surface, and of injuries, direct or indirect, of the spinal cord. The psychical symptoms remaining after cranio-cerebral injuries have been carefully studied by Marie and Froment, and Mingazzini agrees with those neurologists that attacks of giddiness and paroxysms of passion are frequent sequels. In his opinion other mental disturbances, such as dysmnesia, slowness of perception, emotional instability, and so forth, vary from case to case; in some, on the closest examination, nothing particular is discovered, whilst in others the syndrome is much more marked and more serious, sometimes amounting to a quasi-substuporous condition. Mingazzini thinks it premature at present to affirm that there are psychic signs peculiar to lesions of any cerebral zone. The depth and extent of the lesions and the circulatory difficulties produced by adhesions between the meninges and the convolutions must be taken into account. Mingazzini related four cases of lesions of the spinal cord—one of the lower cervical, two of the dorsal, and one of the lumbo-sacral region. In two of these cases radioscopic examination failed to reveal any injury of the vertebrae or any foreign body in the vertebral canal. He thinks it possible that central haematomyelias may be produced by violent concussion of the vertebral column. Commenting on two cases, one an example of ataxic-paraplegic syndrome, the other of hysterical paraplegia following commotion of the spinal marrow in which complete recovery took place, he says that hysteria must not be regarded as a predominant factor. He holds that if, for instance, in the early days of hysterical paraplegia incontinence of urine, even if transitory, is observed, it is probable that there has also been a true commotion of the sacral medulla. As the outcome of a study of three cases of lesion of the cauda equina Mingazzini insists that the prognosis is relatively favourable, even when extreme atrophy of the muscles, with intense pain of the lower limbs and pain in the rectum and bladder, would seem to point to an incurable syndrome. He advocates non-intervention, and in support of this view cites a case of atrophic paraplegia of the gravest character in which improvement began in the first weeks after the injury and went on till at last there remained nothing but total paralysis of one foot and partial paralysis of one leg. An appropriate arthrodesis made the patient able to walk fairly fast with the help of one stick. Professor Durante, who took part in the discussion, stated that in the large number of cases of tumours or other lesions of the brain which he had had occasion to study, he had always observed that the psychic phenomena manifest themselves when the cerebral nervous tissue takes part in the morbid process, with symptoms of reaction; or, in the case of growing neoplasms, where there is pressure by one lobe on the other which gradually by general intracranial compression extends to the other cerebral centres. On the other hand, when there is simple compression which is not transmitted to the other cerebral centres, localization signs are more distinct, and then only psychic symptoms, motor, sensory and sensorial, are observed, which are directly dependent on the compressed zone.

2. War Aphonia.

G. LIÉBAULT (*Rev. de laryngologie, d'otologie*, etc., October 31st, 1916) says that among the men who have lost their voice in the war, some attribute their aphonia to commotion or nervous traumatism caused by the explosion of shells. In most, however, the affection comes on gradually without shock. Some come to the services of voice re-education with a diagnosis of more or less obstinate nervous aphonia, others with one of laryngitis of suspicious or distinctly bacillary nature. Among them, in addition to evident bacillary lesions, there are some in whom examination of the larynx shows simple lesions of overstrain of the voice or chronic laryngitis. Appropriate treatment with a course of phonetic re-education effects a cure and prevents discharge from the army. Liébault saw ten cases of this kind. All traced the affection to their stay in the trenches, where they suffered from fatigue, cold, and wet. Beginning in a cold, which developed into bronchitis and laryngitis with cough and hoarseness, loss of voice supervened. Often it was several weeks before they came under treatment. As a rule the men had been several months in the trenches, and were thin and generally run down. On auscultation, râles, sometimes localized in the upper parts of the lung, are heard; there is a little dullness at one or both apices. Tuberculosis is suspected, but very often no bacilli are found, and the man is sent to be treated for laryngitis. In some the mirror shows at first sight a normal state of things; it is only when an effort is made to produce the voice that it is seen that the vocal cords do not approximate; there is paresis of the constrictors, which may be affected all together or separately. Such a case is one of pure nervous aphonia, curable by ordinary care and re-education. There are other cases, more ill-defined in character, which may give rise to the suspicion of incipient tuberculosis. Examination is difficult owing to an irritable condition of the mucous membrane; the upper orifice of the larynx is sometimes swollen and at first sight the interarytaenoid region looks thickened and velvety; the ventricular bands are also tumefied. In spite of these appearances, many elements warranting the diagnosis of bacillary laryngitis are lacking. There is no pallor of the velum, sometimes, on the contrary, there is increased redness; no hyperaesthesia, but only pharyngeal irritation. Careful analysis of the objective intralaryngeal conditions is important. The swelling of the ventricular bands is a thickening rather than an infiltration. The thickening of the interarytaenoid mucous membrane, which used wrongly to be regarded as a premonitory symptom of laryngeal tuberculosis, is in the cases under consideration a hypertrophic rather than an oedematous condition. Moreover, the mucous membrane covering the arytaenoid cartilages looks healthy, and the cartilages themselves move freely; the aryepiglottic folds do not show the puffiness characteristic of bacillary laryngitis. If the doctor tries to make the patient produce a sound the whole laryngeal vestibule is seen to close up, so that the vocal cords are hidden; if seen, they are often white, sometimes a little rough and reddened, but they never present the erosions like finger-nail scratches or the carmine redness which is so suspicious in a patient suffering from fatigue. Lastly, they work imperfectly. The interesting point in these cases is that the constitutional state and the condition of the lungs combine with the appearances in the larynx to arouse suspicion. If to these laryngeal and pulmonary symptoms are added the fatigues of trench life, and if the man after months of privation has lost flesh, he will almost inevitably be taken to be suffering from tuberculosis. But the absence of bacilli from the sputum and the condition of the larynx should put the observer on the right path. When a correct diagnosis is made, cure is, with proper treatment, a matter of a few weeks, and the man can return to duty. On the other hand, a wrong diagnosis causes long stays in one hospital after another, with pulmonary treatment which improves the bronchial condition, but also with a laryngeal therapy of fumigations, inhalations, wet compresses, and so forth, which has never alone cured laryngitis caused by wrong use of the voice. The result is likely to be discharge from the army of men who if properly treated are fit for further service. Liébault thinks such cases are not rare.

3. Emotional Psoriasis.

CARLO VIGNOLO-LUTATI, dermatologist to the Carlo Alberto dermopathic institute of the S. Luigi Hospital, Turin, says (*Policlinico*, December 3rd, 1916) that those who during the war have had the opportunity of watching the development of certain affections of the skin in soldiers have noted that some of them are relatively frequent owing to the circumstances in which the men are placed.

Among them is psoriasis. Apart from the recognized causes of that disease the war has brought to notice many cases due to nervous shock or which have followed a wound, the lesions following a wound and appearing in its neighbourhood or near the cicatrix. The author holds that in such cases the chief cause of the psoriasis is emotional disturbance; the wound is only the point of least resistance, which is the starting point of the disease. Of eighty-six soldiers, aged from 22 to 35, affected with psoriasis who came under the observation of Vignolo-Lutati within a period of eight months, fifty-two came from the war zone. Among these there were eighteen who stated that they had not previously suffered from the disease; most of them had been for some time in the trenches and in the firing line. In two it was possible to determine the almost immediate influence of emotional disturbance on the onset of the skin affection. In one, a man of 25, the first manifestations appeared three days after he had taken part in the cutting of wire entanglements; in the other the psoriasis appeared fifteen days after a scare due to the death of a comrade. On the other hand, in two other cases the onset of the disease was caused not only by emotion but by wounds. In one of them the patient was a sublieutenant of Alpini, aged 24, who was severely injured by a fragment of grenade, which made a comminuted fracture in the lower third of his left leg. He was at once taken to a surgical station, and after a stay of a month and a half in hospital small scaly lumps began to appear in the neighbourhood of the still open wound; soon similar crops came out successively on different parts of the body. The lesions were those characteristic of psoriasis distributed on the seats of election. The patient had never before suffered from the affection. The other patient was a soldier, aged 26, who was slightly wounded on the right foot by a fragment of projectile. After twenty days a typical psoriasis, starting in the neighbourhood of the wound, showed itself for the first time. The man had been much upset immediately after he was wounded by the fear of losing his foot. Vignolo-Lutati discusses the influence of the nervous system on the production of psoriasis, and concludes that it must be taken in a very wide sense. It certainly plays a part in the pathogenesis of some cases of the disease, but its influence is particularly exerted in the direction of weakening the resisting powers of the organism. Thus, among the so-called emotional forms of psoriasis analogous to those more properly called traumatic, it would be permissible to speak of nervous traumatism, or psychic traumatism inducing the explosion on the skin. Such forms of psoriasis occur only in those predisposed to the affection. An injury, a nervous shock, an emotion or fright —factors all more than usually frequent in time of war— must be looked upon as occasional exciting causes acting on a latent predisposition.

4. Cardiac Overstrain in Soldiers.

C. LIAN (*Réunion méd. chir. de la 8e armée*, June 2nd, 1916; abstract in *Archives des maladies du coeur*, November, 1916), in a paper on cardiac overstrain in soldiers, says that, if lesions of heart strain properly so-called are exceptional, one often enough observes cardiac disturbances of less intensity characterized by palpitation, dyspnoea, painful oppression in the precordial region when marching with full pack, and physical work. Examination gives negative results, but a simple change from the recumbent to the standing position makes the pulse rise to 100 or 120 or even 140 after the slightest effort. Return to the initial rate takes place much more slowly than in a normal subject. These symptoms are due to overstrain, which occurs more easily in a heart affected with moderate myocarditis consecutive to an infectious disease or in men with constitutional weakness of circulation (the irritable soldier's heart of English writers). Even after some weeks of rest and treatment (strychnine) these men when sent back to their units should be exempt from hard duty.

5. The Cardiac Rhythm in the Fighting Soldier.

BINET (*Arch. des maladies du coeur*, November, 1916) says that as a consequence of prolonged fatigue and overstrain bradycardia is frequent in the soldier on active service, and is sometimes accompanied by fever. He has found 56 per cent. of men in whom the pulse was less than 70, instead of 6 to 7 per cent. in normal conditions. Emotional shocks sometimes produce no change of the heart rhythm; sometimes they are followed by acceleration, more often by slowing. After wounds acceleration is generally observed except in certain cases of injury of the skull or chest.

SURGERY.

6. Gunshot Wounds of Peripheral Nerves.

CAPTAIN BYRON STOOKEY, R.A.M.C., temporary assistant to Lieutenant-Colonel Robert Jones, Inspector of Orthopaedics, Army Medical Service, has published (*Surg. Gynaec. and Obst.*, December, 1916) a paper based on a study of seventy-five cases of nerve injury. The number of such injuries in the upper limb greatly exceeded that in the lower. Of those in the upper limb the musculo-spiral nerve was involved in 36 per cent., the median in 17 per cent. and the ulnar in 41 per cent. The frequency of the injury is probably due to the intimate relation of the nerve to the humerus. Fracture, complete or incomplete, of the bone occurred in 50 per cent. of the musculo-spiral injuries. In those of the lower limb the internal popliteal nerve was not once injured, while the external popliteal was wounded in four cases. The sciatic nerve was incompletely severed in eight cases, never in any case completely; in each of the eight cases the portion forming the external popliteal was the part involved. The author says the ideal operative procedure would be primary suture, but this is hardly ever practicable in war surgery, as nearly all wounds are infected, and this necessarily delays operative intervention and makes it more difficult because of excessive scar formation. Peripheral nerves may be injured by direct violence of the bullet or shell, or indirectly by the velocity of the missile and the transmission of its vibration, causing either concussion or contusion, usually both. This may produce a more or less transient block of nerve conductivity. In some instances there appears to have been a haemorrhage in the nerve trunk. The blood may be absorbed, leaving little subsequent impairment, or it may undergo organization with formation of dense scar tissue in the nerve trunk. In injury by direct violence the nerve may be severed completely or partially; this seems to depend on its size. Stookey has never seen the sciatic completely divided. Nerve lesions, when seen at a late period, show the nerve involved in a mass of scar tissue which is often extremely dense. When the nerve is completely severed the proximal end is usually bulbous, hard, and slightly irregular; the distal end is small, frayed, and diffused in surrounding scar. Secondary implication of the nerves arises in wounds of soft parts involving bony structure either by overgrowth of scar tissue or callus, or both. In these injuries there may be either complete or incomplete anatomical or physiological division. It is not possible to distinguish before operation between a complete anatomical or physiological lesion. Both destroy the conductivity of the nerve; hence both manifest themselves functionally in the same manner. It is possible, however, in most instances to distinguish between complete and incomplete lesions. In the latter cases the patients usually complain of neuralgic pains. The extremities show a glossy, shiny, mottled red skin, tender to parts to nearly all stimuli. The skin is usually drawn tight over the fingers, and the subcutaneous tissue appears to be small in amount. There is generally sweating which is markedly acid and strong smelling. Sweating is not usually excessive unless there is an irritative incomplete lesion. In cases of complete division, either anatomical or physiological, operations should be performed as soon as the primary wounds have healed. The surgeon should, however, bear in mind the possibility of recrudescence of infection in cases without obvious lesions, particularly in wounds complicated by fracture. In these it is occasionally found that a small fragment of bone lies loose in scar tissue, surrounded by a drop of muco-purulent fluid. Such a complication cannot be foreseen. It is better to delay longer in cases in which there has been a fracture, particularly if there has been much comminution and small pieces of metal remain. In view of the pathological findings in the majority of these cases, it does not seem to the author justifiable to delay operation three, six, or eight months to see if the nerve will unite unassisted. Exploratory operations seem to him justifiable in all cases in which there is no contraindication. Delay in operating in most instances means delay in recovery. When the nerve is freed and the scar tissue removed, a gap of several centimetres or more may be left. Several expedients are available. First, there is tubulization with hardened arteries or Cargill membrane being used, and the ends being threaded together; in no case, however, has Stookey seen any improvement produced by this method. Another expedient is transplantation, using the radial or saphenous nerve; the object is to use whatever power of regeneration the neurilemma of the

transplanted nerve may possess. If this be impossible, nerve transference may be done; this in suitable cases and positions in relation to adjacent nerves seems to the author the operation of choice. In certain cases, if at the point selected in the nerve to be used the fibres are mainly sensory, the proximal as well as the distal ends of the severed nerve should be joined to the nerve trunk to which transference is to be made. The nerve trunk thus acts as a scaffolding along which new motor fibres may grow to join the distal end of the severed nerve without re-education of other and new nerve centres. Two methods, says Stookey, should be condemned: nerve stretching, and suturing with the limb markedly flexed. When the nerve is sutured with the limb flexed there is usually some tension. Later, when the limb is slowly straightened, the scar of union of the two ends slowly becomes stretched, so that in place of a linear scar a fusiform elongated cicatrix occurs; this in turn becomes hardened with an increase of scar tissue and the aim of operation is defeated. The temptation to excise all hardened tissues about the nerve may prolong convalescence. It is known that nerve fibres will grow through considerable tissue resistance. If instead of free excision the nerve is freed and wrapped in a flap of fat or other suitable tissue, recovery is more rapid and complete. Before and after operation the greatest importance should be attached to efficient and adequate treatment to prevent contractures and overstretching of the muscle groups whose nerve supply has been cut off. The application of metal sheeting splints in cases of wrist-drop and outside irons in foot-drop is very useful. Valuable adjuvants are constant and regular massage, hot and cold contrast baths, and the galvanic current. These must be systematically applied and modified according to the stage of improvement. Accurate determination of sensory changes and careful subsequent re-examination of the sensory findings furnish more valuable information, both as to the extent of the injury and the rate of recovery, than the muscular reactions. Careful charts should be kept and attention paid to the contraction of the borders of sensory loss. Shrinkage of these, more especially of the border of loss to the sense of pin-prick, is of the greatest value. Careful clinical observation of sutured nerves has not lent support to the theory of primary union of divided nerves. The author has in all his cases tested carefully with cotton-wool and pin-prick, and in no instance has there been immediate return of any form of sensation. Return of function varies with the site of the lesion, the nerve involved, and the nature of the wound, as well as the distance of the lesion from the periphery. The nearer the lesion to the periphery the earlier is the return of motor function. This does not hold true for sensory disturbances; the muscles supplied nearer to the lesion regain their function soonest. Stookey gives full clinical details of various lesions, and the paper is well illustrated.

7. Bone Surgery.

AT a meeting of the Medical Society of the County of New York held on October 23rd, FRED. H. ALBEE (*Medical Record*, November 25th, 1916) related some experiences in France. At the present time the chief feature of the war was the surgery of the bones, tendons, and nerves. It took an immense amount of time for septic war wounds to clear up under the older methods of surgery. This was not the case with the Carrel-Dakin method of sterilizing wounds. In many of the war wounds there was a great amount of lost tissue, and when such wounds were treated by the Carrel-Dakin method the results were most remarkable. The granulations were a deep, healthy red in colour, the edges of the wounds were not inflamed, and the skin was not indurated or sensitive, and would slide about the wound very readily. These wounds were different in appearance from any he had ever seen. When a case came from the front the first step was to look for foreign bodies and localize them. For this the fluoroscope was used and the foreign body charted. The surgeon then removed the foreign body, and all the lacerated tissue was carefully trimmed away. Next a fenestrated rubber tube, covered or not with gauze, was fastened in the wound, and sutured or not. The tubes were laid so that the gauze might be kept saturated with the solution all the time. The reservoir was so arranged that by turning a stopcock the solution could be fed into the tubes. Just enough was allowed to flow in to keep the gauze saturated to the proper degree. A thick coat of yellow vaseline was applied around the wound. In some wounds a system of tubes was used. If the wound was a stump it was soaked in the solution. Bacteriological examinations of the wounds were made every second day, a smear being taken from the worst part of the wound. When only one or two bacteria were found in the microscopical fields the wound was closed. The microscopical appearance alone was not to be trusted as an indication of the time the wound might be closed. By this method of treatment the percentage of primary unions had been over 95. It was applicable to compound and comminuted fractures as well as to flesh wounds. Albee demonstrated with the aid of motion pictures his method of putting in bone grafts, which was very effective in restoring limbs from which large portions of bone had been lost. These bone grafts were much used in jaw surgery. H. H. M. Lyle showed coloured photographs of wounds treated by the Carrel-Dakin method. The point he wished to make particularly clear was that this treatment was not merely the employment of a certain antiseptic, but a plan consisting of an immense amount of detail. There was no pus in these wounds and no inflamed edges. By the older methods it took about three months, sometimes much longer, for a compound fracture to heal; by this method most of these wounds healed in from twenty-eight days to six weeks. In 450 cases treated by this method and sutured up, there were only six failures, and these were not bullet wounds, but the more severe war injuries. Depage had reported 137 cases with two failures; eighty compound fractures without a drop of pus.

8. Bacillus pyocyaneus Infection.

KENNETH TAYLOR (*Journ. Amer. Med. Assoc.*, November 25th, 1916), working in the Robert Walton Goelet Laboratories, has found that *Bacillus pyocyaneus* is a frequent cause of delay in the healing of wounds. Examination of the discharges in a large number of cases showed that when the reaction of the pus was strongly acid the *B. pyocyaneus* was seldom present. It is much more common in wounds with secretions of low acidity, especially in those giving a faintly alkaline reaction. Attention was therefore directed to the acid antiseptics in applying dressings to such wounds. A group of organic and inorganic acids was first tested. Nitric and hydrochloric acids in dilute solutions were found to have a very slight inhibitory effect on the organisms involved. Butyric, propionic, malic, tartaric, and acetic acids were found to be much more effective, and the inhibition seems to be a specific property of some of these organic acids. Since acetic acid was more effective than the others, and always available, it was further investigated. A series of 111 patients was taken on admission and unselected unless some special indication was present, and a dressing of the same solution was applied continuously. A table of the effects of the different solutions shows that pure acetic acid was most effective (cresol coming next) in inhibiting the growth of *B. pyocyaneus*, and was consistently active in ridding infected wounds of this organism. In no case was it found after one week's use of the acetic acid dressing. No other dressing solution had this speedy effect. Cresol, while active *in vitro*, was clinically ineffective. Since these experiments were made a 1 per cent. solution of acetic acid has been used as a routine procedure for the purpose in question, and the clinical have agreed with the experimental results.

9. Division of Femoral Artery and Vein by a Projectile without Bleeding.

JUMON (*Réunion méd. de la Ire armée*, April, 1916; abstract in *Archives des maladies du coeur*, November, 1916) reports the case of a soldier whose femoral vein and artery were completely divided at the apex of Scarpa's space by a fragment of shell, and in whom for a week there was no bleeding although no compressive bandage was applied nor any ligature put on. The retracted ends of the vessels were five centimetres apart, and bleeding was prevented by clots, notwithstanding an intense suppuration of the focus kept up by the fragment of shell within the muscle and accompanied by septicaemic phenomena and extensive phlebitis of the femoral vein. The artery and vein were ligatured and the foreign body extracted. Improvement was rapid, and the wound followed a normal course.

10. Diagnosis of Gas in the Tissues.

VILVANDRÉ (*Arch. Radiol. and Electr.*, October, 1916) states that in wounds of the limbs which are sent to be *x*-rayed the technique necessary for the investigation of gas might well be applied systematically; not only should the structure of bones and foreign bodies be shown, but an endeavour be made to radiograph the soft tissues as a routine. In this way the radiographer would be able to point out to the surgeon the presence or absence of gas in the tissues in all cases submitted, whether gangrene be suspected or not. In one case of a gunshot wound in the thigh, the diagnosis of the complicating condition was made entirely

by *x* rays; the first sign of the trouble was the negative shadow above the patella, and a second plate showed the upper limit of the gas. The clinical diagnosis was much less certain, and the presence of gas might easily have passed unsuspected in the first rush. The author has thought of diagnosing gas gangrene by means of the chemical reaction of the gas with some reagent. On his suggestion a hypodermic syringe filled to some extent with the reagent and used after the manner of needling for pus proved successful, the bubbles of gas coming readily without admixture with blood (in a pure state), and although no reaction took place with the acid employed in this instance, the simple technique was so satisfactory as to furnish the means of further investigation. The presence of gas in the tissues is not always due to the same organism, and although the organism concerned may be discovered by bacteriological investigation, the growth presents difficulty and takes time. Some cases end fatally, while in others, where the tissues are equally penetrated with gas, recovery takes place through multiple incisions. It would be useful to know, he thinks, whether the gas in the different cases is of similar composition and furnishes a similar reaction. A reaction which could be quickly performed by any surgeon, and upon which a differential diagnosis might be based, would be a great advantage.

THERAPEUTICS.

11. Immunization against Typhus Fever.

H. Plotz, P. K. Olitsky, and G. Baehr report (*Journ. Amer. Med. Assoc.*, November 25th, 1916) their observations of prophylactic immunization against typhus fever in the Balkans in the summer of 1915. The vaccine consisted of a suspension of fifteen strains of the bacillus in physiological sodium chloride solution, sterilized by heat. After its sterility had been determined, it was then diluted so that each cubic centimetre contained about two billion bacteria, and then 0.5 per cent. of phenol (carbolic acid) or tricresol was added. Owing to lack of sufficient vaccine, the vaccinations had to be restricted as far as possible to those most exposed to the danger of infection—the orderlies, attendants, and members of the hospital staffs, and those who had to handle patients still infested with lice, or who had to do with the sanitation of villages, towns, etc. In sixty-three Bulgarian military hospitals and military sanitation units, 5,251 in all were vaccinated. According to the authors' statistics there were about 3,000 cases in the Bulgarian military hospitals; how many thousands occurred among civilians in the villages was unknown. The epidemic was not as severe as that which raged in Serbia in the spring of 1914; the mortality averaged 11 per cent. Among the 5,251 vaccinated men, many of whom were frequently exposed to infection, there occurred three cases of typhus fever. According to the Bulgarian army statistics, the number of cases occurring among the non-vaccinated was many times greater, but the figures are not available for publication. Particulars were given as regards the cases occurring in the hospitals before the institution of the vaccination and while the inoculations were being carried on. The civil population was most severely affected. Although the work was done at the request of the Austrian War Office, for military reasons the figures are guarded, and no statistics as to the total number of typhus cases during the winter and spring of 1915–16 have ever been published. The typhus epidemic, however, was widely spread in Volhynia, and the vaccine was used on 3,169 persons in forty-six institutions. "In all," say the authors, "8,420 persons, members of 109 hospital, sanitation, and other units in Serbia, Bulgaria, and Volhynia, were vaccinated against typhus fever during the epidemic of 1915–16, an attempt being made to include in this number only the persons who were most exposed to the dangers of infection. Of this number, six developed the disease during the four months of the epidemic. Our experiences in the Balkans and Volhynia during the winter and spring of 1915–16 with the vaccine made of *B. typhi exanthematici* would seem, therefore, to indicate that it is capable of reducing the incidence of the disease, although it does not produce an absolute immunity to typhus fever."

PATHOLOGY.

12. Effects of Asphyxiating Gases on the Air Passages.

G. Bilancioni (*Archivi italiani di Laringologia*, October, 1916; *Policlinico*, December 17th, 1916) reports experiments made in the Institute of Physiological Chemistry of the University of Rome to ascertain the effects of "phosgene" (carbonyl chloride, a colourless gas with a suffocative odour, formed by the action of carbonic oxide and chlorine) and bromine on the air passages of rabbits and rats. The elementary lesions caused by asphyxiating gases are few but of extreme gravity. First, there are lesions of contact, that is to say, those caused by breach of the mucous membrane of the larynx, trachea, the large bronchi, sometimes of the pulmonary alveoli and the oesophagus. The membrane is in a state of necrobiosis or is badly lacerated, and detached in large strips from the underlying layer (necrosing inflammation). This is especially the case in the larynx, but sometimes occurs in the large bronchi, particularly through the action of phosgene. Besides this, oedema is seen in the submucosa of the oesophagus and in the lung, where the albuminous liquid characteristic of pulmonary oedema manifests itself as an amorphous, glittering deposit in the bronchi or in the larger alveoli. The most common and most impressive lesion, however, is very intense hyperaemia, which by rupture of the vessel walls leads to the effusion of blood into the laryngeal submucosa or into the pulmonary parenchyma and thence into the bronchi. The amount of blood thus effused is enormous; a simultaneous rupture of many vessels has to be assumed to explain how the lung becomes, as it were, stuffed with blood in its smallest recesses. This phenomenon is most manifest in poisoning with phosgene; its action also causes thromboses in vessels of a certain size. A most important lesion is the fragmentation seen in some intrinsic muscles of the larynx in rats killed by phosgene. In regard to this phenomenon, certain facts are already known mostly relating to the heart in diphtheritic patients. Under the name of "myocardite segmentaire essentielle chronique" Renaut described a pathological condition of the cardiac muscle producing progressive weakness and paralysis of the heart. The anatomical changes consist, according to him, in a dissolution of the connective tissue of the muscle cells, which makes the fibres appear divided in segments. According to Bilancioni, however, later researches have shown that instead of the alleged dissolution of the connective tissue there are multiple ruptures of the muscle fibres. These occur irregularly; hence the fragments are unequal in length and some have lost their nuclei. The ends of the fragments are irregular and present fringes, the splitting extending along the fibres. This conception is, says Bilancioni, more in harmony with what is known as to the normal histology of the myocardium. This does not consist of fibro-cells bound together by connective tissue, but is a retiform muscle with its elements fused together in a syncytial mass. The fragmentation occurs sometimes in healthy fibres, sometimes in those altered by fatty degeneration. Rupture is seen in various conditions: acute infections such as typhoid, influenza, acute polyarthritis, miliary tuberculosis, septicaemia; chronic diseases such as anaemia, hepatic cirrhosis, nephritis, the cachexia of malignant disease, and poisoning by chloroform, carbonic oxide, carbolic acid. The form called by Eppinger "toxic myolysis" is most frequent, and occurs most readily when death takes place rapidly. The opinion most generally held now is that this change occurs *in articulo mortis*, and depends on spasmodic contractions of the muscular fibres. On the true significance of this lesion when induced by asphyxiating gases the author can only frame hypotheses, but he thinks the fact that the fragmentation involves, among the intrinsic muscles of the larynx, especially the dilators and constrictors of the glottis, worthy of consideration. It is probable that it is aided by the convulsive opening and closing of the larynx when the animal is exposed to the wave of toxic gas. Examination of lesions caused by these gases in the respiratory passages and digestive *primae vivae* shows that these correspond perfectly with those observed, especially by British and French doctors, in soldiers who have been "gassed." The laryngeal lesions, especially those of haemorrhagic character and the oedematous imbibition of the lungs, are the most conspicuous features in the clinical picture and cause the most agonizing symptoms. In contrast with these is the state of things in the upper respiratory passages, in particular the nasopharynx, where lesions are very few or altogether wanting. This may be partly due to the defensive apparatus in that region, partly to the shortness of the time the gas is in contact with those parts. On the other hand, the vapours once introduced into the lung, where their action is reinforced by the excursive movements of the thoracic cage, have every opportunity of coming in contact with all the windings of the respiratory apparatus.

AN EPITOME OF CURRENT MEDICAL LITERATURE

War Number.

MEDICINE.

13. Shell Shock.

MAJOR EDWARD RYAN, C.A.M.C., head of the Neurological Department, Ontario Hospital, Orpington, records the case of a soldier who, on June 1st, 1916, was blown up in his dug-out (in France) by a shell which killed all his comrades (*Canadian Pract. and Rev.*, December, 1916). He was rendered unconscious, and on recovering his senses his ears were ringing and his voice very faint. Another shell blew him up and he again lost consciousness. When he came to he was in a dressing station. He had violent headache, and was completely deaf and dumb. On admission to the Ontario Hospital he was still suffering from headache, and he complained of pain and tenderness along the course of the seventh nerve, well up in the temporal region, across the forehead, and along the course of the posterior auricular nerve. He was absolutely deaf, and could not speak, whistle, or laugh. There were no marks of external violence and no organic lesions. In respect of psychic manifestations the patient was clear as to time, place, and person; his memory for past events was undisturbed; for recent events it was quite clear up to the time of the shock. There the train of events was broken. He was depressed, and his countenance had a strained and anxious look; he seemed to be struggling hard to adjust the train of events. He would rest on his elbow with his hands in constant motion. His lips frequently moved as if he were talking to himself. There were fallacious sense perceptions, especially of hearing; he maintained that he heard the noise of the bursting of shells, the explosion of mines, the crack of rifles, and the general din of battle. He constantly declared that his hearing was normal, but that those conversing with him would not speak aloud. He was irritable and peevish, especially when doctors, nurses, or visitors were present. The only delusion noted was that a friend who was in another ward had visited him and remained all night. There was nothing very abnormal in his conduct. He expressed in writing a hope that the barber who shaved him would make a clean job, making his meaning plain by drawing his finger across his throat. Precautions were taken against suicide. Early in the morning of June 14th he began to speak, at first in a thin, indistinct voice, which afterwards gained volume daily. When convinced he could speak, he improved rapidly and gained weight. At the date of report he was still stone deaf, but this did not trouble him much as he felt that having regained speech he would in time recover hearing. Ryan thinks with most other observers that the condition is purely psychic, but that trauma and the idea of a trauma are contributory or predisposing causes. In many of the cases which he has seen in the various hospitals the earmarks of degeneracy were observable. As an example of the types most frequently affected Ryan cites the case of a sapper with the following family history: The father, aged 74, was very nervous, was said to have Bright's disease, and as far as the son could remember had never done any work. The mother died aged 58; she had been ailing for eighteen months, was very nervous and suffered from diabetes. Of four brothers one died young, another who had been epileptic for years died in the street as the result of a fit; a third was killed by a fall; the fourth was alive and well. Of two sisters one had fits, while the other was very delicate. The patient himself when young had frequent fainting attacks during which he partly lost consciousness. He had had similar attacks several times since he joined the army. As for treatment Ryan says it is essential that these cases should be taken early. Each case must be dealt with according to individual indications. The idea of injury must be removed, and what Mott calls an "atmosphere of cure" must be created around the patient. Hot packs and baths, continuous baths, alcohol rubbings and massage were used with very satisfactory results. Rest in bed with forced feeding is always essential. Ryan has not found anaesthesia of any service.

14.—At a meeting of Italian Medico-Chirurgical Field Societies held in the war zone on October 20th (*Policlinico*, December 10th, 1916) GIUSEPPE PANSERA presented a case of loss of speech caused by nervous shock. The patient was a soldier who in August, 1916, became mute after the explosion of a grenade close to him. He was kept for forty days in a military hospital, where various therapeutic measures were tried without success. He was discharged while still dumb with ninety days' convalescence leave. He was arrested as a deserter—perhaps because, when still suffering from the effect of the shock, he had left his regiment—and was condemned to imprisonment. He was sent to another hospital, and on admission he was completely speechless, but his hearing was normal. He was placed under ether anaesthesia and recovered speech; at first it was monosyllabic, but after a course of vocal exercises it became normal. In answering questions he stammered a little—a defect which he had not had before his injury. That he was not a malingerer was shown by a certificate from the principal officer of the hospital where he had first been under observation, that the condition was caused by an injury received in the service. Another proof of the genuineness of the case was the manifest emotion and joy of the man when the action of the ether ceased and he found that he could utter a few words. At the same meeting Chiadini, Director of the Section of Nervous and Mental Diseases in another field hospital, said the interest of Pansera's case lay in the success of the treatment, which was all the more remarkable since the case had proved refractory to the suggestive and emotive methods previously tried. But he could not believe that, through the elective action of chloroform and ether on the lipoid substances of the brain, that organ suddenly passed from a state of inhibition to a normal extrinsication of thought with correct expression in words. There remained the hypothesis of a suggestive action associated with all the means which therapeutic invention could devise and adapt to individual cases. He had collected the histories of sixty-eight soldiers affected with motor inhibition of speech, in all of whom he had to exclude cortical and subcortical motor and sensory forms of aphasia and insular aphasia. The syndromic variations presented by his patients were not very marked. In all his cases he believed that the centres of motor and sensory speech and their relation one with the other and with the periphery were intact; but one of the two centres was separated from the ideative centre, and therefore from the whole of the remaining cortex; there was therefore an interruption of the association fibres going from the whole cortex to each of the speech centres. All this must be taken in the functional, not the anatomical, sense. The majority of the soldiers, as a consequence of recent psychic injury (mostly shock from the near explosion of large projectiles), present motor inhibition of spontaneous speech, while retaining the faculty of repeating words pronounced to them syllable by syllable. At the same time they preserve their understanding of the spoken word and the power of writing to dictation and reading aloud. Spontaneous writing is abolished. The word corresponding to thought does not come, or, if found, is not uttered. These symptoms form a first category, called by the author "transcortical motor aphasia." This picture is not always so sharply defined; sometimes while the power of reading is abolished that of writing is retained. In a second category, "transcortical sensory aphasia," the author places cases in which words can be repeated but without understanding of their meaning; thought cannot find the word, but the power of writing to dictation and reading aloud are preserved. In those patients the power of spontaneous writing or writing to dictation is for the most part preserved, while that of reading is abolished. A few cases may be placed in a third category, "amnesic aphasia." The patient can speak easily, and distinctly observes the form of things; he has difficulty, however, in finding indications of objects and names of persons and concrete substances, or cannot find them at all. That is to say, he is incapable of

internally co-ordinating the sound of words with the words themselves. The understanding of spoken and written words is not altered. In all his patients Chiadini found evident marks of hysteria, but this may be merely concomitant. In certain patients some degree of cerebral commotion must be admitted to explain the condition, which is not curable except after long and patient reconstituent treatment. In the discussion Sironi related the case of a little girl who had become dumb as the result of a fright, to whom speech was at once restored by suggestion applied after suitable religious stage preparation by a high ecclesiastical dignitary. Santoro maintained that cases of hysterical mutism are cured by any kind of treatment, and he referred to a case of aphasia in a soldier which disappeared immediately as the result of a strong impression produced by the threat of a serious operation.

SURGERY.

15. Operation for Neuralgia of the Third Cervical Nerve from Gunshot Injury.

V. Hofmeister records (*Bruns's Kriegschir.*, Heft xxvi, p. 211; *Beitr. z. klin. Chir.*) an interesting case of neuralgia following injury of the third cervical nerve. A shrapnel bullet entered the middle of the posterior aspect of the neck on September 2nd, 1914, carrying with it a portion of a stud, shattering the transverse processes of the third and fourth cervical vertebrae, and becoming lodged beneath the left angle of the jaw. Subsequently, increasing pain was felt in the area of distribution of the great auricular nerve, which later took the form of unbearable neuralgic attacks. On September 8th the projectile was removed, and the wound healed well. The neuralgia, however, called for the regular administration of morphine; the diagnosis of its precise cause was not easy. The possibility of the general psychic condition being a factor was not overlooked, but careful observation left no doubt that a well defined neuralgia of the great auricular nerve was present, and that its cause was to be looked for in a local organic lesion. Certain anatomical indications were furnished by the *x* rays. In the first place a metallic foreign body was disclosed situated near the third vertebra, about 1 to 1½ cm. behind the transverse process. From its position it could not be made answerable for the symptoms. The rays directed from before back, however, afforded a valuable diagnostic indication in the form of a fusiform callus on the left of the column, which, reaching from the second to the fourth vertebra, was of greatest extent opposite the third. It appeared probable that the third cervical nerve was embedded in the callus. On three occasions large novocain-adrenalin injections were made at different depths, but though they must certainly have reached the trunk of the nerve they were without effect on the neuralgia; it was thus obvious that the source of the irritation was so far central that the deepest injection would fail to reach it. It was concluded, therefore, that it would be necessary to reach the nerve trunk and free it from callus and remove the latter. An operation was performed on November 27th, not without considerable difficulty due to the tough cicatricial tissue. The limits of the operation were reached in the removal of the callus, within which the nerve trunk was lost. As the foreign body was readily accessible this was removed at the same time. The complete breaking up of the nerve in the callus was of evil omen and suggested that the neuralgia originated from the central nerve stump. To follow up the nerve, however, in the partly fibrous, partly osseous tissue in the immediate neighbourhood of the vertebral artery appeared to be too hazardous; and, as an additional contraindication to opening the spinal canal, there was the danger of placing the latter in free communication with the cavity from which the foreign body had been extracted, and which might possibly be the seat of a latent infection. The wound healed perfectly, but the effect on the neuralgia was absolutely negative. On January 27th, 1915, a further operation was undertaken to get to the central side of the point of irritation and to remove the ganglion or resect the sensory root. It was decided to perform root resection by means of a laminectomy and without opening the dural sheath. A preliminary examination in the dead body showed that the excision of the third sensory root with extirpation of the ganglion would be possible after removal of one half only of the arch of the second vertebra with retention of the spinous process. Access would be still further facilitated by removal of the bone so as to include also the adjacent part of the joint surface. This plan was carried out; the posterior root was divided at its point of exit and removed together with the indurated ganglion. Healing was uninterrupted. The careful novocain-adrenalin infiltration into the muscles of the neck was of great advantage in this case, since the whole operation down to the canal was carried out without any disturbing haemorrhage. Only within the canal did some venous haemorrhage arise which might with care have been avoided and was soon arrested. The haemostatic effect of deep infiltration is of such inestimable advantage in laminectomy that Hofmeister uses it also where, as in the present case, the operation is conducted under general anaesthesia. If carefully carried out the anaesthetic effect is, however, so good that, as a rule, laminectomy can be completed without a general anaesthetic, which is only required when the nerve roots or spinal cord itself is involved in the operation. The patient was completely relieved of the neuralgia and took up his command again in June, 1915.

16. Cranial Surgery at Dressing Stations.

At a meeting of the Réunion médico-chirurgicale de la Ve armée on October 28th, 1916, Leroy (*Presse méd.*, January 8th, 1917) presented a communication on cranial surgery at dressing stations. He said that several guiding principles must always be present in the mind of the surgeon: (1) The necessity of operating in every case, even if the anatomical lesion and the functional disturbances seem to doom the patient to certain death. Of twenty-five men brought in whose condition was considered desperate, six were saved by trephining. (2) Necessity of an immediate intervention as complete as possible. The brain wound should be sterilized by excision of the contused portion of scalp, the trephining being carried beyond the lesions to the unhurt tissues, and the wound cleansed of brain matter, infected blood clots, and foreign bodies. The *x* rays should be used whenever possible. Digital exploration of the focus is necessary, however, for the discovery of bone splinters. With experience one learns the difference between injured nerve tissue, diffluent and offering no resistance to the finger, and healthy nerve tissue which gives a sensation of soft uniform opposition. With a Kocher forceps slipped along the index finger as a guide a foreign body at a depth of 3 to 4 centimetres can be extracted. (3) The necessity of active surgery in case of post-operative infectious developments. Meningo-encephalitis, detected in the first hours by rise of temperature and the cytological examination of the cerebro-spinal fluid, must be treated by drainage of the meningeal cavity (one case cured). Hernia of the brain must be dealt with by the usual methods. In cases in which it consists of a number of small abscesses, forming a purulent sponge, resection may be performed. This method, which must be regarded as exceptional, brought about a cure in a case of trephining in which there was a cerebral hernia as large as an egg; the cure had lasted nineteen months. Leroy's own results were as follows: 48 per cent. of cures; mortality, 52 per cent. In 93 per cent. of the fatal cases death occurred within the first three days, and was due to the extent of the anatomical injuries.

17. Gas Abscess of the Brain.

Emmanuel Rychlik (*Muench. med. Woch.*, November 28th, 1916) states that 121 cases of skull wounds were operated upon within twelve months in an Alpine hospital; most of them were due to artillery; 45 of the cases were septic, and of these 25 developed abscesses; in one of the cases operated on the signs pointed to a specific gas infection by Fraenkel's gas bacillus, giving rise to a gas abscess. A soldier, aged 18, wounded by splinters of stone following a grenade explosion, did not lose consciousness, but suffered many septic wounds over the body; in the head, over the right temple, was a small superficial wound; no bone could be felt on probing, and percussion of the skull caused no pain. Next day the temperature was 102.2° F.; the wounds on the body were explored and fragments of stone removed and much pus evacuated, but no gas. Next day the temperature was 103.5°. On the fifth day he complained of headache, the temperature was 102.6°, and the pulse 84; there were no general or local symptoms and no pain on percussion of the skull. On the sixth day there was paresis of the left facial nerve and of the left arm and leg. A diagnosis of abscess of the right frontal lobe was made. The wound was incised under a local anaesthetic and the right temporal lobe exposed. The dura was tense, but not pulsating; it was pierced by small fragment of bone. Stinking, haemorrhagic and foam-like pus flowed from the wound. The whole right temporal region was occupied by the abscess, into which the whole finger, and the forceps could be put; a smaller cavity was found beside this large one. The abscess cavity was syringed with hydrogen

peroxide, and a thin drainage tube inserted; the cavity was sponged out with gauze dipped in Chlumsky's solution: Acidi carbolici 30, camphorae trit. 60, alcohol. absol. 10 parts. The temperature was normal next day, and remained so. The man could sit without assistance, speak, write, and count quite correctly. The first change of dressing was made ten days after operation; a great deal of pus, with necrosed brain tissue, was discharged. No symptoms of any kind, either mental or physical, were afterwards exhibited, despite the great defect in the frontal and temporal lobes. Optic neuritis was present on each side, but more severe on the right. Fraenkel's gas bacillus has been observed to attack only the extremities, and, internally, only the uterus. Tietz and Korbsch, in a case of skull wound, found air bubbles in the pia mater, and concluded that the bacillus affected the pia mater; but their conclusion was based solely on the presence of air vesicles in the venous channels underneath the pia, and by the sickeningly sweet smell. Fraenkel himself said that the smell did not indicate the presence of his bacillus, that the vesicles might be admitted underneath the pia by the sucking in of air at the opening of the skull after death, and many of the phenomena might be explained by *post-mortem* putrefaction. Rychlik points out that in his case all the conditions necessary for gas inflammation were fulfilled—the complete exclusion of air, so that the organism grew under strictly anaërobic conditions. Signs of toxaemia were absent, and the high temperature alone indicated septic mischief. The sudden development of such a large abscess could only be explained by the structure of the brain tissue and the gas-producing properties of the organism.

18. Soap as a Dressing for Wounds.

AT a recent meeting of the Paris Société de Chirurgie (*Journ. de méd. et de chir. prat.*, December 10th, 1916) a communication was presented on behalf of Médecin-aide major RATYNSKI on the use of white Marseilles soap [practically the same as white Castile soap] as a dressing for large anfractuous wounds caused by shells. His attention was first called to its advantages by observation of its effects in extensive burns. No dressing, he says, so quickly soothes pain and brings about sound and speedy healing. The surgeon, after disinfecting his hands, dissolves in tepid water, distilled or simply boiled, a few pieces of the soap. For lavages and irrigations a solution of 1 in 40 should be used; for the impregnation of compresses one of 20 per cent. The blood-stained surfaces should first be washed with pledgets of sterilized gauze steeped in this solution; they are applied without roughness to irregularities of surface and granulations. The wound, having been well cleansed in its whole extent and all its anfractuosities, is freely irrigated with soapy water; then a sort of embalming with soap is carried out. For this purpose several compresses of sixteen to twenty layers of gauze, each impregnated with the same solution, are rubbed vigorously against a piece of soap till they are saturated. The compresses are then rolled and pressed between the palms of the hands till an abundant light froth is produced in the interstices of the gauze; in this way a spongy tissue is obtained, consisting of innumerable tiny soap bubbles, which give the dressing a porosity similar to that of a sponge. This is spread over the surface of the wound and lightly pressed, but the dressing should never be less than 1 cm. in thickness. A thickish layer of cotton-wool, with a tarlatan bandage, complete the dressing, which should be renewed every two or three days. From its first application the author always observed a notable diminution or even immediate cessation of pain. At the subsequent dressings it is seen that the soapy muslin does not stick to the wound or the surrounding parts; it comes away without the slightest oozing of blood. Owing to the porosity of the dressing it seems to pump up the secretions as they are formed on the surface of the wound; it is thus an excellent capillary drain. Ratynski has observed that the dressing is impregnated with pus, even in its most superficial layers, while there is scarcely any on the surface or dead spaces of the wound. The soap solutions appear to act by inducing the formation of a viscous ropy liquid which is all the more abundant as the wound secretes a large amount of pus. The soapy irrigations must therefore be continued as long as the viscous liquid, which seems to be due to the contact of the pus with the soap solution, persists. Under the use of the dressing wounds heal with remarkable rapidity; the red oedematous surfaces soon take on a healthy aspect. The granulations and the border of cicatrization acquire a great vitality from the beginning of the treatment. Ratynski and Bergalonne under whom he worked followed to the end of the treatment a number of extensive wounds involving all the soft parts down to the periosteum, amputation stumps, injuries of the hand by grenade explosions (which are so peculiarly painful), and constantly observed the same simple, rapid, painless course with favourable cicatrization, without retraction or induration.

19. Infiltration Anaesthesia.

H. H. SCHMIDT, writing from a German field hospital, recommends (*Muench. med. Woch.*, November 21st, 1916) infiltration anaesthesia in certain cases where it is necessary to operate shortly after the receipt of the wound. He advises paravertebral anaesthesia by injection into the nerves as they issue from the spinal cord for operations on the trunk or on the throat, and parasacral anaesthesia in operations on the pelvis and on the lower extremities; nerve anaesthesia is useful for peripheral parts of the limbs, and also in the form of plexus anaesthesia—that is, the injection into the plexuses of nerves supplying the upper or lower extremities. Nerves coming off the spinal cord are to be met with, approximately, in one line which runs from a point 2 cm. from the middle of the neck to a point 3 cm. from the spinous process of the fifth lumbar vertebra. The depth at which the nerve is reached by the point of the needle varies from above downward. The nerve is generally situated from 1 to 1½ cm. in front of the bone when it is touched with the needle. If the anaesthetic is merely brought into the neighbourhood of the nerve, it diffuses into the nerve in ten or fifteen minutes; 5 c.cm. of a 1 per cent. solution of novocain-suprarenin, freshly made in physiological salt solution, was found to be sufficient for one nerve, but 200 c.cm. could be used without harm, and produced anaesthesia lasting from one and a half to two hours. Analgesia was produced about a quarter of an hour after injection. In order to ensure complete paravertebral anaesthesia, 0.01 to 0.02 gram of morphine, or 0.0002 to 0.0004 gram of scopolamine, was injected half an hour or an hour before the injection of the novocain-suprarenin. The point of injection for the sacral nerves was 2 cm. from the middle line on each side of the coccyx. The second, third, and fourth sacral nerves are found by running the finger along the interior of the rectum, while the sacrum is palpated by the point of the needle. Sacral anaesthesia was used for amputations of the upper part of the thigh and operations on the lower part of the abdomen; 50 to 70 c.cm. of a 1½ per cent. solution of novocain-suprarenin are injected into the spinal canal at the sacrum. This was less frequently employed in field hospital work than paravertebral anaesthesia, as unsatisfactory results were more frequent from it, and because it took longer to produce anaesthesia—twenty to twenty-five minutes. For operations below the middle of the upper leg the usual peripheral infiltration method of anaesthesia was employed with success; 20 c.cm. of a 1½ per cent. solution was injected into the great sciatic nerve, 10 c.cm. into the anterior crural and the obturator nerves. Generally speaking, for operations below the knee-joint only the great sciatic and anterior crural nerves were injected.

20. Wanderings of a Shrapnel Bullet in the Circulation.

A. GRANDGÉRARD (*Paris méd.*, January 13th, 1917) says that although the frequency of late and distant migrations of foreign bodies through the human tissues has long been known, it is still difficult, except in the case of needles, to picture to oneself with some probability the mechanism of these displacements and the paths followed by the wandering body. Perhaps the number has been exaggerated, and before the discovery of the *x* rays the conclusion may have been somewhat hastily reached that migration had taken place when it was impossible to locate precisely the first situation of the missile. The author, in more than 4,000 radioscopic examinations, several hundreds of them carried out on soldiers wounded at least a year before and already previously radioscoped, has seen only two cases of spontaneous displacement of a projectile. One of these he records in detail. A soldier aged 20 was wounded on April 10th, 1916. A radioscopic examination was made on April 17th, when it was found that the wound was situated in the posterior part of the left supraclavicular region at the edge of the trapezius. Slight local pain was the only symptom. On the screen there was seen at the level of the right auricle a very opaque foreign body of the shape and size of a shrapnel bullet. This mass was subject to rapid and regular movements having the character of an elliptical vortex. The man was made to turn slowly round with the view of making sure that the missile was really inside the heart; it was never seen to project beyond the cardiac area. A little more than an hour later, he was again placed on the

radioscopic bed when, to the great surprise of the author, no sign of the missile could be seen either at the level of the heart or anywhere in the thorax. Examination of the abdomen and the pelvis was negative, but at the level of Scarpa's space the same shadow that had been seen in the right auricle was visible. The man was then completely undressed and examined, but no wound or scar was found in that region. On further examination a few minutes later the shadow had again disappeared, but it was readily found in the pelvis at the level of the right sacro-iliac joint. The examination was discontinued at this point, lest the missile should go back in the opposite direction along its track. During all these examinations the patient felt no pain or discomfort. The stages in the migration of the projectile—right auricle, Scarpa's space, sacro-iliac articulation—led the author to think that it had followed the lower vena cava and reached the femoral vein, passing thence into one of the iliac veins. Three days afterwards an operation was performed; immediately before it was begun radioscopic examination showed that the projectile had become slightly displaced. It projected on to the sacrum, a little to the inner side of the middle of the right sacro-iliac symphysis. Through a median abdominal incision the surgeon felt the bullet roll under his finger in the hypogastric vein below the ala of the sacrum; it was fixed in that position by the calibre of the vein. Hampered by the intestinal coils, the operator gave up the idea of opening and suturing the vein at that depth. He made many fruitless attempts to bring the projectile into a more accessible part of the vessel, and at last decided to tie the vein below the projectile to prevent any further displacement. On June 17th, two months after the operation, the man showed no circulatory disturbance, and felt no pain. Grandgérard cannot explain how the bullet going in at the left shoulder penetrated into the right auricle. But he demonstrated to several witnesses its presence in that situation and its successive displacements; finally its intravenous situation was shown by laparotomy. He concludes that a large foreign body, free in the right auricle, can be carried into the blood stream without the migration being revealed by any objective or subjective phenomenon. The possibility of this occurrence must not be overlooked by the surgeon who attempts to extract a projectile by direct operation on the heart; to avoid disaster he should operate under radioscopic control.

21. Late Opening of Arteries in Projectile Wounds.

RAYMOND GRÉGOIRE (*Arch. des maladies du cœur*, November, 1916) writes on late opening of arteries in wounds caused by projectiles. By this term he understands ruptures occurring fifteen to thirty days after the injury. The artery does not rupture in its whole circumference, but is perforated by a lateral orifice sometimes oval, sometimes irregular in shape. The sheath of connective tissue is generally thickened, whilst the cellular sheath has disappeared. Haemorrhage may present three different aspects. It may come on suddenly, and cause death if immediate treatment is not available; it may be slow, insidious, and repeated, running later the course of a big haemorrhage; or it may come on gradually in the interior of the tissues, and assume the form of a diffuse aneurysmal haematoma. These phenomena, therefore, differ from those of the secondary haemorrhages observed in anfractuous and infected wounds. It is important that they should be known, as there is nothing by which their appearance can be foreseen unless it be the position of the orifices of entry and exit, and the direction of the track in the neighbourhood of a large artery. In several cases the author was able to tie the large arterial trunks (primary carotid, femoral, humeral) which were bleeding without any ischaemia manifesting itself in the surrounding parts. In another paper on lesions of arteries by projectiles Grégoire (*Paris méd.*, July 1st, 1916) says that the opening of arteries, immediate or late, leads to bleeding. When this is immediate, as is the rule, it generally causes death in a few minutes. If it is delayed, which is the exception, the haemorrhage, very slight at the moment of the wound, is reproduced in considerable amount some hours or days later. When late, which is rare, the haemorrhage is all the more serious, as there is nothing except the site of the wound to give rise to fear of its occurrence. It is produced two or three weeks after the receipt of the wound by escharosis of the contusioned arterial wall, and comes on either suddenly or gradually, or in repeated bursts. Obliteration of the arteries may be immediate if it is a case of tearing or crushing of the tissues by large fragments; or it may occur ten to forty-eight hours after the wound, in cases of small lesions when the artery is only bruised, but thrombosis is produced later. If the circulation is not re-established, ischaemia and necrobiosis may result.

OBSTETRICS.

22. Delivery through Shell Wound.

SAINT, GOELINGER, AND POIRÉ record (*Journ. de méd. et de chir. prat.*, January 10th, 1917) the case of a woman six months pregnant in whom delivery was brought about by a remarkable accident. She lived in a region occupied by the British and constantly bombarded, and was sitting at a window when a shell exploded in the street and wounded her in the lower abdomen. When brought to the hospital it was found that the belly was very painful and palpation was so difficult that it was impossible to determine the position of the fetus. An aperture of entry was found a little below and to the left of the umbilicus, and that of exit at a distance of nine centimetres from the left crural arch. On palpation it was found that the abdominal muscles were completely divided and that only a bridge of skin was left between the two apertures. The patient was bleeding abundantly through the vagina. The bridge of skin was cut through and laparotomy was performed. On the fundus there was found a wound of about five centimetres through which was seen the lumbar region of a fetus showing a small wound. The wound was enlarged, when the fetus was easily delivered; the pelvis, which was full of meconium and amniotic fluid, was cleaned, and the operation was completed by careful haemostasis and suture of the uterus. The case ran a normal course and the mother made a rapid recovery. As for the child, which was left unattended to as it was believed to be dead, it soon began to cry and to show itself very much alive. It weighed 950 grams; but as no incubator was available it died in fifteen hours. The authors say that this is probably the first case in the present war in which the Caesarean operation has been done by the explosion of a shell. [We may recall, however, that in the BRITISH MEDICAL JOURNAL of December 4th, 1915, it was stated that Dr. Henrot had not long before given to the Paris Académie de Médecine an account of the bombardment of the hospital at Rheims. The maternity patients were by way of precaution moved to the cellars; one of the women was delivered by the action of a shell, which tore open the abdomen and uterus; the child had simply to be extracted. This may, of course, be the same case as the one reported by Saint, Goelinger, and Poiré, but as Henrot speaks of a "fine child" having been presented to him, while in their case the child was premature and died in a few hours, it seems more probable that there have been two war accidents of the same kind.]

THERAPEUTICS.

23. Electrargol in Epididymitis.

MARIO GIORDIANO, surgeon-captain in the Italian Navy, records (*Annali di Med. Navale e Coloniale*, 1916) the results obtained by him in the treatment of epididymitis by the injection of electrargol into the inflamed part. The following is the procedure: The diseased testicle being immobilized with the left hand, the epididymis is pushed towards the point of a needle introduced by the right hand. The syringe and the needle are first sterilized by boiling and the scrotum is disinfected with tincture of iodine. An ordinary glass syringe holding 2 c.cm. with a needle of medium calibre are sufficient. The best plan is first to introduce the needle alone so as to make sure that no vessel has been struck. In this way it is often possible to extract a small amount of the inflammatory liquid; this by lessening tension makes the injection more bearable. The syringe, filled from small ampoules with 2 c.cm. of isotonized electrargol, is then fixed to the needle and the injection slowly made. Sometimes rather sharp pain in the testicle and cord radiating towards the joints of the same side is complained of. The pain ceases in a few seconds, and is greatly mitigated by a previous hypodermic injection of morphine. In six sailors treated by Giordiano in this manner the effects were very rapid. The pain existing before the injection rapidly diminished and ceased in from eight to ten hours. Fever, even if high, often fell on the first day after the injection; it never lasted more than twenty-four hours. The tension of the tissues disappeared gradually in three or four days and the constitutional symptoms improved at the same time as the local resolution. In some cases seen months after the treatment the organ had recovered its normal appearance without any indurated nodules. The evolution of the disease is greatly shortened; the average period of rest required was in severe cases from five to six days and in ordinary cases forty-eight hours. The dose injected varies from 1.5 to 2 c.cm. In one case the injection had to be repeated after two days.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

24. Symptoms of Nervous Heart.

KURT SINGER (*Medizinische Klinik*, November 19th, 1916) considers nervous heart to be the most common of all the nerve troubles among soldiers. It is characterized by paroxysmal palpitation, sharp pains in the left breast, an irregular pulse, the frequency of which is altered by the patient standing and lying down; but the heart sounds are normal. Sleeplessness, fainting, dizziness, paleness or flushing, increased activity of the various reflexes, fluttering of the eyelids, and trembling of the hands, are all experienced by the patient. The blood pressure is found often to be below 90, or even 70 mm. Hg. Two symptoms found of great value in diagnosis were (1) the presence of hyperaesthetic zones in the heart region; worked out by Head, Mackenzie, and by Brasch. "Head's zones" (elliptical zones), hyperaesthetic to pin-pricks, are rarely, if ever, present in organic heart disease, while fairly constant in nervous heart. They do not exactly correspond to the point of greatest pain felt by the patient; but the point of greatest sensitiveness is frequently situated near the apex beat. In cases examined by Singer the hyperalgesic zone never reached beyond the sternum, or the right boundary line of the heart, and the point of greatest pain was always in the region of the apex beat. In 22 cases investigated Head's zone was found unmistakably in 14 cases; the hyperaesthesia affected only the pain sense, and never the temperature sense. In patients recovering from dysentery and typhus fever hyperaesthetic zones had been found round about the umbilicus and the transverse colon. Sympathetic irritation and vasomotor excitation were frequently exhibited in the nervous heart by symptoms of tachycardia, arrhythmia, blushing of the face, and sweating. Vagus irritation was manifested by slowing of the pulse ("negative chronotropic working"). Irritation of the sympathetic was generally exhibited in patients suffering from nervous heart, so that nervous heart with a slow pulse Singer considers to be unusual, perhaps impossible. Deep expiration causes a slowing of pulse by reflex vagus irritation: deep inspiration a rapid pulse by reflex sympathetic irritation; this did not always hold good in the nervous heart—of 22 cases 7 had similar pulses in expiration and inspiration, and 5 greater frequency in expiration. This symptom can only be taken as an expression of some vagus or sympathetic irritation. A method of investigation suggested by Erben many years ago had been found most useful. When the patient was crouched down with the head bent forward a sudden slowing of the pulse was felt, succeeded in three-quarters to one minute by the normal beat. This was the vagus pulse produced experimentally, and was akin to the slowing of the pulse in deep expiration, for breathing was arrested when the patient crouched, and he remained in expiration as long as he could. The vagus pulse could also be produced by causing the blood to run to the head. In healthy people this test ("the cerebral vagus pulse") was hardly ever positive; it was invariable in patients suffering from shell shock with severe nervous heart attacks but no organic disease. In some cases the pulse-rate slowed almost to half. This slowing of pulse was found in neurasthenics who did not suffer from the symptoms of nervous heart.

25. Simulation of Skin Disease by Soldiers.

F. DE NAPOLI (*Morgagni*, January 13th, 1917) has observed a number of cases of pemphigus occurring simultaneously among the Italian troops at the front in a manner suggesting a true contagious form of the disease. The favourite sites of the eruption were the legs and the feet, especially on the extensor aspect; in some cases the arms and the face were affected; in one only the back. Both lower limbs as a rule were attacked; when only one was affected it was almost always the left, from the middle third to the foot, sometimes involving the sole. When the eruption was confined to the right lower extremity the lesions were mostly in the anterior tibial, the external malleolar region, the dorsum, and the sole. The mucous surfaces were always unaffected. The elementary lesions were mostly bullae, sometimes with a sharply oval, at others with an irregular spherical or linear configuration. They varied in size from a hazel-nut to a turkey's egg; in rare cases they were as large as the palm of the hand. The bullae were for the most part intra-epidermic, sometimes subepidermic; exceptionally they were rupial in character, involving the papillary layer and the derma. They were generally distended by a lemon-yellow liquid, in some cases opalescent, never haemorrhagic, rarely purulent. They were surrounded by a narrow red halo, sharply circumscribed, and without trace of inflammatory reaction. Alongside of this eruption, constituted mostly by epidermic bullae resembling those of pemphigus, was a dermatitis characterized by small vesicles, in some cases confluent, in others spread over large erythemato-papular scabs, resembling eczema. This difference of morphological aspect was regional; it was not seen on the legs, but only as a solitary manifestation in a few individuals on the orbit and the face, where secondary folliculitis of the beard was scarcely ever missing. The affection began in all the cases in the same way: absence of general prodromal symptoms; no malaise or fever; slight local itching, mostly at night; then in a few hours, almost always in the morning on awaking, appearance of bullae, generally painless. In all cases the eruption came out at once, not preceded or accompanied by pyrexia. Fever came on after some days only in the exceptional cases in which the bullae had a rupial character, and in which there was formation of pus. In some cases some erythematous patches were seen among the bullae; it was therefore possible to follow their evolution to the vesicular or bullous stage. Sometimes after two or three days the bullae when not pricked burst and emptied themselves spontaneously, leaving the derma exposed. The duration of the dermatosis, except in cases in which suppuration or concomitant gastro-intestinal symptoms occurred, was eight days; the usual termination was complete repair of the epidermic layer. From this general statement must be excluded some cases in which, through the inoculation of pyogenic organisms, large and deep ulcers were produced; in these cure took place by granulation. The affection, owing to the absence of topographical characters and symmetry, cannot, says the author, be classed among the forms of pemphigus of nervous origin. On the other hand, the absence of injury excludes traumatic pemphigus. Nor can any internal cause be admitted, because none of the men had taken any alimentary or medicinal substance capable of producing such an eruption; besides the agents, such as antipyrin, bromine, iodine, etc., which cause cutaneous eruptions, produce a dermatosis with lesions which are disseminated, not almost confined to the lower limbs and always polymorphous. The afebrile course, the evolution from a single outburst, the distribution limited to certain regions, the favourable issue, the absence of similar cases among the officers and non-commissioned officers of the regiments in which the dermatosis occurred as well as among the civil population, exclude acute epidemic pemphigus, which is a very severe affection, almost always ending fatally. Chronic pemphigus is also excluded by the ages of the men, the epidemiological characters of the disease, the immunity of the mucous membranes, and the absence of relapse. These facts led the author to think of some external agent as a causative factor, all the more as nearly all the men affected came from the same district. The *Ranunculus acer* is the only plant abounding in that district that is capable of producing pemphigoid acrodermatitis. Experimental application of the leaves to the skin produced an affection exactly similar to that observed in the soldiers. Hence the author concludes that the dermatosis studied by him was an artificial pemphigus. The situation of the lesions on covered parts (legs and feet) made it impossible that they could have been due to accidental contact. The author concludes that they were produced by the men themselves with the object of securing exemption from service.

26. MARIANO CARRACCIO (*Giorn. di Med. Militare*, Fasc. xi, 1916; *Medicina Pract.*, January 31st, 1917) has seen

in the dermatological department of the Ospedale Umberto I of Rome numerous cases of acute dermatosis occurring in an almost identical manner in more than one hundred soldiers. Many of the men came from the country districts near Rome, where they had been at home on leave. Instead of returning to duty they reported themselves sick either at the railway dressing station or directly at the principal military hospital. Others came from dépôts with a diagnosis of various skin diseases, not seldom with one of an exanthem such as measles. There were no symptoms of general reaction or visceral disturbance. By the confession of some of the men it was found that the eruption was produced by the application of vegetable substances to the skin. These were either the pounded root of *Daphne gnidium* or the juice of the cactus leaf. They were applied by light friction over the whole body, sometimes on circumscribed parts on the limbs or the trunk: unlike what happens when mineral acids, croton oil, or ethereal oil of turpentine are used for the same purpose, they did not cause any change in the general condition nor severe local pain. The cutaneous eruption begins as an erythema, generally intense but confined to the part to which the irritant has been applied. This erythematous stage reaches its full development about twenty-four hours after the application, and is quickly followed by a papular phase in the form of more or less accentuated bulging of the mouths of the cutaneous follicles with infiltration and induration of the follicles themselves. If this erythematous phase persists and assumes the aspect of an acute toxic erythema or a lichen tropicalis, then in almost all the cases very numerous small superficial acuminated vesicles, with more or less abundant purulent contents, are formed. In some cases these pustules tend to become confluent and to form a small purulent superficial phlyctenule. This pustular phase, which occurs more readily on hairy surfaces, is due, according to the researches of Zanelli in the Institute of Hygiene directed by Sanarelli, to the virulent action of the *Staphylococcus pyogenes aureus*. The duration of the affection corresponds to the intensity of the eruption, the phase of development which it reaches, and the resistance of the skin to the action of the irritant. This resistance is in direct relation to the general nutrition. The men affected were all treated with repeated applications of an oil prepared according to the following formula: Pure phenol 1 gram, camphor 5 grams, vaseline oil 100 grams. By this means in from three to eight days the inflammatory process was arrested and the reddening of the skin disappeared. In the vesiculo-pustular phase the purulent exudate dried up in a short time, forming small yellowish-brown crusts. The infiltration of the follicles subsided more or less quickly, but in the majority of cases, even when the redness of the skin had disappeared, they showed as raised points, brownish in colour, corresponding to the opening of the follicles. In a case of this dermatosis produced experimentally by a medical student in the department by the application of cactus juice on the extensor surface of the forearm, although the action was carefully limited, bulging of the follicles was observed for about seven days and the brownish colour persisted for twenty days with discrete furfuraceous desquamation.

SURGERY.

27. Gunshot Wounds of Abdomen.

E. Liek (*Arch. f. klin. Chir.*, cvii, 1916; abstract in *Surgery, Gynaecology, and Obstetrics*, January, 1917) says that all surgeons went to the front with the conviction that abdominal wounds would not, as a rule, be operated on. MacCormac's aphorism after the Boer war, that "all those shot through the abdomen will live if let alone, and will die if operated," was generally accepted. The experience of the present war soon showed that conservative treatment was almost hopeless. The most striking feature among the men with belly wounds was the strong contrast between different patients. Some presented the hopeless picture of impending death, which occurred within twenty-four hours; others diagnosed as "shot through the stomach" showed no sign of serious injury, but were sitting about and eating heartily. The difference is explained by the fact that one man pulls through, not because his presumed stomach injury has been treated conservatively, but because his alimentary canal has not been injured; the other dies because he has a perforated wound of the stomach or intestine. There is a difference in prognosis between gunshot wounds of the upper abdomen and those of the region below the umbilicus. In Liek's opinion the prognosis of gunshot wounds of the abdomen in the field hospital depends on whether or not the alimentary canal has been perforated; in other words, the threat of peritonitis dominates the situation. The most important symptom of peritoneal irritation is the reflex tension of the abdominal wall. This, however, is found in other conditions, and in doubtful cases the surgeon should enlarge the wound and examine. In Liek's field hospital service during the first fourteen months of the war, 2.5 per cent. of the wounded had gunshot injuries of the abdomen. Of these, 55 per cent. died; others were transferred to base hospitals. About one-third of the non-operated cases eventually recovered. Gunshot wounds of the liver have an apparently favourable prognosis, similar to that of injuries of the upper abdomen when treated conservatively. Liek has seen seventeen cases in which spontaneous recovery took place. According to his experience it seems certain that the modern small calibre bullets can pass through the liver from a very short range without causing irreparable mischief. The clinical course of gunshot wounds of the liver varies considerably. Smooth, completely penetrating shots end most favourably. Tangential shots are less favourable; they are similar to tangential wounds of the skull. Liek observed some in which clear liver wounds complicated with injuries of the kidney and other organs healed spontaneously. Altogether he saw only twenty-seven cases of liver injury, these representing 13 per cent. of the men admitted with the diagnosis of gunshot wound of the abdomen. But he thinks that liver wounds are more frequent, as in eleven abdominal cases examined *post mortem* there were injuries of the liver besides those of other organs. In seven of the twenty-seven cases the diagnosis was made by the outflow of bile through the wound. Liek lost eight of his patients (29.4 per cent.) in the field hospital. Korte's figure is 60.8 per cent. But Liek says it would be fallacious to infer from his low percentage that the prognosis of liver wounds is better than that of other abdominal injuries. While in these the risk of peritonitis is the predominant factor, in liver injuries haemorrhage is the danger. But it is not the only one. Concomitant injuries of neighbouring organs, especially the right lung and the right kidney, may endanger life owing to necrosis, abscess of the liver, thrombosis of the large blood vessels and secondary haemorrhage; these complications are responsible for many deaths. Liek summarizes the treatment of gunshot wounds of the liver as follows: Simple clear-through shots will recover with rest and morphine. Free haemorrhage calls for inspection of the wound and plugging or suture of the liver as may be necessary. In tangential shots, especially from artillery, the irregularly torn sinus must be exposed, bone splinters of ribs and all necrotic tissue removed, and the wound loosely packed. Complications in the pleura and later complications such as liver abscesses must be treated according to general surgical principles. In dealing with liver wounds, as with other abdominal injuries, success depends upon early treatment. Liek cites several examples of the favourable results obtained by immediate intervention in wound of the liver.

28. Gunshot Wounds of the Stomach.

Richard Fibrich (*Wien. klin. Woch.*, October 19th, 1916) states that statistics of stomach wounds show that operation was successful in all cases in which recovery was probable, and that when death resulted after operation the wounds were so severe that recovery could not, under any circumstances, have been expected. All the cases of death from stomach wounds brought to hospital died before operation, and in no case in which, for various reasons, operation was not performed, was recovery heard of. In October, 1915, two cases were operated upon in hospital, and since then they had passed through a reserve hospital in fit condition. All stomach wounds, he thinks, ought to be operated upon by a well-qualified surgeon as soon as possible after the receipt of the wound, when a stationary hospital and complete asepsis are available. Cases had been received with a doubtful diagnosis of pelvic, pulmonary, or stomach wounds, which turned out to be serious perforations of the stomach or gut. Every clearing station should have at least one skilled surgeon, who should act only in that capacity.

29. Wounds in the Present War.

A. U. Desjardins (*Journ. Amer. Med. Assoc.*, January 6th, 1917) reports observations made in the present war, and describes the wounds received. Moist climate and intensively cultivated soil are ideal conditions for infection of wounds, and to this must be added the necessary delays, which were more marked in the beginning, and caused

complications very difficult to meet. At the present time many of the field hospitals at the front are equipped with every essential. The rush of cases at times is very great. A French surgeon at the Somme front, in charge of a field hospital of 2,000 beds, had 600 wounded pass through his hands in thirty-six hours. Another working behind the Verdun front had, with a colleague, to perform 400 operations under shell fire in an underground ambulance on the front line. At the first dressing station no operations are performed. The wounds are examined and dressed and the patients are sent back to the nearest field hospital, where they are given one or more doses of tetanus antitoxin. The wounds are explored and drained, accessible foreign bodies removed, fractures temporarily splinted, and all patients fit to be moved are transported by motor ambulance to the nearest evacuation hospital, where the needed additional treatment is given. They are then sent as soon as possible by train to the base hospitals at Paris or other cities. During the first weeks of open fighting the number of bullet wounds was comparatively high, but since that time a large proportion of the wounds have been caused by shells, shrapnel, bombs, or grenades. Bayonet wounds are rarely seen, because, inflicted at close quarters, they are generally fatal. The effect of the rifle bullet depends largely on the distance from which it has been fired. The frequency of explosive effects observed in such wounds received in the trenches is accounted for by the short range. At short range extensive shattering of large bones is produced by the bullet, and fragments are driven through the surrounding soft parts. Clean perforations of bones are rarely seen. Shell fire is largely of two kinds, shrapnel and high explosive. The latter is far the more destructive, innumerable jagged fragments being forced through the tissues, tearing off pieces of clothing and carrying them into the deepest portions of the tissue. The sudden violent explosion of one of these shells also causes more or less shock, which is sometimes fatal. The general infection of all the wounds may be of many kinds. Tetanus is not so frequent as at first, but the dreaded gas infection is still one of the problems of military surgery. The type of wound in which the rapidly spreading form is observed is the deep wound in which the projectile, instead of widely tearing the muscles apart, has lodged in some muscle mass, as in deep wounds of the thigh. The infection may be so intense as to overwhelm the patient in a few hours. To combat the infection is the principal problem, and Desjardins reviews the theories and methods of Dakin, Carrel, and others. No one method is applicable to all cases. The first indication is thorough exploration of the wound, removal of foreign bodies, excision of sloughs, and free drainage. At this stage continuous irrigation is of distinct value, because it dilutes the discharge and facilitates drainage. The use of antiseptic solutions is advised if the wound can be thoroughly made accessible to their action. At Ris-Orangis different antiseptic solutions were used on different batches of patients. There seemed to be no great difference in the power of the different antiseptics when the wounds were properly drained, but it was evident that continuous irrigation should give way to dry dressings after the acute suppuration had subsided. Prolonged continuous irrigation seemed to produce oedematous flabby granulations and retard the healing process. Badly comminuted fractures, complicated by infection, should be thoroughly drained and all loose detached pieces of bone removed, but pieces not thoroughly detached should be left in place. Amputation should be a measure of last resort. The treatment of gas infection depends on the stage of the condition when first seen. If there is only a limited amount of distension, the first indication is to lay open the infected area by multiple free incisions and remove all foreign material. After ample drainage has been provided for, continuous irrigation may be tried, but if the gas crepitation continues the limb should be removed at once. If the infection is situated in the thigh, the limb should be amputated at or near the hip bone. Subfascial injections of oxygen gas or peroxide have not given encouraging results. "The greatest lesson to be learnt from the surgery of this war can be summed up in two words, 'intelligent conservatism.'"

30. Wounds of Vessels.

POTHERAT (*Réunion méd. chir. de la IVe armée*, August, 1916; *Arch. des maladies du coeur*, November, 1916) says there are many cases in which a blood vessel has been wounded haemorrhage is either absent or only moderate in amount and in which the lesion may be overlooked until a time when, the obstacle to bleeding (clot, projectile, etc.) having been removed, it suddenly comes on, presenting the usual features in respect of gravity and abundance. Owing to the frequency of these occurrences the author advises that, in cases where the projectile is judged by the point of penetration and the direction of the wound to have traversed a vasculo-nervous bundle or passed close to it, the surgeon should, even if there be no sign suggesting vascular lesion, as far as possible behave as if this were certain—that is to say, he should seek for the vessel and act accordingly.

31. Middle-ear Lesions from Aerial Commotion.

A. SAUPIQUET, who was in charge during six months of the service of otology of the Ne French Army Corps, had the opportunity of observing a considerable number of lesions of the auditory passage due to commotion, explosion of shells, mines, etc. (*Rev. de Laryng.*, etc., December 31st, 1916). Receiving those patients direct from the trenches, and being able to examine them within two days of the injury, he was able in most cases to note accurately the onset of the affection and the development of the lesions; on the other hand, as the most serious cases had to be evacuated in a few days he was unable to follow the later course. He had not therefore the opportunity of studying cases of labyrinthine commotion with or without objective lesions. The only point about them which he had occasion to note was the relatively small proportion of them in injuries of the middle ear: of 164 cases of ear affection produced by commotion only 26, or about one-sixth of the number, were instances of commotion of the labyrinth associated or not with lesions of the middle ear. Saupiquet divides the affections of the middle ear produced by commotion into three classes: One, including twenty-four cases, showing at the first examination a perforation of the tympanum, sometimes small, sometimes rather extensive, always with more or less ragged edges, sometimes more or less complete destruction of the membrane, which might be accompanied by more or less free bleeding. In the ensuing days the condition tended to cure without infection of the middle ear, the lesions gradually cicatrizing, often with complete restoration of the membrane if there had only been a perforation of small extent: on the other hand, if there had been a true bursting of the drumhead, wide loss of substance remained. If there were infection of the tympanic cavity, otorrhoea came on within the first two or three days. Sometimes it was a mere mucous or mucо-purulent oozing, sometimes a true purulent otitis. The author noted this suppuration in eighteen of twenty-four cases belonging to this class, whilst in six the lesion healed by primary cicatrization. In the second class, which included thirty-two cases, the lesion first seen was not a perforation, but a simple attrition of the tympanic membrane; at the first examination there was seen a slight intratympanic haemorrhage, often along the handle of the malleus, sometimes at the level of Shrapnell's membrane; in some cases there was a small haematoma. In a few days this haemorrhagic lesion gradually disappeared, leaving a normal drumhead, or it might become transformed into a perforation. It seemed as if in these cases, the attrition being deeper, a mortification of the tissues, causing a secondary perforation, was produced. The author has seen this secondary perforation in twenty cases, generally three or four days, sometimes as long as a fortnight, after the beginning. It has no resemblance objectively to the primary perforation directly due to the wound characteristic of the first class; it is not a tear or a bursting of the membrane, but a small lenticular perforation with thin sharp edges at the seat of greatest contusion. The evolution of the perforation may also, according to circumstances, follow one of two courses—either it cicatrizes quickly without suppuration, or a slight serous or sero-purulent discharge comes on; or, as is most commonly the case, a true purulent otitis media is developed, generally two or three days after the perforation. The cases in which the tendency is towards cure without suppuration are much less numerous in primary than in secondary perforations (6 in 24 cases belonging to the first class; 10 in 20 of the second class). This, the author thinks, may be explained by the fact that in the former class septic matters are projected by the explosion into the middle ear at the same time as the perforation is produced, whilst in the second treatment during the first days makes relative asepsis of the auditory meatus possible. To the third class belong cases which at the first examination, on the day following the injury, there was seen a purulent discharge, a true traumatic otitis media coming on suddenly. In these the author says he was not able, as in the others, to catch in the act the pathogeny of the phenomena; it merely seemed as if they were cases of traumatic perforation in which infection was more rapid after

the projection of more septic products. Summing up, Saupiquet from the pathogenic point of view divides tympanic lesions caused by commotion into: (1) Laceration or bursting—primary perforation: (2) contusion of the drumhead, often bringing about secondary perforation through necrosis of the tissues. Discussing the question whether it is the varying force of the commotion of the air that causes the difference in the lesion or whether the pre-existing condition of the auditory canal should not also be taken into account, the author says that E. J. Moure has shown the importance of the previous state of the ear in the production of lesions of this kind. It is, of course, difficult, in patients not known to the surgeon before they were wounded, to judge of the previous condition of the auditory tract, but the author has been struck by the relatively large number of various nasal lesions among men with injury of the ear. Of 164 cases treated there were 80 with nasal lesions; among these were 27 of deviation or spur of the septum, 18 of polypus, 28 of hypertrophic chronic rhinitis or nasopharyngeal catarrh, 5 of ozaena, and 2 of nasal syphilis; as most of these conditions predispose to affections of the ear, these figures suggest the existence of previous lesions of the ear. On the other hand, the presence of a thick plug of cerumen in the meatus has often seemed to Saupiquet to act as a powerful protection to the tympanum. While generally the men were wounded almost equally on the two sides, he noted in ten cases that one of the ears in which there was a plug of wax was absolutely intact, whilst the other, without such protection, showed serious tympanic lesions. In this Nature gives a clear hint as to a useful method of prophylaxis. When the lesions have gone on to suppuration, whether following a primary or a necrotic perforation, the evolution is the same; the affection runs the course of a subacute otitis media, generally benign, and yielding to ordinary treatment after three to five weeks, and inducing an impairment, usually not very marked, of the hearing. Here again the previous condition of the auditory tract is of capital importance. Whilst in men in whom the previous state was normal the rule was recovery in two, three, or four weeks; on the other hand, in six cases in which an old suppurative otitis media was quickened into activity by the injury, interminable suppuration refractory to all sorts of treatment occurred.

32. X-ray Appearances in Gas Gangrene.

Agnes Savill (*Arch. Radiol. and Electr.*, December, 1916), as the result of examining sixty-seven radiographs at the Scottish Women's Hospital at Royaumont, and comparing the bacteriological reports and the surgical findings, is able to suggest certain *x*-ray appearances which denote not only the presence of gas in the tissues and its extent and situation, but also the variety of the gas infection. Three totally different appearances were observed on the plates, and with few exceptions these corresponded to three different varieties of anaërobes: (*a*) Simple swelling with a pale misty outline, sometimes fading a little in indefinite areas much as a white fog fades in a landscape. This form was found when *B. perfringens* was the chief organism, and was probably due to the oedema. (*b*) A cloudlike outline, in addition to the swelling, as if the flesh were replaced by dark woolly clouds, an aspect due to infiltration of the tissues by the gas. In some of these cases round or oval dark outlines were observed, where the gas was sharply demarcated. This diffuse cloudiness, by far the most common type of appearance, was, in the great majority of cases, associated with *B. perfringens* and *B. sporogenes* together. (*c*) The rarest form, a striated appearance, occurred in two types: (1) A fine striation in which the dark lines of gas infiltration mapped out the individual muscle fibres in such a definite manner that the plate resembled a drawing of the muscles of a limb; (2) a coarse striation, usually associated with considerable swelling, occurring in limited areas, the lines of division being straight and always seen in a longitudinal direction. In one of the two cases in which fine striation was found the *Vibrion septique* and *B. perfringens* were present in the depth of the muscles and in the blood; in the other case *B. histolyticus* and *B. fallax* were the uncommon organisms present. Both cases proved fatal. In the cases with coarse striation *B. oedematiens* and *B. Hibler IX* were the most frequently occurring organisms. As to the prognosis, the type associated with appearance (*a*) was the most favourable, provided correct surgery was resorted to immediately; in type (*b*) the course towards recovery might be steady after free incisions had been made, but when the cloudiness indicated deep-seated gas, unrecognizable clinically, the outlook was exceedingly serious: in type (*c*) the prognosis, to judge from the author's experience, was very grave. She states that no negative finding should be made on *x*-ray evidence alone, and warns against certain fallacies which may lead to a wrong positive finding; thus appearances due to actual loss of tissue or extensive ecchymosis may be mistaken for the gas condition; and she believes also that abscesses may simulate gas bubbles in the radiographic picture.

33.—Martin Berry (*ibid.*) states that if a wound be merely infected by anaërobes without the formation of gas bubbles, radiology at present can be of no assistance towards diagnosis, but if gas is present in the tissues it can be demonstrated in a well-made radiograph. He furnishes particulars of a number of cases in which a diagnosis of gas formation had been made, and bases upon these his classification of gas formation into two main types: (*a*) That in which there are a small number of discrete bubbles, with individual ones possibly of large size; and (*b*) that in which there is extensive and diffuse gas infiltration. One feature was noted throughout the whole series of 28 cases: whenever there was much gas, *B. perfringens* was found on bacteriological examination. The presence of this particular anaërobe seemed, therefore, to be capable of radiographic diagnosis, though the absence of radiographic signs could not be taken to imply its absence. Fallacies to be guarded against in making a radio-diagnosis of the presence of gas were the similar appearance due to (*a*) loss of tissue, causing an increased radio-transparency of the part; (*b*) bubbles of air trapped within the tissues; (*c*) oxygen bubbles present under considerable tension in cases where the wound had been syringed with hydrogen peroxide.

34. Radiography of the Orbital Region.

Stenvers (*Arch. Radiol. and Electr.*, No. 190. 1916) states that although both sagittal and lateral or frontal reproductions are indispensable in *x*-ray examinations of the skull, radiographs taken in other directions are also frequently essential. When it is desired to obtain a specially accurate negative of some particular region, this plan must often be resorted to. Such radiographs are thought by some to present an indefinite and uncertain tangle of lines, but a closer investigation will show that each particular position of the skull causes certain definite lines to come to light, and their constant recurrence indicates that they are representative of definite anatomical features. The author confines himself principally to the discussion of the foramen opticum and the fissura orbitalis superior. He endorses the method of Rhese, who, in studying deformities of the ethmoid, so adjusts the photographic plate to the face that one edge rests upon the zygoma of the side under investigation, and the other upon the ridge of the nose; this method, the author maintains, is often even more significant for the orbit than it is for the ethmoid. By placing the nose-chin line a little closer to the plate, the fissura orbitalis will easily be found within the sphere of the orbit. To what extent this will occur cannot be stated by mentioning any specific angle, for the length of the nose and the shape of the skull determine its relative position in each separate case. In one instance the nose will have to be more closely approximated to the plate, while in another a smaller degree of approximation will suffice. Moreover, the angle formed by the sagittal axis of the skull and the base will vary within certain narrow limits. Simultaneously with the fissura orbitalis superior, the optic foramen returns within the circumference of the orbit. Each skull by reason of its individual construction will require a particular procedure in order to be photographed, and although this means that an ideal comparison cannot be made between radiographs of various skulls, this is of very slight importance, in the author's opinion, as the comparison of the orbits of different people has little clinical significance, and the only comparative object for the orbit is the other orbit of the same individual, which must be taken in exactly the same manner. The author describes a number of cases recently met with in order to show the practical value of such radiographs for observation of pathological formations in and around the orbit, and one case bringing out the fact that haemorrhage in the orbit can be demonstrated by means of *x* rays. This last was a patient who, in consequence of a bayonet thrust in the right orbit, suffered from total paralysis of all eye muscles on the right side and ptosis of the right upper eyelid. Comparing radiographs of both orbits, a rather sharply outlined blot in the fissura orbitalis of the damaged side was noticeable. In view of the known injury, this blot could only be haemorrhage, and its limitation and direction located it within the hollow made by the converging eye muscles. The author also finds that dimness in the picture of the ethmoid does not always indicate an injury of the bone.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

35. Localization of Foreign Bodies in the Pleura.

S. GANGI (*Policlinico*, December 11th, 1916), in examining a patient wounded by a shrapnel bullet which was wandering free in the cavity of the right pleura, noted that by methodical percussion at the base of the thorax he could map out a small zone of intense pain corresponding to the temporary position of the foreign body. Six months after the patient first came under observation the symptoms characteristic of irritation of the pleura (dry cough, position in recumbency, etc.) were much diminished, whilst others not present at first—for instance, sighing—had appeared. But the relation between the temporary seat of the projectile and the painful zone at the base of the corresponding part of the thorax was unchanged. By the pain caused by moderate pressure at different points over the base of the thorax the author was able to determine the approximate position of the foreign body, but he was not able to define the limits of the space it occupied. In two other cases the projectile was seen by radioscopy to be fixed in the phrenico-costal sinus. In one the foreign body had caused exudative pleurisy, traces of which remained at the time of examination. In the other the reaction of the pleura was limited to the incarceration of the projectile in the right phrenico-costal sinus. Even in these circumstances it was possible by methodical percussion of the base of the thorax to mark out a very painful zone within which radioscopy revealed the presence of the foreign body. In order to define the position of the foreign body in the pleura the author made the patient stand up or sit on his bed with the arms folded and bent slightly forward so as to leave the circumference of the chest free. The percussion was begun on the paravertebral line. The left index was placed parallel to the long axis of the body with the object of covering with the percussed finger all the area of the complementary space of the pleura (bottom of the phrenico-costal sinus). The author percussed the base of one half of the thorax, following the complementary space from behind forward, and then examining the other half in the same way. Having determined the site of the foreign body by the position of the pain, he proceeded to define the extent of the zone and to map out its limits. Under the guidance of the percussed finger he marked out a line corresponding to the posterior margin of the painful zone. He next sought for the anterior limit, proceeding from before backwards. Having defined these two margins, he placed the left index perpendicularly to the two lines marked out, and, percussing from above downwards, he sought for the upper limit. Proceeding from below upwards in the same way, he determined the lower limit. He then by palpation assured himself that along the course of the ribs comprised within the zone which had been defined there were no lesions that could explain the pain. The constancy of the results of radioscopy in the three patients led him to the conclusion that the method described affords a good guide for the diagnosis and localization of foreign bodies in the pleura.

36. Simulation of Skin Disease by Soldiers.

AT a meeting of the Riunioni Medico-militari Castrensi R. RIVALTA read a communication giving particulars of 100 cases of what he calls "cutaneous pantomimicry" (*Policlinico*, March 4th, 1917), which had come under his notice from November, 1915, to October, 1916. In 43 the artificial lesions were eschars and sores, in 20 eczematoid dermatoses, in 20 suppurating and phlegmonous dermatoses, in 9 bullous dermatitis, in 8 hard traumatic oedema. The number would have been still greater had the cases in which there was a suspicion of simulation which could not be verified been included. To these must be added some which were not recognized. In all the cases reported the lesions were produced by the external application of a chemical irritant, or less frequently heat, or by direct injury. The seat of election of the eschars and sores, which constituted about one-half of the total, was the lower limbs, especially the feet. Eczematoid dermatitis was most often seen on exposed surfaces, such as the cheeks and the concha of the ear; the lesions varied from scarcely perceptible abortive forms to the most acute processes with great oedema of the whole face, closing the eyes and giving the patient an appearance "at once monstrous and comic." The phlegmonous lesions were situated almost exclusively on the lower limbs, most frequently the left; repeated applications of the irritant generally caused multiple foci of inflammation in different stages on the same limb, the process going beyond the intention of the malingerer, who was frightened at the self-inflicted damage to his tissues. The bullous lesions were situated on the feet, and were always said to have been caused by scalding with boiling water; it was difficult to determine whether they were accidental or artificial. The lesions produced by boiling liquids are generally multiple phlyctenulae or bullae with a thin pellicle; they contain a fluid serous transudate, and have polycyclic outlines. On the other hand, those caused by blistering fluids are mostly bullae few in number with a thick pellicle adhering to the contents which are almost gelatinous; their outline is generally an unbroken curve of large radius. The hard traumatic oedema is most frequently seen on the back of the hands, especially the left; there were never any signs of contusion (ecchymosis, etc.), and the lesions had sharp outlines, especially at the roots of the fingers; they were of hard elastic consistence and not very painful. They were produced by repeated injuries mitigated by the interposition of pieces of cloth; sometimes they were caused by irritant liquids. Oedema of the feet accompanying the first stage of frost-bite was doubtless in many cases due to constriction by tight drawers, garters, and puttees, but it was impossible to determine whether such constriction was deliberately caused in order to produce swelling of the limb or was brought about accidentally by wetness of the garments. The diagnosis of the artificial character of a skin affection generally amounts only to medical conviction, not to legal proof. In five cases, however, the author identified the agents employed; in two cases the discovery was confirmed by the confession of the simulators that they had used pieces of the root of a sort of leek (*porracca*) common in Sicily.

SURGERY.

37. The Selection of an Antiseptic.

PHILIPOWICZ (*Wien. klin. Woch.*, October 26th, 1916) speaks well of the use of hyperol in suppuration due to anaërobic organisms, and for the prevention of gas gangrene. It is a compound of hydrogen peroxide and urea, rendered stable by the addition of a trace of citric acid. When small pads of gauze containing hyperol powder are put into a wound cavity oxygen is slowly liberated. Uninjured tissues are not attacked, and the patient seldom complains of pain. Considerable leucocytosis occurs, and the growth of aërobic organisms is stimulated. If pus formed, free drainage was found to be necessary. In cases in which there was necrosis of tissue with little pus formation, balsam of Peru was used to promote local leucocytosis. Oxidizing agents also were found useful in the treatment of bone cavities and to stimulate growth of granulations. Tincture of iodine was used for routine skin disinfection in all simple wounds, the wound being first cleaned by washing with benzine. In hernia of the brain, which is assumed to be a symptom of encephalitis, tincture of iodine was particularly useful on account of its antiseptic and drying properties. To promote separation of the devitalized portions of the brain Scheide painted the protruding part energetically with tincture of iodine at each change of dressing, and of 250 cases so treated all did well. In abscess of the brain, or foul penetrating wounds, he irrigated the brain with very hot water, and either injected tincture of iodine or inserted gauze drains soaked in the tincture. To prevent the spread of infection from the skin or from infected parts of the brain, gauze soaked in tincture of iodine was laid around the protruding part. Philipowicz treated frost-bite

of the third degree and other forms of incipient gangrene, such as bedsores, by tincture of iodine and a particular preparation of bismuth subgallate called dermatol; the interdigital folds were painted with iodine and the subgallate shaken on. Small pads of gauze saturated with iodoform were placed between the digits and the whole affected part covered with one fold of gauze. For shallow cavities hot potassium permanganate solution was found useful. In wounds infected with *B. pyocyaneus* mercuric oxide solution, 1 in 1,000, was found very useful. A solution of camphor 60 parts, liquid carbolic acid 30 parts, absolute alcohol 5 parts, was used with success in suppurating affections of joints after tapping, and it was found that the injection might be repeated in a few days; iodoform emulsion was also useful for the same purpose, and the two preparations might be used alternatively. Alcohol was used for personal disinfection before operating, and corrosive sublimate for cleansing rubber gloves during an operation.

38. Migrations of Projectiles in the Circulation.

V. ASCOLI records a case in which a projectile lying free in the right atrium of the heart found its way into the inferior vena cava (*Malattie del Cuore*, January 1st, 1917) which may be compared with that of Grandgérard, in which a missile migrated from the heart to the pelvis (see EPITOME, February 17th, par. 20). A soldier, aged 22, while walking along a trench on the Isonzo front on July 18th, 1915, was struck in the back by a shrapnel shell. He was knocked down and could not move, but did not lose consciousness; he felt intense pain radiating to the left leg. After treatment at a clearing station he was transferred on July 23rd to a hospital at Pavia. On admission there was found a deep wound on the back, 5 to 6 cm. long, immediately over the iliac crest midway between the middle and external lines of the body. There was a sense of weight and oppression in the epigastrium, made worse by taking food. From time to time there was severe pain in the belly with borborygmi. A radioscopic examination made on August 1st showed that there was a bullet in the projection of the left ala of the ilium at its middle point. At a second examination made on September 1st no trace of the bullet, which at first was quite distinct, could be found in the area indicated, but on exploration of the thoracic cavity a small black shadow, round and movable, was seen in the cardiac area. This was confirmed by repeated examinations, which showed that there was a round projectile about 7 to 8 mm. in diameter in the right auricle. The foreign body made rhythmical, pendulum-like movements of about 2 to 3 cm., synchronizing with the contractions of the auricle. This pendulum swing was interrupted at intervals in the middle; at the internal limit of its course the projectile was caught up in a whirling movement, which carried it back to its starting point. The wound ran a very protracted course, long periods of apyrexia being interrupted by slight rises of temperature, with exacerbations of the local phenomena. A purulent discharge continued to ooze from the wound, and from time to time fragments of clothing were extracted, the last time being on October 24th. Healing was complete in December, 1915. Summing up the observations made from August 10th, 1915, to July 10th, 1916, Ascoli says that during the last three or four months of that period the patient might have been looked upon as a perfectly healthy man but for three large patches of *area Celsi* on the scalp attributed to nervous shock. After discharge, although he lost flesh a little, there was no disturbance of the circulation or respiration. About the end of October he was examined radioscopically at the military hospital of Udine, and the report was that the projectile was still in the right auricle, and that no new condition was discoverable. Radioscopic examination showed that the heart was normal in configuration, size, and position. There was no sign of pericardial adhesion. There was a dark shadow on the right part of the heart area above the lower border. It was perfectly round, oscillated in a transverse direction with pendulum like movements subject to sudden arrests, which threw the shadow back to the starting-point; these interruptions occurred with a certain regularity in every four to six oscillations. At such moments the shadow seemed to be caught up in a vortex. By modifying the order and depth of the respirations it was found that the whirling movements interposed among the rhythmical oscillations synchronized with inspiration and up to a certain point were proportionate to the depth of the inspiratory acts. Therefore, while the regular movements of the shadow were in relation to the cardiac revolutions, the intercalated movements were in relation to the inspirations. The shadow presented the same movements alike in the erect and the dorso-ventral position. Ascoli says projectiles may reach the cavity of the heart either directly by traversing the myocardium or indirectly by one of the great veins. The pericardium may be traversed without any great damage, but most frequently inflammation with serofibrinous-haemorrhagic exudation (which may be absorbed, leaving adhesions) is set up or a more or less abundant effusion of blood takes place. The functional disturbances and lesions vary according to these occurrences. Lesions of the myocardium always cause irregularity and weakness of the heart and often alarming collapse. The period in the cardiac revolution at which the myocardium has been wounded is important, wounds being more dangerous when the affected cavities were full (by reason of the easier and more copious haemorrhage) and especially when they were full and contracted (rupture of the heart occurring in such circumstances). Foreign bodies reach the heart by the blood vessels less frequently than by the direct path. In Ascoli's case it followed a long track from the point where the inferior cava originates in the confluence of the two iliac veins to the right auricle. It had been suggested that the missile first discovered at the level of the iliac crest was not the one afterwards seen in the heart. Ascoli replies that to prove this it would have to be shown, first, how the image seen at the first examination disappeared, and secondly, where but through the original wound a body of the dimensions of a shrapnel bullet could have penetrated, seeing that there was no lesion or cicatrix in the thorax or any other part of the body. The only doubt that can exist is, given the initial position of the projectile, whether it entered the left iliac vein at the point where it debouches into the inferior vena cava or penetrated directly into the latter vein. This point, however, which cannot be settled without *post-mortem* examination, is of no clinical importance. In the interval between the first and second radioscopic examination the patient was, on account of pain in the loins, kept lying in bed without a pillow, and therefore with his head low; thus the conditions were most favourable for the migration of the projectile. While the passage of the projectile from the inferior cava into the heart is beyond question, the manner in which it penetrated into the vessel without causing haemorrhage or other serious consequences remains to be explained. The wound was deep and tortuous; it gave rise to mild but obstinate suppuration; it is therefore likely that by inflammatory action there formed around the missile a connective sac from which it slipped into the vessel. If after allowing the entrance of the projectile the vein (left iliac or lower cava) had remained wholly or in part temporarily impervious, the blood stream would have found a collateral path through the azygos system. The absence of circulatory disturbances except some slowing of the pulse is explained by Ascoli by the supposition that the bullet became covered with fibrin. Discussing why a bullet in a cavity of the heart did not follow the blood stream, he suggests that a band of connective tissue may have bound it to the cardiac wall. As regards prognosis, Ascoli asks whether the contact of the foreign body with the walls of the heart may not in time cause changes inducing disturbances of the valvular mechanism or progressive lesions in the myocardium. No categorical answer can be given. But the formation of thrombi seems more probable. Another danger is the migration of the foreign body into the left atrium or the right ventricle; in the latter case it may easily give rise to plugging of a branch of the pulmonary artery. The presence of a foreign body in the right atrium is therefore dangerous for many reasons, and notwithstanding the absence of perceptible disturbance, one should be prepared for developments of extreme gravity. Ascoli would have decided on surgical intervention, but in view of the man's general condition, especially in respect of the respiratory apparatus, he thought that operation would certainly be followed by death. He therefore contented himself with reconstituent treatment and careful supervision, verifying at intervals the position and mobility of the projectile. No untoward incident occurred during the eleven months the man had been under observation at the time of writing.

[A summary of experiments by Achille Monti on the migrations of pieces of lead introduced into the veins and the consequences of their passage into the heart will be found at paragraph 44 of this number of the EPITOME.]

39.—At a meeting of the New York Surgical Society on October 25th, 1916, H. H. M. LYLE (*Annals of Surgery*, December, 1916) showed a heart, a shell fragment, and a vein with the following history: A Zouave, aged 31, was brought to the dressing station four hours after having received a perforating shell wound in the left thigh 4 cm.

above the knee and a penetrating wound of the right thigh. A fluoroscopic examination of the thigh and abdomen failed to reveal any foreign body. The depth and direction of the wound seemed to exclude the possibility of the fragment having fallen out. The man was in a state of mild shock. The contused skin edges were cut away, the wound laid open, and the projectile track lightly but methodically excised. No foreign body was found. At the bottom of the wound in the right thigh the femoral vessels were embedded in a blood clot; the femoral vein was bruised but apparently intact. Four Carrel instillation tubes were inserted and 20 c.cm. of Dakin's solution were delivered to the wound every two hours. On the third day the patient's belly became greatly distended, and he complained of pain and tenderness over the spleen and right kidney. The distension was partly relieved by lavage and enemas. Jaundice appeared on the morning of the fourth day and was accompanied by pain and tenderness over the liver. The temperature rose to 102.2°, the pulse to 132, the respirations to 32. Fine moist râles were heard at the left base. The area of cardiac dullness had increased, a distinct pericardial rub was heard and the heart sound was indistinct. A provisional diagnosis of general gas bacillus infection with pericarditis and pneumonia was made. In the afternoon there was a temporary improvement followed by sudden death. The wound remained sterile all through. The *post-mortem* report stated that the wound in the right thigh was 10 cm. below and 5 cm. posterior to the anterior superior spine of the ilium. The track went forwards, downwards, and inwards to the femoral vein; in the external wall of the vein there was a small valve-like wound sealed by an organized clot. There was no local evidence of gas infection. Both lungs were oedematous; there was fibro-purulent pericarditis with free gas in the pericardial cavity. The heart was enlarged and its external surface covered with a fibro-purulent exudate. The cut section of the heart gave a gaseous crepitation. Lying free in the right ventricle was a rough fragment of shell measuring 1.5 cm. in length, 0.9 cm. in width, and 0.5 cm. in thickness; it weighed 1.81 grams. Fibres of clothing adhered to the irregular surface of the shell. The liver, spleen, and kidneys were enlarged; on section all gave gaseous crepitation. There was no obstruction in the gall bladder or ducts. The final diagnosis was perforating wound of the left thigh, penetrating wound of the right femoral vein, and migration of the projectile to the right ventricle of the heart and general gas bacillus infection. Lyle thinks the following points worthy of notice: The carrying of a rough shell fragment by the blood stream from the right femoral vein to the right ventricle and the prolongation of life for four days and eighteen hours; the healing up of the wound in the vein; the sterilization of the local wounds by the Carrel method, the generalized gas infection having undoubtedly arisen from the clothes in the shell fragment. A fluoroscopic examination of the upper abdomen might have revealed the presence of the projectile. It would then, Lyle thinks, have been easy to "milk" the fragment into an unimportant vein from which it could easily have been removed. This has already been done in the case of a shrapnel ball. [No reference is given.]

40. Wounds from Aerial Torpedoes.

G. KELEMEN (*Muench. med. Woch.*, December 12th, 1916) has described the features of aërial torpedo wounds. The torpedo is spindle-shaped and 15 to 20 cm. (6 to 8 in.) long. The amount of the explosive charge is great compared with the thin shell of the torpedo, which breaks up into minute fragments, some as sharp and fine as needles. The characteristics of the wounds were determined by the shape and size of these fragments and by the concussion following the explosion of a large charge at close quarters. Not infrequently as many as fifteen or twenty wounds, mostly superficial, were found on the same person. When they had been inflicted with considerable force they resembled fine stab wounds, but were not sufficiently penetrating to pass through a limb or to fracture a long bone. The only fractures observed from this projectile were fractures of the ribs, and in one case three ribs were divided as if by a knife. The skin was cleanly cut, not bruised. It was very difficult to locate these fine fragments at a first dressing station, and in two cases of multiple abdominal wounds it was impossible at first to say whether the abdominal wall had been penetrated to the depth of the intestines or not. In one case a clean cut of the femoral artery soon proved fatal. The skull was never pierced, and the wounds of the head were little more than scratches, but superficial and deep wounds of the eyes were fairly common, as were lacerating wounds of the face. The sudden and great changes of atmospheric pressure caused by the explosion resulted in shock, ranging in intensity from slight dizziness to prolonged and complete unconsciousness. Less characteristic were the wounds caused by earth, clothing, and other foreign bodies driven into the body.

41. Gunshot Wounds of Head.

RICHARD FIBRICH (*Wien. klin. Woch.*, October 19th, 1916) states that as *x* rays were not available at the clearing station in which he worked an operation was not undertaken in cases of head injury unless a freely open wound was present. In such cases a gauze drain was inserted and the wound closed around it; the gauze was removed in three or four days. All other penetrating wounds of the skull were passed on to the division hospital, where they were sorted, moribund cases were treated with morphine and superficial splinters removed; in favourable cases discharging wounds were cleaned up under a local anaesthetic. Penetrating wounds were sent away after the first shock had passed (in one or two days), but those operated upon were retained until they showed signs of improvement (ten to fourteen days). Of 361 wounds, eighteen were operated upon in the clearing station. Of three cases of penetrating wound two died, and one, involving the mastoid process, recovered. Of fourteen open wounds, five died, seven were discharged improved, and two as recovered, one of them being passed for service. One case of splintered wound, produced by a grenade, recovered.

THERAPEUTICS.

42. Treatment of "Gassing."

CHASSEVANT (*Journ. de méd. et de chir. prat.*, March 10th, 1917) describes a method of treatment of "gassing" by means of which he obtained satisfactory results. The patients reached his ambulance, which served as a front line evacuation hospital, from two to eight hours after the injury. Some had already been treated in clearing stations or in other ambulances; others came direct from their places in the field. They were treated at several successive sittings by rhythmical inhalations of oxygen under pressure. Chassevant observed that inhalations of oxygen applied in the usual way with indiarubber balls have no effective action; there must be a veritable insufflation of oxygen, such as is employed by d'Arsonval for the treatment of poisoning by carbonic oxide. An indiarubber tube directly connected with a cylinder containing oxygen under pressure, such as is kept in most pharmacies, is passed into the back of the mouth, and by opening and closing the stopcock of the cylinder sharp and rhythmical insufflations, fifteen to sixteen per minute, are produced. This treatment relieves the difficulty of breathing, favours haemostasis, and seems to supply a real mechanotherapy for the lung. Those who have been poisoned by chlorine fumes in the laboratory or in the field know how painful inspiration becomes; inhalations of oxygen under pressure make this effort needless. For the relief of cardiac weakness Chassevant combines with the oxygen subcutaneous injections of camphorated oil in massive doses, 5 c.cm. to 15 c.cm. and more, every twenty-four hours, according to indications. The use of oxygen under pressure is the true antidote to intoxication of the lung by ensuring aëration. It is put up for the purpose in small cylinders which are easily handled. Chassevant argues that all ambulances, especially the clearing stations, should have a supply of these ready at hand; they should also be held ready in dug-outs, as grenades for dealing with fires are kept.

43. Extemporized Protectives against Asphyxiating Gases.

LOMONACO (*Malattie del Cuore*, March 1st, 1917) says it has been proved that many common substances which are generally available (straw, hay, grass, earth, snow, fresh leaves, seaweed, sawdust, coal dust, cotton, especially if damp) have the property of absorbing to a certain extent the gases used for asphyxiation. They may therefore be used as means of protection by the soldier who is suddenly exposed to gas, when he has not his mask ready or when it is not working efficiently. In such circumstances he should throw himself on the ground and cover his face with a handkerchief, plunging his head into any of the above-named substances that may happen to be at hand; he should use it in as large a quantity as possible and press it tight to his face with his hands. In mountainous

districts he will find snow and in the trenches he will nearly always be able to get earth, or he can burst open a sandbag.

PATHOLOGY.

44. Wanderings of Projectiles in the Veins.

ACHILLE MONTI (*Malattie del Cuore*, March 1st, 1917), with reference to Ascoli's case (summarized in this issue of the EPITOME, par. 38), has studied experimentally in dogs and in the dead body the migrations of pellets of lead introduced into veins, and the consequences of their passage into the heart. He introduced into the veins of large dogs fragments measuring from 5 to 10 mm. in diameter, and ascertained that in the living and in the dead animal the projectile once having reached the right auricle very readily passed into the ventricle, and thence into the pulmonary artery. In his first experiments he aimed at reproducing the phenomena noted by Ascoli in the case recorded by him (see par. 38). Having introduced fragments of lead measuring from 5 to 8 mm. in diameter into the common iliac veins of large hunting dogs, he noted that the foreign body easily found its way into the vessel as if it were sucked up by it. Nevertheless he never succeeded in making the fragment reach the heart by that path; in the first dogs operated on he found the projectile nestling in the liver within the lumen of a suprahepatic vein and forming a retrograde embolus without having reached the right auricle. The same experiment was repeated with the animal tied on its back for more than two hours after the operation. It was then killed and the fragment was found to have passed beyond the heart and to be arrested by a branch of the pulmonary artery. Monti next studied on five dogs the effects of projectiles introduced into the jugular vein and passing into the lung. In three cases he introduced one round fragment, in a fourth two foreign bodies, a bullet and an irregular piece of lead, and in a fifth two square pieces of lead. Radioscopic examination was made at intervals varying from some days to two hours after the operation. He found the foreign bodies in the lower lobe of the left lung. The emboli therefore had forced the tricuspid valve and passing through the right ventricle proceeded till they were arrested in a branch of the pulmonary artery. Many radiographic examinations of the left lung were made, and the projectile was definitely recognized moving with the respiratory movement. From the constancy of these results the author concluded that in the healthy dog embolism of the pulmonary artery is not followed by infarct of the lung and the subdivisions of the pulmonary artery act as anastomotic, not terminal, branches. To discover whether attached projectiles would show the same whirling movement described by Ascoli in his case, Monti introduced into the jugulars of dogs pellets of lead about 5 to 10 mm. in diameter with thin silk threads passed through them. In four cases he succeeded in finding the suspected fragment in the lumen of the right auricle moving in the blood with the contractions of the heart. In one of the dogs killed after a week the autopsy showed the projectile covered with a fine layer of fibrin which was also deposited around the thread; in this were numerous white corpuscles which seemed to tend to involve the thread itself. In the other dogs, which survived after a period of ten to fifteen days, the projectile, on radiographic examination, was no longer seen in the auricle, but was found to have already passed into the left lung. Autopsy confirmed the radioscopic diagnosis. The thread had broken off close to the fragment. In two other dogs, after a fortnight, the following conditions were met with: In one the bullet was fixed to the wall of the auricle; in the other it was embedded among the columnae carneae at the base of a papillary muscle covered with fibrin in course of organization. A dog which had one or two bullets in the branches of the pulmonary artery seemed to be healthy, and could even bear the fatigues of the chase with a resistance equal to that of normal dogs. From experiments on dead dogs Monti concluded that in the dead human body spherical bullets introduced into the internal iliac vein may be carried to the right heart, but do not pass beyond the auricle. The experiment goes to show that a bullet, free in the right auricle, meets with serious difficulties in its course towards the ventricle, because its weight makes it difficult for it to overcome the obstacle presented by the Eustachian valve and the leaflets of the tricuspid. In Monti's opinion the experiments show that projectiles, especially those of spherical shape, once they have penetrated into the veins, proceed in the direction of the heart with relative facility. They may reach the heart either by direct wound or by an embolic process. Recent observations in field surgery show that the heart is not less tolerant of penetration by foreign bodies than other viscera. This is shown by the various cases of penetrating projectiles which have remained in the heart without giving rise to appreciable disturbances, objective or subjective. He appends a bibliography referring to about 70 cases operated on for gunshot wounds of the heart.

45. Fermentation Reactions as an Aid in the Rapid Diagnosis of V. cholerae.

THE identification of cholera-like vibrios isolated from the faeces in suspicious cases of intestinal infection is a matter of the highest importance on account of the epidemiological significance attaching to the true *V. cholerae*. Specific agglutination by means of a powerful immune serum is the method of diagnosing the true cholera vibrio on which reliance is usually placed. But in a proportion of cases the test may be misleading; there are two reasons for this—first, cholera bacilli may become inagglutinable as the result of sojourning for several weeks in the living body or when they live in water for a time. The power of being agglutinated by the antiserum does not then return until they have been frequently subcultured; it is then rather late to make a diagnosis. A second difficulty is that sometimes cultures which turn out not to be true cholera are agglutinated to a considerable extent by the true cholera antiserum. GAEHTGENS (*Cent. f. Bakt.*, I Abt., Bd. 78, 1916, p. 197) has attempted to clear up the question by the investigation of the fermentation reactions of the true cholera vibrios and the allied organisms. He finds that true *V. cholerae*, when recently isolated, produces a marked acid reaction in mannite, dextrose, maltose, levulose, and saccharose, which changes to alkaline after five to seven days in the case of mannite, and after ten to fourteen days with the other substances; exceptions to this behaviour are rare; on the other hand, the cholera-like vibrios produce an alkaline reaction in three to seven days. Accordingly, any organism which produces alkali in the shorter period in these tests is not likely to prove a true cholera culture. In connexion with this work it must be remembered that so long ago as 1909 Houston, in his fourth research report to the Metropolitan Water Board, made use of the early fermentation reactions for the identification of true *V. cholerae*.

46. Causation of Trench Foot.

VICTOR RAYMOND and JACQUES PARISOT (*C. R. Acad. des Sciences*, January 22nd, 1917) bring forward further evidence to show that "trench foot" is due to prolonged immersion of the lower limbs in cold water, no cases having occurred in trenches which were not under water. They note that Arabs and negroes were peculiarly susceptible, and suffered severely from symptoms pointing to a condition of septicaemia, high fever with wide oscillations, marked adynamia, and even collapse, a red dry tongue, fetid diarrhoea, and epistaxis. These symptoms sometimes passed away but were sometimes followed by nephritis with copious albuminuria, pulmonary congestion, bronchopneumonia, grave jaundice, and even death. At the necropsy no intestinal lesions of any kind were found, but enlargement of the liver with whitish nodules of perihepatitis, enlargement of the spleen, bronchopneumonia, and generalized punctate haemorrhage of the lungs and enlarged kidneys, might be found. In one case the visceral parenchyma contained mycelial threads readily visible on smear preparations and in histological sections. The bile of the first of these patients, inoculated under the skin of a rabbit, gave rise in twelve hours to a big blister, soon followed by a black slough. The bile of the second patient produced the same effects and the animal died in three days. Control experiments with the bile of healthy animals proved innocuous. Haemoculture revealed the presence of mycelial germs in the blood in five out of ten of the more serious cases, and also mycelial threads in the local lesions. The lesions never attained this gravity in Europeans. In them *Scopulariopsis konigii* and *Sterigmatocystis versicolor* were found, but in the dark-skinned races Mucor. *Penicillium glaucum* was common in both. Experiments on animals showed that usually inoculation did not give rise to any lesion, but if the hind legs were inoculated and kept in water for some time there resulted a gelatinous oedema, followed by sloughing. War conditions have reproduced those of Pasteur's famous "chilled fowl." Stagnation in cold water is at the root of the evil, in that it enables the infecting agent to pass through the sodden epidermis.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

47. Simulation of Disease.

EDGARD BLUM, médecin-aide-major de 1re classe, in the *Journal Médical de Bordeaux* (December, 1916), describes a number of the devices known under the slang name of *arotte*, used by malingerers in the French army. The *arottier* of to-day, he says, is often very intelligent and frequently utilizes for his purpose the most recent scientific discoveries. The doctor must always distrust men who come wearing glasses without necessity and bandages of every kind, with their pockets full of more or less authentic documents. They exhibit marks and scars, all of old standing, which are the sole evidence of the diseases they profess to be suffering from, and they complain of strange symptoms belonging to no known clinical type. Inflammation of the throat produced by irritant solutions is a frequent fraud; but there is no febrile disturbance and the inflammation is not localized in the tonsils, but extends over all the parts which have been in contact with the irritant. Gastric disturbance is often produced artificially by the ingestion of a mixture of oil and tobacco; it may be accompanied by tachycardia and even jaundice. This device is easily exposed by the administration of ipecacuanha. Diarrhoea is common; it is simulated by diluting the stools with urine and water. The suspect should be isolated in a room with two receptacles, one for the faeces, the other for the urine. Dysentery is simulated by the addition to the diluted faecal matter of pig's fat or fragments of raw meat. Appendicitis is often complained of; the malingerer has heard of pain at MacBurney's point as a symptom, but his knowledge goes no further, and thus he is readily detected. There are men with tapeworm who drive a regular trade in the segments they expel. A method of producing jaundice much in favour is to smoke a mixture of antipyrin and tobacco in a pipe and to drink tobacco juice; the simulator of the present day prefers picric acid, as described by Chavigny (EPITOME, vol. ii, 1916, par. 25). Haemoptysis is produced by pricking the back of the throat with a pin, or by the absorption of blood from the tongue, gums, etc., and even from chickens, geese, etc. This blood is then expectorated by a violent fit of coughing. Sometimes the appearance of blood is produced by colouring matters, such as carmine or beetroot juice. Careful local and general examination, with the aid of the microscope, and chemical tests if necessary, will reveal the fraud. Simulation of heart disease is rare, as "doping" is known to be dangerous. Albuminuria and oedema may be produced in predisposed subjects by taking large quantities of common salt in milk for some days. Another method is the injection of albumin into the bladder. Glycosuria can be produced by the ingestion of phloridzin or ammonium oxalate, or the addition of glucose to the urine. These substances should be sought for in the urine obtained at an unexpected moment. Incontinence of urine is "a veritable scourge for the urological centres." The detection of the fraud is not always easy. The genuine sufferer empties his bladder about the middle of the night; the simulator a few minutes after waking. Uteau and Richardot have invented an apparatus which records the hour at which the bladder is emptied. Lesions of the skin and subcutaneous tissues are produced by irritants and infective matters; they are situated on parts easily reached by the simulator. Intense erythema may be caused by scratching; nettles, euphorbiaceous plants and radiant heat are also used for the purpose. Drug eruptions (mercury, arsenic, iodides, bromides) are frequent, but are readily checked by isolation and rigorous supervision. Impetigo may be produced by the application of cantharides plaster and tartarized antimony ointment. The lesions quickly disappear on withdrawal of the injurious substances, with a few baths and a short rest. Sweating of the feet is sometimes simulated by softening the soles with prolonged hot footbaths; excoriation is then easily produced, and the feet are afterwards wrapped in linen steeped in urine. Oedema of the lower limbs is produced by tight bandages, etc. Suspicion should always be aroused when a man comes bearing the marks of recent constriction. In some parts of Lombardy many cases of oedema with febrile symptoms occurred at certain seasons. Their artificial origin was discovered only after prolonged investigation. It was discovered that the plant *Equisetum arvense*, also called astringent herb or horse-tail, was introduced between the fingers or toes, and the parts afterwards vigorously rubbed every day for some time; this produces a painful inflammation and considerable swelling, which is made worse by a tight bandage. Abscess is most commonly produced by the introduction under the skin of septic matters (tooth tartar, etc.). The subcutaneous injection of turpentine or petrol is another trick. Artificial lipomas and other tumours may be caused by the subcutaneous injection of paraffin; such swellings rapidly disappear under very hot applications. Artificial conjunctivitis is produced by placing ipecacuanha powder, pepper, faeces, or other decomposing matter under the eyelids. The affection is often refractory to treatment. Discharges from the ear are produced by introducing urine or some irritant chemical substance into the meatus and allowing it to remain there. An appearance of general debility, with loss of flesh, pallor, etc., may be induced by taking a large amount of vinegar. The abuse of strong tobacco and the introduction of garlic into the anus give an anxious look to the countenance suggestive of disease. Arsenious acid, lead, and mercury are also used to cause loss of strength. At the present day epilepsy is less often simulated than used to be the case because signs are now known which cannot be simulated; for instance, the sphygmometer shows that for an hour and a half after a fit the tracings have marked ascending curves, with pronounced dicrotism. Simulated fever is easily detected by taking the temperature in the rectum. Malingerers often complain of disturbances which they attribute to the presence of projectiles left in their bodies, and on radiographic examination a bullet or other foreign body is actually discovered. But it has been introduced by the man himself, generally by the mouth. Examinations made at different times will reveal the fraud.

48. Simulated Conjunctivitis

AT a meeting of medico-chirurgical societies in a camp hospital in the Italian war zone on October 30th, 1916 (*Policlinico*, January 31st, 1917), G. SBORDONE, ophthalmic surgeon to the Second Army Corps, presented a communication on simulated conjunctivitis, in which he enumerated the most common means of producing the condition and its essential symptoms. The ricinus seed seemed now to be the substance preferred by malingerers. The symptoms produced by this agent are oedema of the eyelids, which may be of normal colour or slightly reddened, abundant purulent secretion, swelling and thickening of the palpebral conjunctiva; at some points of the lower lid whitish striae (small eschars) are seen. At first there is no formation of nodules, follicles, or granules on the tarsal conjunctiva, or on the plica semilunaris, but there is marked chemosis of the bulbar conjunctiva, forming a ring around the cornea, sprinkled with numerous reddish points. In very advanced stages the upper portion of the conjunctival sac participates in the change, but the cornea remains unaffected. The subjective symptoms are very slight. The *modus operandi* is generally the introduction of a fragment of the seed into the inferior fornix. In the way of treatment simple lotions are sufficient.

SURGERY.

49. Transplantation of Bone in Injuries of Skull.

ALBERT E. MORISON (*British Journ. Surgery*, January, 1917) says that one of the after-effects of wounds of the present war will be the large number of men from whom a portion of the skull bone has been removed. The majority are unfit for further military service, and are handicapped for civil life. Even when the skull opening is small and the brain area beneath the missing bone is such as to cause no pronounced local manifestations, there has

been in most of the author's cases a sequence of symptoms which, if not relieved, make the patient morbid and self-conscious, and sometimes even threaten insanity. These symptoms are: (1) A feeling of insecurity and nervousness, especially fear of a blow on the affected part; (2) giddiness, more noticeable when stooping or turning quickly; (3) headache and throbbing in the head after exertion; (4) general malaise, apathy, and depression; (5) partial or complete loss of consciousness without any accompanying epileptiform seizure. The symptoms have been associated with adhesions of the dura mater to the pericranium or scalp; but when these have been freed, and the attempt has been made to prevent further adhesions by some membrane, such as interposed fascia lata, the troubles have not been entirely relieved. Some alteration doubtless takes place in the cerebral circulation after loss of portions of the skull, and this may produce the symptoms enumerated. The only effective and lasting remedy seems to be restoration of the skull as far as possible by a bone-grafting operation. Autoplastic grafting gives the best results. The anterior and internal surface of the tibia is the most accessible part from which the graft can be taken. As a rule it is not advisable to operate within three months of the healing of the original wound, as so many infected wounds, even when they appear to be soundly cicatrized, have imprisoned in them foci of latent sepsis. When these are disturbed suppuration follows in the newly made wounds, and failure of the operation is likely from this lighting up of infection. Before operation in these cases Morison applies radiant heat locally to the scar; if any latent sepsis be present it is shown by inflammation in the scar. In some cases the scar breaks down, allowing of the escape of a little pus. When operation has been decided upon, the following are the details of the procedure: (1) A horseshoe-shaped incision with the base downwards, extending about an inch beyond the opening in the skull, is made through the scalp only, and the flap thus made is separated from the pericranium and reflected downwards. (2) The pericranium is incised round the opening about an eighth of an inch from its margin, the outer portion is separated from the skull about an inch all round, and the inner portion adherent to the bony edge is freed from it so that a periosteum detacher may pass under the skull between it and the dura mater round the opening. The pericranium adherent to the dura in the centre of the gap is thus freed at its margins, and lies between the brain and the bone transplant when the latter is placed *in situ*. The dura is not opened unless there have been attacks of general or local epilepsy, or the brain cannot be felt pulsating over the whole exposed area. These are indications that the thickened dura may have to be removed and replaced by some membrane such as fascia lata. (3) The outer table of bone is removed for about half an inch round the skull opening. The object is to make a ledge on which the new bone graft rests. This can be done with a large, very sharp gouge, chipping vertically round the opening, the outer plate being removed with a smaller gouge from the edges horizontally. The rough pieces of bone left on the ledge are easily removed by gouge chipping. Morison uses ordinary joiner's gouges and chisels. (4) Measurements with a pair of compasses are then taken of the size of the tibial graft required. The head wound is covered up with a mop wrung out of hot saline solution, and a vertical incision is made over the tibia down to, but not through, the periosteum. The whole width of the tibia is exposed, and the periosteum is excised about an inch longer than the bone required, reflected to that extent, and laterally to the full width of the tibia. It is important not to take the crest of the tibia in removing the graft, because if that is removed the tibia is so weakened that a slight accident may cause fracture. The tibia is sawn on each side to the depth corresponding to the thickness of the outer table, the upper and lower limits are chiselled to the required depth, and the portion of bone, with periosteum attached, is finally removed with a wide chisel. (5) The graft is next trimmed with nibbling forceps to the required shape. Where the opening is long the graft may need to be divided in its middle transversely (leaving the periosteum intact) to make it correspond to the curve of the skull; and when two pieces of bone are needed to fill in the gap transversely, the graft, taken longer for the purpose, is divided, and the two pieces are placed side by side. The adjoining periosteum of each piece is then stitched together with a fine continuous catgut suture. (6) The tibial graft is laid on the ledge of the inner table; the separated pericranium is stitched with interrupted catgut sutures to the periosteum of the graft. (7) The scalp flap is replaced, and sutured there with silkworm-gut. The leg wound is closed with Michel's clips. Dressings are applied, and the head tourniquet is removed. Neither of the wound is looked at for ten days, when the stitches and clips a removed. All the twenty-one patients on whom Moris has operated have recovered very rapidly from the effec of the operation, and all have complained of their leg mo than their head. All the wounds healed *per primam* Union of the graft to the skull appears to be rapid—in te days it is quite secure—and no absorption of the bone ha taken place so far as can be judged from clinical examina tion and by *x* rays. The author had an opportunity examining one of the grafts four months after the opera tion, and it was found that firm osseous union had take place between the skull and the graft, and that no greate amount of new bone had been thrown out by the gra than was required to cause union to the skull. The gener symptoms complained of before operation have di appeared, and some of the men have returned to duty. I all cases the grafted bone remained tender to pressure fo from six to eight weeks after operation, but this ha gradually disappeared.

50. Treatment of Infected Gunshot Wounds.

JOSEPH RILUS EASTMAN, chief surgeon, Reserve Hospita No. 8, Vienna, says (*Surgery, Gynaecology* and *Obstetrics* January, 1917) that the following methods of treatin infected gunshot wounds are in use in the America Hospital at Vienna: (1) Removal of infected bits o clothing or other infected foreign matter. (2) Wide in cision and drainage. (3) Immobilization. (4) Continuou irrigation by the drop method with Dakin's solution o sodium hypochlorite, or continuous immersion in hot anti septic solutions, as aluminium acetate. (5) Stimulatio of lymph drainage with Wright's solution of sodiu citrate 1 part, sodium chloride 4 parts, and water 95 parts (6) Regular and prolonged daily exposure to the rays o the sun. (7) Continuous exposure of all wounds to the ai without dressings whenever possible, to avoid foreign body reaction. Small superficial slightly infected tangentia wounds are rinsed with normal salt solution or hydroge peroxide, and covered with balsam of Peru or Mikulic salve. Of these agents, those which have proved o greatest value are solar therapy; open treatment without dressings; continuous irrigation with sodium hypochlorit solution, composed of dry sodium carbonate, chlorinated lime, boric acid, and tap water. The surgeons have made the following simple classification: (1) Deep wounds with small openings which provide poor drainage; these result usually from impacted rifle or shrapnel balls. (2) Large lacerated wounds involving deep muscles or bone, caused usually by fragments of bombs, shrapnel, or grenade casings and dum-dums. (3) Large and small shallow or crater-like superficial wounds, due to tangential shots or impact of boulders, and large superficial granulating wounds following incision for phlegmon. The wounds in Group 1 are excised or enlarged to afford proper drainage, and at the same time to permit of the removal of bits of uniform, grenade fragments, or pieces of bone. If a limb is involved, an immobilization splint is then applied. During the day the wound is exposed for hours to the rays of the sun, and at other times is irrigated, or covered with a wet dressing of Dakin's solution. In deep and extensive infections excellent results have been obtained by immobilizing the part with a splint in such a manner as to leave the wound exposed. A rubber drainage tube is inserted to the bottom of the wound, and the tube connected with a large receptacle containing Dakin's solution. The solution is allowed to flow into the wound by the continuous drop method. A large hot wet dressing of gauze soaked in the solution and changed twice daily may be applied with advantage around the drainage tube. As a rule, in less than a week the discharge of pus ceases even in the most active infections, and the wound surface is covered with healthy granulation tissue. Foul odours disappear with surprising quickness under the treatment with the sodium hypochlorite solution. Foreign bodies are prevented from coming in contact with the wound by means of square windows or frames cut out of cardboard and made at least one centimetre thick by rolling crêpe paper about the cardboard squares. This protective frame is secured around the wound with adhesive plaster. The open treatment of infected wounds recommended last winter by Braun and since employed in German and Austrian military hospitals by Walzel, Loercher, and others, has in several hundreds of cases proved of great value. Cases of large superficial granulating wound are usually bathed in a copious purulent or sero-purulent, foul-smelling discharge. Such wounds, when treated by the open-air method, often become dry in less than twenty-four hours. The granulations freshen, and epithelialization progresses rapidly.

The solar rays considerably hasten the drying of secretions and stimulate epithelial growth. They also inhibit the growth of many pyogenic bacteria and the contaminating saprophytes. The time of exposure has been regulated according to the comfort of the patient, or according to the degree of chemical erythema or hyperaemia of the adjacent skin. Wounds are at first exposed directly to the sun with no covering whatsoever. If smarting or burning begins, or the adjacent skin becomes decidedly hyperaemic, the wound is covered with a single or double layer of gauze laid upon a wire basket. No ill effects have been traced to the sun treatment. Although dependence has been largely placed upon sunlight and open treatment, together with Dakin's solution for continuous irrigation, frequent use has been made of hot baths in solutions of older and better known antiseptics. Continuous hot baths in solutions of mercury bichloride, potassium permanganate, aluminium acetate, and physiological salt have been used with gratifying results in all varieties of infected gunshot wounds. Continuous immersion lends itself especially to the treatment of injuries of hands and wrist or feet and ankles, as does continuous irrigation to the other parts. As a rule, hot baths allay pain better than sedative medicines. The hot bath in Wright's solution is especially useful in cases in which it is desirable to stimulate lymph drainage, as in cases of diffuse hard cellulitis. These methods for the treatment of infected wounds have been employed regularly in the treatment of amputation stumps. After amputations in serious infections of the extremities, open treatment of the wound has been the rule. Flapless amputation has not been employed. So much difficulty has been experienced in pulling the skin down over the wound surface in amputations without flaps done elsewhere that the surgeons of the Vienna Reserve Hospital thought it wiser to cut short flaps and leave them wide open, to be closed with adhesive plaster straps after the danger of infection has passed.

51. Primary Wound Suture.

COLONEL C. GORDON WATSON, C.M.G., A.M.S., consulting surgeon with the Expeditionary Force, contributes a few notes on war surgery in France to the *St. Bartholomew's Hospital Journal* for April, 1917. He states that within the last six months a far wider field of wound suture has been opened up by the method which he describes, and which, in his opinion, may considerably modify future views on the treatment of wounds. This method includes the use of Professor Rutherford Morison's bismuth and iodoform paste—"B.I.P."—which consists of bismuth subnitrate one part by weight, iodoform two parts, and liquid paraffin sufficient to make a paste. Colonel Watson believes that if the technique advised by Morison is carefully followed, the Carrel method of wound flushing can be dispensed with in many cases. He states that the method seems to be well suited to recent wounds, though in these the amount of paste used should be limited owing to the risk of iodoform poisoning. Professor Morison's initial work was carried out on wounds that reached him seven to fourteen days after infliction. Briefly, the method is to open up the wound thoroughly, and remove with the knife all damaged tissues; the entire wound surface is dried with spirit and thoroughly smeared with paste; the wound is then filled with paste and closed by suture without drainage. Very severe wounds should not, at any rate in the early stages, undergo the extensive operative treatment required by this method. Colonel Watson thinks, as the result of recent experience, that the field for primary suture can be considerably extended with safety by using "B.I.P.," whereby much economy will resu[illegible] not only in time taken up by surgeons and nurses in dressings, but also in the length of time required to effect a cure. Usually there is a moderate though transitory initial rise of temperature, and for the first few days there may be some redness of the skin edges, but pain disappears as if by magic almost at once. There is no need to dress the wound so long as the patient is comfortable. Wounds, though discharging serum freely through the sutures, may be left untouched for weeks at a time except as regards the outer dressings, without delaying progress. When the wounds are dressed for the first time the dressings slip off without pain.

52. Projectiles in the Heart.

PIETRO GILBERTI (*Malattie del Cuore e dei Vasi*, February 1st, 1917) reports a case of projectile fixed in the heart. The patient was wounded in the chest on July 7th, 1916, when lying face downward. He became aware that he was hurt only because he felt blood flowing from the wound. When he came under Gilberti's care, on July 29th, after passing through a dressing station and another hospital, there was a small round wound, painless and almost completely healed, at the level of the right sterno-clavicular joint. Failing to find an aperture of exit, Gilberti sent him to the *x*-ray expert, who reported that there was a shrapnel bullet fixed in the substance of the antero-inferior wall of the left ventricle. The man was kept under observation for about two months. He never complained of any symptom. He got up every morning immediately after the visit and went to bed at night after helping all day to attend on men confined to bed. Radioscopic examination was repeated many times in presence of several doctors, who satisfied themselves *de visu* that the picture always corresponded to the first diagnosis. The case, says the author, is remarkable from the total absence of any disturbance attributable to the foreign body either in the myocardium, the pleura, the lungs, or the anterior mediastinum. The projectile moves rhythmically and independently of the respiratory movement, and even in complete apnoea. Therefore it may be inferred that it is not present in the thoracic wall, nor is it in the pericardium, because on changing the position of the wounded man no change occurs in the position of the foreign body. Nor, again, is it in the cavity of the ventricle, because it does not follow the movement from below upwards as it would if it were suspended in the vortex of the blood. But it has a rhythmical movement synchronous with that of the heart, as if making a part of the cardiac muscle itself, and therefore following it in its slight movement of rotation from right to left. It must therefore be in the thickness of the myocardium. Discussing the absence of haemopericardium and pericarditis, the author suggests that the projectile remained embedded in the wall of the heart and, acting as a plug, stopped by its presence even the small quantity of blood which had escaped from the cardiac muscles. Thus haemopericardium could not be discovered or it was so slight that it was clinically inappreciable. In regard to prognosis, Gilberti agrees with the decision of the medical board which gave the man leave for six months. It would be hazardous to base a prognosis now when precise knowledge of the conditions is wanting. The danger of the migration of a projectile is evident. One of two things may occur—the foreign body may make its way into the cavity of the ventricle, or it may fall into the pericardium and from the pericardium pass to the upper surface of the diaphragm. In the former case there will be a complicated syndrome of heart and lung symptoms, possibly incompatible with life. Haemopericardium may be excluded as a consequence, because not improbably the projectile, wandering into the cavity, will leave behind it the results of a reparative cicatricial process that will prevent the escape of blood. In the latter case excitation of the phrenic centre may result.

53. — SILVAN reported to the Medical Academy of Padua (*Gazz. degli Ospedali*, No. 21, 1916) the case of a soldier suffering from the after-effects of a gunshot wound in the right supraspinous fossa; radioscopic examination revealed the presence of the projectile in the heart. Immediately on receipt of the injury he had fallen into a syncope of short duration; then for some days he bled from the lung, but he never had symptoms of impaired function of the heart or complication of any kind. The wound ran a normal aseptic course and the man was regarded as completely cured and discharged with only a fortnight's leave. On radioscopic examination the projectile—a rifle bullet—was seen lying completely within the cardiac shadow; on antero-posterior examination it was seen localized in the lower third of the heart immediately to the left of the mid-sternal line, turned obliquely towards the apex. On transverse examination it was seen to occupy the antero-inferior third of the ventricular region, lying obliquely below and in front at an angle of about 43 degrees. It presented rhythmical, pendulum-like excursions of some extent, corresponding with the cardiac revolution, without displacement in respiration or change of position. There was nothing notable on objective examination of the heart; the working of that organ was normal even after effort, and the pulse and arterial pressure were also normal. It was thought probable that the projectile occupied the right ventricle towards the septum. Silvan thinks the case illustrates the tolerance of foreign bodies by the heart; this tolerance may be indefinitely prolonged. In these circumstances surgical intervention did not seem to be indicated.

54. Electrolysis in Open Suppurating Wounds.

CHARLES RUSS (*Arch. Rad. and Electr.*, January, 1917) states that electrolysis can be applied to all suppurating areas provided these are such as to permit the superposition of a column of fluid through which the current can flow. Many septic war wounds could be healed in this way without pain and without the irritation of antiseptic solutions. Given an open suppurating surface, an irregular wound, or a sinus discharging pus, the first step is to submerge the lesion in sodium chloride solution, 1 or 2 per cent. This is done in the case of ulcers of the leg, for example, by placing over the ulcer a glass cylinder which is made fluid-tight to the healthy skin by plasticene. A carbon or platinum foil electrode is just submerged in the sodium chloride contained in this cylinder, and under the limb is placed a large saline-soaked pad. The pad is made the negative electrode and the disc over the ulcer the positive, and a constant current of a few milliampères is passed. Thereupon the chlorine atoms become linked to the bacteria in the granulations, and in moving to the positive electrode they carry the organisms out of the ulcer. There is also a strong germicidal effect proceeding within the contents of the glass cylinder, and, further, an increased blood flow is induced in the part. The aim of the electrolysis is to provide a liquid highway (NaCl) for the bacterial emigration from the wound. The author adds that, while the chlorine atoms are carrying the organisms and pus cells out of the blood, sodium atoms, of course, are entering the tissues, and care must be taken that the amount of sodium is not excessive, or the alkalinity set up will be painful and there may be a retardation of healing due to the toxic effect of sodium upon the cell protoplasm. The ideal to be aimed at is to keep the reaction at the body surface neutral or only slightly alkaline. Certain organic acids of rather low conductivity if mixed with sodium chloride are comparatively little decomposed, and if only a small current flows the acid (as such) is free to neutralize the alkalinity of the sodium atoms as they arrive at the cathode. The author concludes that the clinical results so far obtained justify a much more extended use of electrolysis.

55. Meningitis after Brain Wounds.

HART, of Schöneberg, Berlin (*Med. Klinik*, June 4th, 1916), remarks upon how often, long after a brain wound had to all appearances completely healed, symptoms of deep-seated inflammatory, even purulent, processes showed themselves in a lingering illness or a sudden death, while the formation of adhesions over the affected part gave rise to epilepsy; but Bittorf has recently shown that a traumatic meningitis may arise as the result of a wound in the head. It was also found that an infected wound in the brain rarely gave rise to a diffuse purulent meningitis, for the brain substance was prolapsed into the wound in the membranes, and thus the subarachnoid space was closed. Bárány and Chiari, from their military experience, support this statement. It is easy to understand how an abscess may develop deep down in the brain, since that organ cannot be treated like any other, on account of its delicacy. The following case is of interest on account of the small number of cases there are on record of healed brain wounds where the patient has survived: A *post-mortem* examination was conducted on the body of an old woman, aged 61, who four and a half years before had been assaulted by her husband. Over the frontal protuberance at the edge of the hair there was a depressed scar about the size of a shilling, from which ran a linear scar right backwards; a defect in the skull could be felt through the circular scar; round about were little pieces of bone like exostoses; the dura mater was found to be hard and greyish-black, and firmly adherent to the meninges; all over the frontal lobes the meninges were matted together. The adhesions were particularly firm in the region of the falx cerebri, and over the back part of the corpus callosum there was a hard formation like the shot of a 7 mm. revolver. There was no flattening of the convolutions, but the soft membranes were injected, and between the cerebrum and cerebellum yellowish flakes were found. The left frontal lobe was shrunken and yellowish, its ventricle dilated, the ependyma injected, and the lateral horn full of yellowish-green pus, which was found to contain diplococci; in the anterior horn there was a great proliferation of the ependymal cells, leading to a partial obliteration of the ventricular cavity. The choroid plexus was deeply injected. The brain substance was pale and anaemic, while the meninges over the occipital lobe were inflamed and haemorrhagic. The point of entrance of the bullet was marked by a piece of bone enveloped in tissue, and lying in the brain substance; the bullet itself was found in the posterior part of the brain; these two points were joined by a line about 1 cm. broad with jagged edges of greyish-white scar tissue, which, on pressure, exuded greenish-yellow pus; near the scar line was a little collection of pus about the size of a hazel nut, which had no connexion with the ventricular cavity.

56. Heliotherapy of Wounds.

AT the twenty-fifth congress of the Italian Surgical Society held this year (*Policlinico*, March 18th, 1917) ARTEMIO MAGRASSI presented a communication on heliotherapy as applied to wounds. He had seen it used in a considerable number of cases in a field hospital and in a Red Cross hospital at Brescia. The cases included large suppurating wounds of soft parts, suppurating compound comminuted fractures, and septic amputation stumps. After each sun séance a simple dry aseptic gauze dressing was applied. General treatment was always used in combination with exposure of the lesions to the sun's rays. The results are described by Magrassi as "truly marvellous," and such as could not have been obtained by the use of any antiseptic, inasmuch as in addition to rapid clearing up of the septic processes in the wounds and seats of fracture an equally rapid and remarkable improvement in the general condition of the patients was always observed.

PATHOLOGY.

57. Histology of the Brain after Gunshot.

AT a meeting of the Société de Médecine et de Chirurgie de Bordeaux on January 16th, 1917 (*Gaz. hebd. des sciences médicales*, April 8th, 1917), ANGLADE and DE TEYSSIEU showed the brain of a man who had been executed. After the firing party had done its work, the *coup de grâce* was given, the brain being traversed from side to side at the level of the upper third of the Rolandic zone by a bullet from a revolver fired point blank. Examination made immediately after death, or even, the authors say, during a remaining flicker of life, revealed traces of cellular activity continuing after apparent and legal death. Fragments of the cerebral cortex of the paracentral lobe in the immediate neighbourhood of the track of the projectile were taken and studied by Nissl's method of dealing with nerve cells and by a method devised by one of the authors for the neuroglia. The large motor pyramidal cells were found profoundly modified to a great distance from the traumatic focus. Those nearest that focus were separated in their prolongations so as to present the appearance of a jagged tree. Their cellular border was deformed and filled with a homogeneous deeply-coloured mass; no nucleus was recognizable. Further away all degrees of cell distortion and chromatolysis were seen. The most interesting feature in this part of the brain was the presence of signs of a very active process of reaction of the connective and neuroglial tissue. The nuclear perivascular infiltration was very abundant, as abundant as in the foci of meningo-encephalitis. The nuclear infiltration extended widely around the track of the wound. The neuroglia had precisely the appearance observed in the neighbourhood of foci of brain softening, cerebral abscess, etc. The astrocytes were considerably enlarged; the protoplasm was visible. The nuclei were swollen, full of nucleolar masses ready to escape and diffuse themselves in the inflammatory focus. There were all the features of a true defensive inflammation, with nothing special but the curious fact that it occurred after death medically certified.

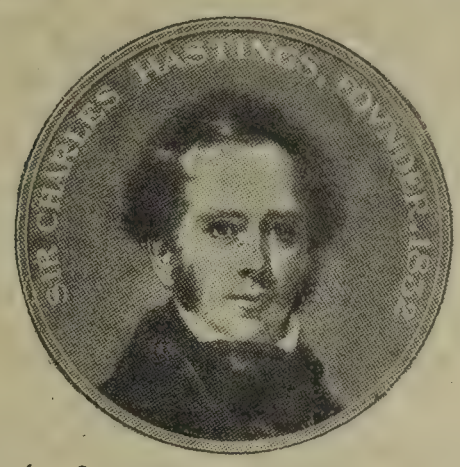
58. Diplococcus lanceolatus as a Cause of Suppuration in Compound Fracture.

PROFESSOR TRAMBUSTI recently reported to the Medical Academy of Padua (*Morgagni*, February 24th, 1917) a case of compound comminuted fracture of the femur caused by gunshot wound in which a suppurative process which nothing could check was kept up solely by Fraenkel's *Diplococcus lanceolatus*. Restoration of bone, however, took place in a normal way. The interest of the case, according to Trambusti, consists in the localization of the diplococcus; in the fact that this was its first and sole localization; in the virulence of the infective germ, which was such that a guinea-pig inoculated with it died in twenty-four hours; in the discovery of the diplococcus in pure culture within the morbid focus; and in the regular course of the bony repair. This, according to the author, was due essentially to the slight activity of the toxins of the diplococcus.

10.5
BR
917
2948
Nat. hist. lit.

The

British Medical Journal



The Journal of the British Medical Association.

INCLUDING AN EPITOME OF CURRENT MEDICAL LITERATURE,

WITH SUPPLEMENT.

No. 2948. SATURDAY, JUNE 30, 1917. **Price 8d.**

CONTENTS Page 1. **INDEX TO ADVERTISEMENTS Page 2.**

NEW EDITION. In Two Vols. 45/- net.

DEFORMITIES

INCLUDING

DISEASES OF THE BONES AND JOINTS.

A TEXT-BOOK OF ORTHOPÆDIC SURGERY.

By A. H. TUBBY, M.S.Lond., F.R.C.S.Eng.

Illustrated by 70 Plates and over 1,000 Figures, and by Notes of Cases.

2ND EDITION.—"The standard text-book in English on the subject."—*The Lancet.*

1ST EDITION.—"Standard work on the subject in the English language."—*Brit. Med. Jour.*

MACMILLAN & Co., LTD.,
St. Martin's Street, London, W.C.

Now Ready. Pp. xi + 269. With 3 Charts. 5s. net.

ON ALCOHOLISM:

Its Clinical Aspects and Treatment.

By FRANCIS HARE, M.D.,

Medical Superintendent of the

NORWOOD SANATORIUM,

Beckenham.

"Marked by candour, common sense, and moderation . . . likely to become the standard text-book."—*British Medical Journal.*

London: J. & A. CHURCHILL,
7, Great Marlborough Street, W. 1.

FOURTH EDITION. JUST PUBLISHED.

10, pp. 260, with 40 Illustrations, cloth, 6s. net.

SQUINT:

Its Causes, Pathology and Treatment.

By CLAUD WORTH, F.R.C.S.,

Surgeon Royal London Ophthalmic Hospital (Moorfields), etc.

LE, SONS & DANIELSSON, 83, Gt. Titchfield St., W.

By C. MANSELL MOULLIN,

M.D.Oxon., F.R.C.S., Consulting Surgeon to the London Hospital.

ENLARGEMENT OF

THE PROSTATE.

Fourth Edition. Price 6s.

THE BIOLOGY OF TUMOURS,

including the Bradshaw Lectures.

New and Revised Edition. Price 2s. 6d. net.

London: H.K.LEWIS&Co., Ltd.,136, Gower St., W.C. 1

REGISTERED AS A NEWSPAPER.]

USED IN THE U.S.A. ARMY.
TWO BOOKS FOR THE WAR.

WITH PREFACES BY SURG.-GEN.

SIR A. KEOGH, G.C.B.

SURGERY IN WAR.
By Lt.-Col. A. J. HULL, F.R.C.S.
Illustrated. 10s. 6d. net.

"There was a definite need for a summary of the present-day practice, and this work has supplied the need excellently."—THE LANCET.

SANITATION IN WAR.
By Major P. S. LELEAN, C.B., F.R.C.S.
2nd Edition. Illustrated. 6s. net.
Just Out.

The New Edition of Lelean's famous book contains much new matter and many new illustrations. It has been written at the Front, and the chapter on Field Conservancy describes the very latest methods. There is a new chapter on "THE ROLE OF INSECTS IN WAR," written with the assistance of Major E. E. Austen.

London:
J. & A. CHURCHILL, 7, Great Marlborough St., W. 1.

Second Edition, revised and enlarged. Now Ready.
Crown 8vo. 6s. net.

TREATMENT OF

DISEASES OF THE SKIN.

By KNOWSLEY SIBLEY, M.D.Camb.

London: EDWARD ARNOLD, 41 & 43, Maddox St., W.

By O. LEYTON, M.D., D.Sc., F.R.C.P.

Physician to the London Hospital,

THE MODERN (ALLEN) TREATMENT OF DIABETES MELLITUS.

NOW READY, Price 3s. net.

ADLARD & SON & WEST NEWMAN, LTD.,
Bartholomew Close, London, E.C.

SECOND EDITION NOW READY. Price 3s. 6d. net.

INTENSIVE TREATMENT OF SYPHILIS

and Locomotor Ataxia by Aachen Methods.

By REGINALD HAYES, M.R.C.S.

THE LANCET says:—"No better exposition of the method as practised at Aachen can be found than that contained in this little work."

London: BAILLIERE, TINDALL & COX,
8, Henrietta Street, Covent Garden, W.C. 2.

[COPYRIGHT.]

By BEDFORD FENWICK, M.D.,

Senior Gynæcologist to The Hospital for Women, Soho Square.

UTERINE FIBROIDS.

2nd Edition. With Analysis of 600 Laparotomies.

"Dr Fenwick's results are remarkably good."—THE LANCET.

Price 3s. 6d. post free.

COMMON COMPLAINTS OF WOMEN.

"Eminently practical."—THE MEDICAL TIMES.

Price 3s. 6d. post free.

BALE, SONS & DANIELSSON, LTD.,
85, Great Titchfield Street, W.

Pp. viii + 350, With 102 Illustrations.

Price 7s. 6d. net.

DISEASES

OF THE

RECTUM AND ANUS

BY

P. LOCKHART MUMMERY, F.R.C.S.

BAILLIÈRE, TINDALL & COX,
8, Henrietta Street, Covent Garden, W.C. 2.

By FRANK KIDD, F.R.C.S.,

Assistant Surgeon at the London Hospital; and Surgeon-in-Charge of Genito-Urinary Department, London Hospital.

JUST PUBLISHED. Price 5s. net.

COMMON DISEASES OF THE MALE URETHRA.

Being a Course of Lectures delivered at the London Hospital, designed to assist those who may be starting Genito-Urinary Clinics. With numerous Illustrations and Appendices.

BY THE SAME AUTHOR.

URINARY SURGERY: A Review.

7s. 6d. net.

"This book can be thoroughly recommended by those who are desirous of being acquainted with the modern position of Urinary Surgery."—GLASGOW MEDICAL JOURNAL.

London: LONGMANS, GREEN & CO.,
39, Paternoster Row, E.C. 4.

[ISSUED WEEKLY.

Valentine's Meat-Juice

In **Typhoid Fever, Diarrhoea and Cholera Infantum,** when it is **Essential** to **Sustain** the patient **without irritating** the **Digestive Organs,** the **Ease** of **Assimilation** and **Power** of **Valentine's Meat-Juice** to **Restore** and **Strengthen** has been demonstrated in Hospital and Private Practice.

THE quickness and power with which VALENTINE'S MEAT-JUICE acts, the manner in which it adapts itself to and quiets the irritable stomach, its agreeable taste, ease of administration and entire assimilation recommend it to physician and patient.



Physicians are invited to send for brochures containing clinical reports.

For sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,
Richmond, Virginia, U. S. A.

A 199

British Medical Journal.

JUNE 30TH, 1917.

CONTENTS.

ORIGINAL ARTICLES.

e Technique of Nerve Suture. y S. ALWYN SMITH, D.S.O., Ch.M., .R.C.S.Edin., Temporary Major .A.M.C. 861

ervations on Chloramines as asal Antiseptics. By E. K. UNHAM, M.D., and H. D. DAKIN, .Sc., F.R.S. 865

ical Notes on a Case of Fibroid isease of Bursae. By Captain ANFRED MORRIS, R.A.M.C.(T.F.).... 867

nchoscopy in the Treatment of sthma. By W. S. SYME, M.D., R.S.E. 868

New Culture Medium for the nococcus. By Captain D. THOMSON, A.M.C., M.B., Ch.B.Edin., D.P.H. ntab. 869

Note on the Value of Brilliant een as an Antiseptic. By Captain H. S. WEBB, M.S., F.R.C.S., A.M.C. 870

s and Bacillary Enteritis. By ILLIAM NICOLL, M.A., D.Sc., M.D., P.H. 870

Croonian Lectures on Adaptation d Disease. By J. G. ADAMI, M.D., R.S., Lieut.-Colonel C.A.M.C. 872

MEMORANDA.

Case of Enterospasm. By A. IFFORD MORSON, Temp. Surgeon N. 873

Method of Preparing and Using gut. By G. S. THOMPSON, F.R.C.S. 873

rolysis in Open Suppurating unds. By D. N. COOPER, M.R.C.S., L.C.P. 874

REVIEWS.

ary Orthopaedics. (Illustrated).... 874
ition in the Light of Heredity..... 875
on Books 875

LEADING ARTICLES.

RE-EXAMINATION OF EXCEPTED MEN.... 879
THE MESOPOTAMIA REPORT..... 880

THE WEEK.

Care of the Disabled Soldier..... 881
Anthrax and Shaving Brushes..... 882
Studies of Intestinal Diseases from the Mediterranean 882
Army Medical Report, 1913 882
Tetanus Lighted up by Operation 883
Synthetic Sunshine..... 883
The *Kew Bulletin*..... 883
The Half-yearly Indexes for 1917..... 883

THE WAR.

THE WAR COLLECTION OF PATHOLOGICAL SPECIMENS AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND. 887
"A DAY'S WORK"..... 887
TETANUS IN HOME MILITARY HOSPITALS. 888
CASUALTIES IN THE MEDICAL SERVICES. 889
NOTES—
French Honours for Medical Women. 890
Medical Officer's Gifts to the Red Cross..... 890

GENERAL ARTICLES AND NEWS.

THE MESOPOTAMIA COMMISSION..... 875
MOTOR NOTES FOR MEDICAL MEN. By H. Massac Buist..... 877
MEDICAL NOTES IN PARLIAMENT:
Medical Re-examinations of Excepted Men 884
Casualties among Medical Officers 886
MEDICAL NEWS 895

OBITUARY.

Lieut.-Colonel Frederick William Henry Davie Harris, R.A.M.C.(retired)..... 895
John Walters, M.B.Lond..... 895
Henry Campbell, M.D..... 895

LOCAL NEWS.

ENGLAND AND WALES—
Dr. Glynn of Liverpool..... 890
Central Midwives Board..... 891
Oxford Orthopaedic Centre 891
IRELAND—
The Irish Medical Profession and the War 891

CORRESPONDENCE.

The Co-ordination of British Medical Policy. By W. Gordon, M.D., F.R.C.P.; S. J. Ross, M.D., and others. 892
Quo Vadis? By J. A. W. Pereira, M.D. 893
Ministry of Health. By E. F. Pratt, M.B., B.S..... 893
The Shortage of Medical Officers: Possibility of Relief from India..... 893
The Grievances of Territorial Medical Officers 894
Anthrax in Uganda. By F. W. Eurich, M.D.Edin..... 894
Dermatitis from Explosives Used in the Air Raid. By James H. Sequeira, M.D., F.R.C.P..... 894

THE SERVICES.

Exchange..... 894

UNIVERSITIES AND COLLEGES.

UNIVERSITY OF EDINBURGH..... 894
UNIVERSITY OF GLASGOW..... 894
VICTORIA UNIVERSITY OF MANCHESTER. 894
SOCIETY OF APOTHECARIES OF LONDON. 894

LETTERS AND ANSWERS.

QUERIES, ANSWERS, ETC. 896

The SUPPLEMENT contains:—

British Medical Association:

Current Notes: Quarterly Meeting of Council.—Indian Practitioners and Combatant Service.—Rural Practitioners and the Insurance Advisory Committee.

Insurance Acts Committee: Report on the Future of the Insurance Acts, with Questions and Synopsis of Answers.

JOHN BALE, SONS & DANIELSSON, LTD.,

PRINTERS, PUBLISHERS, AND PROCESS BLOCK MAKERS,

NOW READY. SECOND ENGLISH EDITION.

CLINICAL SURGICAL DIAGNOSIS

FOR STUDENTS AND PRACTITIONERS.

y Professor F. DE QUERVAIN, Director of the Surgical Clinic, University of Basle. Translated by J. SNOWMAN, M.D.
862 pp., with 604 Illustrations and 5 Coloured Plates. Royal 8vo. Price **35s.** net. Postage: Inland, 7d.; Abroad, 2s.

83, 85, 87, 89, & 91, GREAT TITCHFIELD STREET, OXFORD STREET, LONDON, W.1

INDEX TO ADVERTISEMENTS.

COVER.

PUBLISHERS.

Adlard, Son and Newman.
Leyton, O.—Treat. of Diabetes Mellitus.. i

Arnold, E.
Sibley, K.—Diseases of the Skin. i

Bailliere, Tindall and Cox.
Hayes, R.—Intensive Treat. of Syphilis.. i
Lockhart-Mummery, P.—Dis. of Rectum i

Bale, Sons and Danielsson.
Fenwick, B.—Uterine Fibroids i
„ Common Complaints of Women i
Worth, C.—Squint i

Churchill, J. and A.
Hare, F.—On Alcoholism i
Hull, Lt.-Col. A. J.—Surgery in War i
Lelean, Major P. S.—Sanitation in War.. i

Lewis, H. K. and Co., Ltd.
Moullin, C. M.—Enlargement of Prostate i
„ The Biology of Tumours.... i

Longmans, Green and Co.
Kidd, F.—Common Diseases of the Male Urethra i
„ Urinary Surgery i

Macmillan and Co., Ltd.
Tubby, A. H.—Deformities i

CHEMISTS, Etc.—
Angier Chemical Co.—Angier Emulsion.. iv
Menley & James, Ltd.—"Bacterol"..... iii

FOOD PREPARATIONS—
Valentine Meat Juice Co.—Meat Juice... ii

MOTORS, CARRIAGES, Etc.—
Gamage, A. W., Ltd.—Motor Tyres iii

PUBLISHERS.

Arnold, E.
Berkeley, C.—Midwifery 3
Collie, Sir J.—Malingering 3
Howard, R.—Surgical Nursing, &c..... 3
Hurst, A. F.—Med. Diseases of the War. 3
Stewart, P.—Nervous Diseases 3

Bale, Sons and Danielsson.
Quervain, P. de—Clinical Surg. Diagnos's 1

Macmillan and Co., Ltd.
New System of Gynæcology 4

Behnke E.—Stammering 4

ANÆSTHETICS—
Salamon & Co., Ltd.—
Æther and Chloroform 4

ASSURANCE COMPANIES—
Guardian Assurance Company 5
National Provident Institution 26
Prudential Assurance Company 4

BOOTMAKERS, Etc.
Holland & Son—Patent Foot Appliances 28

BRASS NAME PLATES—
Cooke's Brass Name Plates 26

CHEMISTS, Etc.
Allen & Hanburys, Ltd.—
Advances in Treatment..... 22
Byno-Cascada..... 23
Alliance Drug and Chemical Co.—
Price List of Drugs 40
Anglo-French Drug Co.—Iodogenol..... 25
Cryogenine 24
Mersalv 24
Rheantine 24
Supsalvs..... 24

CHEMISTS, Etc.—continued.
Antiphlogistine—Denver Chemical Co. .. 14
Battley & Watts—Battley's Liquors..... 14
Boots Pure Drug Co., Ltd.—Halazone ... 15
Chloramine-T..... 15
Burroughs, Wellcome & Co.—
"Tabloid" Halazone..... 19
Clay, Paget & Co.—Glycolactophos. 12
Crookes' Laboratories—Collosols 18
Fellow's Syrup of Hypophosphites..... 13
Hewlett & Son, Ltd.—Mist. Damianæ Co. 12
Howards' Sodii Bicarb. (Tasteless) 28
Peat Products Co., Ltd.—Sphagnol 5
Smith (Martin H.)—Ergoapiol..... 40
Tidman & Sons—Sea Salt 28
Vinolia Co., Ltd.—Nursery Requisites... 16
Wander, Ltd.—Malt Extract 17
Whiffen & Sons—Emetine..... 12
Wilcox, Jozeau & Co.—Kola Astier 4

CORKS—
West of England Cork Manufac. Co. 26

FOOD PREPARATIONS—
Allen & Hanburys, Ltd.—Bynogen 21
Benger's Food, Ltd.—
Food for Infants and Invalids 20
Brand & Co.—Beef Tea 28
Callard & Co.—Diabetic Foods 4
Frame Food Co..... 12
Freeeman's Devonshire Custard..... 28
Keen, Robinson & Co.—Patent Barley ... 13

MEDICAL AND SURGICAL APPLIANCES—
Arnold & Sons—
"Phonophore" Stethoscopes 10
Bailey & Son—Belts, Trusses, &c 7
All-Glass Syringes..... 7
"Unger" Transfusion Canula..... 7
Brown, Boveri & Co., Ltd.—
Vaccine Refrigerators 9
Coles & Co.—Spiral Spring Truss 8
Medical Supply Association—
"Kompact" X-ray Installation 10
Megarity (S.) & Co.—
Mechano-Therapeutic Apparatus.... 6
Millikin & Lawley—
Instruments, Osteology, &c..... 26
Norwich Crape Co.—Crepe Bandage..... 9
Short & Mason—Sphygmomanometer.... 6
Sterling Corporation, Ltd.—
High Frequency Generator 6
Surgical Manufacturing Co.—
Record Syringes 8
Timpson & Co., Ltd.—Ligatures 28
W. Watson & Sons—Hæmacytometers... 8

MINERAL WATERS—
Camwal, Ltd.—Aquaperia 4
Ingram & Royle, Ltd.—Vichy-Celestins.. 40

MOTORS, CARRIAGES, Etc.—
Beldam Tyre Co., Ltd. 26
Daimler Motor Ambulances 27
McConnell, H. P.—Advisory Expert 35
Singer & Co., Ltd.—Doctor's Car 8
Sunbeam Motor Car Co..... 27

SANITARY APPLIANCES—
The Berkefeld Filter 8

SANATORIA AND HOSPITAL BUILDINGS, Etc.
Browne & Lilly—Open-air Chalets, &c. .. 26
Humphreys, Ltd.—Huts and Hospitals.. 11

TAILORING—
Armstrong, T. & M.—Livery Tailors, &c. 26
Burberrys Waterproofs, &c..... 26
Hall, H.—Medical Service Dress..... 35
Thresher & Glenny—Service Kits..... 25

TYPEWRITERS, Etc.
Taylors, Ltd.—Typewriters 26

VACCINE LYMPH—
Roberts & Co.—Calf Lymph..... 4

HYDROS.—
Bournemouth Hydropathic..... 31
Caterham Hydro. Sanitarium 31
Cleveleys Hydro. 31
Smedley's Hydro. Estab. Matlock, ... 31

HOMES AND ASYLUMS—
Barnwood House, Glos. 29
Bethel Hospital, Norwich..... 29
Bishopstone House, Bedford 29
Boreatton Park Asylum..... 29
Brooke House, Clapton 29
Brunton House, Lancaster..... 33
Camberwell House, Peckham..... 30
Cheadle Royal, Cheshire 29
Chesterfield, Worcester Park..... 31
Clarence Lodge, Clapham Park 30
Coppice, Nottingham 30
Coton Hill Mental Hospital, Stafford.... 31
Dinsdale Park, near Darlington..... 31
Epilepsy—David Lewis Colony 28
Epilepsy—Lingfield Epileptic Colony.... 28
Epilepsy—Maghull, Lancs. 28
Glendossil and Hurst Houses..... 31
Grove House, All Stretton..... 29
Haslemere Nursing Home..... 31
Haydock Lodge Asylum, Lancashire..... 30
Heigham Hall, Norwich..... 31
Littleton Hall, Brentwood 29
London Fever Hospital 31
Malling Place, Kent..... 31
Middleton Hall Private Asylum 30
Moat House, Tamworth..... 29
Northumberland House, Finsbury Park, 30
Northwoods House, Winterbourne 30
Otto House, Kensington..... 29
Overdale Asylum, Whitefield 31
Peckham House Asylum 30
Resident Patients..... 28, 31
Retreat Private Asylum, Armagh..... 31
Royal Earlswood Institution, Redhill.... 30
Springfield House Asylum, Bedford 30
St. Andrew's Hospital, Northampton.... 29
St. George's Retreat, Burgess Hill..... 29
Stretton House, Church Stretton 30
Sylvan Hall, Brighton 31
The Grange, near Rotherham..... 29
The Grove, Old Catton 29
Warneford, Oxford..... 29
Wye House, Buxton..... 31

SANATORIUMS—
Duff House, Banff, N.B..... 32
Grampian Sanatorium 32
Home Sanatorium, West Southbourne... 32
Mendip Hills Sanatorium..... 32
Nordrach-on-Dee 32
Painswick Sanatorium 31
Pendyffryn Hall Sanatorium 32
Stanhope & Wolsingham Sanat. Durham 31
Vale of Clwyd Sanatorium 32

INEBRIETY, Etc.—
Dalrymple Home for Inebriety 29
Homes for Inebriate Women 29
Melbourne House, Leicester 29
Newmains Retreat, Lanarkshire 29

MEDICAL SCHOOLS, Etc.—
London School of Clinical Medicine 33
London School of Tropical Medicine 33
Medico-Psychological Association 33
Queen Charlotte's Lying-In Hospital 33
Royal College of Surgeons of England... 33
St. Mary's Hospital Medical School..... 33
St. Thomas's Hospital Medical School.... 33

SCHOOLS, Etc.—
Marlborough College, Buxton..... 33
"Rydal Hurst." Chesterfield 33
St. Edith's School, Brackley, N. Hants.. 33
Schools Agency, Manchester 33
The Grange, Buxton 33

TUTORS AND LECTURERS—
Examinations—Medical Corresp. College. 33
F.R.C.S.Edin. Classes—F. Graham..... 33
Med. Prelim. Oral Classes—Weymouth.. 33
University Exam. Postal Institution 33

BATHS, SPAS, Etc.—
Droitwich.....

HOSPITAL, Etc., VACANCIES—
IMPORTANT NOTICE—RE APPOINTMENTS.....
Aberdeen Royal Asylum.....
Belgrave Hospital for Children .....
Bristol Royal Infirmary.....
Burton-on-Trent Infirmary.....
Coventry and Warwickshire Hospital...
Crag Head Hospital, Bournemouth....
Darlington General Hospital .....
Gloucestershire Royal Infirmary.....
Hampstead General Hospital .....
Leicestershire Education Committee...
Manchester Children's Hospital .....
Manchester Union.....
National Hosp. & Univ. Schl. of Massag
Newcastle-on-Tyne Eye Infirmary .....
Nottingham General Hospital .....
Portsmouth, Parish of.....
Queen Charlotte's Lying-In Hospital ...
Royal Victoria & West Hants Hospital.
Royal Victoria Hospital, Folkestone ...
Salford Union .....
Scottish Women's Hospitals .....
Sheffield Royal Infirmary .....
South Devon & East Cornwall Hospital
South London Hospital for Women.....
Stoke-on-Trent County Borough .....
Sunderland County Borough .....
Townley's Military Hospital, Farnwor
West Ham Union .....
West Herts Hospital.....
Wolverhampton Eye Infirmary.....
York, City of .....

ASSISTANTS, PRACTICES, E
Assistancies Vacant and Wanted .....
Practices Wanted and for Disposal ,. :

CONTRACT PRACTICE AN OTHER APPOINTMENTS
IMPORTANT NOTICE—RE APPOINTMENTS.....

HOUSE AGENTS—
Bedford & Co. .....
Elliott, Son & Boyton .....

NURSING INSTITUTES—
Army & Navy Male Nurses Co-operatio
General Nursing Association .....
London Association of Nurses .....
London Hospital Private Nurses .....
London Temperance Nurses Co-operati
Male Nurses (Temperance) Co-operatio
Mental Nurses' Association, Ltd. .....
Mildmay Nursing Institution.....
Strongwick's (Misses) Nursing Agency
Nurses' Co-operation.....
Retreat, York .....
St. John's House .....
St. Luke's Hospital .....
Temperance Assoc. Male & Female Nurs
Temperance Male Nurses Co-operation
The Mental Nurses' Co-operation .....
The Nurses' Association .....

TRANSFER AGENTS—
Arnold & Sons.....
Blundell & Rigby .....
Fieldhall, Ltd. .....
Lee & Martin .....
Manchester Clerical & Med. Associatio
Needes, H. .....
Needes, J. C. .....
Peacock & Hadley.....
Scholastic, Clerical & Med. Associatio
Turner, P.....

MISCELLANEOUS—
Anderson & Son—Doctors' Acct. Form
Consulting Rooms to Let .....
Covers for Binding .....
Freehold, &c., Properties for Sale ....

From Mr. EDWARD ARNOLD'S LIST

Just Published.

A NOTABLE NEW WORK — ON ORIGINAL LINES.

MIDWIFERY

UNDER THE DIRECTION OF

COMYNS BERKELEY, M.A., M.D., M.C.Cantab., F.R.C.P.Lond.,

Obstetric and Gynæcological Surgeon to Middlesex Hospital, &c., &c.

EDITED BY

COMYNS BERKELEY, H. RUSSELL ANDREWS, and J. S. FAIRBAIRN.

Contributors :

H. RUSSELL ANDREWS, M.D., F.R.C.P., Obstetric Physician to the London Hospital.
J. D. BARRIS, M.R.C.P., F.R.C.S., Assistant Physician-Accoucheur, St. Bartholomew's Hospital.
COMYNS BERKELEY, M.D., M.C., F.R.C.P. (see above).
VICTOR BONNEY, M.S., Assist. Obstetric and Gynæcological Surgeon to the Middlesex Hospital.
HAROLD CHAPPLE, F.R.C.S., Obstetric Surgeon to Guy's Hospital.
G. F. DARWALL SMITH, F.R.C.S., Assistant Obstetric Physician to St. George's Hospital.
STANLEY DODD, M.R.C.P., F.R.C.S., Assistant Obstetric Physician to Westminster Hospital.
J. S. FAIRBAIRN, F.R.C.P., F.R.C.S., Assistant Obstetric Surgeon to St. Thomas's Hospital.
T. G. STEVENS, M.D., M.R.C.P., F.R.C.S., Obstetric Surgeon to St. Mary's Hospital.
CLIFFORD WHITE, M.D., M.R.C.P., F.R.C.S., Senior Physician for Out-patients to Queen Charlotte's Hospital.

728 Pages. With more than 300 entirely new Illustrations. **18s. net.**

This work marks a new epoch in students' Text-books, inasmuch as the whole of the book represents the considered views and the teaching of all the ten authors whose names appear on the title page. It must not be considered an ordinary work by ten contributors, as every branch of the subject, text and illustrations, has received full and adequate discussion by all the authors and represents the fruits of their wide experience as Teachers at eight of the large London Hospitals and the three large Lying-in Hospitals. The work can therefore be considered to have reached a high level of authority and uniformity.

New and greatly Enlarged Edition of this Standard Work is just ready.

MALINGERING.

By Sir JOHN COLLIE, M.D., Colonel R.A.M.C.,

Medical Examiner, London County Council; Chief Medical Officer to the Metropolitan Water Board; President of the Military Board on Neurasthenia, &c., &c. 16s. net.

MEDICAL DISEASES OF THE WAR.

By Major ARTHUR F. HURST, M.A., M.D.Oxon., F.R.C.P.,

Temporary Major, R.A.M.C.; Physician and Neurologist to Guy's Hospital; Neurologist to the Royal Victoria Hospital, Netley; lately Member of the Medical Advisory Committee, Mediterranean Expeditionary Force, and Consulting Physician to the Salonica Army. 6s. net.

The Diagnosis of Nervous Diseases.

By PURVES STEWART, C.B., M.A., M.D.Edin. F.R.C.P.,

Physician to the Westminster Hospital; Consulting Physician to H.M. Forces; Temporary Colonel A.M.S.

With 283 Illustrations from Original Diagrams and Clinical Photographs. 589 pages. Medium 8vo.
18s. net. NEW (FOURTH) EDITION, EXTENSIVELY REVISED.

New and Revised Edition of this well-known Text-book.

Surgical Nursing and the Principles of Surgery for Nurses

By RUSSELL HOWARD, M.B., M.S, F.R.C.S.,

Assistant Surgeon to the London Hospital, and Lecturer on Surgical Nursing to the Probationers of the London Hospital.
New Edition, thoroughly Revised and Fully Illustrated. xvi + 318 pp. 6s.

London: EDWARD ARNOLD, 41 & 43, Maddox Street, Bond Street, W. 1.

JUST PUBLISHED.

The NEW SYSTEM of GYNÆCOLOGY

Edited by **THOMAS WATTS EDEN**, M.D., F.R.C.S.E., F.R.C.P.; and **CUTHBERT LOCKYER**, M.D., B.S., F.R.C.S., F.R.C.P.
In Three Volumes. With numerous Illustrations in Colour and Black-and-White. Crown 4to. **£6 6s.** net.

THE BRITISH MEDICAL JOURNAL:—"The New System of Gynæcology is highly creditable to British gynæcology. The printing, paper, and illustrations are admirable..... In general excellence we have no hesitation in stating that it is the best work on gynæcology published up to the present time."

MACMILLAN & CO., Ltd., London.

STAMMERING,
CLEFT PALATE, SPEECH, and LISPING.
By Mrs. EMIL BEHNKE.
Price 1s. net, postage 1½d., of Mrs. EMIL BEHNKE, 18, Earl's Court Square, S.W., who receives stammerers for treatment. References to Doctors whom Mrs. BEHNKE has cured, and others.

Dr. CHAUMIER'S CALF LYMPH
GLYCERINATED AND REINFORCED
THE CHEAPEST AND MOST ACTIVE LYMPH.
PREPARED UNDER THE
Most minute Antiseptic Precautions.
Supplied in Tubes, sufficient to vaccinate 1 or 2 persons at **5d.** each; per dozen, by 12 tubes or more **4s. 6d.** 10 persons at **8d.** per tube; 25 persons at **1s. 3d.** per tube. Collapsible tubes (40 vaccinations) **2s. 6d.** each.
Packing and postage 1d. in addition.
Agents for Great Britain:—
ROBERTS & CO.,
76, New Bond St., LONDON, W.

TEST ALL SO-CALLED
DIABETIC FOODS
WITH IODINE SOLUTION BEFORE RECOMMENDATION
CALLARD'S DIABETIC FOODS
STAND THIS AND ALL OTHER TESTS.
SAMPLES FREE.
CALLARD & CO., Food Specialists to all the great Hospitals.
74, REGENT STREET, LONDON, W.

DON'T SELL YOUR VICTORY LOAN

Write at once to The Prudential Assurance Co., 142, Holborn Bars, E.C. 1, or to any of its Agents.

COVERS FOR BINDING Vols. I. & II. of the BRITISH MEDICAL JOURNAL for 1915 and 1916 can be had, price 2s.; by parcel post 2s. 4d. each.
Remittances must accompany all orders. Apply at the office, 429, Strand, W.C.



KOLA ASTIER
GRANULATED.
Anti-neurasthenic, regularises the cardiac rhythm, stimulates the nervous system.
Medium Dose: Two teaspoonfuls a day.
ASTIER LABORATORIES:
45, Rue du Docteur Blanche, PARIS.
For Samples and Literature address:
WILCOX, JOZEAU & CO., 49, Haymarket, London, S.W.
Australasia—Messrs. Joubert & Joubert, 552, Flinders St., Melbourne.
Canada—Messrs. Rougier Bros., 63, Notre-Dame St. East, Montreal.
India—Messrs. Eugène Meiffre, P.O. Box 130, Bombay.
India—Messrs. Eugène Meiffre, 11, Ezra Street, Calcutta.

SALAMON'S
ÆTHER AND CHLOROFORM
As exclusively used by the most eminent anæsthetists in the Kingdom. Anæsthetical and analytical reports on application to
SALAMON & CO., Ltd., Manufacturing Chemists,
RAINHAM, ESSEX. *Est. 1873.*



Aquaperia **HARROGATE, ENGLAND.**

The British Aperient Mineral Water
supplants Apenta, Hunyadi Janos, and other German and Austrian Waters.

Editorial Note from "Lancet," 20th March, 1915.
"The Water is drawn from a Spring at Harrogate. The constituents are well balanced in accordance with therapeutic requirements."

Sold by all Chemists and Drug Stores.

Bottled by **CAMWAL LTD.** at their Spring, HARROGATE, ENGLAND.

INSURANCE.

Medical men will find it to their advantage to apply for special terms of insurance which the MEDICAL INSURANCE AGENCY has arranged with THE GUARDIAN ASSURANCE CO., Ltd.:—

1. **WAR STOCK PURCHASE SCHEME** (to pay off Bankers' Loans already advanced to buy War Loan).
2. **WHOLE LIFE and ENDOWMENT Policies.**
3. CHILDREN'S SAVINGS FUND and EDUCATIONAL Policies.
4. PARTNERSHIP LIFE Policies.
5. **MOTOR CARS** (Comprehensive Policies, specially designed for Doctors' requirements).
6. FIRE, BURGLARY, GLASS and FIDELITY Risks.
7. **PERSONAL ACCIDENTS** (with or without diseases).
8. **COMBINED "HOUSEHOLD" Policies** (cover risks arising from Fire, Burglary, and liability for Accidents to Servants, under one Policy and one payment).
9. WORKMEN'S COMPENSATION (Accidents to Servants and other Employees).
10. CONSEQUENTIAL FIRE LOSS.
11. THIRD PARTY (Horse driving risks).

To The Agent and Secretary, Medical Insurance Agency, 429, Strand, London, W.C.
[Please send terms for Nos. of above.]

Name _____

Address _____

The GUARDIAN ASSURANCE COMPANY, Ltd. (Estab. 1821.)
Subscribed Capital, £2,000,000. Paid up, £1,000,000. Total Assets, £7,267,000. Income, £1,412,000.

Antiseptic and Curative.

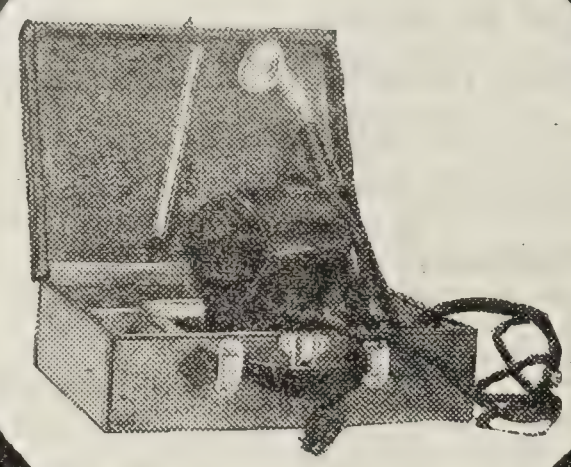
Sphagnol

SOAPS & OINTMENT

Doctors and Nurses engaged in war work at home and overseas are using Sphagnol as a preventative of Septic Poisoning, and recommend it as a reliable remedy for Trench Sores, Eczema, Gingivitis, and the many other forms of obscure skin diseases.

Send your professional card for a free sample set of Sphagnol Ointment and Soaps.

PEAT PRODUCTS (SPHAGNOL) Ltd. 18, Queenhithe, Upper Thames St., **LONDON, E.C. 4**



Invaluable to the Medical Profession—Dermatologists, Electro-therapeutists, Radiologists, &c.

A great aid in Hospital and Ward Work. For Convalescent and Nursing Homes.

Unequalled for Indolent & Septic Wounds—Shell Shock—Trench Foot and other War Ailments.

THE STERLING PORTABLE - HIGH FREQUENCY - VIOLET RAY GENERATOR

Portable—Operated from Lighting current—Any voltage—Powerful—Extremely simple.

The Sterling Corporation (Great Britain) Limited

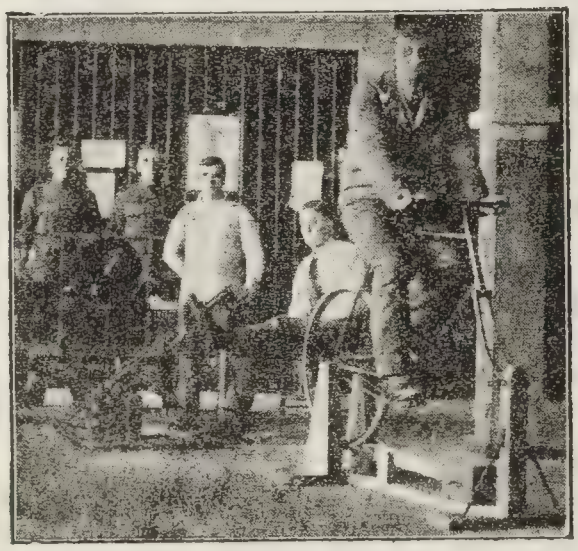
TELEPHONE—MAYFAIR 2471.
TELEGRAMS—TURBINISM, LONDON.

Sixteen Wigmore Street, London—West—One.

Supplied to H.M. War Office—New Zealand and South African Medical Services—Military Hospitals.

Employed and advocated by eminent Physicians and leading Electro-therapeutists.

BLACKPOOL COMMAND DEPOT.
Our Machines in use.



TREATMENT OF WOUNDED SOLDIERS

Mechano Therapeutic Apparatus.

The LATEST DEVELOPMENT for STIFF JOINTS and WASTED MUSCLE

SIMPLE. CHEAP. EFFECTIVE.

Send for Descriptive Catalogue and Price List.

Machine for CIRCUMDUCTION of SHOULDER, of ANKLE and of HIP. Cycle f EXERCISE of LEGS. FOOT and WRIST DROPS, CREEPING BOARDS, etc., e

AS DESIGNED BY

Major TAIT MACKENZIE, Captain A. E. BARCLAY, and Dr. SEEUWE

See Lecture in BRITISH MEDICAL JOURNAL, *August 12th, 1916.*

Machines now being used with wonderful results in CONVALESCEN CAMPS and HOSPITALS all over the Kingdom.

We are the Sole Makers:—

S. MEGARITY & CO., Wellington Street Wes

HR. BROUGHTON, MANCHESTER.

"TYCOS" SPHYGMOMANOMETER (PATENTED)

For determining both the DIASTOLIC and SYSTOLIC Readings of

ARTERIAL BLOOD PRESSURE.

The simpliest and most quickly adjusted instrument for determining Arterial Blood Pressure. No leather cuff, hooks or buttons. Accuracy and rapidity assured.

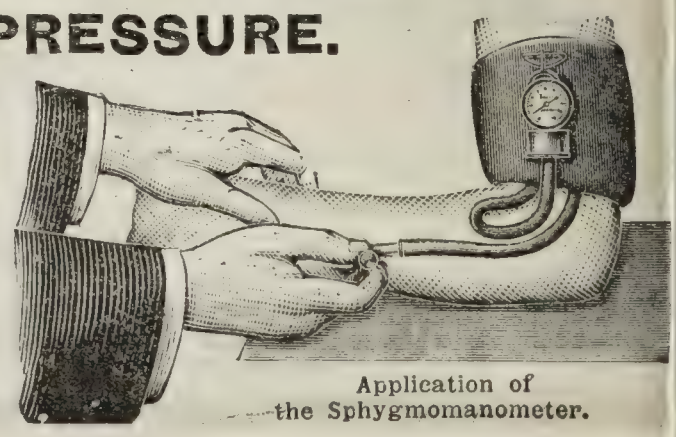
Sensitive but not delicate—soundly constructed, not easily deranged.

CAN BE CARRIED IN THE POCKET IN ANY POSITION, AND IS ALWAYS READY FOR USE.

Full particulars free on request. Instruments sent on approval post free on receipt of card. Obtainable from all reputable dealers.

MANUFACTURED BY

SHORT & MASON, Ltd., Macdonald Rd., Walthamstow, London, N.E.

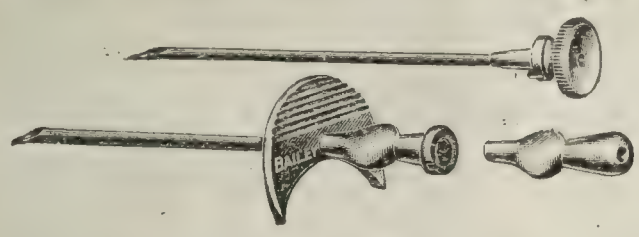


Application of the Sphygmomanometer.

W. H. BAILEY & SON.

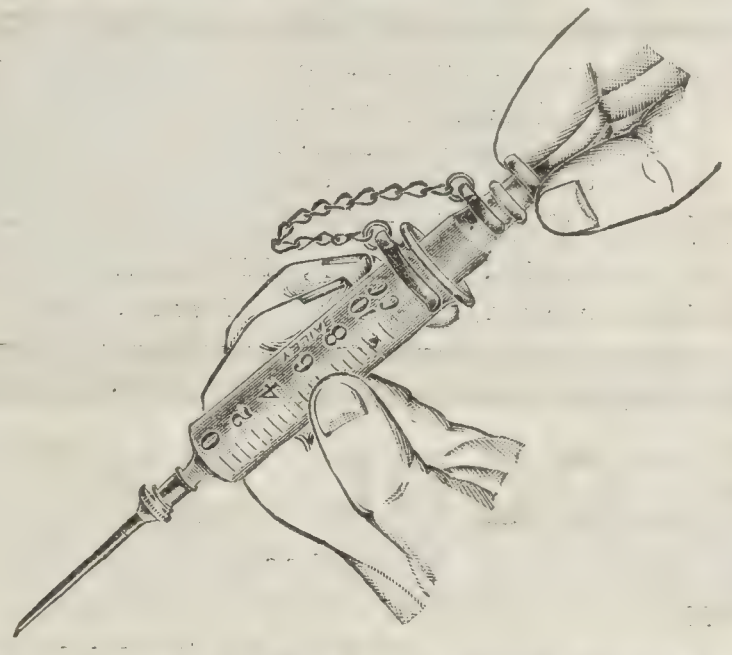
THE "UNGER" TRANSFUSION CANULA

As made for MAJOR BRUCE ROBERTSON, C.A.M.C.



Price 8s. 6d. each.

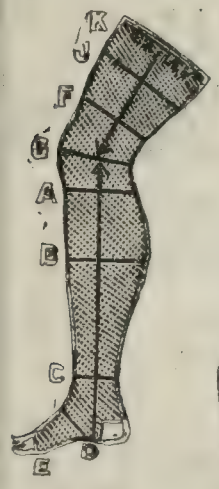
See Article on "Transfusion of Whole Blood."
—*Brit. Med. Journ.*, July 8th, 1916.

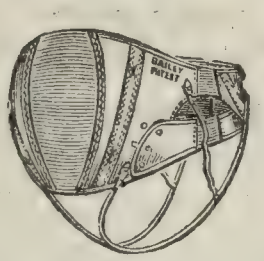


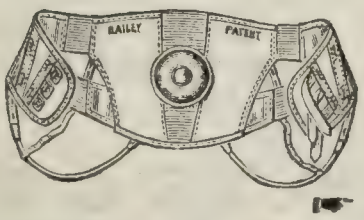
ALL GLASS SYRINGES

Complete 20 c.c. Size, 15/-
RECORD PATTERN " do. 24/-
Best Quality Only.

PATENT BELTS, TRUSSES, AND ELASTIC STOCKINGS.



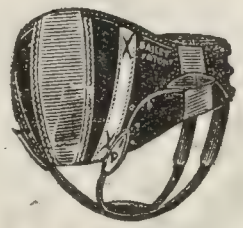


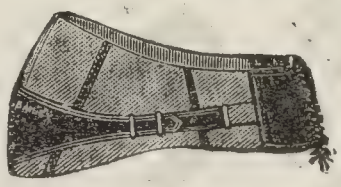


Bailey's Patent Belts for General Support, Obesity, Umbilical Hernia, Prolapsus Uteri, Appendicectomy, Colotomy, &c., &c.

CHEAP BELTS FOR HOSPITALS AT CONTRACT PRICES.

Private Fitting Rooms on the Premises.







IMPORTANT NOTICE.

Messrs. W H. BAILEY & SON are prepared to send (immediately on receipt of letter or telegram) thoroughly Competent Assistants, Male or Female, to attend patients at their homes and to take Doctor's instructions. They personally superintend the making and fitting of the Appliance throughout, thus ensuring the best possible results.

Price Lists and Forms for Measurement Free.

TRUSSES, INGUINAL, SCROTAL, FEMORAL, INDIARUBBER.



TRUSSES, UMBILICAL PROLAPSUS MOC-MAIN "XYLONITE."

"NO GOOD RESULTS CAN BE OBTAINED FROM ANY TRUSS WHILE THE DAILY BATH IS TAKEN WITHOUT ONE."

WRITE FOR LIST.

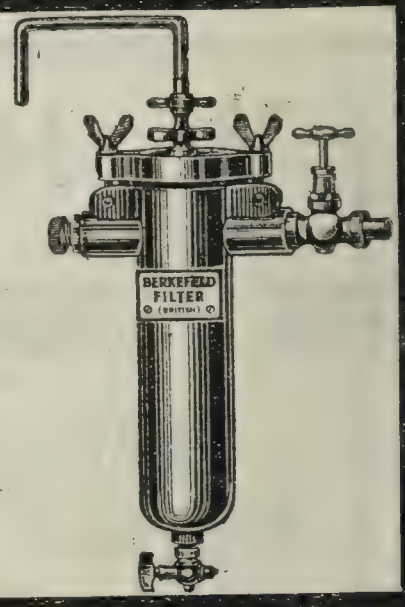
Surgical Instruments and Appliances - - - - 38, OXFORD STREET,
Hospital and Invalid Furniture - - - - - 2, RATHBONE PLACE, } **LONDON, W.**

TELEGRAMS: "BAYLEAF, LONDON." TELEPHONE: 2942 GERRARD.

Safety in Recommendation.

The medical man, asked to recommend a reliable filter, can with assurance suggest

The Berkefeld Filter



Used practically all over the world, under different climatic conditions, the Berkefeld is a Filter which always gives the greatest satisfaction.

All information concerning this British-owned and manufactured Filter, together with lists and prices may be secured on request to—

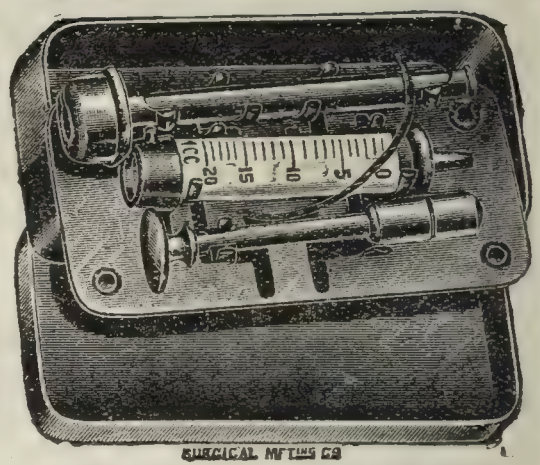
The Berkefeld Filter Co. (British),
Imperial House, Kingsway, London, W.C. 2.

(Wholesale only.) *Name of nearest retail agent on request.*

RECORD SYRINGES

	20 m.	1 c.c.	5 c.c.	10 c.c.	20 c.c.
Prices -	10/6	12/6	15/-	18/-	23/-

Complete with 2 Needles in Case as illustrated.



NEW GENERAL CATALOGUE NOW READY—
free on application to the Profession and Hospitals, etc.

SURGICAL MANUFACTURING COMPANY,
Surgical Instrument Makers to the War Office, etc.
83-85, MORTIMER ST., LONDON, W.

BRITISH MAKE.

The SINGER "10"

AN IDEAL DOCTORS CAR.

A FEW OF THE FAMOUS **SINGER "10's"** ARE NOW AVAILABLE FOR IMMEDIATE DELIVERY TO THOSE ABLE TO OBTAIN PERMITS FROM THE MINISTRY OF MUNITIONS.

PRECEDENCE IS USUALLY GIVEN TO DOCTORS.

IF WOULD-BE PURCHASERS SO DESIRE WE WILL MAKE THE NECESSARY APPLICATION ON THEIR BEHALF.

Write to-day for full particulars—

LONDON DEPOT:
17 HOLBORN VIADUCT, E.C.

SINGER & Co. LTD.
COVENTRY.

WATSON'S HÆMACYTOMETERS

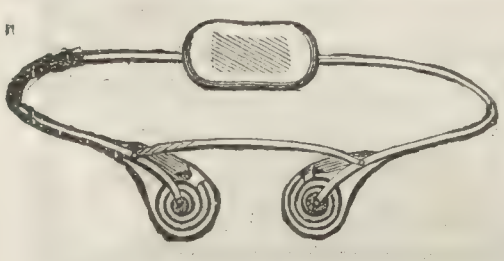
BRITISH MADE.

Thoma Rulings, with two Pipettes. **Price £1 : 12 : 6.**

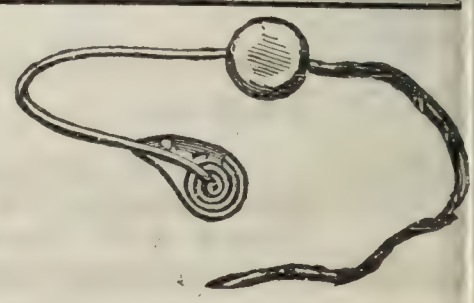
GUARANTEED ACCURATE.

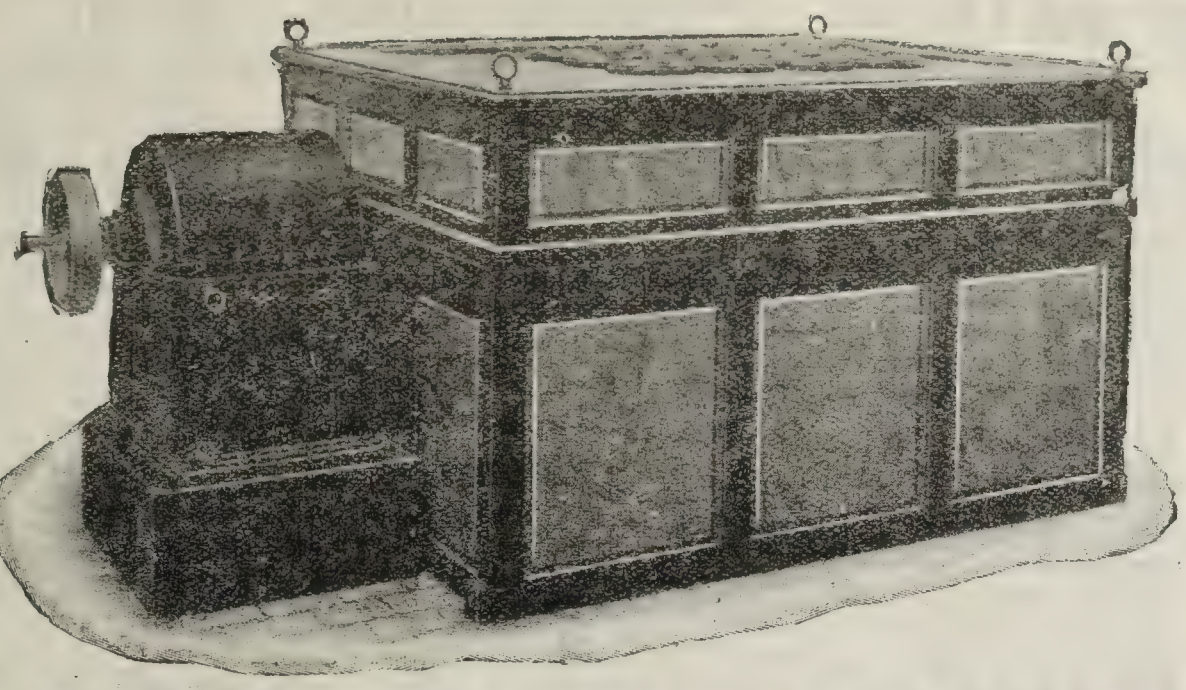
W. WATSON & SONS, LTD., 313, High Holborn, London, W.C. 1.

The latest Improvement in Trusses.



WM. COLES & CO.,
TRUSS SPECIALISTS. INVENTORS OF
THE SPIRAL SPRING TRUSS.
5, SACKVILLE STREET, PICCADILLY, W.
(Removed from 225, **PICCADILLY.**) *Particulars by Post.*
TELEPHONE—2646 Mayfair.





VACCINE REFRIGERATORS

We have a few A-S Refrigerating Machines ready for early delivery against Class A Certificate. These (French) machines are admirably adapted for Vaccine Refrigerators and to General and Field Hospital use. As used by the Indian Government, the Bland-Sutton Institute, etc.

BROWN, BOVERI & CO., Ltd., Caxton House Westminster, S.W.1.

The
NORWICH

CRÊPE ✚ BANDAGE

SUPERIOR ENGLISH MANUFACTURE
Extremely elastic, but contains no rubber.
FAST WOVEN EDGES.



"The stairs never worry me when I've got my Norwich Crêpe Bandage."

THE BANDAGE THAT CAN BE STERILIZED.

IMPORTANT
THE EDGES WILL NOT FRAY OUT NOR RAVEL.

Invaluable for all binding purposes. Entirely displaces bandages of rubber and elastic web. Considerably more durable, although less than one-third the cost of rubber or elastic web.



WOOL v. COTTON
Sterilized Bandages.

Patients having varicose veins and other ailments requiring the use of bandages usually suffer from cold extremities, due to bad circulation. They require *warmth* as well as support. The Norwich Crêpe Bandages, containing wool, provide this warmth and do not absorb grease so readily as those made of cotton. Moreover, they may be thoroughly cleansed by the use of *hot* (not boiling) soapy water, with the addition of a little ammonia or soda. The bandages are healthy and comfortable to wear, giving the necessary firmness, yet yielding to every movement. Self-clinging and self-adjusting.

The Norwich Crepe Bandage is supplied only through the leading wholesale houses, neatly wrapped in labelled packages. Its inexpensiveness, compared with foreign productions, and its high quality, universally commended by the medical and nursing professions, make it ideal for sufferers from varicose veins and for all purposes where bandages are required. Send for prices and samples to the sole manufacturers:

THE NORWICH CRAPE CO. (1856) LTD.,
St. Augustine's Silk Mills, Norwich, Eng.

London buyers can obtain samples and prices from Mr. T. Eastaway, London representative, 7, Wool Exchange, E.C. 2

Provincial Selling Agents:—Messrs. FREESE & MOON, 100, Bermondsey Street, London, S.E. 1.

THE NEW PATENT "PHONOPHORE" STETHOSCOPES

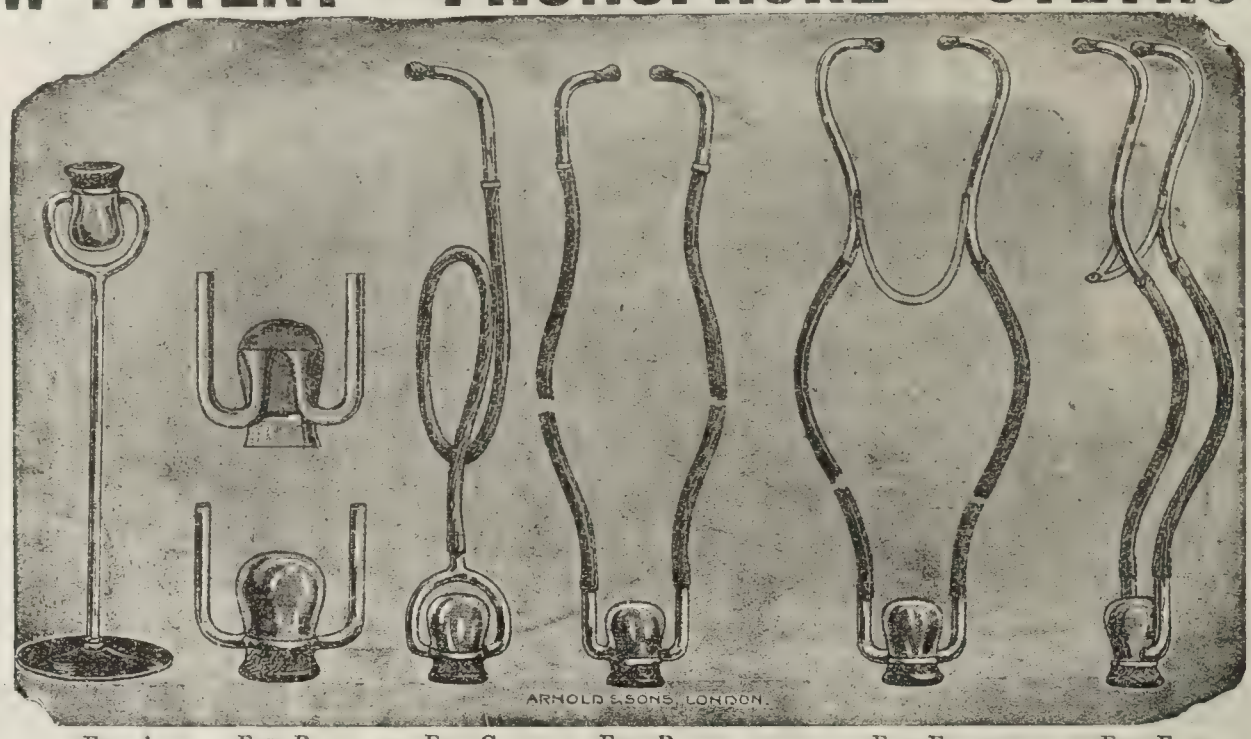


FIG. A. FIG. B. FIG. C. FIG. D. FIG. E. FIG. F.

The New Patent "Phonophore" Stethoscope	...	...	(Fig. A.)	8 6	The New Patent "Phonophore" Stethoscope, Double flexible		(Fig. D.) 13 6
Ditto	ditto	ditto	Chest piece	(Fig. B.) 7 6	Ditto	ditto ditto Binaural	(Fig. E.) 16 6
Ditto	ditto	ditto	Single flexible	(Fig. C.) 9 9	Ditto	ditto ditto ditto folding	(Fig. F.) 17 6

COPIES OF UNSOLICITED TESTIMONIALS.

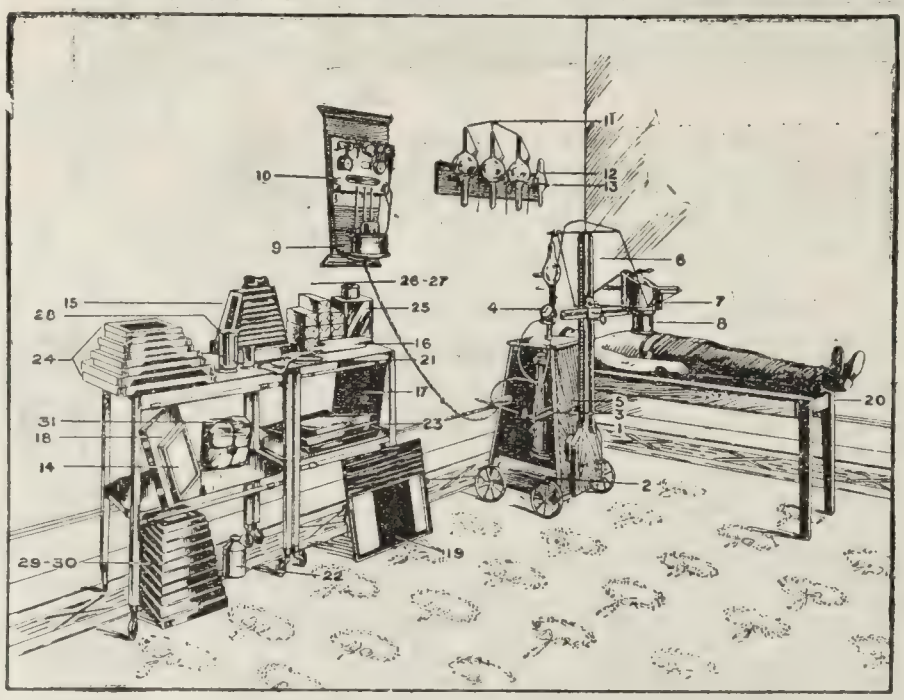
DEAR SIRS,—"I find that most certainly the chest sounds are rendered clearer and more distinct by your "Phonophore" than by any stethoscope I have used during over 30 years' work."—Yours, F.R.C.S.

DEAR SIRS,—"I have found your "Phonophore" by far the best stethoscope I have ever used."—Faithfully Yours.

Extract from the "British Medical Journal," Oct. 28th, 1911.—"Some years ago Messrs. Arnold & Sons, of Giltspur Street, E.C., brought out a Stethoscope which they named the 'Phonophore.' Its construction secured a considerably increased volume of sound, and the appliance gained favour among those dissatisfied on general grounds with ordinary stethoscopes, or whose needs, owing to some lack of aural acuity, were not adequately met thereby. Of this appliance the same firm has recently brought out a modification in which the bell-like attachment constituting the chest-piece is provided with two sound tubes instead of one. These tubes are continued upwards, the sound thus being conveyed to each ear direct from the collecting chamber. Each ear, therefore, receives the same amount of sound, although the same amount of sound may not be perceived if there is any difference in the hearing power of the two ears. The gross volume of sound is also greater than supplied even by the original 'Phonophore.' This modification of the 'Phonophore' is worth examination by anyone interested in stethoscopy.

ARNOLD & SONS, SURGICAL INSTRUMENT MANUFACTURERS, **Giltspur Street, London, E.C.**
(J. E. ARNOLD. E. R. ARNOLD.) Telegraphic Address: "Instruments, London." Telephone No. 5240 City (3 Lines).

THE HOUSE FOR EVERYTHING ELECTRO-MEDICAL



THE "KOMPACT" X-RAY INSTALLATION, No. 11, comprises:—

1. 12-in. Spark Intensified Transformer
2. Condenser
3. Spintermeter
4. Milliamperemeter
5. Oak Carrying Case
6. X-Ray Tube Stand
7. Protective X-Ray Tube Shield
8. Compressor Cylinder
9. "Triumph" Mercury Interrupter
10. Switchboard and Rheostat
11. Two X-Ray Tubes
12. One Valve Tube
13. Safety X-Ray Tube Rack
14. Fluorescent Screen with protective lead glass front
15. Collapsible Fluoroscope
16. Slide Rule for calculating exposures
17. Intensifying Screen
18. Intensifying Screen Casette
19. Special Negative Viewer, to take any size negative
20. X-Ray Couch
21. Pair of Protective X-Ray Gloves
22. 4 lbs. Mercury
23. Eight various size Developing Dishes
24. Eight various size Printing Frames
25. Dark Room Lamp
26. Ten Bottles Toning and Fixing Solution
27. 1 doz. Packets Tabloid Developer
28. Two Measure Glasses
29. 1 gross assorted X-Ray Plates, Best, up to 15 by 12
30. 24 Packets of Printing-out Paper, Full Set of Connecting Cords, heavily insulated.
31. 12 lbs. Hyposulphite of Soda.

"KOMPACT"
X-RAY INSTALLATION
No. 11. *Patented and Registered.*
BRITISH MADE.

As supplied to—
The British War Office — The Crown Agents for the Colonies
The Imperial Russian Government — The British Red Cross Society
And auxiliary Hospital Organisations throughout England, France, Egypt and Russia.

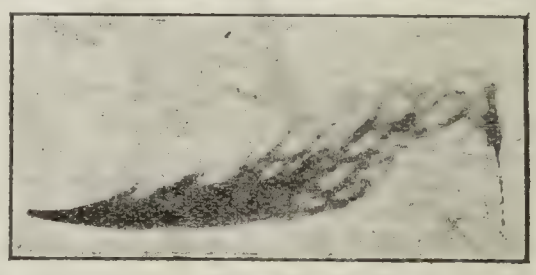
PRICE *(Complete as Illustrated and Detailed below),* **£130**

For Voltages from 50 to 250 Direct Current.
Can also be supplied to work on Alternating Current.

PLEASE SEND FOR DESCRIPTIVE CATALOGUE.

'Phone: 1570 HOLBORN.

The Medical Supply Association,
(E. E. GREVILLE, M.B., C.M., Proprietor),
Actual Manufacturers of X-Ray Apparatus,
107-185, Gray's Inn Road, London, W.C.



NOTE.

The extraordinary discharge through 12-in. of air space obtained with our "KOMPACT" OUTFIT, No. 11.

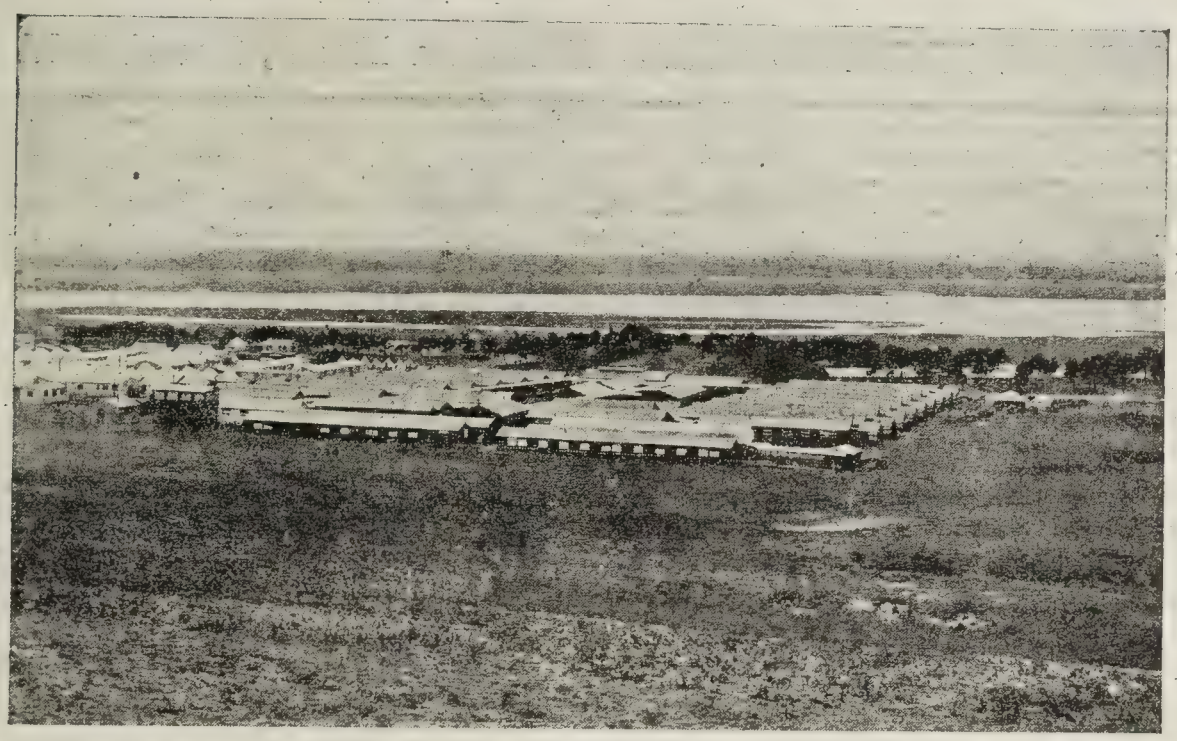
Founded 1834.

HUMPHREYS'

25 Gold and Silver Medals.

Mobile Hospital Buildings and the New Patent Brickwork System of Construction for Munition Factories and Dock Sheds.

HOSPITALS FOR 5,000 BEDS



ERECTED "SOMEWHERE IN FRANCE" AND "ELSEWHERE"

THE ABOVE COMPLETE "HUTTED" HOSPITAL FOR 540 BEDS ERECTED IN FRANCE.

SAILORS' AND SOLDIERS' MOBILE PANEL HUTS AND HOSPITAL WARDS

as supplied from Stock to the

British Government Departments, The British Red Cross Society, and Order of St. John of Jerusalem,

Etc., Etc., Etc.

Buildings shipped complete from our Works on the Thames. Standard Sizes, stocked in Sectional Panels, simple in construction, to erect abroad by ordinary labour.

For full particulars, Specifications and Estimates, apply to—

HUMPHREYS Ltd., KNIGHTSBRIDGE, LONDON, S.W. 7

(CONTRACTORS TO THE ADMIRALTY, WAR OFFICE, AUSTRALIAN & CANADIAN GOVERNMENTS.)

TELEPHONE: 6447 KENSINGTON (3 LINES). TELEGRAMS: HUMPHREYS, KNIGHTSBRIDGE, LONDON.

THE MOST ECONOMICAL INFANTS' FOOD.

TRADE MARK "FRAME FOOD"

Obtainable from all Chemists and Stores.

FULL SAMPLE SENT TO DOCTORS.

FRAME FOOD CO., Standen Road, Southfields, London.

GOLD MEDAL International Congress of Medicine, London, 1913.



MIST. DAMIANÆ CO. (HEWLETT'S.)

MIST. DAMIANÆ CO. (Hewlett's) will be found to possess all the properties of Damiana, viz:—Its alternative effects on the alimentary canal and tonic action upon the brain and nervous system generally.

In all the various forms of loss of nerve power MIST. DAMIANÆ CO. (Hewlett's) is a powerful remedy, relieving the exhaustion and conferring renewed capacity for mental and physical endurance.

As a nerve tonic and brain stimulant it is unequalled, and its invigorating properties will be found invaluable in many diseases where there is great depression and exhaustion. In paraplegia, hemiplegia, and partial paralysis, it is particularly indicated, and may be suitably and satisfactorily employed wherever a powerful nerve stimulant and restorative are required. *Dose—One or Two Drachms in Water.*

MEDICAL OPINIONS.

"I have tried your Mist. Damianæ Co. considerably in the dyspepsia of commencing phthisis, and can very strongly recommend its use in those cases. *It soothes the stomach wonderfully, and enables the patient to take more food whilst acting as a powerful stimulant in relieving exhaustion.*"—Yours faithfully, W. H. B.——, B.A.(Cantab.), M.R.C.S., L.S.A.

THE MEDICAL ANNUAL.—"Daminæ is not used so frequently in this country as in America, where its value as a tonic for Neurasthenia is well-known. Messrs. HEWLETT & SON put up a very excellent preparation of this drug combined with Nux Vomica and simple aromatics and bitters, which is valuable for dispensing, and yields very satisfactory results in treatment."—1898.

Dr. M——, R.N., writes:— "Farnham (Hants), Sept., 1903.

"I have frequently prescribed your Mist. Damianæ Co., and proved it efficient in treating Neurasthenia."

PRICE, 11/- per lb. Packed in 10-oz., 22-oz., 40-oz., and 90-oz. Bottles.

Introduced and Prepared only by— C. J. HEWLETT & SON, Ltd., 35 to 42, Charlotte St., LONDON, E.C.

Glycolactophos

THIS preparation being British, inability to obtain supplies need not be anticipated.

FORMULA.—Casein 95%, Glycerophosphate of Sodium 2½%, Glycerophosphate of Calcium, 2½%.

Its use is indicated in the treatment of Neurasthenia, Tabes Dorsalis, Neuralgia, Nervous conditions in which an excess of phosphates are excreted in the urine, Phthisis, Chronic Dyspepsia, Anæmia, Insomnia, and wasting diseases generally.

The presence of the Calcium salt gives it a high therapeutic value in the treatment of Rickets.

SAMPLES AND PARTICULARS SENT FREE TO THE MEDICAL PROFESSION ON REQUEST.

CLAY, PAGET & CO., LTD., 71, Ebury Street, Eaton Square, London, S.W.

Telegraphic Address—"Lactose, London." Telephone—Victoria 5043 (2 Lines).

EMETINE.

Hydrochlorid (WHIFFEN'S) Hydrobromid,

FOR HYPODERMIC INJECTION.

ALSO EMETINE—BISMUTH—IODIDE

FOR ORAL ADMINISTRATION.

"Fortunately we now possess in EMETINE—BISMUTH—IODIDE a drug which sterilizes chronic cyst carriers with a certainty not attained by any previous method."—*Vide* Dr. GEORGE LOW, M.A., M.D., in the *Medical Review*, February, 1917, page 56.

"Emetine is specific in Amœbic Dysentery."—E. R. WHITMORE, *New York Medical Journal.*

May be obtained by ordering Whiffen's Brand, from all Chemists and Wholesale Drug Houses in the United Kingdom and Abroad, or direct from—

WHIFFEN & SONS, Ltd., Battersea, London, S.W.

Telephone: 254 and 255 Battersea. *PAMPHLET, ON APPLICATION.*

A Wonderful Collection of Babies.



Under the auspices of a PUBLIC AUTHORITY, every one of the Babies shown in this photograph was brought up on cow's milk diluted with BARLEY WATER made from

ROBINSON'S "Patent" BARLEY.

The cheapest, best, and most natural food for hand-fed babies.

Send for Free Literature: Dept. B.M.J. KEEN, ROBINSON & CO., LTD., LONDON.

FELLOWS' SYRUP

Differs from other preparations of the Hypophosphites. Leading Clinicians in all parts of the world have long recognized this important fact. HAVE YOU?

To Insure Results,

PRESCRIBE THE GENUINE

℞ Syr. Hypophos. Comp. FELLOWS'

REJECT < Cheap and Inefficient Substitutes / Preparations "Just as Good"

THE FELLOWS MEDICAL MANFG. CO. LTD. MONTREAL & NEW YORK

First Class Award for Liquors and Liquid Extracts and Pharmaceutical Preparations International Medical Exhibition, London, '81.

BATTLEY'S LIQUORS

First Class Award at World's Industrial Exposition, New Orleans, 1885, Bronze Medal, St. Louis, 1904.

The following preparations have for many years been used and prescribed by medical men; they are therefore thoroughly recommended both on account of their high therapeutical properties and their great purity as galenical preparations.

Liquor Opii Sedativus (Battley)

Dose: 5 to 15 minims.

The Oldest and still the Best Hypnotic and Sedative.
Twice the strength of Tinctura Opii B.P.
Safe in use. No disagreeable after-effects.
Composition always reliable.

Liquor Cinchonæ Cord. (Battley)

Dose: 2 to 15 minims.

The most reliable preparation of Cinchona Bark.
Contains all the active principles of Yellow Bark.
Will remain unaltered for a great length of time, being free from starch, etc.

Liquor Cinch. Pallidæ (Battley)

Dose: 2 to 15 minims.

A well-known and useful preparation in Malarial Diseases and in Convalescence after Illness.
Does not disturb the stomach.

Liquor Secalis Cornuti (Battley)

Dose: 20 to 60 minims.

Pre-eminent among Ergotic Preparations for Purity and Strength, and has proved to be unrivalled in the following therapeutical actions:
As an Emmenagogue and Ecbolic, in Post Partum Hæmorrhage, as a Hæmostatic, etc.

Battley's Liquors are issued in 2 oz., 4 oz., 8 oz. and 1 lb. bottles.
They are prepared according to the original process of the late Richard Battley.

Telegraphic Address: "Sedative, London." *Sole Manufacturers:* *Telephone:* Central 2183.

BATTLEY & WATTS, 18 Wellclose Square, LONDON, E.

ENTERO-COLITIS

ESPECIALLY IN CHILDREN

is promptly relieved and the road to recovery is made safe and comfortable by the application of hot Antiphlogistine over the entire abdominal wall.

ANTIPHLOGISTINE

produces a depletion of the enteric and peritoneal vessels and stimulates the solar and hypogastric plexuses, relieves the tenesmus, the muscular rigidity and the pain.

ATHLETIC CONTUSIONS

Sprains—Strains—Spike Wounds—Traumatic Synovitis—Myalgia and other congestions due to outdoor activities, yield promptly to the application of hot

Antiphlogistine

TRADE MARK.

THE DENVER CHEMICAL MFG. CO., BOW, LONDON, E. 3.

"HALAZONE"

FOR THE DISINFECTION OF DRINKING WATER.

BOOTS PURE DRUG Co. Limited beg to announce that they are in a position to supply immediately tablets of "Halazone" (p-sulphondichloraminobenzoic acid), Dakin's new water disinfectant. *(Vide B.M.J., May 26th, 1917).* The action of "Halazone" is positive, and may be relied upon for the crudest of waters. Each tablet is sufficient to sterilize one quart of contaminated water, but in cases of extreme contamination a second tablet may be necessary.

"HALAZONE" IS INVALUABLE
FOR THOSE ON ACTIVE SERVICE.

Sold in bottles of 100 tablets, price **6d.**; Post free from Nottingham, **7½d.**

AN IDEAL ANTISEPTIC

OF WIDE APPLICABILITY IN THE TREATMENT OF INFECTED WOUNDS AND IN SURGICAL PRACTICE.

CHLORAMINE-T

(p-toluene-sodium-sulphochloramide).

Introduced by Dr. H. D. Dakin and his colleagues of the Leeds University.

THE use of Hypochlorite antiseptics marks a new era in treatment. The new product—CHLORAMINE-T, is a great advance on the solutions containing Hypochlorous Acid which are now so widely used. It is practically non-toxic, does not coagulate blood serum, and is stable both in powder and solution. It may be employed not only for the treatment of wounds, but also as a mouth wash, nasal or vaginal douche, and for urethral irrigation.

Supplied in Powder in 1oz. bottles, **1/2**; 4oz. **3/6**; 1lb. **12/6**; also in Tablets—8·75 grns.—bottles of 25, **1/4**; 50, **2/6**; 100, **4/6.** Tablets, 43·75—bottles of 12, **2/8**, for making solutions of known strength. All post free.

BOOTS PURE DRUG Co. Limited,

THE LABORATORIES,——————NOTTINGHAM.

JESSE BOOT, Managing Director.

Boots Pure Drug Co. Limited.

TRUE VINOLIA BRITISH.
ALL ALIKE PERFECT

VINOLIA
NURSERY REQUISITES.

VINOLIA BABY POWDER.

This pure, antiseptic Powder is scientifically prepared from an entirely new formula. It keeps the skin cool, prevents chafing and soreness, and can be recommended with the utmost confidence by members of the Medical Profession when asked to prescribe a Nursery Dusting Powder.

Nursery Box, with Puff - - 2/- *complete.*
Dredger-top Refills - - - 6d. *each.*
Sprinkler Tins - - - - 10d. „

VINOLIA BABY SOAP.

A guaranteed neutral and pure vegetable Soap, specially prepared for the tender skins of Infants.

4½d. per tablet; 1/1½ per 3-tablet Box.

ROYAL VINOLIA CREAM.

An essential for all nurseries. Soothing and healing. Allays irritation.

In Boxes, 1/1½, 2/-, 3/9 & 6/9.

SAMPLES SENT FREE ON REQUEST TO MEMBERS OF THE MEDICAL PROFESSION.

R V 200-29

VINOLIA CO. LTD.
LONDON — PARIS.



A NEW, IMPROVED AND ENTIRELY SATISFACTORY METHOD OF ADMINISTERING LIQUID PARAFFIN, ELIMINATING THE DISADVANTAGES OF THE UNCOMBINED OIL AND ADDING TO THE EFFICACY OF THE TREATMENT. OF PROVED VALUE IN

Constipation, Haemorrhoids, Malnutrition,

AND ASSOCIATED CONDITIONS.

OF SPECIAL VALUE FOR

INFANTS, CHILDREN & INVALIDS.

CONTAINING 50 PER CENT. OF PURE LIQUID PARAFFIN OF HIGH VISCOSITY AND PRESENTED IN DRY FORM.

'Wander' Malt Extract with Paraffin.

EXTREMELY PLEASANT TO TASTE, IT MIXES FREELY WITH MILK OR WATER WITHOUT SEPARATION OF THE OIL. THE HIGHLY NUTRIENT, DIGESTIVE AND MILK-MODIFYING PROPERTIES OF THE "WANDER" MALT EXTRACT ARE RETAINED UNIMPAIRED, THUS MAKING THE PREPARATION A VALUABLE ADDITION TO INFANT FEEDS.

IT MIXES THOROUGHLY WITH THE INTESTINAL CONTENT, PREVENTING FORMATION OF SCYBALA, AND DOES NOT CAUSE OVER LUBRICATION.

℞ *'Wander' Ext. Malti c Paraffin.*

We invite members of the Medical Profession to write for Clinical Trial Specimen.

A. WANDER Ltd.,
45, COWCROSS ST., LONDON, E.C. 1.
WORKS: KING'S LANGLEY.

M 82

ALL REACTIONS of the body fluids and tissues are COLLOIDAL.

Before a drug can exert its full therapeutic action it is necessary for it to become converted into the colloidal state (Dr. ———, in the BRITISH MEDICAL JOURNAL, 19th May, 1917).

CROOKES'

COLLOSOLS are Drugs in the Colloid State.

Collosols

COLLOSOLS are isotonic and isomorphic with the elements of the body.

COLLOSOL IODINE is superior to organic Iodine Compounds and Iodides. It is directly assimilated into the blood stream and is wholly absorbed. It never causes Iodism.

COLLOSOL IODINE AQUEOUS (1-500). Specially indicated for internal administration, and for prior intravenous injection in SYPHILIS. In CANCER the intravenous injection of Collosol Iodine relieves pain even where large dosage of morphine is ineffective.

COLLOSOL IODINE OIL and OINTMENT (3%). Specially indicated for parasitic affections—also for TRENCH FOOT. The Iodine particles penetrate the pores of the skin without staining the epidermis, which is kept supple.

COLLOSOL IODINE PASTA. Prepared in glyco-gelatin base forms a colloidal antiseptic skin, when heated and applied to the part affected. Is indicated in WOUNDS, BURNS, and SORES.

COLLOSOL SULPHUR for internal administration and **COLLOSOL SULPHUR BATHS** have the highest medical recommendation in all forms of RHEUMATISM and other fibrositic conditions. They are also specific in SKIN affections.

COLLOSOLS are prepared for the Proprietors, Crooke's Collosols Ltd., at

THE CROOKES' LABORATORIES,

50, Elgin Crescent, LONDON, W. 11.

COMBATS SERIES, 149a—KOREAN

SUPPLIES ARE AVAILABLE

TRADE MARK 'TABLOID' BRAND

HALAZONE

The new disinfectant for drinking water

A recent report to the Medical Research Committee (*B.M.J.*, May 26, 1917, pages 682-684), indicates the value of HALAZONE (*p*-Sulphondichloroaminobenzoic Acid) for the sterilisation of polluted drinking water.

Being portable and permanent, 'TABLOID' HALAZONE is especially serviceable in the field.

Each bottle contains sufficient to render from 12½ to 25 gallons of polluted water fit and safe for drinking purposes. Each product is sufficient normally to purify one quart of water.

'TABLOID' HALAZONE, 0·004 gramme

Supplied to the Medical Profession, in bottles of 100, at 8d. each



Archers and swordsmen of the escort accompanying the Korean envoy to Japan. Although the short Tartar bow of horn and sinew continued in use in Korea until very recent times, the weapon here carried appears to be the Japanese bow of bamboo and oak. Behind the warriors come porters carrying chests containing the treaty documents, or perhaps some of the less heavy material offered as tribute. Date, A.D. 1711.

BURROUGHS WELLCOME & CO. LONDON

NEW YORK MONTREAL
SYDNEY CAPE TOWN
MILAN SHANGHAI
BUENOS AIRES BOMBAY

All communications intended for the Head Office should be addressed to

SNOW HILL BUILDINGS, LONDON, E.C. 1

London Exhibition Room:
54, Wigmore Street, W.

COPYRIGHT

Prescribed by the Medical Profession for 35 years.

The BRITISH MEDICAL JOURNAL says:
"Benger's Food has, by its excellence, established a reputation of its own."

It speaks volumes for Benger's Food that after 30 years, it is a food increasingly prescribed both in hospital and private practice.

☛ **The following Opinions of Medical Men are of great professional interest.**

For Infants and Invalids.

"Ever since you introduced your Food, I have been in the habit of prescribing it for Infants and Invalids, and in my opinion, it surpasses and absolutely supersedes all other foods." M.B., B.S. Lond., F.R.C.S. Eng.

For Diseases of Children.

"I am a Specialist in Diseases in Children and am using Benger's Food extensively in my practice." M.D., M.R.C.S., F.R.C.S.

For Nursing Mothers.

"Invaluable for nursing mothers, especially for taking during the night when an easily assimilated food is required." M.D., L.R.C.P., L.R.C.S. Ed., L.F.P.S. Glas.

Old Age.

"My oldest patient, a gentleman of 95, refers to your Food as 'dear old Benger.' He has taken it for years; it always suits him, and he never tires of it. He has just recovered from a severe attack of pneumonia, and to show the stuff he is made of, he reads without glasses, still goes for walks, has been married three times, and has 50 grandchildren. I cannot refrain from sending you this unsolicited testimonial." M.D., C.M., M.R.C.S., &c.

Dyspepsia.

"I cannot give your Food a better testimonial than to say that I am dyspeptic myself. I find it extremely useful and always palatable." F.R.C.S.

For Diarrhœa.

"I have found it specially beneficial in checking incipient diarrhœa as well as for feeding up babies and keeping them in condition." F.R.C.S.

BENGER'S Food

for INFANTS, INVALIDS, AND THE AGED,

is sold throughout the World by Chemists, &c., in sealed tins; price 1/-, 1/6, 2/6, 5/- and 10/-.

A physician's sample, with full particulars, will be sent post free on application to any member of the medical profession.

BENGER'S FOOD Ltd., Otter Works, MANCHESTER, Eng.

Branch Offices

NEW YORK (U.S.A.) 92, WILLIAM STREET. SYDNEY (N.S.W.) 117, PITT STREET.

Canadian Agents — National Drug & Chemical Co., Ltd., 34, St. Gabriel Street, MONTREAL and depôts throughout Canada.

N.B.—BENGER'S FOOD is the direct outcome of the pioneer work on digestive ferments, by the late Sir William Roberts, M.D., F.R.S., and the late Mr. F. Baden Benger, F.I.C., F.C.S., in 1880, since when it has been the premier dietetic preparation of its kind in the British Empire.

M 68



'Bynogen'

Trade Mark

Brings Health



The Improved Casein-Glycerophosphate Food

Recommended in all Enfeebled Conditions, Mental and Nervous Exhaustion, Insomnia, Convalescence after Illness, etc.

"Bynogen" is a highly concentrated food of acknowledged value. It is specially rich in phosphorus, which is present in the condition in which it is found in brain substance and other nervous tissues.

Formula:

Pure, Soluble Milk Protein	75 per cent.	Sodium Glycerophosphate	2 per cent.
Dextrin-Maltose (specially prepared)	20 ,,	Calcium Glycerophosphate	2 ,,
Magnesium Glycerophosphate	1 per cent.		

Advantages:

Physical

Possesses a most attractive flavour and aroma, mixes readily with milk, water, and other fluids. May be eaten dry, if desired, or sprinkled on articles of solid food. Keeps good indefinitely.

Therapeutic

The percentage of Nitrogen is high. The Carbohydrate is in the most easily assimilable form. The mixed Glycerophosphates present the inorganic bases common in food-stuffs and do not cause constipation.

Medical Men are invited to write for samples of this unique Nutrient and Nerve Restorative.

Obtainable from all Pharmacists, in bottles with cartons at 1/9 and 3/- each.

Sole Manufacturers:

Allen & Hanburys Ltd., Lombard Street, London, E.C.

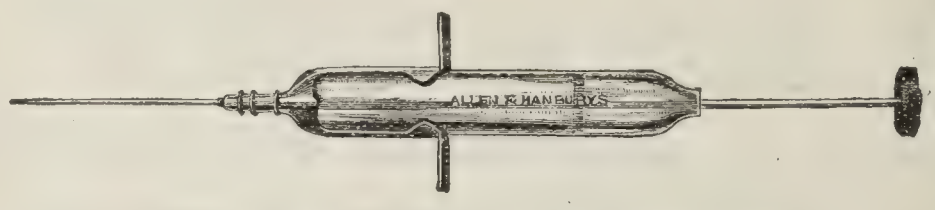
West End House: 7 Vere Street, W.

TRADE MARK
A.D. 1715.

Advances in Treatment

Intramuscular Injections in Syphilis

The most convenient and accurate method of administering intramuscular injections is by means of the "Hyposol" Ampoule-Syringe, which contains the dose of semi-fluid cream in the barrel and by a simple adaptation is made ready for use. Special intramuscular needles are supplied with the doses.



"Hyposol" Ampoule-Syringe charged with Salvarsan Cream ready for use.

"Hyposol" Trade Mark **Salvarsan,** doses of 0.1, 0.2, 0.3, 0.4, 0.5 or 0.6

"Hyposol" Trade Mark **Novarsenobenzol,** doses of 0.15, 0.3, 0.45, 0.6, 0.75 or 0.9.

"Hyposol" Trade Mark **Mercurial Cream,** 1 grain of Mercury in each.

"Hyposol" Trade Mark **Calomel,** doses of $\frac{1}{6}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ or 1 grain.

A booklet entitled "Hypodermic Medication," with a list of solutions supplied in "Hyposol" and "Azoule" form, will be sent post free on application.

Allen & Hanburys Ltd., London.

City House: 37 Lombard St., E.C.3. *West End House:* 7 Vere St., Cavendish Sq., W.1.

Byno Cascada

(Trade Marks)

The Ideal Tonic Laxative and Nutrient Digestive.

"BYNO CASCADA" presents the stimulating tonic laxative principles of the finest Cascara Sagrada and Rhamnus Frangula incorporated in "Bynin" pure active liquid malt.

The gentle, yet persistent, tonic effect of Cascara on the intestinal muscle, reinforced by the influence of "Bynin," in promoting the digestion and assimilation of food, renders "Byno Cascada" the ideal prescription to ensure normal bowel activity.

Equally valuable in childhood, in pregnancy, for nursing mothers, and in old age, "Byno Cascada" is preferred in scientific treatment.

Issued in Bottles at 3/- and 5/6.

Descriptive Pamphlet and Sample Free to Medical Men.

Allen & Hanburys Ltd.,

LOMBARD STREET, LONDON.

Niagara Falls, N.Y. Toronto. Buenos Aires Durban. Sydney.

THE COMBINED TREATMENT OF SYPHILIS.

SUPSALVS

STABLE SUPPOSITORIES OF "606" (OF FRENCH MANUFACTURE)

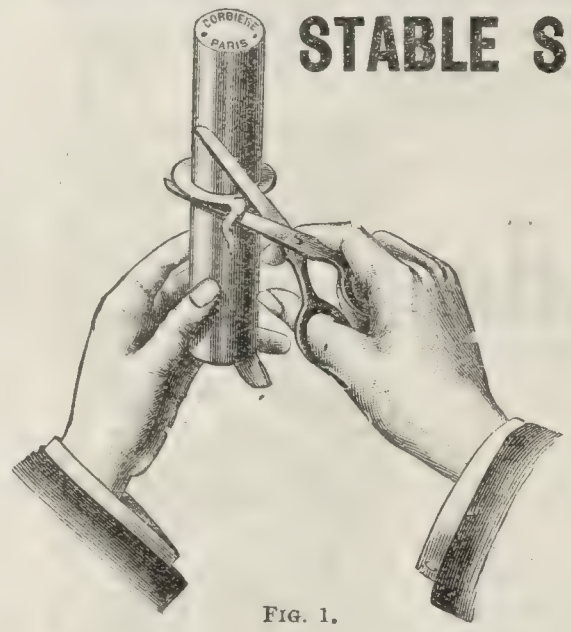


FIG. 1.

Fig. 1 represents the special patent metallic envelope containing a Supsalvs for hot climates. The projecting edge in the middle is cut by scissors—the two ends are then easily pulled apart. The envelope should first be immersed in cool or iced water for 10 minutes.

At the International Congress of Medicine Ehrlich stated that the biochemical action of "**606**" on spirochætes is not direct but indirect, a third factor found in the body fluids being necessary.

This success is explained by the well-known experiment of Levaditi: "If living treponemas be placed in a solution of Arsenobenzol (Ehrlich's 606) they continue to live in it. But if a trace of extract of liver be added to the mixture the treponemas are destroyed."

"If 606 has to be taken up and transformed **by the liver** in order to become toxic to the treponema, there is no better mode of absorption of the drug than **by way of the intestine,** since all the **veins of the intestines** join the **portal vein.** If this be the case no route could be more indirect and more unsatisfactory for active treatment than one that is not intestinal or not intravenous (*i.e.* prehepatic), since some of the drug must necessarily become fixed everywhere before the passage through the liver has activated it."—Dr. SABOURAUD, La Clinique (13-4-1913).

As a result of numerous clinical experiments, Dr. Bagrov, of Moscow, has arrived at the same conclusion, and recommends the rectal method of administration of 606.

200 cases were treated by the combined treatment in one of the London hospitals. In each case a negative reaction was attained.

Extremely Simple in use.

No Ill-effects.

Most Satisfactory Clinical Results.

Rapid Absorption.

MERSALV

FOR MERCURIAL INUNCTION IN CONNECTION WITH SUPSALVS TREATMENT

CHEMISTRY.—"Mersalv" contains *10 per cent. metallic mercury*, which by a special mechanical process exists in an exceedingly minute state of subdivision. It is a *non-greasy* preparation, and, in contra-distinction to other mercurial preparations, contains no organic fat or oils. **"Mersalv"** is of a white creamy consistence, of pleasant odour, and *cleanly in application.* **IN SPECIAL GLASS-STOPPERED BOTTLES FOR HOT CLIMATES.**



Rheantine is for the treatment of Gonorrhœa by the internal administration of specially prepared Anti-Gonococcus Vaccine. Messrs. Lumière and Chrevotier had since 1913 been undertaking a fresh series of experimental and clinical researches with reference to this subject. After considerable difficulties in their endeavour to find a suitable medium for the cultivation of Neisser's diplococcus, they discovered one based on the wort of beer, which perfectly answered to their requirements, and succeeded in preparing desiccated cultures, in vacuo, forming a perfectly anhydrous and stable vaccinal powder, containing about 500 millions bacilli per milligramme. This is administered in keratinised spherules. The clinical effects of Rhéantine on gonorrhœa in its various stages and in the complications of the disease are rapid, well marked and of the most encouraging character.

DOSE: 4 spherules per day.
Obtainable in metal boxes containing 28 spherules.

Antipyrin, Phenacetin and Pyramidon superseded.

CRYOGENINE

Adopted by the French Ministries for War and the Navy also by the Poor Relief Board.

"Cryogenine" is a white crystalline powder, odourless and almost tasteless, its chemical composition being Metabenzamidosemicarbazide.

"Cryogenine" has a high reputation as a **General Antipyretic** and **Powerful Analgesic.**

Papers on "Cryogenine" have been read before various Medical Societies by over 90 of the most eminent Continental Medical Men. In each paper clinical results of the most satisfactory character are recorded.

"Cryogenine" is obtainable in Tablets, Pills or Powder.

LITERATURE AND CLINICAL REPORTS ON REQUEST.

THE ANGLO-FRENCH DRUG CO., LTD., (late M. BRESILLON & CO.), GAMAGE BUILDING, HOLBORN, LONDON, E.C. 1.
Telephone: HOLBORN 1311. Telegrams: "AMPSALVAS, LONDON."

Iodogénol

IODINE in its **MOST RELIABLE FORM.**

PÉPIN

IODINE in its **MOST RELIABLE FORM.**

Iodogenol is a preparation containing Iodine in an organic, assimilable form, possessing about 38 times the physiological activity of that of Iodide of Potassium. This preparation has according to the clinical reports of eminent Medical Men, succeeded where the usual Iodide treatment has failed.

Iodogenol does not produce Iodism or other bad symptoms.

***INDICATIONS.*—SYPHILIS, RHEUMATISM, the various phases of TUBERCULOSIS, GENERAL DEBILITY, &c.**

LITERATURE AND CLINICAL REPORTS ON REQUEST.

THE ANGLO-FRENCH DRUG CO., LTD., GAMAGE BUILDING, HOLBORN, LONDON, E.C. 1.
Telephone: HOLBORN 1311. (Late M. BRESILLON & Co.) Telegrams: "AMFSALVAS, LONDON."



THRESHER & GLENNY

Established 1755. **Established 1755.**

Military Tailors since the Crimean War

152 & 153 STRAND
LONDON, W.C.

By Appointment to H.M. The King.

FROM G.P. TO R.A.M.C.

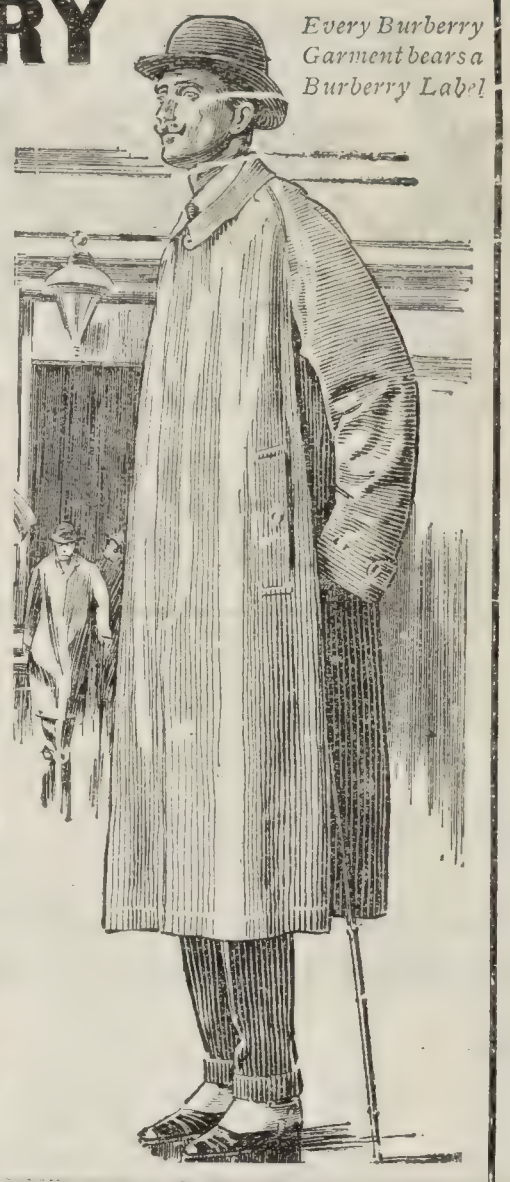
ALL said and done campaigning comfort is just a matter of kit comfort. Just as well, therefore, to give a little thought to the purchase of your kit. It doesn't require much consideration to see that the firm who has been in business for 162 years and whose registered "Thresher" Trench Coat (officially recommended by the War Office) is now worn by over 16,000 officers must be the one to supply your needs the most satisfactorily.

Thresher & Glenny's free book, N, "The Complete Guide to Expenditure on Kit and Equipment," is yours for the asking.

Field Service Jackets, Whipcord	84/-	Trench Coat—the 'Thresher' *i.e.*, the original Trench Coat...	94/6
Slacks, Whipcord ...	32/6	With Detachable Lining	126/-
Infantry Breeches, Bedford Cord	48/-	British Warms—	
Field Service Caps ...	15/6	Waterproof frieze ...	84/-
Sam Browne Belts (Belt and Shoulder Strap only) ... ... from	22/6	Camel Vicuna	105/-
Shirts, Khaki Flannel from	10/6	Raincoats, Regulation...	73/6
		Featherweight Rubber, in case	50/-

THE BURBERRY

The Super-Weatherproof



Every Burberry Garment bears a Burberry Label

REPRESENTS the most economical and distinguished form of protection in out-door Dress for war-time.

THE BURBERRY, by its efficient resistance to rain and winds, ensures comfort and security under conditions entailing prolonged exposure to chill and damp.

THE BURBERRY, by faultless natural ventilation, entirely avoids the vitiated heat of macintosh or rubber-lined coats.

THE BURBERRY is airylight and gives a splendid sense of freedom, whilst the strong, yet supple, texture of its material imparts exceptional hard-wearing properties.

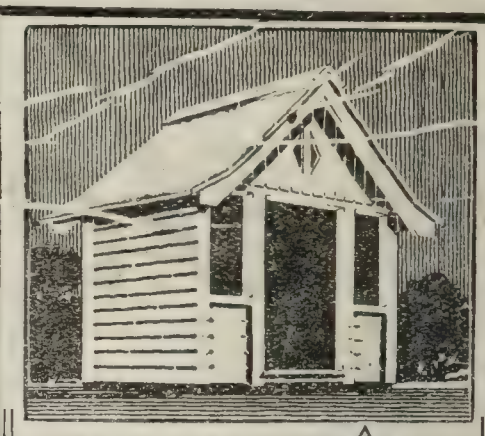
Patterns, Prices and Catalogue sent on application.

BURBERRYS' CLEANING WORKS.

Men's and Women's Dress Cleaned and Dyed by the most up-to-date process. Weatherproof garments cleaned and reproofed in the shortest possible time. Moderate charges. Price list sent on request.

Burberrys' Basingstoke House treats direct commissions from Doctors as approval orders, i.e., replaces with its own cheque returned non-approved garment.

BURBERRYS
BASINGSTOKE
(LONDON—HAYMARKET, S.W.)



OPEN-AIR CHÂLET

Browne & Lilly's picturesque and healthful open-air châlets are strongly recommended by the medical profession to all who require fresh air treatment. Draught and damp proof, they can easily be adjusted to sun, wind, and rain, and their price makes them accessible to all.

Write for Free Illustrated Catalogue of Portable Buildings, Motor Houses, etc.

All Goods Carr. Paid in England & Wales.

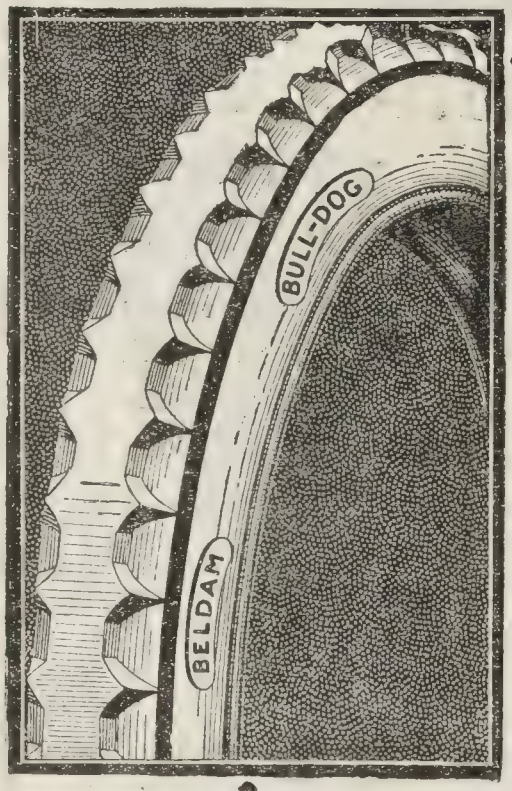
BROWNE & LILLY, LTD.
Manufacturers and Exporters,
THAMES SIDE, READING.

NATIONAL PROVIDENT INSTITUTION

Copies of Leaflets dealing with current Life Assurance topics will be sent post free to readers of the *British Medical Journal* on application to

48 Gracechurch Street, London, E.C.

Liveries.—Chauffeur's, Coachman's, Footman's.—Large Stock, all colours, Top Coats, under Coats, Breeches, Macintoshes, Leggings, Hats, Caps, Gloves, Carriage and Motor Rugs, best cloths, best make on approval. Send for Price List.—ARMSTRONG, 33, Connaught Street, Marble Arch, London, W.—*Telephone:* 1999 Paddington.



THE

BULLDOG

ALL-BRITISH TYRE.

BELDAM All-British Tyres are famous for long wear and for wonderful road grip. Beldam Tyres are made of the finest quality materials under ideal factory conditions by workmen of the highest skill. "Bulldog" All-British Tyres are made by the same men in the same factory and of the same design. Economies effected in manufacture reduce the cost. Result: A very high standard at a very moderate price. All usual sizes made.

Write for prices.

THE BELDAM TYRE CO., LTD., Brentford, Middlesex.

Godbolds

DOCTORS' DISPENSING CORKS.

Special Advertising Line

For 6 and 8 oz. Bottles, per 10 gross lot, **10/6** } *Carr.*
" " 20 " **20/-** } *Paid*

BEST VALUE IN THE TRADE.

TRY A SAMPLE BAG.

ALL OTHER SIZES IN STOCK.

West of England Cork Manfac. Co.
16 BRIDGE STREET EXETER.

BRASS NAME PLATES,

For the Profession.

The Plates are manufactured in stout metal, deeply engraved, mounted on polished mahogany blocks, with fastenings ready for fixing, from **10s. 6d.** *each.*

COOKE'S (Finsbury), LTD.
(J. W. COOKE & CO.),
Brass Plate Engravers, Memorial Brasses, &c.,
FINSBURY PAVEMENT HOUSE, LONDON, E.C.

Telephone 573 London Wall.
SEND FOR NEW ILLUSTRATED CATALOGUE.

CATALOGUE OF SECONDHAND SURGICAL INSTRUMENTS, OSTEOLOGY, MICROSCOPES, POST FREE.

Telephone: CITY 1706.



Half Sets of Osteology, Articulated Skeletons and Disarticulated Skulls. Secondhand Surgical Instruments, Osteology, and Microscopes bought, sold and Exchanged.

MILLIKIN & LAWLEY, 165, STRAND, LONDON, W.C. 2.

TAYLOR'S TYPEWRITER CO., LD.

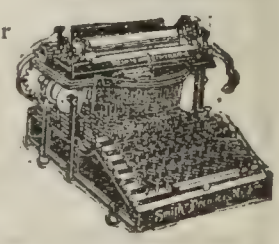
Bargains in all Makes.

BOUGHT, SOLD, EXCHANGED.

First Class Machines for £8 8 0.

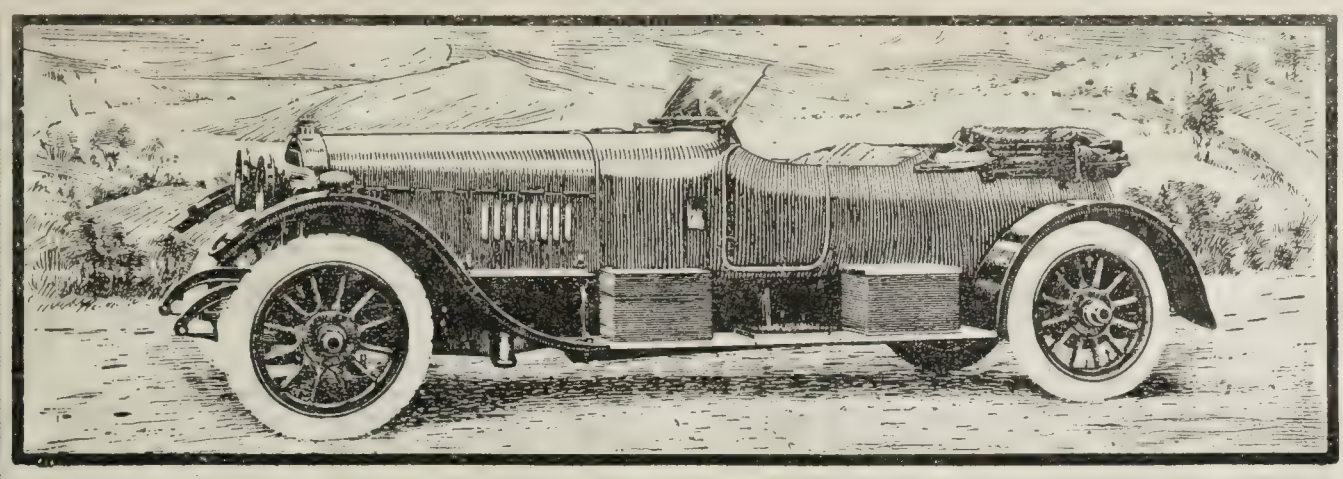
HIRE REMINGTON 7 / SMITH PREMIER 4

15/- OR **35/-**
Month. 3 Months.



Holborn 4810 (3 lines).

Dept. B.J., 74, Chancery Lane, London, W.C. 2.



The Measure of Value in a Car

must be reckoned by the service it gives. The measure of service given by Sunbeam cars in this great war has unquestionably placed them upon a higher plane of value than they have ever previously attained. Owners of pre war Sunbeams will appreciate the significance of this.

SUNBEAM

The design of the post-war Sunbeam engine will reflect the experience gained in the production of

SUNBEAM—COATALEN AIRCRAFT ENGINES

The SUNBEAM MOTOR CAR CO., Ltd.,

Head Office and Works, Wolverhampton - - Manchester Showrooms, 112, Deansgate.

London and District Agents for Cars - - - - J. KEELE, Ltd,, 72, New Bond Street, W. 1.

Motor Ambulances For HIRE

Silent, Speedy, Reliable.



DAIMLER Ambulances are fully equipped to afford the utmost comfort to the patient, including Stretcher mounted on special springs, Carrying Chair, Air-Bed, Waterproof Sheeting, Washstand (with an ample supply of water) and a fresh supply of linen for each case.

1 Hour up to 10 miles, £1 5s. Full Tariff on Request.

The Daimler Company, Ltd.,
HIRE DEPT.,
Store Street, Tottenham Court Road,
LONDON, W.C.

Daimler

Telephone:
Museum 4160.
Telegrams:
"Daimlerdom, London."

HOWARDS' SODII BICARB

The Purest and most Palatable made.

TASTELESS

Stocked by all Chemists.

PATRONISED BY THE ROYAL FAMILY.

A Real Sea Bath in your own Room.

TIDMAN'S SEA SALT

28 lbs., 3/6; Half cwt., 6/6; One cwt., 12/-. *Carriage Paid to any Address in the United Kingdom.*

Other Sizes: Small Packets, 1/6 per dozen; Boxes, 4d., 8d., 1/2, 2/-.

Orders for **10/-** *worth and upwards, any sizes, Carriage Paid.*

Of all Chemists, Druggists, and Drug Stores, or direct from the Proprietors—

TIDMAN & SON, Ltd., Wapping, LONDON, E.

HOLLAND'S

ENTIRELY BRITISH

PATENT

FOOT APPLIANCES.

RENOWNED FOR

EFFICIENCY & ELASTICITY.

ENTIRELY BRITISH

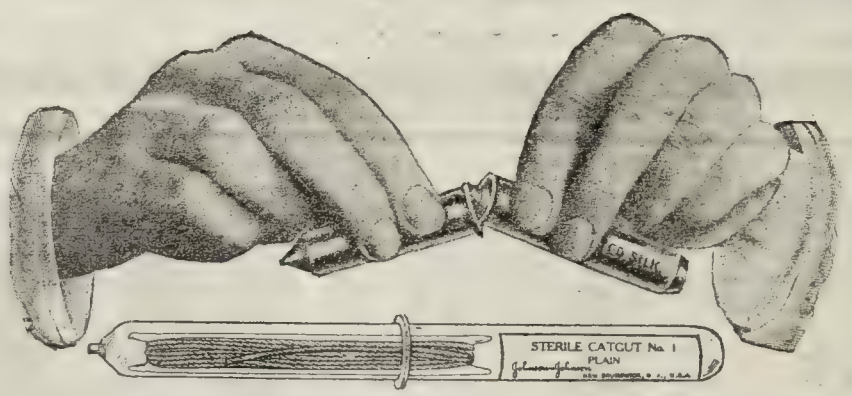
T. HOLLAND & SON, 46 SOUTH AUDLEY STREET, LONDON, W.

RELIABLE LIGATURES.

In ligature and suture material, there can be nothing better conceived for the sterile and aseptic preparation and conveyance of the same, than a hermetically sealed glass tube. Catgut or silk, as it is prepared in our laboratories must reach the surgeon's hands in absolutely sterile condition.

This is our positive guarantee.

BREAKABLE TUBES.



These Tubes possess advantages known to no other tubes. The perfection of Johnson & Johnson's Laboratory preparation of Ligature and suture material cannot be obtained elsewhere.

Specify

JOHNSON & JOHNSON,

or write for

"HANDBOOK OF LIGATURES"

and sample of STERILE CATGUT.

To Sole Agents:

JOHN TIMPSON & Co., Ltd.,

104, Golden Lane, E.C.

TELEGRAMS: "POROUS LONDON." TELEPHONE: 8815 WALL.

BRAND'S BEEF TEA.

Prepared from Finest

BRITISH BEEF.

Appetising, Nutritious and Convenient.

BRAND & CO., Ltd., Mayfair Works, Vauxhall, London.

FREEMANS CUSTARD

There's nothing else quite so good.

DEVONSHIRE

A Doctor can highly recommend gentleman (Public School, many years experience with invalids), can receive PATIENT in his beautifully situated house in Bath. Every comfort, care and attention. Massage and electricity if required. Moderate.—Address, No. 2115, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

DROITWICH BRINE BATHS.

WARNING.

The Public are warned that the full benefits of the treatment for Rheumatism and kindred complaints CAN ONLY BE OBTAINED IN THE NATURAL BRINE BATHS AT DROITWICH, FOR WHICH THERE IS NO SUBSTITUTE.

NAUHEIM BATHS ON THE MOST APPROVED PRINCIPLES.

Lovely Holiday District. Good Hotels, &c.

Illustrated Booklet post free from

J. H. HOLLYER,

15, Corbett Estate Offices, Droitwich (Worcs.).

SPECIAL FACILITIES TO MEDICAL MEN.

EPILEPSY.

THE LINGFIELD EPILEPTIC COLONY has accommodation for over 300 Patients. This includes a special School for children under the Board of Education. There is also a well-equipped Sanatorium, for the treatment of the more serious cases. — For further information, apply to the RESIDENT SUPERINTENDENT, The Homestead, LINGFIELD, Surrey. *Telephone:* 18 LINGFIELD.

EPILEPSY.

THE DAVID LEWIS COLONY has accommodation for Epileptic Patients of good social position — for Ladies and Gentlemen in special houses at the Colony —for Boys at **COLTHURST HOUSE SCHOOL.**

Terms for Ladies and Gentlemen from 30/- a week, Boys at the rate of 30/- a week.

For further information apply to the Resident Medical Superintendent, David Lewis Colony, near Alderley Edge, Cheshire.

EPILEPSY.—TO MEDICAL ADVISERS.

A modern house at Maghull, Lancashire, has been specially erected and equipped for the treatment of gentlemen suffering from Epilepsy. Experienced Medical and Nursing treatment. Farming and Gardening. Billiards, lawn tennis, cricket, bowls, &c.—Apply, W. GRISEWOOD & SON, Chartered Accountants, 2, Exchange Street East, Liverpool.

NEWMAINS RETREAT, NEWMAINS, LANARKSHIRE.

Licensed under the Inebriates Acts.

The House is devoted to the care of LADIES of the upper classes only, who can be treated either under the Acts or as Voluntary Patients. The place stands high and the estate is extensive, with bracing air and in good shelter. It is very retired and beautiful, well situated for the treatment of Inebriety, Narcomania and other perversions, Neurasthenia, Hysteria, and Minor Mental Ailments.

No patient under Certificate of Insanity can be received.

References:—Dr. G. M. ROBERTSON, Dr. YELLOWLEES, Dr. RISIEN RUSSELL, Dr. OSWALD, and others.

Terms and particulars on application to "Superintendent, The Retreat, Newmains, Lanarkshire." Nearest Station: Hartwood, Cal. Rly.

INEBRIETY.

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of gentlemen under the Act and privately. Established 1883 by an association of prominent medical men and others for the study and treatment of Inebriety; profits, if any, are expended on the Institution. Large secluded grounds on the bank of the River Colne. All kinds of outdoor and indoor recreations and pursuits.

For further particulars, apply to F. S. D. HOGG, M.R.C.S., &c., Resident Medical Superintendent. Telephone: 16 Rickmansworth.

INEBRIETY.

MELBOURNE HOUSE, LEICESTER.

PRIVATE HOME FOR LADIES.

Med. Attendant: R. SEVESTRE, M.A., M.D.Cantab.
Prin.: Hy. M. RILEY, Assoc.Soc.Study of Inebriety.
30 years' experience. Excellent Med. References.

For terms and Particulars apply Miss RILEY or PRINCIPAL. Telegrams: "MEDICAL, LEICESTER." Nat. Telephone: 769.

HOMES for INEBRIATE WOMEN

Ellison Lodge, HERNE HILL, S.E.
Corngreaves Lodge, Erdington, BIRMINGHAM
Hamond Lodge, Terrington St. Clement, King's Lynn, NORFOLK.
Temple Lodge, TORQUAY.

Terms: { DRAWING ROOM, **£2 2s., £1 1s.**
WORK ROOM, **15s., 12s. 6d., 10s.**
KITCHEN, **7s. 6d.** weekly.

No patient received for less than twelve months. No Female patient over fifty years of age admitted.

Application for forms and particulars to—
REV. GERALD A. THOMPSON,
Secretary, Church of England Temperance Society, 50, Marsham Street, Westminster, S.W.

THE MOAT HOUSE,

Tamworth, Staffordshire.

A HOME FOR NERVOUS AND MENTAL CASES.

Stations; L. & N. West. and Mid. Railways.

The House stands in grounds of ten acres (within five minutes' drive of either station), and is devoted to the care and treatment of a few Ladies suffering from Nervous and Mental Affections, who enjoy the comfort, privacy, and occupations of home life. Voluntary patients received without certificates.—For terms, &c., apply to Resident Licensees, EDWARD HOLLINS, M.A.Cantab., or (Mrs.) S. A. MICHAUX.

THE WARNEFORD,

OXFORD,

HOSPITAL FOR MENTAL DISORDERS.

President: The Right Hon. the EARL OF JERSEY.

This Registered Hospital, for the treatment and care, at moderate charges, of mental patients belonging to the educated classes, stands in a healthy and pleasant situation on Headington Hill, near Oxford. The gardens and grounds are extensive, the internal appointments are comfortable and refined, and the premises are lighted by electricity. The utmost degree of liberty, consistent with safety, is permitted, and amusements and occupation are amply provided. Parties are sent for change to the seaside during summer. Voluntary boarders are also received for treatment.—For further particulars apply to the Medical Superintent.

ST. GEORGE'S RETREAT,

Burgess Hill, Sussex.

An old-established licensed house under the management of the "Augustinian Sisters," for the treatment of LADIES MENTALLY AFFLICTED. Grounds nearly 300 acres. Drives and motoring. Marine, Brighton Residence (for change). Voluntary boarders taken. Resident and visiting medical officers. London 1¼ hours.—For terms apply to the Superioress.

Telephone: (Post Office 90x).
Telegrams: "Wivelsfield Green."

In Beautiful Country. 18 miles from London.

Littleton Hall, Brentwood, Essex.

(400 feet above sea-level). A HOME for a few LADIES Mentally Afflicted. Voluntary Boarders Received. Large grounds. Liverpool Street half-an-hour. Stations: Brentwood, 1 mile; Shenfield, 1 mile. Vacancy. For terms, &c., apply Dr. HAYNES. Telephone & Telegrams: "Haynes, Brentwood, 45."

BROOKE HOUSE,

CLAPTON, LONDON, N.

A HOME for the treatment of a limited number of Ladies and Gentlemen suffering from Nervous and Mental Diseases.

Stands in extensive grounds, and is well adapted for the treatment of Nervous disorders according to modern methods.

Resident Physician—GERALD JOHNSTON.
Railway Station: Clapton. *Telephone:* 1648 Dalston.

BETHEL HOSPITAL FOR MENTAL DISEASES,

Norwich.

(ESTABLISHED 1713.) Telephone: 330 NORWICH. An endowed Hospital for the reception of PRIVATE PATIENTS of both sexes. Voluntary Boarders admitted without certificates. Terms, from 35s. per week.—Full particulars on application to the MEDICAL SUPERINTENDENT.

Home

for the care and treatment of

Mentally Afflicted Ladies.

OTTO HOUSE,

47, North End Road, West Kensington, W.

The Home stands in large grounds close to West Kensington Station.

For Terms, apply to Miss BRODIE,
Resident Lady Superintendent.

Telephone: Hammersmith 1004.

A. H. SUTHERLAND,
(Licensed Proprietor),
2a, MARLOES ROAD, KENSINGTON, W.

BARNWOOD HOUSE

HOSPITAL FOR MENTAL DISEASES,

BARNWOOD, near GLOUCESTER

Telephone No. 307.

Exclusively for PRIVATE PATIENTS of the UPPER AND MIDDLE CLASSES.

This institution is devoted to the care and treatment of persons of both sexes at moderate rates of payment.

Under special circumstances the rates of payment may be reduced by the Committee.

For further information apply to JAMES GREIG SOUTAR, M.B., the Medical Superintendent.

BISHOPSTONE HOUSE, BEDFORD.

PRIVATE HOME for MENTALLY AFFLICTED LADIES. Ten only received. Terms from 4½ gns. weekly. Apply, "Medical Officer," or Mrs. PEELE. *Telephone 708.*

Grove House, All Stretton,

Church Stretton, Shropshire.

A Private HOME for the care and Treatment of a limited number of ladies mentally afflicted. Climate healthy and bracing.
Proprietor, Dr. MCCLINTOCK.

THE GRANGE,

NEAR ROTHERHAM.

A HOUSE licensed for the reception of a limited number of ladies of unsound mind. Both certified and voluntary patients received. This is a large country house with beautiful grounds and park, 5 miles from Sheffield. Station, Grange Lane, G.C. Railway, Sheffield. Telephone No. 34, Rotherham.

Resident Physician—GILBERT E. MOULD, L.R.C.P., M.R.C.S. Consulting Physician — CROCHLEY CLAPHAM, M.D., F.R.C.P.E.

ST. ANDREW'S HOSPITAL

FOR MENTAL DISEASES

NORTHAMPTON.

For the Upper and Middle Classes only.

President—The Rt. Hon. THE EARL SPENCER, K.G.

This Registered Hospital is pleasantly situated in 118 acres of park and pleasure grounds.

Every facility is provided for cricket, football, hockey, croquet, lawn tennis, bowls, golf, motoring, boating and gardening.

Terms from 31/6 a week. Voluntary boarders not under certificates are received.

Patients paying higher rates can have Special Attendants, Horses and Carriages, and Private Rooms in Villas in the Hospital grounds, or at

MOULTON PARK,

a branch establishment, two miles from the Hospital, where there is a farm of 473 acres, which supplies the Hospital with meat, milk, and other farm produce.

BRYN-Y-NEUADD HALL, LLANFAIRFECHAN,

The Seaside House of St. Andrew's Hospital, is beautifully situated in a Park of 331 acres, close to the sea, and in the midst of the finest scenery in North Wales.

Patients can enjoy good cricket, lawn tennis, croquet, golf, trout fishing and bathing.

Patients or Boarders may visit this branch for long or short periods, and can have Private Rooms in Villas in the Park.

For particulars apply to the Medical Superintendent, St. Andrew's Hospital, Northampton.
TELEPHONE No. 56.

Telegraphic Address, "RELIEF, OLD CATTON." *Telephone,* 290 NORWICH

Nervous and Mental Affections.

LADIES ONLY RECEIVED.

THE GROVE, OLD CATTON,

Near NORWICH.

A High-class Home for the **Curative Treatment** of Nervous Affections. Situated a mile from the City of Norwich. **Special** and **Separate** accommodation is provided for those suffering from **Hysteria,** and for cases of **Insipient** Mental trouble who can be received as **Voluntary Boarders** without certificates, and occupy their own private suites of apartments. A staff of experienced nurses has been organised to take charge of patients in their own homes. For terms, &c., which are moderate and inclusive, apply to the Misses MCLINTOCK, or to CECIL A. P. OSBURNE, F.R.C.S.E., Medical Superintendent.

CHEADLE ROYAL.

A HOSPITAL FOR MENTAL DISEASES,

CHEADLE, CHESHIRE,

and its seaside branch,

CLAN-Y-DON, COLWYN BAY, NORTH WALES.

The object of the above is to provide the most efficient means for the cure of mental diseases in those who belong to the **upper and middle** classes.

Voluntary boarders as well as certified patients are received for treatment

For terms and further information apply to the Med. Supt., W. SCOWCROFT, M.R.C.S., &c., at Cheadle, or he may be seen at 72, Bridge St., Manchester, on Tuesdays and Fridays from 2 to 3.
TEL.: 208 "Cheadle Hulme." 3594 "Manchester."

BOREATTON PARK,

BASCHURCH, SALOP.

A first-class Country Mansion especially adapted for the reception of a limited number of Ladies and Gentlemen mentally affected.

For particulars apply Dr. SANKEY.

PECKHAM HOUSE,

(ESTABLISHED 1826),

112, PECKHAM ROAD, LONDON, S.E.

Telegrams: "Alleviated, London." *Telephone:* New Cross 576.

An Institution licensed for the CARE and TREATMENT of THE MENTALLY AFFLICTED of Both Sexes. Conveniently situated. Electric trams and omnibuses from the Bridges and West End pass the House. Private Houses, with electric light, for suitable cases adjoining the Institution. Holiday Parties sent to the Seaside Branch at Worthing during the Summer months.

MODERATE TERMS.

Apply to MEDICAL SUPERINTENDENT for fuller particulars.

THE ROYAL EARLSWOOD INSTITUTION FOR MENTAL DEFECTIVES.

(Formerly the EARLSWOOD ASYLUM.)

REDHILL, SURREY.

E. C. P. HULL, Esq., J.P., Treasurer.

FOR THOSE REQUIRING CONTROL with EXPERT SUPERVISION, and needing SPECIAL TRAINING in useful occupations. SCHOOLS, FARMING, and various TRADE WORKSHOPS.

SELECTED CASES admitted on reduced inclusive fees. THOSE UNABLE TO PAY admitted by votes of Subscribers, with **part-payment towards cost.**

RECREATIONS: ALL outdoor games, EXCELLENT BAND by Male Staff, for Concerts, Dancing, &c.

Apply: THE MEDICAL SUPERINTENDENT, Earlswood, Redhill, Surrey, or to the Secretary, Mr. HARRY HOWARD, 14–16, Ludgate Hill, E.C.
Telephone: Redhill 344. Telephone: City 5297.

CAMBERWELL HOUSE, 33, PECKHAM ROAD, S.E.

Telegrams: "Psycholia, London." **Telephone: New Cross 1057.**

For the Treatment of Mental Disorders.

Completely detached villas for mild cases. Voluntary Boarders received. 20 acres of grounds. Cricket, tennis, croquet, squash racquets, bowls, and all indoor amusements. Senior Physician: FRANCIS H. EDWARDS, M.D., M.R.C.P. An Illustrated Prospectus, giving full Particulars and Terms, may be obtained on application to the SECRETARY.

HOVE VILLA, BRIGHTON.—A Convalescent Branch of the above.



NORTHWOODS HOUSE,

WINTERBOURNE, near BRISTOL.

FOR PRIVATE TREATMENT OF MENTAL DISEASES.

Situated in a large park in a healthy and picturesque locality, easily accessible by rail via Bristol, Winterbourne, Patchway, or Yate Station. Uncertified Boarders received.—For further information see Medical Directory, page 2053. Terms moderate. Apply to Dr. J. D. THOMAS, Resident Physician and Licensee, for full particulars.

HAYDOCK LODGE, Newton-le-Willows, LANCASHIRE.

A PRIVATE MENTAL HOSPITAL FOR THE UPPER AND MIDDLE CLASSES ONLY, EITHER VOLUNTARY, OR UNDER CERTIFICATE.

Patients treated and classified according to their social and mental condition. Terms from 31s. 6d. Private apartments on special terms. Established for 60 years. Under the same management 25 years. Recovery rate 50 per cent. Situated midway between MANCHESTER and LIVERPOOL. Two miles from Newton-le-Willows Station on the L. & N. W. Railway, connecting it with all parts.

Medical Staff. **Consulting Rooms—**

Resident Medical Proprietor - CHARLES T. STREET, M.R.C.S., L.R.C.P. LIVERPOOL: 47, Rodney Street. MANCHESTER: Winters' Buildings, St. Ann's St.
Resident Medical Superintendent J. C. WOOTTON, M.R.C.S.ENG., L.R.C.P.LOND. Dr. STREET. Thursday: 2 till 4. Dr. P. G. MOULD: Dr. G. E. MOULD, Tuesday and
Visiting & Consulting Physicians: Sir JAMES BARR, LL.D., M.D., F.R.C.P., 72, Rodney St., Liverpool. Telephone 2456 Royal. Thursday 12 to 1.30. Telephone 7611 Manchester.
W. B. WARRINGTON, M.D., F.R.C.P., 63, Rodney St., Liverpool. Liverpool. Other days by appointment.
G. E. MOULD, Physician for Mental Diseases to the Sheffield Royal Hospital, The Grange, Rotherham. For further particulars and forms of admission apply Resident Proprietor, Haydock Lodge, Newton-le-Willows. Tele.: "STREET, Ashton-in-Makerfield." Tel.: 11 Ashton-in-Makerfield.

NORTHUMBERLAND HOUSE, GREEN LANES, FINSBURY PARK, N.

(ESTABLISHED 1814.)

A PRIVATE HOME FOR THE TREATMENT OF LADIES AND GENTLEMEN SUFFERING FROM MENTAL AND NERVOUS AFFECTIONS.

Four miles from Charing Cross and easy of access from all parts. Six acres of ground, highly situated, facing Finsbury Park Private Villas in suites of rooms. Voluntary Boarders received without certificates.

For further particulars apply to the RESIDENT PHYSICIAN.

Telephone No. 888 North. Telegraphic Address; "Subsidiary, London."

THE COPPICE, NOTTINGHAM.

HOSPITAL FOR MENTAL DISEASES.

President: The Right Hon. the EARL MANVERS.

This Institution is exclusively for the reception of a limited number of **Private Patients** of both sexes, of the **Upper and Middle Classes,** at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements, affords every facility for the relief and cure of those mentally afflicted.

For terms, &c., apply to the Medical Superintendent.

MIDDLETON HALL,

MIDDLETON ST. GEORGE,

Near DARLINGTON, Co. DURHAM.

Private house for the care and treatment of ladies and gentlemen suffering from mental diseases.

This house, which is situated in a healthy and pleasant country, has been recently erected from plans approved by the Commissioners in Lunacy, and has been comfortably furnished throughout. Private rooms and special attendants are provided if required.

Terms to be had on application to L. HARRIS-LISTON, M.D., Medical Superintendent.

CLARENCE LODGE,

CLARENCE ROAD, CLAPHAM PARK, S.W. 4.

Stations: Clapham Road and Clapham Common.

LICENSED HOME FOR MENTAL & NERVOUS PATIENTS.

Twelve Ladies only received for treatment under eminent Specialist, and given individual care and the comforts of their own homes. Suitable cases received as Voluntary Boarders.

The House is surrounded by well-wooded grounds, shady lawns for tennis, croquet, &c. Associated rooms, private rooms, or suites; moderate terms.

Illustrated prospectus from Resident Licensee, Mrs. THWAITES. *T/N.: 494 Brixton.*

SPRINGFIELD HOUSE,

Near BEDFORD.

(Telephone No. 17.)

A PRIVATE HOME FOR MENTAL CASES,

Sunny situation, Dairy Farm, extensive grounds for Golf, Cricket, Football, Lawn Tennis, and Croquet; also an American Bowling Alley, Motoring, &c.

TERMS FROM 3 GUINEAS PER WEEK

(including Separate Bedrooms for all Suitable Cases without extra charge).

For forms of admission, &c., apply to **DAVID BOWER, M.D.,** as above, or at 5, Duchess Street, Portland Place, W., on Tuesdays, from 4 to 5.

STRETTON HOUSE,

Church-Stretton, Shropshire.

A Private HOME for the treatment of Gentlemen suffering from Mental diseases. Bracing hill country. See "Medical Directory," p. 1899.—Apply to Medical Superintendent. 'Phone 10 P.O. Church-Stretton.

Joton Hill Mental Hospital,

near Stafford.

hairman of the Committee of Management, The IGHT HONOURABLE THE EARL OF DARTMOUTH.—his Hospital, which is beautifully situated in a igh and healthy position, with extensive grounds, icket field, lawn tennis courts, golf links, &c., is evoted to the care and treatment of the mentally fflicted of the upper and middle classes. Terms on pplication. Private rooms with special attendants n the Hospital, or semi-detached villas in the rounds can be arranged.

For further particulars apply to R. W. HEWSON, .R.C.P. & S.Edin., Medical Superintendent

THE RETREAT

PRIVATE ASYLUM,

Near Armagh, Ireland. ESTAB. 1821.

icensed under Government Inspectors' supervision or the reception of Ladies and Gentlemen of the Upper and Middle Classes suffering from

MENTAL AND NERVOUS DISEASES

(Voluntary Boarders and Inebriates admitted).

For particulars apply to the Proprietor, Dr. J. GOWER ALLEN, J.P.

Telegraphic Address: "Loughgall, Armagh."

OVERDALE,

WHITEFIELD, near Manchester.

Telephone—33 Whitefield.

A HOUSE for reception of Ladies suffering from ental and nervous ailments, certified and uncertified, situated in a healthy country district. Resident hysician—PHILIP G. MOULD, M.R.C.S., L.R.C.P. -For terms apply to the Resident Physician. Consulting rooms—30, St. Ann Street, Manchester.

Glendossil and Hurst Houses.

—Considerable improvements have recently een made in both these Houses. They are in every ay adapted for the care and treatment of the entally afflicted of the upper and middle classes.—pply, S. H. AGAR, Henley-in-Arden, Medical uperintendent.

MALLING PLACE, KENT.

BEAUTIFUL SEVENOAKS DISTRICT

asy from town or Coast. Both sexes, mentally nsound, received under perfect condition of treatent. Tel. and Teleg.: Adam, 2, Malling; London, 6, Harley Street.

WYE HOUSE, BUXTON.

Established 1857

or the care and treatment of Ladies and Gentlemen entally afflicted. Voluntary Boarders received. ituated 1,200 ft. above sea level, facing S.; sheltered om N. and E. 14 acres of ground. 10 minutes from avilion Gardens, Bath, and L.N.W. and Mid. tations. Seaside Branch in Wales.—For terms apply o the Resident Medical Superintendent, GRÆME ICKSON, L.R.C.P., &c. Nat. Tel. 130.

HEIGHAM HALL,

NORWICH.

A Private Hospital for Cure of Ladies and entlemen suffering from **Nervous and Mental iseases.** Boarders received. French Chef. to 20 gns. weekly. See Advt. Med. Directory, .2052. Prop. and Resident Physician J. G. GORDON UNN, M.D., F.R.S.E. Telephone 80 Norwich.

BOURNEMOUTH HYDRO.

/ith finest Sun-lounge and Marine Balcony on the South Coast.

Every kind of Bath.
Every kind of Massage.
Every kind of Electricity.
Every kind of Diet.
Carlsbad and Vichy Waters, &c.
High Frequency. Electric Lift.

Prospectus from Secretary. *Telep.* 341.
Resident Physician:—W. JOHNSON SMYTH, M.D.



CATERHAM SANITARIUM.

Battle Creek System. All Baths, Massage, and Electricity. Bergonié Chair and Diathermy. Telephone 88. T.A. "Hydro," Caterham.

Resident Physician:
A. B. OLSEN, M.D., D.P.H.

DINSDALE PARK,

Near DARLINGTON.

Established 1855.

Licensed House for the Care and Treatment of quiet and chronic cases of Mental Disease. Most comfortable home. Beautiful surroundings.

For Terms apply to Dr. H. W. KERSHAW, Resident Physician and Proprietor.

Chesterfield.—Worcester Park, Surrey.

RESIDENT PATIENT received in lovely old world secluded doctor's house. Good cuisine. Trained Nurse. Large well wooded garden. Motoring and all outdoor sports. Billiards. Terms moderate. —LOUIS G. MACRORY, M.D. Telephone: Malden 159.

BRIGHTON.

CHARMING RESIDENCE (4 acres pleasure grounds), Massage, Electrical, Nervous Diseases, Chronic, Convalescent, Maternity, and Rest Cure Cases received. **Bungalow** in grounds suitable for any case.-Dr. HOLMES MEYRICK, Sylvan Hall, Upper Lewes Road. *Telephone:* 362 Brighton.

Haslemere Nursing Home,

"Courtsfold," Haslemere, Surrey.—**Rest Cure**, Weir-Mitchell, General Nursing, Resident Masseuses. Stands in 3½ acres and on gravel soil. Modern sanitation. Permanent Patients also taken, or those needing rest and change. Superintendents: Misses RATTRAY & MOORE. Telephone, 22 Haslemere.

Doctor, having had several

years' asylum experience, can receive certified LADY PATIENT for treatment. Modern residence, pleasantly situated, with sunny garden in healthy bracing position within view of sea. Comfortable home with every care and attention. Terms 5 guineas inclusive. Nerve or Rest Cure cases taken from 3 guineas per week.—B. A. MOLYNEUX, M.B., St. Helen's House, St. Helen's, Hastings.

Medical man receives one

good-class RESIDENT PATIENT (nervous, borderland, or mental). Having had experience in Institution work and with private patients, a certified or uncertified case received. Every comfort and the interests of home life. Well-appointed country house (billiard room), and farm land. Carriage riding, motoring, golf, &c.—Dr. DUFF, Collington Rise, Bexhill-on-Sea, Sussex. 'Phone: 11 Cooden.

London Fever Hospital,

Liverpool Road, Islington, N.

For the treatment of non-pauper patients suffering from infectious fever. Part of the cost is paid by the patient, the balance being found by the Hospital.

There are a few private rooms at 5½ guineas a week, payable weekly in advance.

No aid is received from the rates. Subscribers domestic servants removed at small cost and treated free of charge. For admission, apply to the Secretary,

W. CHRISTIE, Major.

SMEDLEY'S HYDRO,

MATLOCK. [*Established* 1853]

LARGEST AND MOST COMPLETE.

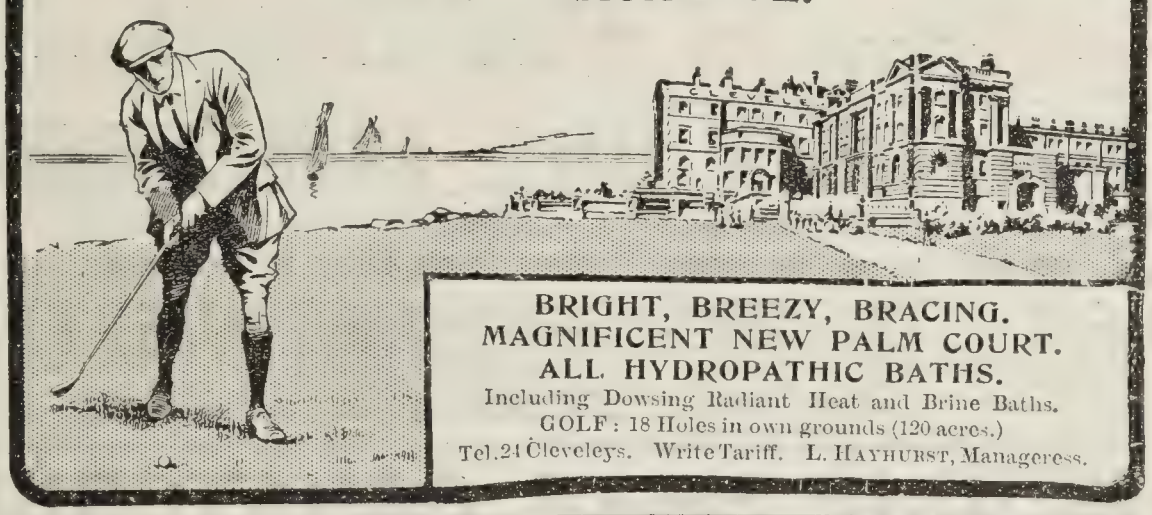
Resident Physicians: { G. C. R. HARBINSON, M.B., B.Ch., B.A.O.(R.U.I.)
R. MACLELLAND, M.D., C.M.(Edin.)

Unrivalled suites of Baths for Ladies and for Gentlemen, including Turkish and Russian Baths. Aix and Vichy Douches, Massage and Weir Mitchell treatment, an Electric Installation for Baths and Medical purposes, Dowsing Radiant Heat, D'Arsonval High Frequency, Roentgen X-Rays, Fango Mud, Nauheim Baths, etc. Special provision for Invalids. Milk from own farm. Large Winter Garden. Night attendance. Rooms well ventilated, and all bedrooms warmed in Winter. A large Staff (upwards of 60) of trained Male and Female Nurses, Masseurs, and Attendants.

Prospectus and full information on application to **H. CHALLAND, Managing Director.**
Telegrams—"SMEDLEY'S, MATLOCK." Telephone—No 17.

CLEVELEYS HYDRO

NEAR BLACKPOOL.



BRIGHT, BREEZY, BRACING.
MAGNIFICENT NEW PALM COURT.
ALL HYDROPATHIC BATHS.
Including Dowsing Radiant Heat and Brine Baths.
GOLF: 18 Holes in own grounds (120 acres.)
Tel. 24 Cleveleys. Write Tariff. L. HAYHURST, Manageress.

PAINSWICK SANATORIUM, COTSWOLD HILLS

Specially built for OPEN-AIR TREATMENT on the Chalet system. Delightfully situated in own grounds of 8 acres on southern slope 600 feet above sea-level. Bracing hill air. Dry porous subsoil. Sheltered from north and east. Specially designed Sleeping Bungalows, Verandahs, and Revolving Shelters. Specially constructed Recreation Hall. Separate Bedrooms. Electric communication between each Sleeping Chalet and rooms of Staff. Inoculation Treatment in all suitable cases without extra charge. Resident Physician. Trained Nurses. Terms: Two and a Half Guineas weekly.

Apply, WM. MCCALL, M.D., Painswick, Glos.

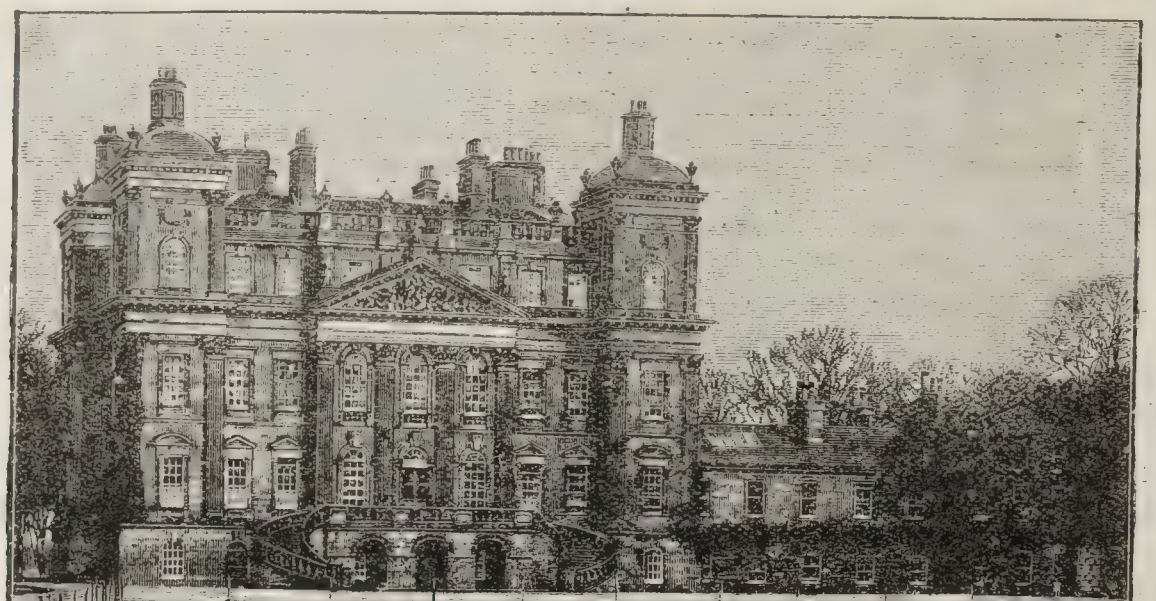
The Society for the Prevention and Cure of Consumption

in the County of Durham.

Early cases are received—Men at STANHOPE SANATORIUM, Women and Children over 10 at WOLSINGHAM SANATORIUM.
Terms Two Guineas weekly. Approved by L.G.B. for National Health Insurance cases.

Apply to the Secretary, Mr. F. FORREST, 54, John Street, Sunderland.

DUFF HOUSE, Banff, Scotland



a former home of H.R.H. the Prince Royal and His Grace the late Du of Fife, is now open to recei Patients suffering from

DISORDERS OF THE STOMAC AND INTESTINES, DIABETES GOUT.

and other complaints which ne skilled chemical investigation a dietetic treatment.

The House is fitted with Labor tories, X-ray Installation, Medic Baths and Lifts. The climate mild, and the rainfall the lowest Scotland.

The Staff includes Physicians wl have had special experience Chemical Pathology, Dietetics, a X-ray work, an Analytical Chemist, Matron, and fully Trained Nurses.



NORDRACH-ON-DE

(Near BALMORAL), SCOTLAND.

Open-Air Treatment of CONSUMPTIO and allied diseases.

TUBERCULIN and VACCINE TREAT MENT associated with Laborator Control is available for all patient residing in this Sanatorium.

Research Laboratory, Fully Equippe Throat Room, Roentgen Ray and Ultr Violet Light Installations.

Address, Dr. LAWSON, Banchory, N.B.

VALE OF CLWYD SANATORIUM.

This Sanatorium (opened 1901) is established for the treatment of Tuberculosis as carried out by Dr. OTTO WALTHER of Nordrach. It is situated in the midst of a large area of park-land, at a height of 450 feet above sea-level, on th western slopes of mountains rising to over 1,800 feet, which protect it from north and east winds, and provide many mile of carefully graduated uphill walks, similar in character and extent to those at Nordrach.

Small rainfall. Porous subsoil. Large amount of sunshine. Electric lighting, and hot water radiators in each room. The Physician himself was a patient at Nordrach.

For particulars apply to GEORGE A. CRACE-CALVERT, M.B., &c., Llanbedr Hall, Ruthin, North Wales.

PENDYFFRYN HALL SANATORIUM

Physicians:—Dr. DOBSON and Dr. GERATY.

FOR OPEN AIR AND INOCULATION TREATMENT OF ALL FORMS OF TUBERCULOSIS.

One of the first Sanatoria opened in the United Kingdom to carry out the Treatment as practised at Nordrach. Carefully graduated walks rise through pines, gorse and heather, to a height of over 1,000 feet above sea level, commanding extensive views of both sea and mountains, sheltered from E. and N.E. winds, Climate mild and bracing. Small rainfall. Large average of sunshine. There are over five miles of walks in the private grounds. Rooms heated by hot-water radiators and lit by electric light.—Apply, Secretary, Pendyffryn Hall, Penmaenmawr, North Wales. Telegrams: Pendyffryn; Telephone: No. 20 Penmaenmawr.

GRAMPIAN SANATORIUM

KINGUSSIE, INVERNESS-SHIRE.

Specially built for the Open-Air Treatment o Tuberculosis, and opened in 1901. Bracing mountai air. Elevation 860 feet above sea-level. Sheltere situation in pine wood. Graduated walks.

Electric light throughout building and in shelters

Inoculation Treatment available for patients-18 beds.

Resident Physician.

Terms 4 guineas weekly. For further particulars apply WALTER DE WATTEVILLE, M.D., Kingussie N.B., Medical Director.

MENDIP HILLS SANATORIUM, FOR THE OPEN-AIR TREATMENT.

Specially built, facing South. 300 acres of Sanatorium grounds—meadow and woodland; sheltered pine avenues. Altitude 850 feet, magnificent view for mile South; hot-water radiators and electric light. Special features are breathing, singing, and graduated exercises, walking and tramping; continuous inhalation decided success; electric treatment. Individual attention. *Resident Physician*—C. MUTHU, M.D., M.R.C.S., L.R.C.P.

Terms from 3 Guineas Weekly. **For particulars, apply, SECRETARY, Hillgrove, Wells, Somerset.**

THE HOME SANATORIUM,

WEST SOUTHBOURNE, NEAR BOURNEMOUTH.

For early Tuberculosis. Efficient hygienic treatment combined with home comfort. Skilled nursing. Night nurse. Excellent table Beautiful grounds. Croquet and Billiards.

Charges: Three to Five Guineas Weekly.

For Illustrated Prospectus and full particulars apply to J. E. ESSLEMONT, M.B., Ch.B., Resident Superintendent.

Telegrams: "SANABILIS, BOURNEMOUTH." *Telephone:* 61, SOUTHBOURNE.

OME FOR FEEBLE-MINDED.
BRUNTON HOUSE, LANCASTER.
ere are now a few vacancies in this well-appointed ivate establishment. It is easily accessible from ncaster, overlooks Morecambe Bay, and possesses tensive gardens and grounds, with tennis and oquet lawns. Varied scholastic and manual inruction. Individual attention is given to pupils by perienced staff under a Resident Physician and dy Matron. Terms on application to—
Dr. W. H. COUPLAND.

CHOOL FOR FEEBLE-MINDED,
"Rydal Hurst,"
TENNYSON AVENUE, CHESTERFIELD.
For Boys and Girls from 3 years upwards. pecial attention given to health, speech, eneral education, massage and Swedish xercises.
or prospectus and terms apply Miss MOLE.

The Grange, Buxton.—SCHOOL FOR GIRLS from 10 to 19 years. horough general education, with great attention health. Elder girls may specialise in Art, Music, iterature, or Languages. New Domestic Science anch for girls over 18. Tennis courts and field for ock y and Cricket. Prep. for Exams.—Principals, ie Misses DODD.

UNIVERSITY EXAMINATION POSTAL INSTITUTION.
7, RED LION SQUARE, LONDON, W.C. 1.
18 Medical Tutors, including 9 Gold Medalists.
Manager: Mr. E. S. WEYMOUTH, M.A.Lond.)
elephone —— *6313 Central.*
OSTAL OR ORAL PREPARATION FOR ALL MEDICAL EXAMINATIONS.
SOME RECENT SUCCESSES.
.B.—There are different modes of counting "successes." Figures given below do *not* include successes of private pupils of the Tutors. List of over 20 years' Successes sent on application. Names not inserted if privacy is desired.

M.D.(Lond.), 1901-16; (5 Gold Medalists during 1913-15	222
M.S.(Lond.), 1902-16 (including 3 Gold Medalists)	15
M.B., B.S.(Lond.). *Final* 1906-16 (Besides **8** who tried part only)	70
Primary F.R.C.S.(Eng.), '06-16	46
Final F.R.C.S.(Eng.), 1906-16. Including 5, May 1914, Exam -	29
M.R.C.P.(Lond.) 1914-16 -	17
D.P.H., (Various) 1906-16 -	139
F.R.C.S.(Edin.), 1906-16 - (3 entered 1914. All successful)	11
M.R.C.S,L.R.C.P. *Final* 1906-16 (Besides **5** who tried part only)	87
M.D.(Durh.) (Practitioners) '06-16	22

M.D.(Various). By Thesis.
Legitimate assistance. Moderate fees. Numerous successes. 5 successful Edin. M.D., July, 1913, including 3 "commended."
I.A.M.C.(Ent.), Jan. '14. Top Candidate.
I.N.(Entrance), March '14. Top Candte.
.M.S., July '15. Second Candidate.
lso **D.T.M., L.M.S.S.A., M.B.(Cantab., &c.) Triple Qualification,** &c.
Medical Prospectus (38 pages), General rospectus with names of Tutors, and special M.D. amphlet sent on application.

MEDICAL PRELIMINARY
ORAL LESSONS OR POSTAL COURSE.
pply to the Manager of the Institution, Ir. E. S. WEYMOUTH, M.A., 17, Red Lion Square, W.C. 1.

F.R.C.S.Edin.
The TUTORIAL CLASS for the next Examination ill commence shortly, Correspondence Tuition if esired. — For particulars apply FRED. GRAHAM, I.D., F.R.C.S.Ed., 16, Mayfield Gardens, Edinburgh.

VALUABLE BOOK FREE!
Are you preparing for any Medical or Surgical Examination?
Send Coupon below for our valuable publication
"Guide to Medical Examinations."
PRINCIPAL CONTENTS
The Examinations of the Conjoint Board.
The M.B. and M.D. Degrees of all British Universities.
How to pass the F.R.C.S.Exam.
The M.S.Lond. and other Higher Surgical Examinations.
The M.R.C.P.
The D.P.H. and how to obtain it.
The Diploma in Tropical Medicine
Do not fail to get a copy of this Book before commencing preparation for any Examination. It contains a large amount of valuable information.
Send for your Copy now!
The Secretary.
MEDICAL CORRESPONDENCE COLLEGE,
Ia, Wimpole Street, Cavendish Square, London, W.
Sir,—Please send me a copy of your "Guide to Medical Examinations" by return.
Name.....
Address.....
Examination in which interested .....

ST. MARY'S HOSPITAL MEDICAL SCHOOL,
PADDINGTON, W.
(University of London).
The WINTER SESSION will begin on October 1st, 1917. LECTURES and CLASSES in Preliminary, Intermediate and Final Subjects of the Curriculum will be resumed on this date.
For illustrated prospectus apply to the Dean, Sir JOHN BROADBENT, Bart., M.D., or to the School Secretary.

POST-GRADUATE STUDY.
London School of Clinical MEDICINE.
At the DREADNOUGHT HOSPITAL, Greenwich, and its affiliated Hospitals.
Operative Surgery and Pathology as usual.
Clinical Classes abandoned temporarily owing to the absence of many members of the Staff on War duties. C. C. CHOYCE, Dean.

ST. EDITH'S SCHOOL,
BRACKLEY, NORTHANTS.
TO BE OPENED IN SEPTEMBER.
A Woodard School for Girls.
Fees - 150 guineas a year.
Headmistress - - Miss E. R. PEARSON, M.A.
(*Late of St. Leonard's School, St. Andrews*).
The House is a magnificent mansion situated on high table land 400 feet above sea level, and is ideally convenient for the purposes of a Girls' School. There are 11 acres of gardens and playing fields.
While aiming at a thorough general education it is intended to pay special attention to languages, music, and art.
Enquiries should be directed to Miss PEARSON, St. Edith's School, The Manor House, Brackley, Northants.

WHY WORRY SEEKING A SCHOOL?
Information and Prospectuses Free. Any locality (Boys, Girls). State age, requirements, some idea fees.—Secretary, SCHOOLS AGENCY, 62, King Street, Manchester.

St. Thomas's Hospital Medical SCHOOL, Albert Embankment, S.E.
(University of London.)
OPEN SCHOLARSHIPS IN ARTS AND NATURAL SCIENCE.
The Examinations for these Scholarships will be held in the Library of the Medical School on July 24th, 25th and 26th. Entries close on July 9th. Entry forms and all particulars can be obtained from G. Q. ROBERTS, M.A.Oxon., Secretary.

Queen Charlotte's Lying-in HOSPITAL and MIDWIFERY TRAINING SCHOOL, Marylebone, N.W.
Medical Pupils admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing obstetrical complications and operative midwifery, about one-half the total admissions being primiparous ones. Certificates awarded as required by the various Examining Bodies.
Pupils trained for Midwives and Monthly Nurses. On being found competent, each pupil is awarded a Certificate of efficiency. Special preparation for examination for Central Midwives' Board. For rules, fees, &c., apply to
ARTHUR WATTS, Secretary.

The London School of Tropical MEDICINE (under the auspices of His Majesty's Government), Connaught Road, Albert Dock, E. In connection with the Hospitals of the Seamen's Hospital Society.
SESSIONS COMMENCE 1st Oct., 15th Jan., and 1st May.—For prospectus, syllabus, and other particulars apply to the Secretary, P. MICHELLI, Seamen's Hospital, Greenwich, S.E.

Medico-Psychological ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The Examination for the Certificate in Psychological Medicine will be held at Bethlem Royal Hospital on July 3rd, at 10 a.m. The Examination for the Gaskell Prize will be held at Bethlem Royal Hospital on July 5th and 6th, at 10 a.m.—For further particulars apply to Dr. MILLER, Hatton Asylum, Warwick,

EDUCATION.-DAUGHTERS
of Medical men special terms. Excellent School Residential Pupils only. Illustrated Prospectus from PRINCIPAL, MARLBOROUGH COLLEGE, BUXTON, DERBYSHIRE.

OUR DAUGHTERS AS HOMEMAKERS.
Practical training in Housewifery, Cooking, etc. Certificates. Moderate fees.—PRINCIPAL, MARLBOROUGH COLLEGE, BUXTON, DERBYSHIRE.

Royal College of Surgeons of ENGLAND.
ELECTION OF AN EXAMINER IN DENTAL SURGERY.
Notice is hereby given that the Council, on the 26th proximo, will proceed to the Election of a Member of the Dental Section of the Board of Examiners in Dental Surgery in the vacancy occasioned by the expiration of the period of office of Mr. W. H. DOLAMORE, who is eligible for re-election.
Persons duly registered under the Dentists' Act of 1878, who are desirous of being appointed, must make application in writing to the Secretary on or before the 18th proximo.
S. FORREST COWELL, Secretary.
28th June, 1917.

Royal College of Surgeons of ENGLAND.
ELECTION TO THE COURT OF EXAMINERS.
Notice is hereby given that the Council, on the 26th proximo, will proceed to the Election from the Fellows of the College of a Member of the Court of Examiners in the vacancy occasioned by the retirement of MR. L. A. DUNN, who does not offer himself for re-election.
Fellows of the College desirous of becoming candidates must make application in writing to the Secretary on or before the 18th proximo.
S. FORREST COWELL, Secretary.
28th June, 1917.

Scottish Women's Hospitals.
MEDICAL OFFICERS (women) Senior and Junior, required for Corsica. Work among Serbian refugees. Medical, surgical, maternity, and Tuberculosis. Salary £100 and £300 with board, uniform and travelling expenses.—Apply, PERSONNEL SECRETARY, S.W.H., 2, St. St. Andrew Square, Edinburgh.

Wanted, married Assistant or LOCUM, suitable house at hand, free of rent or rates, for Yorkshire. Work light. Please state essential particulars as to age, qualification, &c. Suit a man no longer young.—Address, No. 2123, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Wanted, fully qualified MEDICAL OFFICER (male or female) to enter on duty at an early date. For particulars of appointment apply to Inspector of Poor, Eday, Kirkwall.

Assistant (ineligible) required at once to reside at separate house in pleasant locality. Married or single. Little night work. No colliery. House, rates, coal, light, £25 per month.—Address, No. 2047, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Assistant wanted, indoor, country Practice. Work light. West Riding, York. No night work or midwifery. Partnership Share may be offered later. State essential particulars. — Address, No. 2119, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Management of a small Prac- tice in or near London is desired by a Doctor (ineligible) whose Practice he has recently disposed of, and would do some part time work pending. Middle-aged. Good refs. if required.—Address No. 2112, BRITISH MEDICAL JOURNAL Office, 429, Strand, London, W.C. 2.

Dispenser and Book-keeper wants situation, at present in London and disengaged. Experienced and capable.—Apply, C., c/o Mr. PERCIVAL TURNER, 4, Adam St., Strand, W.C. 2.

Lady Dispenser.–Considerable experience both private practice and institution. Book-keeping. Free for L.T. middle August. Permanency September. — Address, No. 2122, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Exempted Medical Man desires immediate ENGAGEMENT. Busy colliery experience, S. Wales and Lancashire, panel, etc. Busy practice preferred. Please state particulars and terms.—Address, W. JOHN, 59, Bickley Street, London, S.W. 17.

Resident post in good-class house, required by Lady Dispenser, qualified and experienced in town and country work. Book-keeping and full surgery routine. Locum or permanent. Good personal and working references. —Miss G. VICKRIDGE, "Rhonda," Worthing.

Officer, invalided, would act as CHAUFFEUR to country doctor in return for board and lodging.—Address, No. 2101, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Ship's Surgeon (ineligible for Military Service.—Messrs. ELDER, DEMPSTER AND CO., Limited, have a few vacancies for Surgeons in their West African Service. Pay £15 per month. Fees allowed for attendance on passengers. Length of voyage varies from six to ten weeks, according to particular route.—Apply, Medical Superintendent, Messrs. ELDER, DEMPSTER & Co., Limited, Colonial House, Liverpool.

Ship Surgeoncy. — Surgeon required for ship stationed off African Coast. 12 months' engagement. Salary £30 a month, all found.—Apply to J. C. NEEDES, 1, Adam Street, Adelphi, W.C.

Wanted Locum or Assistant- SHIP by an Indian Graduate. Abstainer. Married. Experienced in vast private and panel practice. Free July 1st to August 7th, and August 29th to October 30th. References. State terms.—Address No. 2113, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Locum Tenens.—No fee to principals.—Mr. PERCIVAL TURNER has a large staff of trustworthy Locum Tenens and will be happy to send one at short notice.—Address, 4, Adam Street, Adelphi, London, W.C. 2. Telegrams: "Epsomian, London." Telephone, Gerrard, 399.

Locum Tenens provided for long or short periods.—PEACOCK & HADLEY are prepared to send reliable and capable gentlemen to take charge of town or country Practices at short notice.—Address, 19, Craven Street, Strand, London, W.C. 2. *Telephone:* Central 1112.

Locum.—Medical man, well qualified, experienced and received, requires Locum at seaside or country, with hospitality for wife and child, from July 25th for two weeks.—Address, No. 2111, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

LOCUM TENENS PROVIDED

at ONE hour's notice.—Apply

ARNOLD & SONS,

(J. E. ARNOLD, E. R. ARNOLD.)

Surgical Instrument Manufacturers,

TRANSFER DEPARTMENT,

6, GILTSPUR STREET, LONDON, E.C.

Telegrams: "Instruments, London." Telephone: 5240 City.

Locum Tenens (abstainer) wanted early in July for three weeks in colliery Practice, South Wales Dispenser kept. Ten guineas a week and expenses. Please give particulars and references. — Address, No. 2107, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Locum Tenens wanted three or four weeks in August. Light work. Pleasant London suburb. — Address, No. 2103, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Locum Tenens wanted imme- diately.—Mr. PERCIVAL TURNER has numerous vacancies in Town and Country, long and short engagements, for reliable Locum Tenentes (ineligible for Military Service). Recent references required.—Apply (personally if possible), between 10 and 4, to 4, Adam Street, Adelphi, Strand, W.C.2.

Locum Tenens wanted at once (ineligible for Military Service). Must have good references.—Apply (personally if possible), ARNOLD & SONS, Transfer Dept., 6, Giltspur Street, London, E.C. (opposite St. Bartholomew's Hospital).

Locum Tenens wanted for about 6 or 8 weeks in August and Sept. in a good class country Practice. Work very light; hardly any midwifery or night work. Beautiful locality with very bracing air. State age, qualifications, two recent references and other essential particulars.—Address, 2116, BRIT. MED. JOURN. Office, 429, Strand, W.C. 2.

Locum Tenency.— Wanted by an experienced doubly qualified graduate for a few weeks in a first class Practice in North of England, Wales, or Scotland, preferably on Coast. Abstainer. Please state nature of work and terms. —Address, No. 2117, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Locum for three weeks from August 1st in Liverpool. Nice garden. Work light. State references and essential particulars.—Address, No. 2118, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Locum Tenens wanted for a fortnight after the first week of August. North Wales Coast. Work light.—Address, stating age, and essential particulars, No. 2121, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

As Locum. — Experienced gentleman, over Military age, will undertake light work. Torquay or England, S.W. Own motor. 8 guineas.—Address, No. 2109, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Experienced Locum, booking from July 10th. Highest references, Locum in Liverpool, Southport, Manchester area, and with view to succession, Partnership, or purchase preferred.—Address, No. 2104, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Medical Man (Ex-Lieut. R.A.M.C.) desires LOCUM. Free now.—Address, No. 2114, BRITISH MEDICAL JOURNAL Office, 429, Strand. W.C. 2.

War Locum wanted immediately, for the duration of the War, in London munition area. Panel 1,200. Must be active and drive car.—Address, No. 2039, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

War Locum (ineligible) at liberty for rest of war if nece-sary. References undeniable. Kindly state details and terms. —Address, No. 2120, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Midland Town.—Over £800 a year. Old-established good middle-class PRACTICE in residential part of busy town, with hospitals, &c. Easily worked, hardly any night work. Panel 900. Visits 3s. 6d. to 10s. Good corner house. Great scope. Vendor leaving through ill health. Premium one year' purchase. Personally investigated and recommended.—Apply, No. 6136, c/o Mr. PERCIVAL TURNER, 4, Adam St., Strand, W.C. 2.

Lady doctor Locum Tenens for Infant Consultation work wanted for July, August, and September. Salary 8 guineas per week.—Apply, Medical Officer of Health, Council House, Birmingham.

Wanted, Practices and PARTNERSHIPS.—Messrs. Arnold & Sons, Surgical Instrument Manufacturers, are in urgent need of Practices and Partnerships for several of their clients who are anxious to settle down at once. Send full details, in confidence, ARNOLD & SONS, Transfer Department, Surgical Instrument Manufacturers, 6, Giltspur Street, London, E.C. (opposite St. Bartholomew's Hospital).

Wanted by M.B., B.C., a PRACTICE of about £700 in nice country town with hospital or cottage hospital in the South of England. Now free to treat. Large house not required.—Apply, BLUNDELL & RIGBY, Walter House, 418-422, Strand, London, W.C. 2.

Wanted immediately, a panel and cash PRACTICE, producing not less than £750 per annum. Premium to be paid out of receipts. Can settle at once. Excellent references. —Send full details, in confidence, to Dr. "M.," c/o ARNOLD & SONS, Transfer Dept., 6, Giltspur Street, London, E.C. (opposite St. Bart.'s Hospital.)

Wanted sound middle-class PRACTICE in pleasant residential district in London or suburbs. Panel not objected to. Receipts £600 to £1,200 a year. Premium moderate. Purchaser can negotiate at once.—Apply, PEACOCK & HADLEY, 19, Craven Street, Strand, W.C. 2. (No charge unless sale effected.)

Wanted a General Practice within easy reach of London, and producing not less than £800 per annum. Must have good house and garden. Send full details to Dr. "H.", c/o ARNOLD & SONS, Transfer Dept., 6, Giltspur Street, London, E.C. (opposite St. Bartholomew's Hospital).

For disposal, Practices or PARTNERSHIPS.—Messrs. ARNOLD & SONS, Surgical Instrument Manufacturers, have been instructed to privately dispose of a large number of really good Practices and Partnerships. Gentlemen are requested to state their requirements and amount of capital available. No charge to purchasers.—Address, ARNOLD & SONS, Transfer Dept., 6, Giltspur Street, London, E.C. (opposite St. Bartholomew's Hospital).

For Sale.—A sound middle- class suburban PRACTICE. Receipts £1,400. Panel 1,000. Vendor joining the R.A.M.C., will accept £1,250.—Address, No. 2105, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

For disposal.—A good Prac- TICE is not always to be had directly, but Mr. PERCIVAL TURNER can generally offer applicants something suitable. Nearly all the best Practices are sold by him without being advertised.—Full information free on application to 4, Adam Street, Adelphi, Strand, W.C. 2.

A medical man of Indian nationality desires to dispose of his PRACTICE. Good panel, easily worked. Vendor willing to give a long introduction. An excellent opportunity for an Indian gentleman desirous of settling down in England. — Address, No. 2102, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Isle of Wight.–Small Practice about £380 p.a. Panel 350. Old-established. Practically unopposed. Boating, fishing, golf. Good house, garden, tennis; motor-house, £50 p.a. Premium £350.—Address, No. 1212, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

To Purchasers.—Do not buy without a full investigation by an expert. Thirty-six years experience has given Mr. PERCIVAL TURNER an unique ability to advise in all cases. Terms free on application to 4, Adam Street, Strand, W.C. 2. Telephone: Gerrard 399. Telegrams: "Epsomian, London."

To be given away for £50 an old-established PRACTICE. Income about £200. Excellent modern corner house, with garage and garden. Rent £120, short lease. S.W. London. Very little work, suit man with appointment.—Address, No. 2032, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Country Practice for sale.— Beautiful district near sea. Good sport. Easy work. Small house, nice garden. Last two years over £600 a year. Terms: immediate purchase, or long Locum introduction with option of purchase. Moderate terms. — Address, No. 1715, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Easy Terms.—London Suburb.—Good general PRACTICE in western suburb returning £1,000 a year. No panel taken. Easily worked. Fees 2s. 6d. to 7s. 6d. Good corner house and garden. Vendor joining R.A.M.C. Any reasonable terms accepted.—Apply No. 6156, c/o Mr. PERCIVAL TURNER, 4, Adam Street, Strand, W.C. 2.

Manchester Residential Suburb.—Good and old-established PRACTICE for Sale, owner retiring. Nice house, with garage, &c.; rent £55. Receipts about £950 per annum, with excellent scope. Selected panel. Six months' introduction. Price £600, part by instalments.—MANCHESTER MEDICAL AND SCHOLASTIC ASSOCIATION, 8, King Street.

East Anglia.—Very old unopposed PRACTICE in pleasant agricultural district on line of rail, returning £650 a year. Very safe investment. Small house. Rent £35 with garden. Panel about £300 a year. Good introduction. Price about one year's purchase, half down.—Apply, No. 6153, c/o Mr. PERCIVAL TURNER, 4, Adam Street, Strand, W.C. 2.

Yorkshire.—Wanted qualified ASSISTANT in small town for War period (ineligible), under 45, outdoor. General Practice and panel. Able to drive a Ford car or cycle. Salary £150.—Address, No. 2012, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Panel Practice £800 a year in London. Vendor joining R.A.M.C. No midwifery; can be worked as a lock-up. Ample scope for private practice.—Apply, No. 6154, c/o Mr. PERCIVAL TURNER, 4, Adam Street, Strand, W.C. 2.

Practice wanted, London, S.W. or W., middle-class with panel. Good house, moderate rent. Returns required, about £600 to £1,000.—Address No. 2110, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Kent.—Urgent. £500 a year. Easy terms. Unopposed, in good residential district. Easily worked. Rail close.—No. 6064, c/o Mr. PERCIVAL TURNER, 4, Adam Street, Strand, W.C. 2.

Death Vacancy.—In the best position of a leading North Country Hospital Town, a good general PRACTICE, of late including a principal proportion of ophthalmic work. Receipts upwards of £900.—Apply, J. A. REASIDE, The Medical Agency, Watergate House, Adelphi, W.C.

Required in or near Bournemouth, a General PRACTICE with Panel, and producing not less than £750 per annum. Free to settle at once. Send full details in confidence to Dr. "P.", c/o ARNOLD & SONS, Transfer Dept., 6, Giltspur Street, London, E.C. (opposite St. Bartholomew's Hospital.)

Death Vacancy.—£3,000 a year PARTNERSHIP. Owing to death on active service of junior partner, Half-share of old-established Practice in residential and manufacturing town in Midlands is for immediate disposal. Hospital in town. Practice increasing yearly. Expenses very moderate. Panel about 500. Visits 2s. 6d. to 21s. Good house available.—Apply to No. 6131, c/o Mr. PERCIVAL TURNER, 4, Adam Street, Strand, W.C. 2.

A South Country General Practitioner is desirous of considering applications for a PARTNERSHIP in his old-established and easily-worked Practice, mostly private, but some good appointments. Very pleasant and prosperous agricultural Hospital town.—Address, No. 2106, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

Established 1860.

Messrs. BEDFORD & CO.

(J. T. BEDFORD and C. E. BEDFORD),

Surveyors, Auctioneers, and Estate Agents,

10, WIGMORE STREET, CAVENDISH SQUARE, W. 1.

SPECIALISTS IN PROFESSIONAL HOUSES AND CONSULTING ROOMS IN HARLEY STREET AND LEADING MEDICAL POSITIONS

No charge to purchasers or tenants. Properties registered free of charge. Valuations for Probate and other purposes.

Telephone: 2412 Paddington.

Established 1845.

ELLIOTT, SON & BOYTON,

(J. Boyton, P. H. Winter, H. H. Holt & H. E. Allpress.)

Estate Agents, Auctioneers & Surveyors,

6, VERE STREET, CAVENDISH SQUARE, W. 1.

are the BEST LOCAL AGENTS for HOUSES and CONSULTING ROOMS in the Harley, Wimpole, Queen Anne, and other Streets in the Cavendish Square district. Valuations for all purposes.

TELEPHONE: 2408 Mayfair.

FOR SALE BY PRIVATE TREATY.

Crown House, Lord Street, Southport.—Offers to buy this Eligible Mansion and grounds are invited. The Site contains about 5,500 square yards, and is freehold and free from Chief Rent and from restrictive covenants. The property is suitable for Private Residence, Private Hotel, Hydro, or Boarding School. It is fitted with electric light throughout, and contains a splendid billiard-room, modernised stables with roomy cottage, garage with pit, and productive garden. Separate entrance to back premises.—Further particulars and orders to view may be obtained from Mr. THOMAS PHILLIPS, House & Estate Agent, 26A, Hoghton Street, Southport, or from Messrs. BUCK, COCKSHOTT & COCKSHOTT, Solicitors, Southport.

Garage, 17, Harley Mews S., Wigmore Street, W.

CARS STORED FOR ANY PERIOD.

Special attention to Owner-Drivers.

Leading Makes of British, French and American Tyres. Petrol, Oils, and Sundries supplied.

TOM NORTON, LTD., 40, Maddox Street, W.

Hanover Square, W.— CONSULTING ROOM with use of waiting room, bedroom if desired. Most suitable for Anæsthetist.—Address, Dentist, No. 2017, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

House to Let on Lease, 39, WEYMOUTH STREET, Harley Street, London, W. 1. Suitable for Specialist. Rent £150 per annum, up to recently occupied by medical man. For orders to view or further particulars, apply to Mr. PRITCHARD, Estate Offices, 7, Beak Street, Regent Street, W. 1., or Telephone 1070 Gerrard.

Consult HUGH P. McCONNELL, Automobile Engineer and Advisory Expert, 199, Piccadilly, London, W. 1, when about to Purchase or Sell a Motor Car. 15 years practical experience. Examinations and reports. Specialist on repairs. References to satisfied customers in Medical profession. Telephone: Gerrard 1960. One minute from Piccadilly Circus.

Bowls.—50/- Association Set Lawn Bowls, 4 pairs superior full-size selected lignum, medium bias, complete with two jacks in strong box, unused, price 29s. 6d.; also 2 pairs finest Standard Match Bowls, 3 bias, absolutely accurate bias, officially tested and stamped by Bowling Association, price 11s. 6d. pair, or lot for 49s. 6d.; new condition. Approval.—GILYARD, Darley Street, Bradford.

Tennis.—£2/2/- Set rigid square polished Ash Standards with ground plates, powerful fixing screws and brass net winder, unused 29s. 6d.; 21s. strong Waterproof Net, bound canvas, 14s. 6d.; three excellent 12s. 6d. Racquets, splendidly strung, 7s. 6d. each; 12 best new Club Balls, 7s. 6d.; lot for 65s. 6d.: worth £6. New condition. Approval.—GILYARD, Darley Street, Bradford.

R.A.M.C. and Naval Appointments.—Service DRESS and COMPLETE EQUIPMENT can be supplied to medical men who have obtained Commissions in the R.A.M.C. and Navy in 24 hours by Messrs. HARRY HALL. Unequalled value, perfect fit, and accuracy in every detail is guaranteed. Innumerable unsolicited appreciations have been received from satisfied officers. Patterns, abridged Price List, and if desired a simple self measurement form, post free on application to Messrs. HARRY HALL, 207, Oxford St., W., or 149, Cheapside, E.C.

IMPORTANT.—Visitors to London can order and be fitted the same day.

'Phones: Museum 820 and City 2086. *Telegrams:* "Hallzone," London, and "Arriarle," London.

Microscope for sale, Leitz., 1", 1/6", and 1/12" oil immersion, in case.—Address, No. 2108, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C. 2.

X-Ray and Electro-Medical APPARATUS, also ELECTRIC HEATING and COOKING APPLIANCES, including Hot Plates for Laboratory use, for Sale at very greatly reduced prices.—Write for particulars, ISENTHAL & Co., Ltd., Denzil Works, Willesden, N.W. 10.

Doctors' A/c Forms printed in best style—250, 6s.; 500, 8s. 6d.; 1,000, 13s. 6d. Letter heads, Post Card heads, Calling Cards, &c., at equally moderate rates.—R. ANDERSON & SON, Printers, 1, Hill Place, Edinburgh. Tel. 6034 Central.

DOCTOR'S TESTIMONIALS printed or typed for all posts, best work, quick dispatch. 30 yrs'. speciality.

Newcastle Eye Infirmary.

Wanted, a Non-resident HOUSE SURGEON. Commencing salary £140 a year. Out-patients last year 13,000; In-patients 490. Applications, with copies of not more than three testimonials, to be sent to the Secretary.

National Hospital and UNIVERSITY COLLEGE SCHOOL OF MASSAGE AND ELECTRICAL TREATMENT, Queen Square, W.C. 1.

(In connection with University College Hospital, Gower Street, W.C., and the National Hospital for the Paralysed and Epileptic, Queen Square, W.C. 1.)

Wanted, a woman as HEAD OF THE SCHOOL, to commence her duties not later than September 1st. Salary £200 a year with board and lodging. It is expected that the School Session will start early in October, and the Curriculum includes the teaching of Massage, Remedial Exercises and Medical Electricity.

Applications, stating age and qualifications, accompanied by not more than three recent testimonials, should be addressed, on or before July 14th, to the Secretary, National Hospital, Queen Square, W.C. 1.

Coventry and Warwickshire HOSPITAL, Coventry. 335 Beds. (185 of which are for wounded soldiers.) Special Eye, Ear, Nose and Throat, and X-Ray Depts. (Three Resident Medical Officers).

Applications are invited for appointment of HOUSE PHYSICIAN, with some surgical duties (3rd Resident). Salary £250 per annum, with rooms in the Hospital, board, washing and attendance.

Candidates must be duly qualified and registered, and ineligible for Military Service.

Applications, stating age and enclosing copies of testimonials, to be addressed to the undersigned.

(Miss) R. HOOPER, Assist. Secretary.

Board Room, 26th June, 1917.

City of York.

TEMPORARY TUBERCULOSIS OFFICER.

The York City Council invite applications for the post of Temporary Tuberculosis Officer from persons experienced in the diagnosis and treatment of Tuberculosis. Applications from persons of either sex will be considered, but male applicants must be ineligible for Military Service. The candidate appointed must devote whole time to the work.

Salary at the rate of £500 per annum, the appointment to be terminable at two calender months' notice.

Applications (stating when available) and accompanied by copies of three recent testimonials should be delivered not later than the 10th July, 1917, to

PERCY J. SPALDING,
Guildhall, York. Town Clerk.

Burton-on-Trent Infirmary.

HOUSE SURGEON.

The Committee require the services of a duly qualified RESIDENT HOUSE SURGEON. 102 beds, half Military, half civilian. Salary £250 per annum, with comfortable rooms, board, coal, and light. Duties to commence about the middle of July.

Applications, stating age and experience, and accompanied by copies of testimonials, should be sent at once to the Hon. Secretary, Mr. JOHN WOOD, The Infirmary, Burton-on-Trent.

The Belgrave Hospital for CHILDREN, Clapham Road, S.W.

RESIDENT MEDICAL OFFICER. This appointment is now vacant. Applicants must be fully qualified and registered. The appointment is for six months, with board, residence, and washing provided. Salary at the rate of £75 per annum. Applications, with copies of testimonials, should be forwarded as soon as possible to the undersigned from whom further particulars may be obtained.

ALFRED J. SMALL, Acting Secretary.

Royal Victoria and West HANTS HOSPITAL, Bournemouth. Boscombe Branch (including 216 Beds for Military Patients).

RESIDENT MEDICAL OFFICER required to commence duty August or September. Salary £300, with board, lodging, and washing. Candidates (ineligible for Military Service) must be registered and hold a Medical and Surgical qualification. Applications, with copies of testimonials, stating age and nationality to be sent to

GORDON M. SAUL, Secretary.

Ashley Road, Bournemouth.

Townleys Military Hospital, Farnworth, near Bolton.

Wanted, LADY ASSISTANT MEDICAL OFFICER. Salary £383 5s. per annum, with rations and apartments. Apply, stating age, medical qualifications, date of registration, and previous experience, together with copies of not more than three recent testimonials not later than 13th July, 1917, to

MAJOR R. B. SIDEBOTTOM, Officer-in-Charge.
Townley's Military Hospital,
Farnworth, near Bolton.

APPOINTMENTS.—Important Notice.

(a)—British Islands.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C. 2.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.		
ENGLAND.	**WALES.**	**WALES** (*continued*).
COVENTRY. (*As regards Dispensary Appointments.*)	ABERTILLERY. (*Colliery Appointment.*)	GARW VALLEY. (*Medical Aid Society.*)
FOREST OF DEAN. (*Medical Aid Associations.*)	BLAINA. (*Blaina and District Medical Aid Association.*)	LLWYNYPIA, GLAMORGAN. (*Colliery Appointments.*)
NOTTINGHAMSHIRE. (*All Colliery Appointments.*)	CWMTILLERY AND ROSE HEYWORTH. (*Collieries Workmen's Medical Fund.*)	OAKDALE, MON. (*Medical Officer for Model Village and Cottage Hospital.*)
WORCESTER. (*Amalgamated Friendly Societies' Medical Association.*)	EASTERN VALLEYS, MONMOUTHSHIRE. (*Workmen's Medical Association.*)	RISCA, YNYSDDU and CWMFELINFACH. (*Colliery Appointments.*)

(b)—Colonial.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C. 2.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. (*All Friendly Society and Education Department Appointments as Medical Officers, &c.*)	Dr. R. H. TODD, (Hon. Sec., New South Wales Branch), B.M.A. Building, 30–34, Elizabeth Street, Sydney, N.S.W.	QUEENSLAND. (*Brisbane Associated Friendly Societies and Australian Natives Association.*)	Dr. J. CAMERON HEMSLEY (Acting Hon. Sec., Queensland Branch), Whickham Terrace, Brisbane.	VICTORIA. (*All Friendly Society Lodge Appointments.*)	Dr. J. W. DUNBAR HOOPER (Hon. Asst. Sec., Victorian Branch), 2, Collins Street, Melbourne, Victoria.
		SOUTH AUSTRALIA. (*Friendly Societies' Dispensaries.*)	Dr. A. CAMPBELL MAGAREY (Acting Hon. Sec., South Australian Branch), North Terrace, Adelaide, South Australia.	WELLINGTON, NEW ZEALAND. (*Friendly Society Lodge Appointments.*)	Dr. H. E. GIBBS (Hon. Sec., New Zealand Branch), 123, Willis Street, Wellington, New Zealand.

Address: 429, Strand, W.C. 2.
June 27th, 1917.

By order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

Bristol Royal Infirmary.

Applications are invited for appointments of HOUSE PHYSICIAN and HOUSE SURGEON.

The appointments will be made subject to the terms and conditions of the War Office Scheme for granting commissions in the R.A.M.C. for which the successful candidates will be eligible.

Applications also considered from those ineligible for military service.

Salary at the rate of £120 per annum with board, apartments and laundry.

Candidates must possess registered medical and surgical qualifications.

For all particulars and conditions governing these appointments apply to the undersigned, to whom applications, accompanied by copies of testimonials, should be sent immediately.

W. E. BUDGETT,
19th Feb., 1917. Secretary & House Governor.

Wanted, a fully qualified

RESIDENT MEDICAL OFFICER in a MILITARY HOSPITAL. Unfit for Army. Not over 50 years of age. Good surgeon and anæsthetist. £300 and "all found."

Apply, Secretary, Crag Head Hospital, Manor Road, Bournemouth.

Manchester Children's

HOSPITAL, Pendlebury, near Manchester. (188 beds).

Wanted, TWO RESIDENT MEDICAL OFFICERS (ladies) who will be appointed for six or twelve months from 1st August. Candidates must be unmarried, doubly qualified and duly registered.

Salary at the rate of £200 per annum, including war bonus.

Applications, stating age, and accompanied by copies of testimonials, to be sent to the undersigned at the Hospital, Pendlebury, near Manchester, at once.

By order, W. M. HUMPHRY,
June 18th, 1917. Secretary.

Leicestershire Education

COMMITTEE.

ASSISTANT SCHOOL MEDICAL OFFICERS (TEMPORARY).

The Education Committee invite applications for the appointment of two temporary whole-time Assistant School Medical Officers (either male or female, but male applicants must be ineligible for Military Service), to carry out the Medical Inspection of Children in the County of Leicester, under the direction of the Chief School Medical Officer.

Applicants should have some special experience in Diseases of Children, and state in their application what experience (if any) they have had in Refractions.

The salary will be at the rate of £350 per annum together with travelling expenses.

Application forms and terms of appointment can be obtained from the undersigned, by whom applications must be received, together with copies of not more than three recent testimonials, not later than first post on the 6th July, 1917.

T. ROBINSON,
Chief School Medical Officer.
17, Friar Lane, Leicester.

West Herts Hospital

(50 Civil and 50 Military Beds). Hemel Hempstead, Herts (24 miles from Euston).

Wanted, a LADY RESIDENT MEDICAL OFFICER to commence duties in July. Salary £200. Rooms, board, and washing found.

Particulars to be obtained of, and applications, with copy recent testimonials, to be sent to,

ROBT. L. BUTTERFIELD,
Clerk to the Hospital.

Resident House Physician.—

Applications are invited for this post; salary at the rate of £200 per annum with usual allowances. The appointment will be made for six months. Selected candidates will be communicated with.—Apply, with copies of three recent testimonials, to the SECRETARY, HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill.

The Gloucestershire Royal

INFIRMARY AND EYE INSTITUTION. (140 Beds.)

ASSISTANT HOUSE SURGEON. Salary £150 per annum, with board, residence and laundry.

Candidates must be registered, and possess a Medical and Surgical qualification.

Applications, with testimonials, to be forwarded to the Secretary on or before Wednesday, the 4th July.

The elected candidate will be required to enter upon duty at once.

HENRY P. PIKE, Secretary.
Gloucester, June 21st, 1917.

South Devon and East

CORNWALL HOSPITAL, Plymouth. (189 beds).

The Committee invite applications for the appointment of a qualified HOUSE PHYSICIAN, male (ineligible for military service) or female. No age limit. To commence duties on 15th July. Salary £200, with board, residence, and washing. Candidates should send copies of not more than three testimonials to P. J. LANGDON, Secretary.

Plymouth, 1st June, 1917.

Queen Charlotte's Lying-in

HOSPITAL, Marylebone Road, N.W.

ASSISTANT RESIDENT MEDICAL OFFICER, Male (ineligible for Military Service) or Female, required. Applicants must be registered. The appointment is for four months. The selected candidate will be expected to proceed to the appointment of Senior Resident Medical Officer (also for four months) at the end of the term of office on the recommendation of the Medical Staff. The salary of the Assistant Resident Medical Officer is at the rate of £60 per annum, and of the Senior Resident Medical Officer £80 per annum, with board, residence, and washing. Applications, with copies (not originals) of not more than three testimonials, will be received by the Secretary up to July 4th.

Canvassing is prohibited. Duties to commence on 1st August, 1917.

ARTHUR WATTS, Secretary.

County Borough of Sunderland

TEMPORARY TUBERCULOSIS MEDICAL OFFICER.

In the absence of the Tuberculosis Officer on military service applications are invited for the appointment of a Temporary Tuberculosis Medical Officer (male or female), at a salary at the rate of £500 per annum.

The person appointed must be a registered Medical Practitioner, and must devote whole time to the duties of the office, and if a male must be ineligible for military service.

Preference will be given to those who have had special practical experience in the treatment of Tuberculosis at a Sanatorium or otherwise. Experience in the use of Tuberculin, and of other special treatment, is important.

The Officer appointed will have charge of the Tuberculosis Dispensary, and the general arrangements for the provision of Tuberculosis treatment thereat, and at the Tuberculosis Pavilion at the Borough Sanatorium. He must be prepared to act as expert adviser of the Borough Insurance Committee in regard to the diagnosis and treatment of cases of Tuberculosis.

Canvassing, directly or indirectly, until after the first selection of candidates by the Committee will disqualify.

Applications, stating age, qualifications, and previous experience, accompanied by copies of not more than three recent testimonials (which will not be returned), to be forwarded to the undersigned not later than 10th July, 1917, endorsed "Tuberculosis Officer."

NOTE.—A sum of £50 per annum is at present being paid to the Officer in respect of treatment of County patients in addition to the salary mentioned.

H. CRAVEN, Town Clerk.

Town Hall, Sunderland, 23rd June, 1917.

The South London Hospital for WOMEN, South Side, Clapham Common, S.W. 4.

The Board of Management invite applications from fully qualified Medical women for the posts of HOUSE PHYSICIAN and HOUSE SURGEON.

Appointments for a period of six months respectively, to date from August 1st.

Salaries at the rate of £100 per annum respectively, with board, residence and laundry.

Applications, with copies of testimonials, to reach the Secretary, at the Hospital, not later than the first post on July 9th.

Nottingham General Hospital.

Wanted a Holiday LOCUM TENENS (Medical woman) from 18th of July to 29th of August, 1917, inclusive. Salary at the rate of £250 per annum, with board and residence in the Hospital. Candidates are required to send testimonials, with particulars as to age, qualifications, and experience, to the Secretary, from whom any further information may be obtained. Applications must be delivered not later than the 5th of July.

By order, E. M. KEELY, Secretary.

Parish of Portsmouth.

FIRST ASSISTANT MEDICAL OFFICER (Male, ineligible for Military Service, or Female).

The Guardians of the above-named Parish invite applications for the appointment of a First Assistant Medical Officer for the Workhouse Infirmary, Workhouse and Children's Home.

The appointment will be subject to one month's notice on either side to the approval of the Local Government Board, and to the provisions of the Poor Law Officers' Superannuation Act, 1896.

Candidates must possess the qualifications required by the orders of the Local Government Board.

Salary £250 per annum, together with furnished apartments, rations, and all other allowances.

Applications to be made on printed forms, which may be obtained at this Office, accompanied by not more than three recent testimonials, and must be returned by Tuesday, 10th July, 1917.

Selected candidates will have notice to attend, and third-class railway fare and reasonable personal expenses will be allowed.

(By Order) E. H. MITCHELL, Clerk.

Guardians' Offices, 1, St. Michael's Road, Portsmouth, 22nd June, 1917

Manchester Union.

Wanted at once, at NELL LANE MILITARY HOSPITAL, West Didsbury, Manchester (3,500 beds), a LOCUM ASSISTANT RESIDENT MEDICAL OFFICER at a salary of £7 7s. per week, together with board, residence, &c. Must be ineligible for Military Service.

Applications, stating age and qualifications, and accompanied by copies of recent testimonials (not exceeding six in number) should be sent at once to the undersigned, endorsed "Assistant Resident Medical Officer."

By Order, JAMES MACDONALD,
Union Offices, Clerk to the Guardians.
All Saints, Manchester, 25th June, 1917.

West Ham Union.

OUT-RELIEF DISTRIBUTOR AND DISPENSER.

The Guardians invite applications for the above appointment (Male or Female) for the period of the War at their Central Relief Station, Cumberland Road, Plaistow, E. 13.

The person appointed must be competent to distribute the grocery stores, keep the various books of account relating thereto, and perform the necessary dispensing on the prescriptions of the District Medical Officers.

Assistance will be provided.

The salary will be after the rate of £2 per week.

Forms, upon which application must be made, and full particulars as to the duties of the office, can be obtained at the Guardians' Offices, Union Road, Leytonstone, E 11, or will be forwarded on receipt of a stamped, addressed, foolscap envelope, and must be returned by 10 a.m. on the 10th July, 1917.

Darlington General Hospital.

Required immediately, fully qualified HOUSE SURGEON, either male or female.

Salary £200 per annum, with residence, board and laundry.

Applications, with recent testimonials, to be sent to the Secretary, ARTHUR F. CREEK,
16, Greendank Crescent, Darlington.

Wolverhampton and Midland COUNTIES EYE INFIRMARY.

HOUSE SURGEON wanted on 29th August, accustomed to administer Anæsthetics and preferably with a knowledge of Refraction. Candidates must be ineligible for Military Service. There are 56 beds for In-Patients (20 of which are reserved for Military cases), and a large Out-Patient Department.

Salary £150, with furnished apartments, board and laundry.

Applications, with copies of three recent testimonials, should reach me not later than 14th July next. ARTHUR M. MANBY,
The Eye Infirmary, Secretary Pro. tem.
Wolverhampton, 27th June, 1917.

The Royal Infirmary, Sheffield. (353 Beds, of which 133 are Military).

HOUSE PHYSICIAN.

Wanted, a Resident Medical Officer, male or female (ineligible for Military Service) for the above post.

The person appointed, who must be fully qualified, will have charge of the Medical Beds under the supervision of the Honorary Medical Staff. Salary £120 per annum, with board and residence.

Applications, with copies of recent testimonials, to be addressed to me immediately.

By order. JNO. W. BARNES, Secretary.

Salford Union.

UNION INFIRMARY, Hope, Pendleton, near Manchester.

ASSISTANT RESIDENT MEDICAL OFFICER (Female).

The Guardians invite applications for this appointment. Candidates to be registered under the Medical Acts, and to possess a Medical and Surgical qualification. Salary £250 per annum, with furnished apartments, attendance, and rations in the Infirmary. The appointment will be subject to the sanction of the Local Government Board, and will be made in the first instance for one year, the lady appointed being required to devote the whole of her time to the performance of the duties. The Infirmary is used partially for Military patients. Applications, stating qualifications and experience, and accompanied by copies of not more than three testimonials of recent date, must reach me as early as possible.

Canvassing the Guardians will disqualify.

By order. E. H. INCHLEY,
Poor Law Offices, Clerk to the Guardians,
Eccles New Road, Salford, 11th June, 1917.

County Borough of Stoke-on-TRENT.

ASSISTANT LADY MEDICAL OFFICER.

Applications are invited for the position of Assistant Lady Medical Officer in connection with the Maternity and Child Welfare Work, etc., in the Borough. Salary £350 per annum. Particulars as to the duties and the conditions of the appointment may be obtained on application to the Medical Officer of Health, St. Peter's Chambers, Glebe Street, Stoke-on-Trent. Applications, endorsed "Assistant Lady Medical Officer," and accompanied by copies of three recent testimonials, to be delivered to me not later than 12 noon on Tuesday, July 10th, 1917. E. B. SHARPLEY,
Town Hall, Stoke-on-Trent. Town Clerk.
June 28th, 1917.

Aberdeen Royal Asylum.

TEMPORARY ASSISTANT PHYSICIAN wanted during War for the Royal Asylum, Aberdeen. Salary from £250 to £350 a year, according to experience, with board and lodging. Apply, giving references, and with copies of testimonials, to the Medical Superintendent.

Royal Victoria Hospital, Folkestone.

A vacancy occurs for a Male or Female RESIDENT MEDICAL OFFICER. Salary £200 per annum, with board and laundry. Hospital has 114 beds, of which 64 are allotted to the Military. Applications to Secretary.

THE LONDON TEMPERANCE
NURSES CO-OPERATION
18, ADAM STREET, PORTMAN SQUARE, LONDON, W.

Telephone: 2302 MAYFAIR. Telegrams "NURSLONTEM, BAKER, LONDON."

Supplies Fully Trained Hospital Nurses, also **MENTAL AND MALE NURSES.**

Nurses Insured against Accident. TERMS FROM £2 2s. TO £3 3s. APPLY SECRETARY.

THE NURSES' CO-OPERATION,
22, Langham Street, Portland Place, W.

FOUNDED 1891. INCORPORATED 1894.

Established to secure to Nurses the full remuneration for their work and to supply

FULLY-TRAINED HOSPITAL NURSES

MEDICAL, SURGICAL, MENTAL, MATERNITY, FEVER, CHILDREN'S, MASSAGE

To work under medical supervision.

The Nurses are fully insured by the Co-operation against the Employers Liability under the Workmen's Compensation Act, 1906.—Miss HOADLEY, Lady Superintendent.

Telegraphic Address: "Aprons, London." Telephone 6742 and 6743 Mayfair.

MENTAL NURSES (MALE and FEMALE) ASSOCIATION, Ltd.
54, George Street, Manchester Sq., W.

Telephone: MAYFAIR 2287.
Telegrams: "ISOLATION, LONDON."

Superior Mental Nurses (Male and Female) supplied at a moment's notice Day or Night for Nerve and Mental Cases.

NURSES FULLY INSURED AGAINST ACCIDENT. Apply SECRETARY.

FOR MENTAL, NERVE, AND MEDICAL NURSES.

THE MISSES STRONGWICK'S NURSING AGENCY,

55, Great Marlborough Street Regent Street, London, W. 1.

The Agency for supplying Experienced Nurses for Mental, Nerve, and Medical Cases.

Terms from 21/-.

We have now a specially efficient staff of Female Nurses, and we give the most careful consideration to suitability and knowledge when sending supplies.

Selected highly recommended Homes for Mental Patients. Particulars on application.

Established over 15 years. *Phone: Central 8686.*

ARMY & NAVY MALE NURSES CO-OPERATION.

Patroness: HER MAJESTY, QUEEN ALEXANDRA.

This Society supplies fully-trained Medical, Surgical or Mental Male Nurses, Valet-Attendants and Masseurs of unquestionable character, who have been thoroughly trained in the Naval and Military Hospitals.

Address: SECRETARY, 11A, Welbeck St., London, W.
Tel: Restoring, London. T/N: 2534 Mayfair.

THE MENTAL NURSES' CO-OPERATION,

49, Norfolk Square, Hyde Park, London, W. 2.

Telephone: 6533 Paddington. ESTAB. 1907. *Telegraphic Address:* Nursental, London.

Fully trained and experienced Nurses for MENTAL, NERVOUS, and MASSAGE CASES supplied immediately. All nurses insured under the Employers' Liability Act of 1906.

Apply to Miss JEAN HASTIE, Superintendent.

Telephone: PADDINGTON 2437.
Telegrams: "ASSISTIAMO, LONDON."

For

MENTAL NURSES

Male or Female.

We now have a thoroughly efficient Female Staff, chosen with the same care as are our Male Nurses, both in reference to their knowledge of nursing, and their suitability for private work.

(Mrs.) MILLICENT HICKS, *Superintendent*
W. J. HICKS, *Secretary.*

THE NURSES' ASSOCIATION

(In conjunction with the MALE NURSES' ASSOCIATION),

29, York Street, Baker Street, London, W.

GENERAL NURSING ASSOCIATION

5, MANDEVILLE PLACE, Manchester Square, W.

Established 1862, at Henrietta Street, Covent Garden. Thoroughly experienced Hospital-trained NURSES supplied at a moment's notice being Residents in the Home. Also Specially trained NURSES for Mental Cases worked under the system of Co-operation. Apply to the SUPERINTENDENT.

Telephone: Mayfair 115.
Telegraphic Address: "Nutrix Wesdo, London."

Telephone: Mayfair 7070.
Telegrams: Firths Association, London.

THE LONDON ASSOCIATION OF NURSES.

123, NEW BOND STREET, W.

Hospital Trained Nurses, experienced in Private Nursing, supplied for every kind of illness. Also Mental and Male Nurses.

Apply, LADY SUPERINTENDENT.

ST. JOHN'S HOUSE.

Trained and experienced Medical, Surgical, Maternity, NURSES and MASSEUSES can be obtained by application, personally or by letter, to the Sister Superior, 12, Queen Square, Bloomsbury.

Telephone No. 5099 Central (P.O.).
Telegraphic Address: Private Nurses, London.

MILDMAY NURSING INSTITUTION,

8 & 10, NEWINGTON GREEN, N.

Fully-trained NURSES for Medical, Surgical, Maternity, and Fever Cases to be had immediately on application to the Superintendent.

Telegraphic Address: "NURSING, LONDON."
Telephone No. 141 Dalston.

ST. LUKE'S HOSPITAL.

TRAINED NURSES for Mental and Nervous Cases can be had immediately.

Apply to LADY SUPERINTENDENT,
19, Nottingham Place, London, W

Telephone: "Mayfair 5420."

THE RETREAT, YORK.

TRAINED NURSES' DEPARTMENT,

Staffed by Nurses who have been trained for four years in the Retreat, and conducted upon a profit-sharing basis. Mental and Nervous cases only undertaken. Terms from Two-and-a-half to Three Guineas weekly.

Apply, MATRON, Retreat, York. *Nat. Tel. 112.*

London Hospital Private NURSING STAFF.

TRAINED NURSES for Adults and Children for Medical, Surgical, Maternity, or Massage Cases can be had immediately.

Apply Matron, London Hospital, Whitechapel.
Telephone: No. 5020 Avenue.

The nurses on the private staff return to the wards between their cases after sufficient rest, so that their work and knowledge are kept thoroughly up to date.

BLUNDELL & RIGBY,

Walter House, 418-422, Strand, W.C. 2

(Entrance Bedford Street.)
Telephone: 7148 GERRARD.
Cable Address: (viâ Eastern) "RECALLABLE, LONDON."

LOCUMS SUPPLIED.

Hants.—Unopposed Practice in beautiful district. Receipts £1,100, including £700 from resident patients. Transferable connection.

North London.—Middle-class PRACTICE. Receipts over £600 with great scope for active man. Panel 600. Few midwifery. Cottage hospital. Good house, rent £55.

Yorks (West Riding).—Old- established PRACTICE of £1,400 in prosperous district surrounded by open country. Panel 1,500. Good house. Premium £200 down and instalments.

War Sale.—Mixed Practice in good town in Hants. Receipts £1,100. Panel 1,200. Separate surgery for panel, &c. Appointments £60. No night work or Sunday work, and midwifery refused. Good house and garden. Rent £50. Prem. payable on easy terms.

Yachting centre.—Practice of £1,000 normal, £1,500 during the War. Premium only £750, £200 down. Appointments and panel £250. House has nice garden, tennis court, 5 bed rooms, bath room, etc. Rent £50.

Within 120 miles.—Very old established PRACTICE in nice country town. Receipts £1,300. Appointments £200. Panel 950. Consulting room, surgery, 2 reception, 6 bedrooms, good garden. Rent £40. School, society, hunting, golf. Station. Cottage hospital. Illness cause of sale. Premium 1 year's purchase, part deferred.

Dorset.—Unopposed Practice in country district. Receipts £288, could be doubled. Good house and garden. Rent £38. Premium only £200.

Purchasers stating their requirements can have Particulars of other Practices not advertised.

LEE & MARTIN LTD.,

THE BIRMINGHAM MEDICAL AGENCY
93, HALL ROAD, HANDSWORTH, BIRMINGHAM

TELEGRAMS: "Locum, Birmingham." TELEPHONE: 191, Northern, B'ham.

Transfers of Practices and Partnerships arranged
Accounts Investigated & Income-tax Returns prepared
"LOCUMS" AND ASSISTANTS SUPPLIED.

Established 1860.

MR. HERBERT NEEDES,

Regent 4838. **199, PICCADILLY, W.**

For List of Practices and Partnerships see last and next week's issue.

TEMPERANCE ASSOCIATION OF MALE NURSES LTD.

FEMALE NURSES ASSOCIATION.

24, NOTTINGHAM STREET, Nottingham Place, LONDON, W.

Telegrams: "GENTLEST, LONDON." *[All Nurses Insured against Accidents.]* **Telephone: 5969 MAYFAIR.**

Superior Trained Nurses (Male and Female) for Medical, Surgical, Mental, Travelling, and all Cases. Nurses reside on the premises, and are always ready for urgent calls, day or night.

TERMS £2 2- to £3 3/- **M. J. QUINLAN, Secretary.**

TEMPERANCE MALE NURSES LTD CO-OPERATION.

LONDON: 43, NEW CAVENDISH STREET, W.
MANCHESTER: 176, OXFORD ROAD.
GLASGOW: 28, WINDSOR TERRACE.
DUBLIN: 47, MESPIL ROAD.

TELEGRAMS:
Tactear, London.
Tactear, Manchester.
Surgical, Glasgow.
Tactear, Dublin.

TELEPHONES:
London: 1277 Mayfair
Manchester, 5213 Central.
Glasgow, 477 Central.
Dublin, 531 Ballsbridge

Superior trained Male Nurses for Medical, Surgical, Mental, Dipsomania, Travelling and all cases. Nurses reside on the premises, and are always ready for urgent calls, Day or Night. Skilled Masseurs and good Valet Attendants supplied. All Nurses insured against accident.

Terms from £1 16 6.

M. D. GOLD, Secretary.

THE SCHOLASTIC, CLERICAL AND MEDICAL ASSOCIATION, LIMITED

(ESTABLISHED IN 1880 BY MR. G. B. STOCKER.)

22, CRAVEN STREET, TRAFALGAR SQUARE, W.C. 2.

Telegraphic Address, "TRIFORM, WESTRAND, LONDON." Telephone No. 1854 (GERRARD).

A Pamphlet relating to the **MEDICAL DEPARTMENT**, with the names of the **DIRECTORS** and the **MEDICAL ADVISING BOARD**, and terms, will be sent post free on application to the **General Manager, Mr. A. V. STOREY.**

PRACTICES FOR SALE.

(1) KENT.—Sound middle-class PRACTICE of £1,400 in pleasant outlying Suburb. Panel 1,000. Premium £1,250.
(2) N. MIDLANDS.—Unopposed Country PRACTICE of about £600. Panel 500. Old Manor house, with garden and paddock (5 acres). Premium 1 year's purchase. Excellent prospects.
(3) MANCHESTER.—Old-established good middle-class PRACTICE of £1,600. No Panel. Premium £1,000.
(4) LONDON, S.E.—Outlying Suburb. Very compact sound PRACTICE of over £1,700 in main residential thoroughfare. Panel 1,845. Premium £1,200.
(5) NURSING HOME.—S.W. Postal District North of Thames. Well-estab. Receipts 1916, £1,100 (working expenses £400). Inclusive prem. £250.
(6) CHESHIRE.—Residential Country Town. Practice of about £500. Panel 450. Not much mid. Excellent house. Prem. £500. Decided scope.
(7) Excellent opportunity offers to a Surgeon to acquire a SHARE in non-dispensing Practice in first-rate residential county town.
(8) LONDON E.—Sound, transferable (chiefly ready money) PRACTICE of about £500 in populous district. £300 from panel. Premium £350.
(9) CORNWALL.—Unopposed country PRACTICE of about £750. Good house and fields of 14 acres. Rent £35. Premium £600.
(10) LONDON, W.—PRACTICE of about £800 p.a. in residential suburban district. Panel over 1,500.
(11) HOME COUNTY.—Country PRACTICE in beautiful district. Receipts nearly £550, including £225 from panel. Premium £220.
(12) MID-DEVON.—Unop. country PRACTICE of £600 (inc. over £200 from panel and appts.). Steadily increasing. Small com. house. Prem. £500.
(13) LONDON, S.E.—Lucrative PRACTICE of £1,250 (chiefly cash and pan.) in outlying suburb. Pan. over 2,400. Very little night work. Prem. £950.
(14) MIDDLESEX.—PRACTICE of £630 p.a. in rapidly developing district. Panel 1,000. Premium one year's purchase, on easy terms.
(15) LONDON, W.C.—Cash PRACTICE about £800 p.a. No mids. Panel 1,000, steadily increasing. Prem. one year's purchase. Great scope.
(16) MIDLANDS.—DEATH VACANCY. PRACTICE of about £1,000 p.a. (half from panel) in Country Town. Excellent prospects.
(17) NORFOLK.—Country Town, with good, up-to-date Cottage Hospital. PRACTICE of over £1,300. Panel 950. Premium one year's purchase.
(18) LANCS.—Few miles from Coast. Country Town PRACTICE of nearly £1,000 p.a. Fees 5s. to £1 1s. Panel 600. Easy terms of purchase.
(19) N. DEVON.—Country PRACTICE of over £500 p.a. Comfortable roomy house. Rent £32.
(20) LANCS.—Bright Manufac. Town. Old-estab. good-class PRACTICE. Rects. 1916, £1,637. No panel. Pleasant house, residential district. Prem. £800.
(21) ESSEX.—Middle and working-class PRACTICE in populous Suburban district. Receipts £1,250. Panel about 1,600. Premium £950.

Numerous other Practices, full details of which will be sent gratis on application.

NO CHARGE TO PURCHASERS. ASSISTANTS AND LOCUM TENENS SUPPLIED. ARBITRATIONS, &c.

RESIDENT PATIENTS INTRODUCED.

MALE NURSES

TEMPERANCE CO-OPERATION LTD.

MALE NURSES (TEMPERANCE) CO-OPERATION LTD. TOTAL ABSTINENCE THE OLDEST ESTABLISHED

London — 10, THAYER STREET, MANCHESTER SQUARE, W.
Birmingham — 75, HAGLEY ROAD.
Manchester — 237, BRUNSWICK STREET (Facing Owens College.)
Edinburgh — 7, TORPHICHEN STREET.

Trained Male Nurses and Valet Attendants for Mental, Medical, Travelling, and all cases.

TERMS from £2 2/- to £3 3/-.

W. WALSHE, *Secretary.*

All Nurses fully Insured against Accidents.

Telegrams { "Assuaged, London." "Assuaged, Birmingham." "Assuaged, Manchester." "Assuaged, Edinburgh." }

Telephones { (London): 538 Paddington. (Birmingham): 2106 Midland. (Manchester): 4699 Central. (Edinburgh): 2715 Central. }

DR. J. FIELD HALL,

(FIELDHALL LIMITED)

MEDICAL TRANSFER AGENT,

12, Craven Street, Strand, W.C. 2.

Telephone: 4667 GERRARD.
Telegrams: "FIELDHALL, WESTRAND-LONDON."

1. LONDON, EAST.—PANEL PRACTICE producing over £750 per annum. Private practice in addition worth about £200. Could easily be worked as a "Lock-up." Eight-roomed house: rent £50. Premium £750, payable £300 cash, and balance by arrangement.
2. MIDDLESEX.—Well-established PRACTICE in growing town. Present income £630, with prospect of large increase in immediate future. Slight opposition, and very low expenses. Convenient and well-situated house. Premium one year's purchase. Reasonable terms of payment.
3. PARTNERSHIP in good mixed Practice, situated in residential suburb of North London. A One-third Share offered, with option to purchase up to one-half later. The income for 1916 amounted to nearly £2,000. Panel of about 1,400. Very light expenses. Lowest fee 1s. 6d. Small convenient house, with 4 bedrooms, garden. Rent £35. Premium one year's purchase, part by arrangement.
4. PARTNERSHIP in rapidly increasing better working-class Practice, situated in outlying suburb of London East. A One-third or One-half Share for disposal. Income about £2,700. Panel of well over 2,000. Choice of houses at rents from £40–£50 p.a. Part of premium can be paid by instalments.
5. DORSET.—Old established unopposed PRACTICE, in favourite locality. Income well over £900. Visits 2s. 6d. to 7s. 6d. Large house and garden: rent £60. Sport of all kinds. Premium one year's purchase.
6. DEVON.—Small unopposed PRACTICE, in charming seaside resort. Income about £300. Good house, with 2 reception, 10 bedrooms; good garden: rent £35. Very suitable for resident patients. Premium £100.
7. WITHIN 100 MILES of LONDON.—UNOPPOSED Village PRACTICE. Very easily worked. Income last year £830. Good house, with every modern convenience. Rent £32. Premium £800.
8. DEVONSHIRE.—A HALF-SHARE PARTNERSHIP is offered in an old established Practice situated in a good residential town. Income £1,400. Panel of over 1,500. Suitable house available.

MR. J. C. NEEDES,

(P. W. Needes. F. B. Needes)

Medical Partnership and Conveyancing Agency,

1, ADAM STREET, ADELPHI, W.C. 2.

Telegrams: "Acquirement, London."
Telephone: Gerrard 3543.

This Agency (which has been established and conducted at the above address since 1875) undertakes the Sale of Practices, the Introduction of Partners, Valuations, Investigations on behalf of Purchasers, the supply of trustworthy Locum Tenens and Assistants, and every other description of Medical Agency business.

N.B.—No charge made to purchasers.

1. PARTNERSHIP.—An active gentleman can succeed to the Third Share of a large panel and middle-class Practice worth about £1,000 a year, situated in an important town in the S.-W. of England. Further particulars on application.
2. PARTNERSHIP.—HOME COUNTY.—Partner required in old-established Practice worth £1,500 to £1,600 a year (including Union and 1,250 panel patients) in a pleasant country town. Patients all classes from paupers to people of title. Minimum visiting fees 3s. 35 Midwifery cases yearly. Third Share for sale to commence with. Premium 1 year's purchase.
3. LONDON (within a mile of Oxford Street).—Good-class PRACTICE without mid., estimated to be worth at least £1,500 a year, including several influential appts. believed to be transferable. Rent £100. Premium £1,000. Successor should have some knowledge of the French language.
4. INDIA.—Season PRACTICE (April to Oct.) in Hill Station and Health Resort. Cash receipts for last season over £1,400. Excell. climate, good society, games and sport of every kind. Consultations 12s. 6d., visits £1 1s. No dispensing. Prem. £600.
5. WITHIN 15 miles of London, old-established PRACTICE about £1,000 a year, including two good (transferable) appointments, and 600 panel patients. Visits 3s. 6d. to £1 1s. Midwifery discouraged, only about 25 cases yearly at 3 guineas and upwards. Excellent detached house, with large garden, tennis lawn, garage, &c. Opposition weak. Fast train service. Premium £800.
6. WEST MIDLANDS.—In an extremely pretty district within 10 miles of a county town, a very old-established country PRACTICE averaging £750 p.a., including union and panel. No opposition within 4 miles. Excellent house, every convenience (Gas, &c.), large garden, &c. Premium £650. Ill-health sole cause for disposal.

Apply to J. C. NEEDES, 1, Adam St., Adelphi, W.C. 2.

THE

MANCHESTER CLERICAL, MEDICAL AND SCHOLASTIC ASSOCIATION, LTD.

The oldest MEDICAL Agency in Manchester.

8, KING STREET.

Telegraphic Address: "STUDENT, MANCHESTER."
TRANSFERS and PARTNERSHIPS arranged, and Investigations, Valuations, &c., undertaken.

ASSISTANTS & LOCUM TENENS SUPPLIED.
PRACTICES for sale. Particulars on application.

PEACOCK & HADLEY,

[ESTABLISHED 1868],

MEDICAL TRANSFER AGENTS,

19, Craven Street, Strand, W.C. 2.

Telegrams: Herbaria. Westrand—London.
Telephone: Central 1112.

LOCUM TENENS (reliable and capable gentlemen) provided at short notice for Town or Country.

Particulars of Practices and Partnerships for Sale sent on application.

ESTABLISHED 1875.

MR. PERCIVAL TURNER,

4, ADAM STREET, STRAND, LONDON, W.C. 2.

Telegrams: "*Epsomian, London.*"
Telephone: **Gerrard 399.**
After Office Hours—Epsom 695.

Every description of AGENCY and ACCOUNTANCY work undertaken.

FOR DISPOSAL several PRACTICES and PARTNERSHIPS in town and country. Full details free to applicants on stating their requirements.

COVERS FOR BINDING Vols. I. & II. of the BRITISH MEDICAL JOURNAL for 1915 and 1916 can be had, price 2s.; by parcel post 2s. 4d. each. Remittances must accompany all orders. Apply at the office, 429, Strand, W.C.

THE FRENCH NATURAL MINERAL WATER

VICHY-CÉLESTINS



Property of the
FRENCH GOVERNMENT

DISORDERS OF THE LIVER, GOUT,
DIABETES, RHEUMATISM. GRAVEL. &c.

VICHY-ETAT PASTILLES
Two or three Pastilles after each meal facilitate digestion.

CAUTION.—Each bottle from the STATE SPRINGS bears a neck label with the word "VICHY-ETAT" and the name of the Wholesale Agents:—

INGRAM & ROYLE, Limited,
Bangor Wharf, 45, Belvedere Road, London, S.E.
AND AT LIVERPOOL AND BRISTOL.

ERGOAPIOL (Smith)

For
AMENORRHEA
DYSMENORRHEA
MENORRHAGIA
METRORRHAGIA
ETC.

ERGOAPIOL (Smith) is supplied only in packages containing twenty capsules.

DOSE: One to two capsules three or four times a day.

SAMPLES and LITERATURE SENT ON REQUEST.

MARTIN H. SMITH COMPANY, New York, N.Y., U.S.A.
SOLE BRITISH AGENTS:
T. CHRISTY & CO., OLD SWAN LANE, LONDON, E.C.

ALLIANCE DRUG AND CHEMICAL CO.

34, Leadenhall St., London, E.C.
Established 1812—Reorganised 1902.

The Company specializes in providing the Medical profession at ***the lowest possible*** *inclusive prices (no charge for Bottles, &c., or Cases, &c.) with pure and reliable Drugs, Chemicals, Pharmaceutical Preparations, Compressed Tablets, Pills, Surgical Dressings, and Stock Mixtures of approved Formulæ as used by the London and other Hospitals.*

We append a few sample prices for guidance of the great saving that can be effected, and in many instances our Clients have written us stating we have saved them

40 per cent.

of their usual Yearly Account for Drugs. This saving is not reflected in the quality of our Goods, but is primarily due to not employing ***TRAVELLERS,*** *thus saving the purchaser the* **cost** *of the Travellers' Salaries and expenses which greatly enhance the prices the usual Drug Houses have to charge.*

NOTE.—Only Terms Net Cash with order without discount, or orders received through London Merchants or Bankers. Goods carriage forward. All packages free. Export cases extra.

OUR DETAILED PRICE LIST WILL BE SENT ON RECEIPT OF A PROFESSIONAL CARD.

INFUSIONS CONCENTRATED
1-7 in 6lb. Bottles.

Aurant @ 1/10 lb.	Gentian @ 1/4 lb.
Aurant Co. @ 1/8 lb.	Rhei @ 1/10 lb.
Columbæ @ 1/3 lb.	Senegæ @ 2/8 lb.
Cinchon Acid @ 1/11 lb.	

Lassars Paste, 14 lbs. @ 1/5 lb.; 1 lb. @ 1/8 lb.
*Lin. Belladon. Meth., 5 lbs. @ 8/8; 1 lb. @ 9/- lb.
*Liq. Æther Nitros (Sp. Ether Nit. Substitute) 7 lb. @ 2/1 lb.
*Liq. Ammon. Acet. Conc. (1-7), 6 lb. @ 1/4 lb.
" " Aromat., 6 lbs. @ 11d. lb.
Morph. Hydrochlor. P.B., 1 oz. @ 16/- oz.
Petroleum Jelly Flav. P.B., 7 lbs. @ 7½d. lb.

PILLS TASTELESS COATED.

Potass. Iodid. P.B., 3 lbs @ 13/3 per lb.
Soda Sulphas Feathery cryst., 7 lbs. @ 3d. lb.
Sp. Æther Nit. P.B., 4½ lbs. @ 4/9 lb.; 1 lb. @ 5/2.
Sp. Amon. Aromat. P.B., 5 lbs. @ 4/- lb.
Syr. Cascara Aromat. P.B, 6 lbs. @ 2/- lb.
" Glycero-Phosph. Co., 6 lbs. @ 2/8 lb.

SYRUPS.

Aurant, P.B., 7 lbs. @ 1/1 lb.
Easton, B.P., 7 lbs. @ 1/3½ lb.
Ferri Iodid. P.B., 7 lbs. @ 1/7½ lb.
Ferri Phosph. Co., 7 lbs. @ 8d. lb.
Hypophosph. Co., B.P.C., 7 lbs. @ 1/1½
Pruni Virg., B.P., 8 lbs. @ 10d. lb.
Rhamni, 7 lbs. @ 1/1 lb.
Rhei, P.B. 7 lbs. @ 11d. lb.
Scillæ, P.B., 7 lbs. @ 7½d. lb.
Sennæ, P.B., 7 lbs. @ 1/- lb.
Tolut, P.B., 7 lbs. @ 10½d. lb.

TABLETS COMPRESSED.

	Per 1,000
Blaud's (Sugar-Coated), gr. 5	4/3
Nitroglycerini, P.B., gr. 1-50th...	3/10
Perchloride of Mercury (Coloured)	12/6
One Tablet in 1 pint of Water is equivalent to 1-1000.	
Thyroid Gland, gr. 5	9/3

We endeavour to adhere to prices quoted, but as same fluctuate from day to day, they must be considered as subject to change without notice.

*TINCTURES.
In 5-lb. Bottles.

	B.P.	Aquos.		B.P.	Aquos.
Belladon ...	5/1	1/10	Hyoscyam...	4/9	2/-
Benzoin ...	5/1	—	Nucis Vom.	3/10	1/4
Camph. Co.	3/5	1/5	Opii	6/7	5/-
Card. Co. ...	2/9½	1/1	Quin. Amon.	3/6	—
Gentian Co.	2/7	1/1	Rhei Co. ...	2/7	1/1

Ung. Acid Boric Flav., 28 lb. pail @ 8d. lb.
" Hydarg. P.B., 7 lbs. @ 3/8 lb.; 1 lb., 3/10
" " Ammon. P.B., 7 lbs. @ 1/9 lb.
" Ichtamolis B.P.C., 7 lbs @ 4/6 lb.
" Zinci Ox. P.B., 7 lbs @ 1/8 lb.
Vin. Ipecac. P.B., 5 lbs @ 2/3 lb.

*Minimum quantity at these prices: Home Trade 3, Export 12 Winchester Quarts assorted.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

"BACTEROL"

Trade — *Mark*

THE MOST EFFICIENT ANTISEPTIC AND GERMICIDE.

Non-Toxic, Non-Irritating, Non-Staining, Non-Corrosive, Non-Greasy, Deodorant.

IN SURGERY & MEDICINE, USE THE MEDICAL TYPE.

"BACTEROL" (Medical) is a preparation based upon infusions of Eucalyptus and Alpine Peppermint, combined with Formaldehyde and Iodine, and prepared and modified by special processes at a high temperature.

"BACTEROL" is a perfectly stable and neutral product of a non-poisonous, non-caustic, non-corrosive, and non-irritating character. It promotes granulation, and its use quickly produces perfect asepsis. "BACTEROL" is in a class by itself, and can be used in every condition. It unites the advantages of all antiseptics, bactericides, and deodorants in current use, but is entirely free from their objections, while it possesses many advantages entirely its own.

Owing to its high concentration, "BACTEROL" is very economical in use, and when working with solutions of 1 in 1,000 or 1 in 500 its cost is almost negligible.

ISSUED in 2-oz. bottles - price 2/3
„ 4-oz. „ - „ 4/-

IN HOUSEHOLD & SICK-ROOM, USE THE GENERAL TYPE.

"BACTEROL" (General) effectively sterilizes surgical instruments without detriment to their edge or polish. It has no injurious effect upon vulcanite, horn, rubber, or in fact any substance. It sterilizes the hands of Surgeons, Nurses, &c., without roughening the skin.

Owing to its non-poisonous and other advantageous characteristics, "BACTEROL" may be freely employed with great benefit in cases where the use of ordinary disinfectants is highly objectionable; being non-corrosive and non-irritating, it may be advantageously used in the sick-room for the patient's bathing and washing operations, the disinfection of linen, dressings, bowls, &c.

For Institutional use "BACTEROL" (General) is ideal. It is a "favourite" with Nurses as it does not roughen the skin.

ISSUED in 10-oz. bottles - price 2/-
„ 40-oz. „ - „ 6/-

Samples and Literature on Application.

Manufactured by Bacterol Ltd., London, N.

MENLEY & JAMES Ltd., MANUFACTURING CHEMISTS, Menley House, Farringdon Road, London, E.C.



Gamage Tyres

Give you { MOST MILES AT LEAST COST.

TIP-TOP QUALITY

GAMAGE TYRES.

Size.	Ribbed Square Tread.	Steel-studded Non-skid.	TUBES.
	£ s. d.	£ s. d.	s. d.
650 × 65 mm.	1 16 0	2 18 6	11 0
700 × 80 mm.	—	—	—
700 × 85 mm.	2 1 3	3 13 0	—
710 × 90 mm.	3 0 3	4 1 6	17 3
760 × 90 mm.	3 5 9	4 7 3	18 0
810 × 90 mm.	3 8 3	4 14 0	19 6
815 × 105 mm.	4 16 0	6 6 9	27 3
875 × 105 mm.	5 3 6	6 16 0	28 3
760 × 100 mm.	3 19 3	5 7 6	22 6
810 × 100 mm.	4 5 3	5 18 9	24 0
765 × 105 mm.	4 10 0	5 18 0	25 0
815 × 120 mm.	6 2 0	7 6 9	—
820 × 120 mm.	5 14 9	7 0 9	31 9
880 × 120 mm.	6 4 3	7 13 3	34 6
820 × 135 mm.	6 10 6	8 15 9	—
920 × 120 mm.	—	8 0 9	30 0
895 × 135 mm.	7 0 3	9 18 0	38 3
935 × 135 mm.	7 8 0	10 8 0	41 0
GAMAGE TYRES TO FIT FORD CARS.			
30 × 3 inches...	2 5 0	3 17 6	14 3
30 × 3½ „	3 12 6	4 16 3	20 3



Gamage's New Pattern Non-skid Cover— Combination Rubber and Steel Studs.

"Going to Re-Tire? Try GAMAGES."

All Makes of Tyres in Stock: Dunlop, Goodrich, Beldam, Goodyear, Michelin, &c. If disappointed elsewhere, come to Gamage's.

A. W. GAMAGE, Ltd., Holborn, London, E.C.

In Convalescence from

Wounds,
Operations,
Nerve-shock,
Enteric Fever,
Dysentery,

prescribe

ANGIER'S EMULSION

PETROLEUM WITH HYPOPHOSPHITES

In this remedy you have an agent that will heal intestinal lesions, correct perverted metabolic action, promote absorption, assimilation, nutrition, and restore tone to all the digestive functions. The creation of appetite and the return of normal digestion is quickly brought about by its regular use.

The Emulsion is particularly useful where convalescence is retarded by minor nerve complications. Under its use, patients suffer less from sleeplessness, are less inclined to be low spirited or melancholic, and general progress is more satisfactory.

An absolutely perfect Emulsion, it is presented in a form pleasing to the taste and acceptable to the most fastidious. Moreover, its good effects are accomplished in a safe and natural manner without entailing extra work upon the weak or overburdened system.

FREE SAMPLES TO THE MEDICAL PROFESSION.

THE ANGIER CHEMICAL CO., Limited,
86, CLERKENWELL ROAD, LONDON, E.C.

Printed and published by the British Medical Association at their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of Middlesex.

UNIVERSITY OF ILLINOIS LIBRARY

HECKMAN
BINDERY INC.
NOV 96
Bound-To-Please® N. MANCHESTER, INDIANA 46962

UNIVERSITY OF ILLINOIS-URBANA
3 0112 005641599